# Top 20% Documents from All Topics

## Topic 1

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undescribable. Here is a young man standing with a rifle pointing right at me. And I look at him, he had sunglasses on, I couldn't see his eyes, I couldn't see his soul. I froze. My first concern was what's with Lori? Where did that noise come from? What's happened to Lori? And as soon as I did that, I took a look, and more shots came running right at me. And I lifted up my hands. I lost my index finger on this hand. After four hours of surgery yesterday trying to save the index finger on the left hand. I turn around and I saw the children that were playing in the banquet hall. I ran to gather them together. My granddaughter 4 1/2 years old sees her grandpa with a bleeding hand and she sees me screaming and shouting, get out, get out. She didn't deserve to see her grandfather like this. And I walk into the lobby and I see Lori laying on the floor unconscious. And her dear husband, Dr. Howard Kaye, who is like a brother to me, is trying to resuscitate her, and he faints. And he's laying there on the floor next to his wife. And then the daughter Hannah comes out screaming, Daddy, Mommy, what's going on? And it's just the most heart-wrenching sight I could have seen. I was frozen in time. I grabbed a prayer shawl, wrapped my arm, my fingers with it, that was just hanging, dangling and bleeding all over the place. My congregation was gathered outside here. And I said, I got to do something. I got up on a chair right here and I looked at our congregation and I said, we are a Jewish nation that will stand tall. We will not let anyone or anything take us down. Terrorism like this will not take us down. Lori took the bullet for all of us. She died to protect all of us. She didn't deserve to die. She is such a kind, sweethearted, just a good human being. She didn't deserve to do die in front of my eyes. I was the last one to see her and to be with her. But I do know that this is Lori. This is her legacy. And her legacy will continue. (END VIDEO CLIP) CABRERA: The suspect is in custody charged with murder and attempted murder. The rabbi said Kaye jumped between him and the gunman when she was killed. We turn now to CNN's Sara Sidner who is in Poway. And Sara, I know you have members of one family who survived this shooting. SARA SIDNER, CNN NATIONAL CORRESPONDENT: Yes, this is the Dahan family. This is Leon, this is Noya and this is Lior, and this is their Israel. You all were there, 5 1/2, 8 1/2 and 9 1/2, and we won't tell your age but you're 32 I think you told me, yes. ISRAEL DAHAN, 8-YEAR-OLD DAUGHTER HIT BY SHRAPNEL: Yes. SIDNER: Thirty-two, you're a father of five. He was inside of this synagogue as were the girls when all of this happened. Tell me what you have been talking about with your girls as far as safety because I did have a conversation with Noya and she says, I don't feel safe. I don't know how to feel safe now. DAHAN: It's hard to explain this type of age all the kids how to be really safe. I mean, keep in mind you don't want to put them inside a box that you are not going to let them out or not going to let them go to a friend's. [20:05:07] It's going to take some time to explain, to really explain how they can be safe and where they can be safe in the situation where we are at right now. And we're that we will be able to resolve it and to recover from what they've been seeing. SIDNER: Lior, tell me what happened. What did you see and what are you comfortable sharing with us today? LIOR DAHAN, SHOOTING WITNESS: All the kids were outside and we were playing. And then all of a sudden we hear -- we hear like shooting. And we were all very, very scared. So my uncle, Almog Peretz, he came and he took us down to the rabbi's house. And -- SIDNER: So your uncle scooped up all the kids he could get and helped them? He saved them? L. DAHAN: Yes. And he saved us with -- when the person shoot him in the leg. And he was -- he saved a lot of kids. SIDNER: Where were you, Lior, when this started happening? L. DAHAN: We were outside on the playground. SIDNER: And where were you, Noya? NOYA DAHAN, SHOOTING SURVIVOR: I was more like inside, but I was actually right next to the door to -- for the playground where the outside is. And as she said, my parents or uncle, he actually saved a couple of kids. And he actually did save me because he got the shot, like someone shot him instead of shooting me. Even though I got a little shrapnel but I didn't get hit too bad. SIDNER: Tell me where you got hit with shrapnel. N. DAHAN: So I got like below my knee, and then it went back to my back leg, and then I got here in my eye. It's -- you can probably see it. And there used to be shrapnel here, but then it moved, like some are here. SIDNER: So it went into your skin and stayed there and you had to go to the hospital as well. Can you tell me -- you talked to me earlier about safety. How do you feel now? You're standing right outside of the synagogue. Do you feel safe? Do you think you're ever going to feel safe again? N. DAHAN: I don't know. I can't answer that question. But I see right now like all the things like the flowers and all those things, and because of Lori, and I don't know how to answer that question. SIDNER: What about you, Lior? How are you feeling today? L. DAHAN: Scared. But I will still be showing up in the synagogue because it's a holy place and we're safe there. And we always believe that we'll be safe and that nothing will happen, and even if it will happen we'll be safe and everything is going to be OK. SIDNER: You lost a dear friend. Tell me about your friend Lori. I. DAHAN: Lori, actually I've known Lori for the last three years. And it's really hard to say about her things because usually in the conversation she was the one talking. And she was the one that hugging and she was the one that kissing. And just -- just loving everybody. Always happy. Always talking. She was laughing always, saying some stories from the past week, what she's planning to do next week. And I know her husband personally. And I know it's been -- it's going to be a hard time for them. It's really hard for us, that we lose this type of person in our community. I hope that community will stay strong and will pick up the pieces. And I believe and I trust Rabbi Goldstein that he's going to connect all the pieces back and he will put all this community back. And I hope that enough Jewish and non-Jewish people see me now and we are please calling everybody on Saturday and Friday night this coming week, come to our synagogue and feel just the holy that's in this place, and be with us and support us because we don't and we cannot let this place down. SIDNER: I want to ask you, why did you move to Poway in the first place? I. DAHAN: We basically moved to Poway in the first place because we had some hate crimes, swastika has been sprayed in our garage. SIDNER: Here in California? I. DAHAN: Here in San Diego, in Mira Mesa area. And actually it was the same holiday. It was the same Passover about four years ago. [20:10:06] It was I believe -- I don't remember really. I believe it was the first night of Passover and we decided to move from there and to go to a quiet neighborhood with bigger Jewish community. And I met Rabbi Goldstein, one of my friend met me, he introduced Rabbi Goldstein to me. And I really fell in love with this person. I really, really fell in love with Rabbi Goldstein. SIDNER: So you come here at the behest of someone who says please come join us. We are afraid where we are now because of anti- Semitism. You show up here, and what do you see in this synagogue? I. DAHAN: A war. It's looking and it sounds like a war. I don't want to even go back to those couple of men that we were sitting there. I've been in the synagogue right now again not a long time ago, and I've seen the area where I'm sitting, and I've seen the rounds that hit the separation in between the men and the female. And that's exactly was my direction when I ran out. SIDNER: You saw him. What did he look like? What did he have on? What was he doing? I. DAHAN: He actually looked like exactly the same as in the media. He was a big white male. If I remember well, he has glasses on him, sunglasses, with a hat. He has a magazine all over his body and a long gun. It's just terrible memories. Just I hope that he's going to get arrested for the rest of his life. SIDNER: I want to lastly ask you, Noya, you've been so brave and you have too as well, Lior. Tell me what you hope for your future and what you want people to know about you and your family. N. DAHAN: I want them to know that the world isn't supposed to be like this. It's supposed to be peaceful and quiet and not like wars and bad stuff. It's supposed to be like people communicating and being nice to each other. But unfortunately it's not like that. SIDNER: You have raised some beautiful kids who have said some wonderful things. And I'm so thankful that you are all here and that you are all OK. I really, really hope that you guys are able to heal. I. DAHAN: Thank you very much. I appreciate it. SIDNER: Thank you. And that is just one story of one family who has gone through a heck of a lot, really gone through hell here in Poway. CABRERA: Sara, give that family a gigantic hug from all of us here. What a strong family. Thank you for sharing their story. We'll be right back. [20:17:35] CABRERA: The mayor of Poway, California, says that as horrific as yesterday's synagogue shooting was, things could have been even worse. He says his community learned valuable lessons from the massacre at Pittsburgh Tree of Life synagogue last October specifically about how to deal with an active shooter. Sadly this new attack reopens those six-month-old wounds for so many Jewish people in America, including Rabbi Alvin Berkun who served as the Tree of Life's rabbi for 23 years and continued to pray there for many more years, and he joins us now. Rabbi, I can't even begin to imagine how you are feeling today, another deadly shooting at a synagogue and on the last day of Passover. Tell me where you were and what went through your mind when you heard about Poway. RABBI ALVIN BERKUN, RABBI EMERITUS AT THE TREE OF LIFE: It was really an unbelievable reaction on my part. Partly because for years and years and years I preached about the wonderful nation, I still believe it, that we live in where the freedom remains, but to have six months almost to the day, another shooting at another synagogue leaves me totally incredulous. CABRERA: You presided over the funerals for the victims of the Tree of Life shooting. What would you say to the congregants of Chabad Poway as they prepare now to attend the funeral for one of their own Lori Kaye. BERKUN: I think the entire Jewish world, frankly, and all people of goodwill are stunned beyond belief. Clearly this is unacceptable behavior. And I hope to God I will never have to sit for such an interview again. CABRERA: No kidding. What kind of words of comfort might you be able to offer them in how they get through this? BERKUN: Well, you know, the situation in Pittsburgh six months ago was one where frankly I was on my way to the synagogue to be a worshiper. I always sat in the last row. And my wife said, I don't feel well, please stay home, and that saved my life. Everybody who sat around the area where I sat was killed. I officiated, as you said, seven funerals in five days. And it's clearly a trauma that is virtually not to be understood. CABRERA: Rabbi Yisroel Goldstein spoke a short time ago. His feelings understandably so raw. Listen to this. (BEGIN VIDEO CLIP) GOLDSTEIN: And I walked into the lobby and I see Lori laying on the floor unconscious. And her dear husband, Dr. Howard Kaye, who is like a brother to me, is trying to resuscitate her, and he faints. [20:20:08] And he's laying there on the floor next to his wife. And then their daughter Hannah comes out screaming, Daddy, Mommy, what's going on? And it's just the most heart-wrenching sight I could have seen. I got up on a chair right there and I looked at our congregation, and I said, we are a Jewish nation that will stand tall. We'll not let anyone or anything take us down. Terrorism like this will not take us down. (END VIDEO CLIP) CABRERA: Here he has just witnessed the death of a dear friend, he's dealing with his own physical pain, and shock. He still has the presence of mind to take care of everyone else. How does this affect you? BERKUN: Well, we talked, we are part of the people that have survived thousands of years of persecution. I once actually gave a sermon many decades ago where I said let's get rid of all the defense agencies in Jewish life. Because anti-Semitism is now gone. Boy, was I ever wrong. I've been proved wrong these last months. It's just -- and it's not just here. It's also Europe and really around the world. Anti-Semitism is skyrocketing. Something that I never thought I would see in my lifetime. CABRERA: Why? Why is that do you think? Why can't we move forward? BERKUN: You know, I recently read a book by Professor Lipstadt of Emory University. She compared anti-Semitism to like a herpes, a virus. And sometimes, you know, it plays a lower role, sometimes higher role, you really cannot eradicate it. And I'm sorry to say that I think that's my feeling about anti-Semitism that people who harbor it cannot be talked out of their position. CABRERA: Rabbi Alvin Berkun, I appreciate your thoughts. Thank you for joining us. BERKUN: You're welcome. CABRERA: We'll be right back. [20:26:06] CABRERA: The suspect in that deadly shooting inside a California synagogue has been charged now facing one count of murder in the first degree and three counts of attempted murder. Investigators believe the 19-year-old suspect acted alone and they say he is not part of an organized group. Detectives also served several search warrants. They processed the crime scene at the synagogue as well as the suspect's residence in San Diego and his car. I want to bring in CNN law enforcement analyst Josh Campbell, a former FBI supervisory special agent. And Josh, talk to us about this investigation now into the weapon because the suspect is 19 years old and California prohibits the sale of certain weapons to people under 21. JOSH CAMPBELL, CNN LAW ENFORCEMENT ANALYST: That's right. Law enforcement officers will be going back to look at how this person got his hands on the weapon, tracing that back, which is now unfortunately a standardized process. Whenever law enforcement officers recover a weapon, they can look at the serial number, they can again trace that back to the point of sale. And again that will tell us how the person got his hands on that weapon. That's only one aspect of the case right now. There are so many others as you talk about the forensics. You talk about this person's communication. But as you mentioned, how did this person get his hands on a weapon of war. That's going to be a key question for law enforcement. CABRERA: There's also a question about whether the suspect might be responsible for a fire at a mosque in nearby Escondido. How might that factor into that investigation? CAMPBELL: Yes. So that was just about a month ago here in California where authorities believe that there was an arson at a mosque and from what we're hearing from law enforcement officials, there was this manifesto and some type of electronic communication that has led them to believe that that might be connected -- connecting this person to that attack as well, so that will obviously be something that they're looking into. I think what it really shows us is that, you know, you look at this person, if it turns out that he was responsible for both, he's basically targeting people indiscriminately, not focusing on a particular religion, but looking at people that are others, that are nonwhite, that are non-European which is obviously comes at the crux of what the issue is here that we're not having a national conversation about. It's this white nationalism, this hatred, this vitriol that continues to fester. And, you know, I have to say, and it just gets so exhausting as you and I have covered so many of these. Law enforcement can only do so much to solve a case. Once they get the facts, they determine what happened, now what? It's up -- we need national leadership. We need our elected officials to stand up and say this is an issue similar to what we saw with international terrorism where they threw resources, they threw money at the problem. We had national leadership. We are just not seeing that yet. So pardon me for going off a tangent there but it just gets so tiring covering these over and over. CABRERA: Yes. CAMPBELL: And once law enforcement does its job, we seem to move on. CABRERA: There is still the question, though, about what can be done to prevent, and are there places where law enforcement could perhaps interfere in preventing one of these? The biggest clue right now sounds like this open letter the suspect posted online talking about his plan to kill Jewish people. This was on a forum called 8chan we're learning. Are officials monitoring this kind of chatter? And if they are, what can they do in responding to this kind of talk happening online? CAMPBELL: Yes, you hit on it. It's these online forums where this hatred continues to fester, where people can sit there and communicate with each other around the world domestically without ever having to show their face. And again this hatred builds and builds and you have people that are essentially, you know, getting each other to go along with certain, you know, persuasions here where you say, OK, we hate people, and it continues and continues and continues, and they actually will inspire them to act with violence as we saw here. And so it's incumbent upon law enforcement to monitor these forums which we know that they do, but again it comes down to that leadership, it comes down to resources. Law enforcement can look at threats and dedicate resources, allocate personnel based on the threats that they see. It comes down to, again, our elected officials saying, you know, this is an issue for us, this is a priority we're going to dedicate resources, and we just haven't seen that. CABRERA: All right. Josh Campbell, I appreciate it. Thank you. CAMPBELL: Thanks, Ana. CABRERA: Coming up top officials reportedly warned not to talk to the president about election security. Is the White House leaving the country vulnerable to a 2020 attack? [20:30:00] I'll ask Former Homeland Security Secretary, Michael Chertoff, next. CABRERA: It was like pulling teeth. That is how one U.S. official describes attempts to get the White House, to focus on securing future elections against Russia. But apparently, President Trump didn't want to hear about it. CNN has learned that the Department of Homeland Security tried, for months, to sound the alarm and set up cabinet level meetings on election security. But according to the New York Times, Acting Chief of Staff Mick Mulvaney told then-DHS Secretary Kirstjen Nielsen, it wasn't a great subject and should be kept below Trump's level. So, the requests were rejected. Nielsen is now gone. And Russia's attacks have continued. Earlier, I spoke to the Former Secretary of Homeland Security under President George W. Bush, Michael Chertoff, about the ongoing threat. (BEGIN VIDEOTAPE) CABRERA: Mr. Secretary, it's great to have you with us, thank you for being here. The President had long seen talk of Russian election interference, as delegitimizing his victory. Here he is. DONALD TRUMP, PRESIDENT OF THE UNITED STATES: It's a total witch hunt. It's a Democrat hoax. They have this witch hunt. That was a Democrat hoax. It's a witch hunt. Phony witch hunt. It was a hoax. It's like a witch hunt. It's like a witch hunt. This is a hoax. The witch hunt continues. I call it the Russian hoax. The witch hunt, as I call it. (END VIDEOTAPE) [20:35:03] CABRERA: Secretary, if you could speak to him right now, what would you tell him? MICHAEL CHERTOFF, SECRETARY OF HOMELAND SECURITY UNDER PRESIDENT GEORGE W. BUSH: I would say, at this point, 2016 us over, he got elected. What we ought to focus on is 2020 and the health of our democracy. And, you know, when people meddle with elections, you can never be sure who they're going to favor or disfavor, so it's in everybody's interest in democracy to make sure we are securing our elections, so the American people decide and not somebody sitting in St. Petersburg, Russia. CABRERA: Do you think the President understands the gravity of this? CHERTOFF: Well, I can't -- I can't read his mind. But I will tell y that whether you're dealing with the Intelligence Community, or people at Homeland Security, Senior officials across the board, understand that the Russians have now, for years, been interfering with our electoral process, more broadly, trying to undermine our social cohesiveness. They've done it not only in the U.S, they've done it in other parts of the world as well, and there is no reason to believe this is going to stop. In fact, it's going to intensify. CABRERA: In the report that we got from the Special Counsel's office, Robert Mueller, confirms Russia had interfered. He called it in a sweeping and systematic fashion. And yet, just days later, we heard this from White House Senior Adviser and the President's son-in-law, Jared Kushner, downplaying it. Take a listen. JARED KUSHNER, SENIOR ADVISER OF THE WHITE HOUSE: You look at, you know, what Russia did, you know, buying some Facebook ads to try to (INAUDIBLE) and do it, and it's a terrible thing, but I think the investigations and all of the speculation that's happened for the last two years has had a much harsher impact on our democracy than a couple of Facebook ads. CABRERA: A couple of Facebook ads. Give us a reality check on this. CHERTOFF: Yes, this was -- the reality here is this was, in fact, as the Mueller report says, a sweeping effort. It involved not only social media and conventional media. It involved actually sending agents into the United States, like an episode of the old T.V. show, The Americans, to actually subvert and ferment demonstrations, and to get Americans to actually carry out some of the dirty work. So, this was something which was designed as a comprehensive plan to create social disorder, in fact, to try to in sight some violence, as well as to affect the election itself. CABRERA: So, we have to understand what happened in order to get a handle on what needs to be done going forward, and yet, we know our adversaries aren't slowing down. They are looking for new ways to infiltrate. And one area of concern that you've pointed to, in your writings, has to do with deepfakes, videos that use Artificial Intelligence to make it look like anyone is saying anything at any time. Here's just one notable, albeit, profane example. BARACK OBAMA, FORMER PRESIDENT OF THE UNITED STATES: President Trump is a total and complete [BLEEP]. Now, you see, I would never say these things, at least, not in a public address, but someone else would, someone like Jordan Peele. CABRERA: Mr. Secretary, how do you even begin to combat that? CHERTOFF: Well, this is a serious emerging concern. And as this technology perfects itself, the ability of a human being to be able to see that there's something off about the video, is going to wind up no longer be sufficient. So, we're looking at a couple of different things, we are looking at are there ways to watermark or authenticate real videos, so that the absence of that kind of a watermark would be a tip off that you've got a fake, alternatively, can we use Artificial Intelligence almost in a microscopic level to look at characteristics of a video that would indicate lack of authenticity? It might be the lighting, it might be facial mannerisms. And, right now, as part of a Transatlantic Commission on Election Integrity I'm co-chairing. We actually have technical researchers looking at this issue. The scary thing is this, if we get to the point that in the days before an election, someone could put out a completely fabricated video that is, in fact, meant to undermine the election. Could we communicate the truth, in sufficient time, to neutralize it? (END VIDEOTAPE) CABRERA: My thanks to Former Secretary of DHS Michael Chertoff. Coming up, the power struggle at the highest ranks of the NRA, their president is out, amid allegations he was trying to extort the man known nationally as the public face of their group. A live report, next. [20:40:00] (COMMERCIAL BREAK) CABRERA: Turmoil is brewing inside one of the country's most influential groups, the NRA. On a leadership front, Oliver North has announced he will be stepping down as NRA president and not serve a second term. This comes as the New York Attorney General's office says it will open an investigation. A gun safety group says the probe is into the NRA's tax exempt status. Now, CNN Correspondent Polo Sandoval is joining us now. Polo, let's start with this shakeup at the top. What do we know about what has caused this decision? POLO SANDOVAL: Well, I can tell you tomorrow will be a big day for the National Rifle Association, as they will move to nominate and eventually elect their new president. This will be yet another face of this organization that wields some tremendous lobbying power in Washington, particularly when it comes to guns here. And I say, other face, because, of course, it's commonly known, particularly here, at their annual meeting that Wayne LaPierre is actually the man who, of course, calls the shots behind the organization. However, I should mention that -- as you just said a little while ago, there has certainly have been some dark clouds looming over this year's meeting. For one, that internal power struggle between LaPierre and Lieutenant Colonel Oliver North, who just yesterday, the building you see behind me, announced his potential resignation, or his actual resignation here, as they seek to find a replacement. Some of that according to various reporting, of course, is because of what he believes is financial mismanagement. And there's also that widespread reporting about that financial mismanagement including allegations that some of the executives of the organization have been, essentially, taken away hundreds of millions of dollars from the non- profit's budget. [20:45:08] Here is what, at least, one member of the NRA had to say about what he would like to see changed at the top. (BEGIN VIDEO CLIP) SANDOVAL: Do you feel that that's a crisis more of, sort of, internal turmoil among some of the brass, or do you think it's the financial mismanagement which he described in this letter, or neither? ERIC BALLMAN, NRA MEMBER: It would be obviously combination of both. You're going to have because of somebody's opinion on a certain event or series of events, there could be some of those questions especially in the senior leadership in those internal meetings that you don't always get to be privy to what's going on and behind the scenes. But, so, it could be a combination of both of those and just making sure that it is working for the right direction and money is being spent correctly and in the right means. (END VIDEO CLIP) SANDOVAL: So, addition to what North describes as a crisis and addition to these allegations, there is also what you mentioned there, this announcement of the New York State Attorney General announcing an investigation into the National Rifle Association's non-profit status, according to outgoing NRA president, Oliver North. Its status could potentially be threatened here. So, it's important to keep in mind that this is an organization that usually used to fighting off with the outside sources that may challenge its pro-gun agenda. Not necessarily used to the current in- fighting that it's seeing inside of it. CABRERA: All right. Polo Sandoval, thank you for that update. Coming up, President Trump set to visit the U.K. as a guest of the Queen. Now, only if he had had a palace to stay in? We'll explain. [20:50:00] (COMMERCIAL BREAK) CABRERA: Tea and crumpets with the Queen? President Trump is crossing the pond in June for his first official state visit to the United Kingdom, but he won't be staying at Buckingham Palace. CNN's Max Foster explains why. (BEGIN VIDEOTAPE) MAX FOSTER, CNN INTERNATIONAL CORRESPONDENT: From a royal on a guard, to a state lunch and formal evening banquet at Buckingham Palace. President Trump, expecting to get quite the greeting when he arrives in the United Kingdom in June, for the first official state visit to the country, but he won't be staying at Buckingham Palace, as is traditional for heads of state. Apparently, the 775-room palace doesn't have enough space because parts are being refurbished. It's, likely, protesters will rain on Trump's parade. The giant baby Trump blimp brought out during the President's much more casual visit last July, could make another appearance. Once again, President Trump will meet with the Queen. Last time, in breach of diplomatic protocol, he briefly walked aimlessly in front of the Queen, whilst inspecting the royal guard. And the world will be waiting and watching to see if President Trump's relationship with British Prime Minister Theresa May, continues to be extra special. We've seen the two, close, the last few times they've been together. Max Foster, CNN, Buckingham Palace, London. (END VIDEOTAPE) [20:55:00] (COMMERCIAL BREAK) CABRERA: Money, power, and prayer. On tonight's season four premiere of "UNITED SHADES OF AMERICA," host W. Kamau Bell showcases Texas, the birthplace of megachurches. (BEGIN VIDEOTAPE) EMILY JOY, POET AND ACTIVIST: There were a lot of lights and fog machines and, you know, little orders that everybody had to follow. It was also like my entire social life because we were home-schooled, and so we didn't have school friends. So, being a part of a church community that was so large, gave us the opportunity to make lots of friends. WALTER KAMAU BELL, CNN HOST, UNITED SHADES OF AMERICA: When I think about church, in my life, I think about my grandmother specifically. EMILY JOY: Yes. BELL: It wasn't just this thing that happened on Sunday. It was a thing you touched into all week. And it's also a way for people to check in with you regularly, they knew you were going to be at church, if you weren't at church, and they had to go find out what was going on with you, you know. EMILY JOY: And then somebody would text you, and you're like, oh, I have a community that cares where I'm at. BELL: With my grandmother, it wasn't texts. They'd just stop by her house. EMILY JOY: Yes. It's this all-encompassing thing. It's so important for so many people. And so, when you -- when it betrays you, you almost feel like your whole life is having the rug ripped out from under you. BELL: Yes. EMILY JOY: You know? CABRERA: The host of "UNITED SHADES OF AMERICA," W. Kamau Bell, joins us now. Kamau, at the beginning of this episode you said you were a little suspicious, maybe wary of megachurches. What'd you think by the end? BELL: I mean, you know, not all megachurches are created equally. I think, the thing, by the end -- the episode talks a lot about the separation of church and state which I think, you know, we like to think that we're founded on even though there's lots of church and state mixing at the high level of politics. But the story Emily Joy tells there is about how because we don't have a lot of direct oversight of churches, a lot of dangerous things can happen. She was talking about how

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CARLY FIORINA, HEWLETT-PACKARD -- conservative in the White House matters, because a president, in order to fix what ails us must restore our constitutional balance of power. (APPLAUSE) Our entrenched political system, our system of crony capitalism now, it works if you're a big company, but it doesn't work if you're a small company. It works if you're wealthy or powerful or well-connected like Donald Trump or Hillary Clinton, just as a for example, but it doesn't work for the rest of us. Ours was intended to be a citizen government, and now we must restore, and a president Ted Cruz will restore. (APPLAUSE) . power back where it belongs in the hands of citizens, and communities, and the states of this great nation. (APPLAUSE) What is at stake now is the future of our nation, the potential of our nation. Will this be a nation where every American regardless of their circumstances, has the opportunity that comes from their god-given gifts? Will we be one nation indivisible, under God, with liberty and justice for all or not? Our country is being taken away from us by the elite, by the crony capitalists, by the special interests that have captured both parties. They want to take away. They are taking away, not only what we treasure about this nation, but what has made this nation great; what has made this nation a place of possibility for so many people. My fellow Americans, people of Indiana, it is time we must take our country back. (APPLAUSE) This -- this is the fight of our time. And I believe Ted Cruz is the man to lead that fight. And I am prepared to stand by his side and give this everything I have, to restore the soul of our party, to defeat Donald Trump, to defeat Hillary Clinton, and to take our country back. (APPLAUSE) And so, my fellow citizens, you must stand with us. You must fight with us. We must restore the potential of this nation. We must restore what has made this nation great for so many people, regardless of their circumstances. So the possibilities of this nation, the opportunity of this nation, the rights and liberties of this nation can extend to every American. Ladies and gentlemen, this is the fight of our times; Ted Cruz is the man to lead that fight. I will stand proudly by his side. I want to you stand with us as we fight. Ladies and gentlemen, please welcome back the next president of the United States, Ted Cruz. (APPLAUSE) (END VIDEO CLIP) DANA PERINO, "THE FIVE" CO- This is a Fox News alert. Ted Cruz is making an unconventional move, announcing Carly Fiorina as his vice presidential pick before even securing the GOP nomination. Hello, everyone. I'm Dana Perino and this is "The Five." And we are going to get right to it. I don't even get to introduce all my co-hosts, but they're here, Kimberly, Juan, Eric and Greg; because it's in his contract that he gets introduced. KIMBERLY GUILFOYLE, "THE FIVE" CO- Thank you. (LAUGHTER) Joking, joking. So we were covered Kimberly. We are here last night. Yeah. We were here -- well, we are here this morning. We're alive. That's why we love doing that show. Tales from the crypt. And now we have a new topic, that's why we're in the news business, right, something always new. What do you make of this news by Ted Cruz today? Some seeing it as a little bit of unprecedented or unconventional. I'm sure some people are super excited about it. I mean, Carly Fiorina, I like her very much, she's smart, she's talented, highly capable and a great role model for conservative women and someone who can definitely take on, you know, Hillary Clinton. I'm sure there's people clicking their heels and clapping their hands, super excited, but it's almost like, wait a second, did I miss a couple of weeks, or a couple of months, and this is what's happening at the convention, right? So it's definitely putting the cart in front of the horse, that's for sure. But I thought it all went well. The singing freaked me out a little bit. It was a little -- In case you didn't hear, there was a little. Unusual. . singing at the beginning of the speech. Yeah. Just a little children of the corn, but I don't know. (LAUGHTER) That was -- that was the only part, you know. President Obama can sing quite well. I will (inaudible). Well, she can -- and she can deliver a very good speech and. She can. She was outstanding. . well-liked by conservatives. And Eric -- She's been helpful to him. If you want to change the subject, I guess this is the way, and if Indiana is in fact Cruz's Alamo, then you play the cards that you have. And this one probably was his best card to play. ERIC BOLLING, "THE FIVE" CO- Yeah. I understand why Carly said yes to this -- I get that, that's -- it's great for her. But, boy, what a desperation move it feels like for Ted Cruz to do this on the heels of the other desperation move of -- Yeah. "Hey, let's team up with Kasich," that didn't seem to work. This seems like another desperation. Who picks a vice presidential nominee or candidate when you just lose six races in a row. In a row. . and get slaughtered six times in a row. It just seems like he's trying to pull anything out just to hold on to maybe hold onto Indiana and who knows, that doesn't mean Ted Cruz would keep Carly Fiorina as his vice president nominated -- nominee if he were to earn the nomination, but it didn't look like it's happening. Look, Jeb Bush bowed out with class. Rand Paul bowed out with class. Marco Rubio bowed out with class. It's probably time for Ted Cruz to do the same. Well, he's not going to do that. So he's saying, in this move, I think Greg is saying we're trying to win a majority here. And they still think that if they can win in Indiana, that they can deny Donald Trump getting to that 1237, and if they could bring the party together somehow. GREG GUTFELD, "THE FIVE" CO- There is a way from to do this, but the media cycle is like a leprechaun, everybody is trying to capture it, while Donald Trump is on every network eating their lucky charms. Lucky charms. Well done my friend. Easy. But it's like the stunts, and they are stunts, because we've seen a lot of them, they're forcing people's hands. So they're obvious -- they're sometimes making choices that they don't have to make. It's like buying something because it's on sale. And I think that's what kind of it feels like now. And registering for a wedding gift when you're not getting married, you know, it's not that it seems a little bit premature. Except if you know it's probably bound to happen any minute. Well, I mean, he's -- it is wishful thinking. But I will say this, she is a good choice -- for all the reasons you mentioned, and for a couple that you didn't, which I've always been talking about which is, I think she's the strongest person when it comes to cyber warfare, artificial intelligence, which I'm obsessed with, and technology married to terror. This is somebody that in any administration you should grab and take her brain, because I really do think she probably is on top of this stuff more than anybody. So I think that's valuable. Can I -- can I. Yeah. . maybe suggest two others that maybe even more valuable? Uh-huh. Susana Martinez. Yeah. . and Nikki Haley. Yeah. But you're not going to get two sitting governors latching on to a campaign that right now cannot become the nominee unless something goes on. That will be bad for them. . at the convention. Juan, let's get your take on it. JUAN WILLIAMS, "THE FIVE" CO- But well -- . from different point of view. And by the way, why would you say that about Ted Cruz? I mean -- Which part? You said that he would ditch her the minute that he had -- He could. Oh, I don't think that -- But -- That's -- I mean I don't know where you get that from, because I think he's a man of his word, he said that's his vice presidential pick. (CROSSTALK) You're on the trust Ted bandwagon? Well no, but I'm just saying. I thought that, you know, gosh, if, you know, you saw Donald Trump say, "This is my nominee." I wouldn't come out and immediately say I doubt him. I think he's, you know, I just, I just think you know what, you got to trust people at some level. And I think this is his moment. This is his move, let's give it some celebration. But I will say I agree with you that when it comes to like someone like Susanna Martinez, Nikki Haley, Joni Ernst, these are republican women that I think really have political experience. I think they would be a tremendous addition to any GOP ticket. You like them. I do like them. You do. I said that I -- They're insiders. But -- People insiders. But they never yes onto a Cruz. I don't know. . offer, at this point. But let me just say this is quite different than Sarah Palin. Now see, I think Sarah Palin is the model for this kind of push where you know, 53 percent of voters in 2012. Guess what, they were women. Obama won and I think it was plus 11 over Romney. So you got to make a move there. Now obviously, Donald Trump has a big problem with women. So that's why Ted Cruz decides, hey, I'm going to bring out a strong, conservative woman with a track record in terms of his -- And also the woman that was targeted by him when he denigrated her looks, but -- And also on the merits. I think she stands up as a good vice presidential choice. And by all accounts, they get along very well. And remember, she was a keynote speaker at CPAC, and she talked about the importance of constitutional conservatism of which, I think she and Ted Cruz align very well that way. I don't think it's just the woman part. And they've been working well together as -- and she (inaudible) for him like you said Indiana. I think that they -- they'll be able to split up in the state, and because she can get a crowd on her own -- Yeah. So they'll be able to cover a lot more ground. I admit that it's like a last-minute. Yes. . desperation moves. (CROSSTALK) But not a bad one to play. And Juan points out John McCain picked Sarah Palin. You know what the date of that was? That was actually -- December. It was August. September, August? Late August? August. August -- (CROSSTALK) Right, right. That he went there and he was already the nominee. And he knew he had two things to cover, he had to cover the woman vote. Right. . and make he closed that gap a little bit, and also that he could be non-establishment outsider type. And so that's what Sarah Palin -- She was the governor. What does Carly bring that Ted doesn't already have, though? That Ted doesn't have? Yeah. Well, obviously -- Because that's what you do -- No, no. Remember, this is something Greg said that kind of swallow it up. Gender and business experience. But she has been the target of Trump slurring her and calling, you know, it's the thing about her face, she had to fire back. So this represent as segment of republicans who don't like Donald Trump, and she strongly conservative. She -- nobody is doubting Carly Fiorina's strength as a businesswoman and as a conservative. (CROSSTALK) Nor am I -- I'm sorry, Greg. Nor am I doubting her strengths as a businesswoman. I don't know about her conservatism. But I just think there -- look, the names I mentioned, Nikki Haley and Susana Martinez would be so much better for Ted Cruz. But she's -- Why? Planned Parenthood. But why? Why did you say that? Strong -- seated governors brings the female vote. Susana Martinez brings the Latin-American vote as well. There are lot of things that -- they bring that Carly doesn't. So we just went through six months being told that we don't want governors as presidents, now we want them as candidates? I think Cruz learned from the master, he learned from Donald Trump. You take -- when something happens that could hurt you, you have a major announcement the following day, it's your Alka-Seltzer to that hangover. And I thought it was, you know, it -- you know, we never really questioned when Donald does it. We question him now. I thought it was a smart decision, but I do feel that, you know, it was definitely done because he had a bad night. Do we have time for this sound bite? OK, Donald Trump did comment on it earlier today. Let's listen to him. (BEGIN VIDEO CLIP) DONALD TRUMP, PRESIDENTIAL I think it hurts him. First of all, he shouldn't be naming anybody, because he doesn't even have a chance, all right? He doesn't have a chance. He's millions of votes behind. He's got no path to victory and he's naming a vice presidential candidate. I guess that's cute. I think that it's not going to help him at all and he shouldn't be naming anybody now, it looks like -- BRIAN KILMEADE, "FOX AND FRIENDS" CO- Right. To me it looks ridiculous. He's not going to get the nomination. (END VIDEO CLIP) One of the things I that I thought he could have done to say, look, Carly Fiorina would be on anybody's short list. And we just leave it that instead, we get more ridiculous. But to bring up her height? (LAUGHTER) Yeah. You'll be on the shortlist too, don't worry. I just want in everybody's shortlist. Oh, yeah. I know. Look, I thought that at least he didn't call names or say anything bad, you know. He said OK -- (LAUGHTER) This is not -- Your bar is so low, Kimberly. (LAUGHTER) Just like when I -- You didn't make fun of her face. Little privacy. . so there's progress. No, but it's just don't -- you can't denigrate. That's why you cannot say anything. You have to say with Dana saying that she will be on anyone's short list. She's, you know, strength to the conservative party, proud, you know, conservative woman, you know, a role model. Those are the types of things you should say that are true. Let me just say -- And you want to unite. If you're certain that you're the presumptive nominee, then you take that opportunity to build the tent and try and bring everybody in. Because you know, the world is listening. And wasn't it wonderfully effective? The news cycle, we're giving it live coverage here. Obviously, we're not talking Donald Trump. We're focusing -- We're about to. And I will say this, though, from a democrat's point of view, she has some liabilities, the Planned Parenthood video gaffe that she did. A lot of people questioned her business record. We'll back her up on that. Yeah. I don't think that was -- We'll be back her up on that. I'm just telling you, that's a week. Conservatives will back her up on it. I don't think it would. And we are going to talk about Donald Trump next, he's doing a town hall with Greta tonight at 7:00 p.m. eastern. So make sure you tune in to "On the Record." And Ted Cruz and his running mate (inaudible) Carly Fiorina joins Megyn Kelly on "The Kelly File" at 9:00 p.m., that's tonight on the Fox News Channel. Ahead, Trump gave his first big foreign policy address. He said he's not changing, but he is starting to show a more presidential side. Is he? You decide, next. Donald Trump cleaned up last night in the I-95 primary of five northeast states. Today, the GOP front-runner delivered his long awaited foreign policy speech. Trump likely wanting to look presidential, took to the podium, said directly in front of a series of American flags. Trump read from the teleprompter, something he's only done a handful of times. The speech hit on a wide array of foreign policy topics including Israel, ISIS, our missile defense program, and even touching on North Korea and China. Then Trump took some shots at the current POTUS. (BEGIN VIDEO CLIP) My foreign policy will always put the interests of the American people and American security above all else. It has to be first, it has to be. That will be the foundation of every single decision that I will make. If President Obama's goal had been to weaken America, he could not have done a better job. The legacy of the Obama/Clinton interventions will be weakness confusion and disarray -- a mess. We've made the Middle East more unstable and chaotic than ever before. (END VIDEO CLIP) And many of Trump's supporters are drawn to the businessman because he talks a tough game for America and here's some of that tough talk. (BEGIN VIDEO CLIP) I will not hesitate to deploy military force when there is no alternative. But if America fights, it must only fight to win. I will never send our finest into battle unless necessary. And I mean absolutely necessary. And will only do so if we have a plan for victory with a capital V. (END VIDEO CLIP) OK, KG, a lot of people who don't like Trump said he wasn't specific enough. But you pointed out a specific -- you picked something of specific in that last -- Yeah, because he said that he would only engage in military intervention, military action when, you know, absolutely necessary. In other means available. I think that's an important distinction for a nation that is also concerned and war-weary. And then he coupled to that and followed it up with the point that he would only go and win and have victory versus make a half-hearted commitment like we saw with the lack of status of forces agreement, which ended up squandering victories in places where we had stabilized regions, only to see them torn asunder, because we didn't have the proper support in there, to keep them stabilize in the aftermath. And that's I think a significant thing that people who have, you know, knowledge of the region say that that is integral, important, and must be included if you're to have success (inaudible). Dana, did he hit on the topics you wanted to hear? Was he in-depth enough? Well, I thought it was interesting that they build as that -- when this series of speeches was announced, it said that he's going to get real deep on ways on policies, so you you're gonna know a lot more about what he would do. And then they pulled that back this morning, so we'll wait there's not going to be details. And I don't think that you can actually give details in a foreign policy speech until you are president. You can talk about your knowledge or your approach. And I think a lot of what he said today will be popular with some people, because they want a mix of -- I call isolationism and a pull-back and making sure that America is first in line, which I actually think the most presidents agree with that. I think there were some contradictions in the speech. So if you are in the foreign policy world and you're looking at this speech and say, how can you say that when you said this in 2003. I don't think that necessarily will matter to his supporters. I do think that there was one thing today that I thought was unfortunate. We don't have the tape for it, but I'm sure you can find it. And it's just a mild criticism of the White House. So Donald Trump gave a speech today with the teleprompter, that's unusual for him. There was, I think a couple of words that he said that were maybe mispronounced, and like one of them being Tanzania. Who cares, OK? But at the White House today and when asked about it, the press secretary went ahead and took a whack at Donald Trump from the podium. And I just think, you know, there's a Democratic National Committee that exists to go ahead and be that person, that the White House podium is not necessary the place for it. And I think it's a dangerous road to go down, to have President Obama, who will campaign heavily for Hillary Clinton, I get that. I just think that Americans who are at large would be better off if the White House stayed out of it. Hmm, very good. Yeah -- (CROSSTALK) Yeah. Do we want to make fun of somebody who use as teleprompter in front of fifth graders? And Juan -- I mean, if I don't think -- Especially when the guy you are working for thought there were 57 states -- Right, and the pronunciation of Corpsman? Corpsman. Remember? Remember the Corpsman? Or the Corpsman. I mean, it's like -- that it's a dangerous road to go down. I would just encourage everybody not to do that from the White House. Greg, after the speech, Ambassador Bolton, who is well-respected guy around here, Fox contributor. Great mustache. Great mustache -- also on the Gutfeld show quite of. Yes. He used to be the "Red Eye" ambassador. Say you like him on one of the things in the speech. There was, you know, it's -- I'll -- there was some good things -- there was some actually some great things and then not so great things. I'll start with the -- because I -- it was good, but not good enough for me, because I am a jerk. And as a jerk you always have to be hypercritical, because you want more. The things that I felt that it were all over the place on was Libya, Iraq and Syria. It is -- as an isolationist is saying, we didn't do enough, and Syria is a contradiction. Libya, he was for going in and getting rid of Gaddafi and now he says it's a mess and he wanted the first Bush to go in and get Saddam, but not the second Bush. So there is a lot of hypocrisy there, but there were few first here that, you know, if I have heard months ago, I would have been on the Trump train shortlist, waving a flag and wearing the red hat. He mentioned the video. He mentioned who of the video that Benghazi was blamed for. That's a first to put that, put that kind of impact up there. He -- not only called out radical Islam, he compared it to the gold -- the cold war. And that is something that we've been talking about for a long time, and I think that's really important, because to me, it is as bad as the cold war, and as communism. And him saying that, that's very important, and putting that as a priority over climate change is incredibly important. He mentioned cyber warfare, artificial intelligence and national missile defense, this is important. I just want more of that. And I want a lot of it. He did say false song of globalism, which I don't think he wrote. And I didn't like it. All right. Hey, Juan, what about the -- He's not John Kerry, which is good. What about the -- And he just mentioned robots. The teleprompter. Yes. As -- I listened to the speech. I just like him when he adlibs -- you know what, you can do bullet points. I didn't like the reading of the teleprompter. (CROSSTALK) Do you know what? Can I say something? Yeah. It reminded me of a sports car on a governor. You know, when you put a limit. Yeah. It's like he -- He wants to go. He wants to go, but this -- he's not allowed to because of the prompter. Yes. Wait. You know, I don't have any problem with teleprompters, most politicians use teleprompters. But I think that with Donald Trump, it's contrary to the spirit of Donald Trump, which is that he's spontaneous, he says what comes to his mind, it's like stream of consciousness, and at times it's quite entertaining. He's very good. . before AIPAC. And today, there was almost -- I would agree with Greg, like there was something limiting like you couldn't feel the horse, you know, really get into his stretch. I will say this, he says unpredictable. I'm not telling you what I want to do, because I want to be -- well, wait a second, what we do know about Donald Trump is, he says, let's get out of NATO, you know, nuclear weapons -- (CROSSTALK) And Korea. Oh let's, you know, we should stop helping them out. What about, you know, when he says, oh let's build that wall. Mexico will pay for it. We don't like trade. So he is at a deficit. He goes into this trying to explain all the reckless things that he said before and the Clinton camp comes out and says just that. So you can say, oh he's an isolationist. He didn't mean it, he's reading from a teleprompter. But he scares a lot of people. You know, can I add one more thing, and I promise I'll shut up. I will never promise that. Isn't it amazing how people with similar beliefs see him so differently? Like Ann Coulter said, it was the best speech since George Washington. What? Yes. That's what she said. And Andrew C. McCarthy, a few respect for. And they have a lot in common said it was incoherent. It's just interesting how people look at Trump and if they see something completely opposite from people that they actually agree with. All right. I want to leave it there. As Hillary Clinton been playing the woman card to win votes, Trump thinks so. They went after one another on that subject late last night at the victory speeches, and we'll have both of those, coming up. Has the general election battle begun? Hillary Clinton and Donald Trump went at it last night over the so-called woman card. (BEGIN VIDEO CLIP) HILLARY CLINTON (D), PRESIDENTIAL Mr. Trump accused me of playing the, quote, "woman card." Well, if fighting for women's health care and paid family leave and equal pay is playing the woman card, then deal me in. DONALD TRUMP (R), PRESIDENTIAL I think the only card she has is the woman's card. She's got nothing else going. And frankly, if Hillary Clinton were a man, I don't think she'd get 5 percent of the vote. The only thing she's got going is the woman's card. And the beautiful thing is, women don't like her. (END VIDEO CLIP) Are you reading your notes? Yes. We've got a surprise. Something great for him to say; it's really cool. All right. Both candidates have struggled in the past with female voters, but that all changed last night. Because according to FOX News exit polling in three states, Trump won 55 percent of the female vote in Connecticut, 54 percent in Pennsylvania, and 50 percent in Maryland. Clinton fared even better with women in those same states: 57, 60 and 68 percent. This match-up, Greg? Oh, no. This -- America is going to be looking forward to this debate if they become the nominees. This is Fraser/Ali. It's Holyfield/Tyson. It's Jay-Z/Beyonce. But -- it's actually... Wait, who's Jay-Z and... But this could be pay-per-view. Not that I'm saying it should. You doesn't want to give Donald any ideas. But it's -- it's one of those things, you know, when you're walking down the street, and there's the Super Bowl. And you can hear people yelling and screaming in bars. That's how big this is going to be. By the way, about this whole issue, this gender issue: women are harder on women than men are on women. Research -- research that drives feminists nuts is that women prefer male bosses. There are studies that show that. Women are not as obsessed with gender issues as their -- as women politicians and activists want you to believe. and it's sexist to think that women aren't interested in national security. It's sexist to think they're not interested in borders or any of the larger issues that aren't just pertaining to some kind of mythical claim about wage inequality. All righty, then. OK. So... Sorry. What do you think about the polling numbers, Eric, in terms of did much better with women than traditionally we've seen in some of the polling. And that has been an area of discussion and concern. Yes. And that seems to be the trend. Earlier he was doing worse. In the last couple of races, it seems to be solidifying a little bit. Can I push back on... Jay-Z/Beyonce? No, the one before that. Ali/Fraser? Ali/Fraser? Holyfield/Tyson. Spinks/Tyson, because Tyson was -- everyone thought Tyson was going to win. Wait. You're thinking of Ali/Spinks. You're thinking of Ali/Spinks. Spinks and Tyson never fought, right? You mean Buster Douglas. Buster Douglas, yes. Right. When buster Douglas wasn't supposed to win. Yes. And no one thought he was going to win. He comes in, he was out of shape. Yes. Didn't even look like a boxer, and he beat Tyson. Yes. And everyone was like -- anyway, so that would be my analogy. Back to the numbers. You know what women care about, and these are the exit polls? Women care about jobs and the economy, No. 1 by far; and national security, No. 2. If you apply those to the two, if it's a Trump versus Hillary Clinton, jobs and the economy, one of them has -- has a proven record of creating jobs and is a successful businessperson. The other one has proven the ability to take money to put it and use it nefariously, possibly. And then national security. Does anyone really think Hillary Clinton, Hillary Clinton is going to be tougher on foreign policy, in foreign policy on foreign countries than Donald Trump when we know what happened in Libya and in Benghazi? Anyone think so? And if we do, then vote for her. Yes. I'll raise my hand. I'm sure you would. Who is more adept; who has more experience? If I said to you, who has more experience? In business, it would be Trump. No, no, no. In foreign policy. No, I said tough in foreign policy. I don't know about tough, but I want effective. I don't want to send Americans out to die for no reason. Is Hillary Clinton effective? I think, since she has a record... You can read her emails and find out. Really? I will say Trump, the most effective argument that Trump has raised so far is one that raises questions in my mind. He says she doesn't know the stamina. I'm thinking, what, does he know something about her health? There's something wrong with her? She doesn't have the stamina? I don't know. But I will say this. On the Democratic side, lots of interesting static. For example, Jane, you know -- what's his name, I'm forgetting. Sanders. Sanders's wife -- and by the way, Sanders's campaign now letting people go. Yes. I mean, pretty much that game is over. But Sanders's wife saying Clinton needs to release these paid speeches as the reason that Sanders isn't releasing additional tax stuff. Then you have Rosario Dawson raising the Monica Lewinsky thing. So I think the Democratic women, these are Clinton critics, but they're attacking her in a very intriguing way, Eric. And by the way yesterday, remember, when it comes to Republican women, Republican women, 46-50 on Trump. So he's under water with Republican women. Like, OK, SeaWorld. Thank you for that, Juan. Swim with the dolphins. All right, Dana, what do you make of the poll numbers? You've been following throughout this election primary season the exit polls pretty carefully. The numbers are a little bit better in the northeast with Republican women. But last night there was about a 10 percent turn-out in four out of those five of those states, and so Republicans haven't been able to win these northeastern states in a really long time. And if -- I think if he could, if Donald Trump could flip Pennsylvania, that would be, that's like the big pick-up. That would be a really big one for him. Huge. It's difficult when you look at the actual numbers of registered Democrats. And to Juan's point earlier, Obama won women by 11 points. And that is a significant deficit. I've always said that I don't think that Republicans should underestimate the power of women having a chance to vote for the first woman. But I also think that Democrats should not overestimate that power. And it might just equal itself out. GUI

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FIVE" CO- Live from Iowa, hello, everyone. I'm Eric Bolling along with Kimberly Guilfoyle, Juan Williams, Dana Perino and Greg Gutfeld. It's 5:00 in New York City and 4:00 p.m. here in caucus country. This is "THE FIVE." Welcome to a special Saturday edition of "THE FIVE" from Des Moines. Just two days before the first vote of the 2016 presidential race. We have another huge show for you tonight, a ton to cover on both races. But we want to show you first what we, "THE FIVE," have been up to here, some of the Iowa escapades of "THE FIVE". We're having a great time now. We're going to go down the row. Really cool stuff. And we just start with K.G. KIMBERLY GUILFOYLE, "THE FIVE" CO- OK, well I had a fantastic time today, because you know what I spent my time doing, right? I do. Eating. All right. So we are in the great state of Iowa, and nothing like a little bit of pork for the pork queen, self-appointed. There I am. I was jumping, I was, "Bacon, bacon," and they serve breakfast all with it. You know I like that too. I'm with the head Executive Chef, Dominic. And then I'm -- see this sandwich? JUAN WILLIAMS, CO-HOST, "THE FIVE": Oh my god. I actually was eating it. And ... Wow. ... it was like, worse than a Carl's Jr. commercial. It's ... GREG GUTFELD, CO-HOST, "THE FIVE": It's a size of a baby. . sticking all over my face. It like five pounds big, exactly. To eat five pounds. It felt like birth. So there we are. We became best friends. And look at that, we got bacon wraps, spare ribs. I know, Dana, you'd have been horrified. I even had bacon ... DANA PERINO, "THE FIVE", CO- No, I love it. Oh, tater tots . in my bloody Mary. Those tater tots were delicious. And this is like a little bit of Graceland. Is that bananas? Pancakes, yes, these the Elvis pancakes with the bacon, fried bananas and peanut butter syrup on top. You can see how happy I am, right? So do all the candidates make their way there? Yeah, people love to go there. It was packed when we were there. And the best part was you saw families with like five boys, all in there and they were all in. And I got some good stuff. I got the original barbecue sauce, I got a cool hat, and a great shirt. So there you have. You know, if they have any sense, they will have your picture all over that restaurant for eternity. Don't go bacon my heart. (CROSSTALK) You know, Kimberly ... Yeah. ... it's easy going in. Oh let's listen to the spot. There's more, sorry. (BEGIN VIDEO CLIP) DOMINIC LANNARELLI, JETHRO'S BBQ N' BACON BACON This is Jethro's BBQ n' Bacon Bacon. All of our famous -- world famous barbecue accented with some of our amazing bacon. These are our Elvis pancakes. They come with a half pound of extra thick cut bacon, a whole banana, and our peanut butter syrup sauce with an extra side of bacon. Our famous bacon-wrapped ribs, champion of bacon fest two years running. Oh god. Our big baby back ribs, we wrap this one in a whole slice. Smoke them for four hours and serve them with crispy fries. And feast your eyes on this. There's nothing better than a bloody Mary with a little bit of bacon in it. (END VIDEO CLIP) Wow. Wow. Oh. OK. That's a nice invention. Did you love it. It was fantastic. Here's my favorite part. So that big 5 pound sandwich, you know who's the one that holds the record for two minutes and something 30 seconds, a woman is the one that holds the record. Gretchen Carlson. Poor Gretchen. No, no, no. Yeah. Women usually win the food eating contest on "Fox & Friends," right? That is -- absolutely. And then, of course, I had to tell him that I was, you know, the chicken wing eating contest winner, so he loved that for sure. So thanks again to our buddies over there at Jethro's and to Dominic, to the head chef. Very cool. Very cool. Had lot of fun guys. All right, Dana, you had some fun today. I did, I got to go -- Greg found this amazing event that just happened that coincide with our visit. I went to the Jasper Winery. And they were having a yoga workshop with a internationally-known star in the yoga world named Max Strom. It's actually a winery in Des Moines here. They named what -- there's a cute thing, Eric, a Lucy Lane is the name of one of the bottles of wine. And Lucy was their dog that brought them together. That's me showing her a picture of Jasper, of course, because I had to get that in there. And then, I actually ended up doing the yoga beat with our very own, Tucker Carlson. I think that we have some video of that. Can you roll it? So, I hope that you can see, Tucker is there and he had to come in, in shirt and tie and his socks because he had to an event. He has a belt weight insider. Look at that. He's wearing his khakis at a yoga class. I'm telling you, I never breathe that much in, maybe, in my life. He's got to get a good job. Is he a (inaudible)? Oh my goodness. Yeah. At least his socks are clean. You know, we yeah, yeah, he had Burberry socks on, which was pretty cool. And I -- And he said, he thought he was a lot more flexible than he turned out to be. He's a great sport. I'm glad they took that angle. Yeah exactly. It's not awkward or anything. Yeah. He's not going to look at the camera. I have ... Oh my God. . some, let's see, I have some gifts for everybody. Also I think we have some still photographs of Max Strom, who wins the international yoga star. He has a new book that called "There is No App for Happiness." And I ordered that today. Greg, I got this from -- for you. It's called, "Fat Head's Red," that's Max there. Yeah. What do you mean yoga at a winery, that's like getting your teeth cleaned at a brewery. Yeah. Well, you should try it. Wait, wait, the yoga was at the winery? Yeah. Yes. We've been figuring that out ... (CROSSTALK) Where have you been? I thought she had the morning in the winery ... No. ... and then went to yoga somewhere else. No, the yoga was in the winery. (CROSSTALK) This wine is called "All-Night White". There you go. There you go. I got this one for Juan Williams. So could you see the Jasper Winery, JW? I noticed the initials, and I though, how cool, how cool. Hey Kimberly, I got you this one. You want to read it? Now, how about . What? . I don't, you want -- should I say it? Oh this is perfect, of course, yeah, "Behind the Shed Red." OK. OK. And of course, I got a Frisbee to take home to my own Jasper. What's the name -- the significance (ph) of the name Jasper? What is in Jasper, Iowa? The Jasper, it started in Jasper County. They had another place. And Katie Bradshaw is the name of the events manager. And Jodie Brenthauer, she was the -- she's a person who does yoga here in Des Moines. And she had gone to a workshop with Max (ph) and she said, "I just have to bring him here." Oh great you made it happen. Jodie Brethauer? Oh yes. Yes. (CROSSTALK) That's her. That's her right there. That's Jodie. Yes, yes. I had so much fun. I loved it. Des Moines, really, was great to me. Very good. OK, Greg, guess what? You're up. My turn, yehey. Yup. Everybody knows that I like classic cars, otherwise known as muscle cars, because I like muscles. So I like muscled cars. The interesting thing with a classic car is it has to be 20 years old. But oddly, there aren't any real classic cars after 1990 because they're so ugly. But most classic cars are the same classic cars that I loved when -- in the 1970s. I went to American Dream Machines down on I guess it was locust (ph). And Doug (ph), who is the -- I believe he was the owner, showed me around. That's a Sting Ray. That's a 1966 Roadster Big Block. It's worth about 80K. Probably the most expensive car they have there. Do we have the red Cadillac Eldorado? What's interesting about these cars is that if you like art this is -- oh, there's our little bug. I thought this would be a perfect good car for Dana or actually maybe for Bill O'Reilly. But I'd like to see him try to get a 6 foot 7 frame into that car. (OFF-MIC) That's the red tails of the Cadillac Eldorado. I thought this would be perfect for you, Eric. Wow. So huge car. I see, I thought there would be a Thunderbird, no? No, this is a -- I think there's a challenger right here. This would be a -- for Lou Dobbs, a classic car. And these are affordable. These are basically V8 Van Goghs. You know, it's art on wheels. This is the black MG Midget. This is for Dana. It's a very . Well why are you sitting in it? Because ... The car fits. I was keeping the seat warm. Terrible people. What else you got here? This is me inside the car. As you notice I am not going bald. That's an important picture for people. All right. This is my favorite car. This is the black Thunderbird 370 horse power, 1957. I think this is a perfect car for Juan. Oh. Because it's black, it's sexy, and it was born in '57. Oh my God. I wonder, I don't know about that. Yeah, go Juan. And it's yours for under $40,000. And the top goes off. Yeah, now this is the perfect car for Gretchen Carlson. It's a low rider, yellow Buick Riviera. It belonged to Keith Harris from the Black Eyed Peas. You can get this for a -- maybe $37,000, $38,000. What else you got? Is that it? There you go. This is an American Graffiti original. I think this is a '56 Chevy. The problem is, we replaced the real highway with the information highway. It's not -- nobody cares about the beauty of cars anymore. They're just not beautiful. And that's a tragedy, America. And I am out of here. That's cool. That's cool. I'm going to pick issue. I didn't get a car and Gretchen did? What's going on around here? Oh I forgot. You got the first car but they had -- they had the pictures, they moved them to ... You got a T-bird. What was it? Yeah, you get the T-bird. The T-bird. OK, good. That's a good one. (CROSSTALK) Well, so I went for a walk outside the hotel, and went immediately to get some chocolate. So I went to Thelma's chocolate shop. And I think we have video here. Here I am scooping out chocolate chip cookie dough, just great. In fact, I was thinking of Gregory's while I was doing it, you know, because I thought, this is in honor of white chocolate. Yes. Ladies love G.G. ... That's true. ... I think those sweet. You know what I mean? You know it. I was thinking of you, Gregory. So there I was at Thelma's. But, next door to Thelma's is Raygun, which is a t-shirt shop. So, in order to really celebrate "THE FIVE" here in Des Moines for this moment, as you can see, there's a sign that says, "Iowa, for some reason you have to come here to become president." But I brought t-shirts that met so many fun people, had so many front t-shirts. We made America great in the first place, that one says. All right. Thank you. All right. So, here are the shirts. Now, K.G., I'm sorry to say, you already got this shirt. My god, oh, my god. Don't go breaking my heart. It's very sweet. There you go. Wow, this is very cute. I like it. I was told I couldn't get the one that says "Not everything's flat in Iowa" for you. (CROSSTALK) OK. I thought, I'll go back to get it . (CROSSTALK) You were told not to get it but you still talks about it. (CROSSTALK) No, no, oh no. Not that -- No, my . That's why we love you, you're Juan in a million. Oh my god. All right. So, you know, I don't know if you guys know this, but this is a real baseball player. And I love baseball, I love Iowa, I love "Field of Dreams." So, I found this for my pal, Erick Bolling. "Is this heaven? No, it's Iowa." (CROSSTALK) Check it out brother Bolling. Thank you William. And then, for my America sweetheart, Dana Perino, given that she loves yoga, look at this one. It says, "Yoga in Des Moines, I'm down -- oops, I can't get straight, "I'm dog." Oh, it's cute. Now, but this is like kind of a big (inaudible). That's like Perino lingerie. Well, as that just might be what I do with it. All right. Thank you. Thank you. And then, for my ace, I got -- look at this, I know politically, this must be you'll love this, Gregory because . . oh, Bernie Sanders? It's Bernie, Bernie, Bernie, Bernie. Oh my god. Oh, look at that. Yeah. She got it up and I have a lot of white men on my chest. And for myself, I got this one. It's fantastic. Do you love it and you like it? (CROSSTALK) I'm wearing this. All right. And for myself, I got -- didn't I interview you four years ago? Anyway, whole lot of fun. Thanks for the folks (inaudible). Very nice, thank you. We like that. So cute. All right. Do you want me go to very quick. But you know what, it's good, because mine is pretty lame anyway. They all have one spread that I stayed around the hotel, there's a beautiful Des Moines River here, there's a great running track with picture. The run started this way, so we've been the next one, here's the Des Moines River out from the bridge, beautiful Des Moines River, honestly, nice running track. Can I say that I saw you running, I was in my hotel room, I look at and like there's a vision in orange. And I realize I'm like, "Oh, I think that's Eric." Nice form. . I went up and down the river, it was pretty amazing. And I bumped into that. I didn't even know this, the cubs triple a ballpark, that's the Iowa cubs right there, beautiful ballpark, gorgeous ball park, you should check it out in the summertime. Then the next one, this is called the "World Food Price". Now, I can't remember the guy's name but he won the Nobel Peace Prize for his work in solving the hunger crisis around the world with the corn production. Oh yeah. He's a famous dude but we don't know his name yet. (CROSSTALK) . he really famous, Nobel Peace on price. He wanted to do is he wanted to make Nobel add food as one of their prices. They wouldn't do it, so he made his own price and that's the building where they do all the functions and what that beautiful. Building also very quickly, there's a Capitol. I run at the Capitol, up and down those stairs, it's a gorgeous building, it's nine archers, built in 19th to 1880's or to '17s or 1870s or 1880s, absolutely gorgeous capitol. You know what, this is what you do, when you go into the town for work or visit at a town, go for a walk or a run. Spend an hour walking around. You can do, you see it from the ground level. It's amazing. And if you really want good exercise, walk in the bad part of town. One of that. Yes. Then you run. All right. Des Moines treated us well. Yes. We had a great time. So, if I will be here a couple of more days. All right. Next, with just two days before the Iowa caucus, the GOP candidates are stepping up their attacks. Cruz, now focusing his fire on Rubio, Trump doubling down on Cruz. You're going to see all of that and more when "THE FIVE" returns. An entertainer knows better than to rip a city's favorite sports team. If you're a comedian performing in Cincinnati, even your most ardent fans will hate you forever if you trash their bangles. This is the reigning mentality during primary season among voters. If you're a five or like us, you're endangered of upsetting friendly viewers who support one of seven or eight different teams. Be they Carson, Trump, Rubio or Cruz. If you compliment Rubio, Cruzer's think it's a jab at them. If you're not Trump, his fans think you're pining for Jeb. And so, after one comment, people who normally like you feel betrayed, but they shouldn't. It's a nightclub comic's risk. A fan could love every insult hurled about baggies or bald men, but when a joke hits too close to home, targeting people with freckles, suddenly that jerk isn't funny anymore. It's happening now as angst rises like steam from this Republican dog fight. Suddenly, people you've come to trust, you now believe are unfair because they knocked someone you like. My suggestion, don't take it personal. Remember, even though we all have preferences, we're all on the same team, pretty much. And then we love our Fox viewers, we can't begin to please everyone. If we tried, you'd think we were cowards and phonies and you know what, you'd be right. K.G.? Yeah. Can't we disagree but still be civil? Absolutely not. (CROSSTALK) The fight is going to be example, right? Yes. Absolutely. We can disagree here, mix it up, and during the commercial break we're laughing, and then afterwards in the bar, it's a whole other story. But yes, it's OK to be spirited passionate about who you love, who you believe and guess what, it can always change next week. That's the great opportunity, especially during caucus and primary season because it's constantly an evolving process about emotions and energy and ideas and where you kind of feel the person is like connecting with you and who you want to represent you know, the GOP or the Democrats for that matter. Speaking of them, Juan do you think that this new -- the conflict is more intense because -- is it coming from above the candidates or is it coming from below the angry voters? I think it's the angry voters. I think the populist energy is evident. I mean, it may on the Republican side it is so clear that the Republican base is divorced to the Republican establishment. And so what you get is now -- and I find this intriguing, as the Democrat sitting here, I found it intriguing that you have people challenging. Well I'm more conservative than you are. I think the party has fractured, and now the question is who has the vision to put it back together, who will be the party flag bearer in November in the big election. And I think that's really hard. You're starting to see this already in terms of the ads running here and Iowa people questioning, for example, Ted Cruz, is he conservative or not, you know, is it real, you know? You're smiling, Dana, but you know I'm telling the truth. I mean it's real. So you're saying Lyndon LaRouche could bring us together? I don't know about that. Eric ... What do you know in Lyndon LaRouche? Do you think that all these end done, let's say people have these extreme differences. Will they actually not be able to unite against one candidate? (CROSSTALK) I mean to under one candidate. Yeah they have to. And that's the big thing that I would disagree with Juan. Yes, there is this establishment versus far right conservatives that they are battling now because they want their guy or there gal, they want them to be the nominee, the pick. But ones whoever it is, whether it's Bush, Cruz, Trump, Rubio, Kasich, anyone, hopefully everybody gets behind him. If you really, really think about it, what we really want is enough of the Barack Obama eight years, we don't want another term of Barack Obama or two more terms or worse, someone who's literally might be indicted in the middle of the process for things that are even as bad as some of the other things that she's probably guilty of with Clinton Foundation. So hopefully we're unite behind everyone one person. Can I take real quick? Yeah sure. Can we talk about -- can we talk about the evolving process. That monologue started last night at the restaurant. Do you remember this? Yeah. We started to have this conversation. And somehow it evolved into an artificial intelligence conversation. And robots ... And robots. ... and Sarah Connor ... (CROSSTALK) It was because, OK so when I was had a serious conversation, we're talking about how to unify. But as I drink more, I start thinking about how artificial intelligence is going to destroy the planet, that always happens, you know, it ends there it always ends there ... I think maybe we'll be united then. Yeah, we'll be fighting the robots. Dana, do you think this season feels more scrappy, because the social networks, because there's outlets and more people coming after from all over? Yes, I think that true maybe a little bit. I absolutely agree with Eric. I think the Republican Party will be able to come together just like it did in 2012. When you don't have a clear leader like when in 2012, when the Democrats didn't even have to have a primary, remember how much that was so uncomfortable and then Newt Gingrich called Mitt Romney a liar and it just -- it was so uncomfortable. Then as soon as a leader emerged, then we could all focus on that seat. Yeah. And it was ... Why did you point at Kimberly? Juan. But I must say, so look, you know what you got, you got a question of how is the energy after the big fracus (ph). That's right, you know, the people get hurt, then they say, I'm going to stay home. No, no, no, no. It's like your brother, you're beating the crap out of him, you're fighting each other, he's hitting you, your sister is watching, she jumps in, she takes a side. And then you know what, if someone else comes in and tries to say some at your brother, you just wale on. It's done, it's done. I agree. Yes. So we will forget. We shall overcome. All right. Tell me we've got to move. I was waiting for you to put it up the tease up there. OK. The Obama administration just admitted there are e-mails on Hillary Clinton's private server that are top secret. So why does the White House think she won't be indicted? We investigate, next. The state department dropped a bomb yesterday that completely destroys Hillary Clinton's e-mail defense. Twenty two messages on her private server won't be released because, get this, they contained information so secret they can never be released to the public. Clinton, however, she's still sticking to the same story that she'd had all along. (BEGIN VIDEO CLIP) HILLARY CLINTON, (D) PRESIDENTIAL The facts have remained the same. There was never any information sent or received that was marked to classified to me. (END VIDEO CLIP) This is a very serious development amid a criminal investigation. So why is the White House so confident that Hillary won't be indicted? (BEGIN VIDEO CLIP) UNIDENTIFIED That will be a decision that is made by the Department of Justice and prosecutors over there. What I know that some officials over there has said is that she is not a target of the investigation. So, it is not -- that does not seem to be the direction that it's trending. (END VIDEO CLIP) Steve Hayes thinks there's a cover up operation for the candidate. Listen here. (BEGIN VIDEO CLIP) STEPHEN HAYES, "THE WEEKLY STANDARD" I think we're actually at the point where the White House looks like it may be involved in a cover up in this. I mean, what we heard from Josh Earnest today from the podium at the White House was extraordinary. (END VIDEO CLIP) So, K.G., I don't think -- I, actually, when I listened to that. I think that Josh Earnest is repeating things that have been reported in the press. I don't necessarily think that he was giving any new information. However, he's not being very careful. And one of the things I think that you have to ignore if you're going to believe Hillary Clinton is you have to forget that she had a home brew server that was stored in a bathroom. Right. (CROSSTALK) Remember that? What a tidy bowl moment that was? Yeah. That's the problem. You got somebody like Hillary Clinton, putting your own convenience ahead of the national security interests and protection of individuals that serve this country. Think about that, swallow it, and say, "Is that someone you want to be in the White House? That kind of a lack of care and circumspection in terms of what they're doing and keeping up people's faith? No. That's someone's that's not entitled, I think, to have that position. And now, when you have Josh Earnest saying that, it really seems interesting. I mean, perhaps, you know, there isn't a cover up. But the nevertheless, was been the talk of everybody because, well, the FBI is likely to recommend an indictment, but then it's going to be up to the Justice Department under President Obama to make a decision as to whether or not to indict. And we see this keep getting pushed back in, you know, the timeline. But this is really very relevant and real. I think people should consider it right here and now versus thinking about what could happen in the future, because I can see evidence that we know already is pretty persuasive and compelling. Her trustworthiness numbers, Eric, are bad in many of those swing states. In addition, so she says very specifically now, first in the language "There was never any information sent or received that was marked classified to me" which I think that that shows that she's willing to drive the bus to run over her staff. Right, (inaudible). Or whoever else might be in way. And other we got was get on some of those e-mails. So, look at this way for a second. And so we hear Josh Earnest talk about whether or not the FBI is going to open up an investigation or will bump the investigation to the DOJ. And that the DOJ wants to indict her, it's going to be their call, right? That's the process. Why is Josh Earnest in that train? Why is he getting involved in this? Wouldn't it be wiser for the White House just to say, "You know what, I'm going to let the legal process play itself out. If the FBI recommends it to the DOJ, and the DOJ thinks she should be indicted, they should indict her." Instead, he said, you listen to what he say, he said, "No, I don't think . Right. There's going to be . . there's going to be an investigation. What do you know, Josh? What -- and who told you? I've always felt that they should have, from day one, said there's a firewall here. We are not commenting on this at all. And that Hillary Clinton defend herself, but she is the one. (Crosstalk) . conversation with someone, that's my point. (Crosstalk) That doesn't want her to be heard during this crucial time with the Iowa causes. But someone had to say, "Hey Josh". Well, that's the next question and that's why you have to protect yourself as you're the press secretary. Greg, the Democrats actually don't seem -- this doesn't faze them at all, right? So, if it weren't for double standards, they wouldn't have any standards at all. Nicely put. You know, they've got FNC syndrome. They don't feel that they have to turn up the heat because it's a "Fox News" story. This is just like the IRS scandal, VA, Benghazi. If FNC covers it, they -- the rest of the media abdicates their responsibility because, you know, "Oh, they're doing it." But that's not going to last forever. This is an interesting thing. There's a whole chain to the e-mails there. I mean she's a lot like her husband Bill. She was debriefing dignitaries on e-mail, you know, just like he was debriefing interns in the White House. There's a whole chain of stuff going back and forth with people that shouldn't have been there. It was classified. It's wrong. And also, do not forget that they're trying to delay the release of thousands and thousands of e-mails after a primary. Right. That's essentially like pulling a fire alarm after the building has burned down. Right. That's exactly right. Hey Juan, imagine if I -- during the Valerie Plame investigation from the White House, Tony Snow or I had said that we were confident that Dick Cheney and Scooter Libby were not going to be indicted by the Justice Department. What do you think would have happened in the media? Well, I don't think it's similar. I mean, because clearly . Why? . what Josh Earnest said . There's an investigation. No. But clearly, the -- what the Department of Justice, what state has said is that Hillary Clinton is not the target of the investigation. So, he's repeating what has been publicly stated. But I'm enjoying this. I'm sitting back because I know if he talked to Democrats, they really don't care. They don't care. Do you enjoy that that they don't care? But I must say, I heard recently . Those standards. . that the "X-Files" is back on Fox. And I'm thinking, hey, the conspiracy theory is right here. I can see it live. Yes. (Crosstalk) But she think that it was the right -- but she was the one who said it was the right conspiracy. Let me just say, the best argument we heard, Ms. Kimberly Guilfoyle, the prosecutors in the House. When she said, Mrs. Clinton was acting like an entitled person, privileged, taking risks by having a private server, I said yeah, if that's the case, but there's nothing illegal there, Kimberly. No, you're wrong because, in fact, it was. Well, we have to go to the next block. But you know, cute Juan. Thanks. So, is he going to -- he trying to compliment you while like giving you the -- I hate the back ended compliment. Yeah. Just like a husband. All right, the GOP candidates are vying for the evangelical vote in Iowa. They're faced natured in a series of new campaign ads, coming up next on "THE FIVE." Welcome back to "THE FIVE," live from Iowa. Evangelical Christians will play a big role in Monday's vote here and the Republican candidates are making a direct pitch to them in some new campaign ads. Here's Marco Rubio. (BEGIN VIDEO CLIP) SEN. MARCO RUBIO (R-FL), PRESIDENTIAL I believe in God, that God has blessed America. I'm Marco Rubio. I approve of this message because it's time for a president who will put their left hand on the bible and their right hand in the air and keep their promise to uphold the constitution. It's been eight years since we've had a president willing to do that. I will. (END VIDEO CLIP) Donald Trump also brings up the bible and his faith in a new spot he put out this week. (BEGIN VIDEO CLIP) DONALD TRUMP (R), PRESIDENTIAL I really appreciate the support given to me by the Evangelicals. They've been incredible. Every poll says how well I'm doing with them. And, you know, my mother gave me this bible, this very bible, many years ago. In fact, it's her writing right here. She wrote the name and my address and it's just very special to me. And again, I want to thank the Evangelicals. I will never let you down. (END VIDEO CLIP) Dana, you know, it's something like eight and ten Republicans say religion is important to them. I think it's 60 plus percent say very important. Are these ads effective in your judgment? Well remember, these are ads are targeting people in Iowa specifically. And you think about four years ago, Rick Santorum going into this weekend was pulling at around 15 percent. But he saw what Chris Stirewalt, our digital political editor says was an open lane with Evangelicals and he drove that all weekend and he ended up winning the Iowa caucuses partly because of that. But Greg, you know, on some levels, you look at it and you think, is this pandering? Absolutely. It's complete pandering. I have a hard time watching these. And it's not because I'm not religious, it's because politicians are running ads of saying how re

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devastating. (END VIDEO CLIP) WHITFIELD: Packing winds of 150 miles per hour cyclone Pam is turning in the South Pacific. And so far at least six people have been killed and an island nation devastated. And two days after two officers are shot and injured in Ferguson, Missouri, the suspect or suspects are still at large. Police are chasing several new leads today as the manhunt continues. And is it an overblown incident or a cover up? New questions today about why two Secret Service agents are being investigated after allegations of drunken driving on White House property. You're live in the CNN Newsroom. Hello again, everyone, and thanks so much for joining me. I'm Fredricka Whitfield. Devastation and destruction today in part of the South Pacific, an island paradise has been turned into a complete disaster zone. Vanuatu was slammed by a deadly storm as powerful as a category five hurricane, and at least six people were killed and 20 injured after tropical cyclone Pam took direct aim at the capital city of Port Vila. Lynda Kinkade has more. (BEGIN VIDEOTAPE) LYNDA KINKADE, CNN CORRESPONDENT: These are the sounds of wind gusts of up to 200 miles per hour as cyclone Pam slammed into the South Pacific island of Vanuatu, endangering the lives of up to 250,000 people. CHARLIE DAMON, CARE INTERNATIONAL: It looks like absolute devastation here. And we did manage to get this afternoon to really get an idea of how that devastation is. And we're talking uprooted trees, roofs are ripped off everywhere. CHLOE MORRISON, WORLD VISION: Port Vila looks like an absolute bomb has hit it. It is devastating. I'm just been for a drive around what you can drive through because there are a lot of roads that are blocked off. Trees have fallen across in piles so high in some places you can barely see over the top. And the water is incredibly rough. And there are some villages that have been just absolutely decimated. There are local huts which are made of thatched roofs and they've been absolutely blown away. ANDREW PARKER, ACTING UNICEF CHIEF OF VANUATU: Most of us in the hotel ended up sleeping underneath the facilities in the bathroom. I've been through many cyclones including category five Larry in 2006. This was phenomenal, and it just went on and on forever. KINKADE: Pam is one of the strongest cyclones ever to hit the region. People took cover in churches and schools. The capital city to Port Vila, home to nearly a sixth of the population, suffered flooding and power cuts. At a conference in Japan Vanuatu's president said he spoke with a heavy heart as he made an appeal for international healthy. PRESIDENT BALDWIN LONSDALE, VANUATU: I'm speaking with you today with a heart that is so heavy. I do not really know what impact cyclone Pam has left on Vanuatu. DAMON: We're heading to evacuation centers and we're working with the government here to look at how can we provide the shelters and all the agencies on the ground. KINKADE: It may take weeks before the full extent of the damage is known. Lynda Kinkade, CNN. (END VIDEOTAPE) WHITFIELD: Let's bring in CNN's Tom Sater right now. TOM SATER, AMS METEOROLOGIST: It is horrible. WHITFIELD: Really devastating. SATER: Think of the damage from super storm Sandy or hurricane Katrina, Isabel, Isaac, and even Andrew down in Florida. This is stronger than all of them. And a lot of these villages don't even have a cinder block or a stone. This is crazy. I'll tell you where we are. Here is the west coast of the U.S. You can see Hawaii. We're going to slide out to the South Pacific, the Coral Sea across northern areas of Australia, warmest waters on the planet right now. This week in the World Weather Center over at CNN International we were covering four different cyclones. Cyclone, typhoon up to the north, hurricane, it's all the same. They just spin in another direction down in the south. Look at the winds speeds and notice the purple here. The strongest winds are on the east side. So that's important to note. This is still a massive storm but its' sliding away from the islands. When you look at the storm, Port Vila, this is the capital city, 50,000 live there, took a direct hit. Early on a path earlier in the week wanted to split the difference between Vanuatu and Fiji, but we started seeing a trend overland. Two islands down 1,200 people live there. It's a very strong village, large village, without one brick in the community. So they're outdoors. They are susceptible. It's a vulnerable area. Get this, storm surge 26 feet. We had winds up to 200 miles per hour, a category five equivalent strength. And this is not only the strongest to hit Vanuatu. This is the strongest that we have seen, the second strongest, I should mention, in the entire South Pacific in the history of records. Vanuatu, here is Port Vila, Fiji is on the edge of the screen here. So as we get into the area, just to give you a little indication. There are homes all along the coastline. Why not? You're in paradise. Look at the population. This is Vila Bay with the storm surge coming up from the south. There are 82 islands, about 60 are inhabited. But many locations again are thatch roofs. And it's going to take not just days. It's going to take weeks to find out the damage and get the death toll, which no doubt is going to rise because it was so strong. It is diving to the south. It's getting into cooler water now. They're watching on the north island of New Zealand. So as we keep our eye on that our thoughts are with them. First thing they have to do is they have to clear the runway. WHITFIELD: Yes, because there is no getting in there, period. Debris is everywhere. Horrible. All right, Tom, thank you so much. That was a very comprehensive, great report. Appreciate it. All right, right now police in Ferguson, Missouri are desperately trying to find the suspect who shot two officers during a protest at a Ferguson police department. Police are chasing leads, canvassing the streets, and talking to citizens. Police were fired on at the end of the Wednesday night protest and one officer was shot in the face, another in the shoulder. Let's bring in Stephanie Elam in Ferguson. So Stephanie, how are the officers who were shot? How are they doing? And where is the investigation? STEPHANIE ELAM, CNN CORRESPONDENT: So Fred, unbelievably both of those officers, even the one shot in the face, have been released from the hospital and are recovering at home. On the investigation side, though, that continues around the clock. Law enforcement is saying that they're searching for whoever is behind shooting these officers. They say that they have interviewed several people around and talked to witnesses, and they're looking for any clues to who might this be. They do not have anyone in custody at this point, but they continue to work throughout the community to see if they can pinpoint who it is and keep these conversations going to find out who is behind shooting them. At the same time, you saw out here last night there were people out here protesting. There are people out here protesting on two sides. You saw people protesting the Ferguson police department and there were also people out here who were supporting the police department, supporting law enforcement. And, also, some saying they support the mayor of Ferguson as well, James Knowles. There have been calls, though, that he should step down after this DOJ report taking a look what happens happening in Ferguson. He says, though, he's not going anywhere. This is what he told our Sara Sidner. (BEGIN VIDEO CLIP) SARA SIDNER, CNN CORRESPONDENT: Why should they trust you since you were here during all of the madness that has unfolded in the city? JAMES KNOWLES, MAYOR, FERGUSON, MISSOURI: Sure. I can tell you this. There's ways to remove me if that's the will of the people. I've stood for office five times over the last decade and won every time. This past time less than a year ago now I was unanimously, or, rather, unopposed for officer. SIDNER: So you're not going anywhere is what you're telling us? KNOWLES: Unless the residents decide to remove me. But right now that's not the indication that I get. (END VIDEO CLIP) ELAM: Now, we have heard that there are some organizations that are working to see if they can get those signatures here in Ferguson, nothing official with the city just yet. And as far as the protests out here at the police station, right now it's calm, but at night we do see people out here no matter the weather is like. They're still coming out here to protest. But what we did see last night was a conversation between law enforcement officials as well as people who were out there to protest. And many say that they do not want to be caught up with the people who are out here doing the shooting and doing the agitating. They just want to see change here in Ferguson and they do not believe that's the way that things are going to get better, Fred. WHITFIELD: Stefanie Elam, thank you so much, from Ferguson, Missouri. Next, Secretary Kerry is getting ready to face Iranian officials for talks on a nuclear deal just days after Iran's supreme leader blasted that letter from Republican senators. How Kerry says it could impact talks, next. WHITFIELD: The clock is ticking as Secretary of State John Kerry heads into the next round of nuclear talks with Iran. Kerry is trying to get a deal done by the end of the month and he's going to Switzerland tomorrow to meet with Iran's foreign minister. In Egypt today Kerry slammed the letter 47 Republican senators sent to Iran. It said any nuclear deal might not last if it doesn't have Congressional support. Iran's supreme leader also lashed out, calling the letter trickery. And today Kerry said it could become an obstacle. (BEGIN VIDEO CLIP) JOHN KERRY, SECRETARY OF STATE: We have heard some comments from the supreme leader regarding the letter that was sent by the 47 senators. And until I engage in those conversations, I cannot gauge on a personal level that reaction, though I can tell you from common sense that when the United States Senate sends a letter such as 47 senators chose to send the other day, it is a direct interference. (END VIDEO CLIP) WHITFIELD: I'm joined now by Stephen Collinson, a senior reporter for CNN Politics. So Stephen, good to see you. Could this letter really have a significant impact on negotiations? STEPHEN COLLINSON, CNN POLITICS SENIOR REPORTER: Yes, I think it could, because it could affect the concessions that Iran's negotiators are prepared to make in the talks in Switzerland that John Kerry will be attending tomorrow. You know, there's this clear opposition to the deal in Congress, and if you are in the position of an Iranian negotiator, you might think that this deal has possibly not gotten much chance of surviving beyond the presidency of Barack Obama, that when a new president, possibly a Republican, comes in in 2017 that this deal could die. So I think it could affect the concessions Iran is prepared to make, or the Iranian negotiators could give the impression they believe the deal won't last and they can use that idea as leverage in the talks. WHITFIELD: You know, at the same time it seems like it's pretty public knowledge the world over what kind of relationship the president has with members of Congress and that this just, you know, further exemplifies the tension between those two branches of government. But why would it be the feeling this would impact a negotiation between two countries when it's the president -- when it's the leader of one country and the leader of another? COLLINSON: Right, because sooner or later Congress is going to get to weigh in on the deal. The administration has decided not to negotiate a treaty, which would mean it would have to submit the deal for Congress and get to get a two-thirds majority in the Senate of approval. So it's negotiating an executive agreement and so it's within its rights within the constitution to do that. But sooner or later the Congress is going to be asked to lift some sanctions on Iran in return for Iran remaining about a year away from the point where it can build a nuclear weapon. That's the whole point of this deal. So the president for the next two years can use his power to lift presidential sanctions. He can ask U.S. partners to lift their international sanctions on Iran. But sooner or later Congress will be asked to lift those sanctions. And right now it's clear there's not a majority in Congress to do so. It's not just Republicans. There's a bunch of Democrats in the Senate too who believe this is going to be a bad deal. But it's not going to keep Iran from having the infrastructure that one day it could use to build a nuclear weapon. So sooner or later whether it's now or in two- year's time, Congress is going to have to weigh in on this. WHITFIELD: And of the 47 Republicans, are any of them backing away now from the letter after the backlash? COLLINSON: Some of them have sort of said it was done a little bit too quickly. Maybe there should have been more thought about this. I have talked to some people, some Republican sources up on Capitol Hill, and they say it might have been a mistake for Senator Tom cotton and the others to address this letter directly to Iran because it looks like they were trying to interfere in the process. WHITFIELD: Why wouldn't they have thought of that beforehand, before actually signing it? COLLINSON: That's a good point. They could have addressed the letter to all the six nations as well as the United States that are taking part in these talks. What happened in practice was the fact they addressed Iran took some of the tension away from the fact, the arguments they were making. They were saying it was a bad deal. They were saying that Congress couldn't sign on to this. So, in fact, they may have diminished their impact. And I think you can say that both this letter and the visit to the United States in the speech to Congress by Prime Minister Benjamin Netanyahu of Israel a couple of weeks ago has made some Democrats who are skeptical of this deal nevertheless sort of coalesce around the president. They don't want to go against their president on this point even though they like the deal. And paradoxically these things have actually given President Obama more leverage. WHITFIELD: Stephen Collinson, thank you so much in Washington, appreciate it. COLLINSON: Thanks. WHITFIELD: And of course you can follow Stephen's reporting on this at CNN.com/Politics. And we'll be right back right after this. (BEGIN VIDEOTAPE) RICHARD QUEST, CNN INTERNATIONAL CORRESPONDENT: Money, for centuries cash was king, but no more. If there's one place in mobile world congress where this doesn't count, it's the mobile payments section. Instead of the filthy stuff in your pocket, here it's all about digital ways to pay. Time for a snack. Of course my phone is my vehicle to my stomach. Let's go for a Coca Cola. And I'm going to buy, it's going to take it off this, but I'm logged in now. So I'm logged in. It's processing the payment. And here is the man who makes it run. Hello, good to see you, sir. This is the future. FRANCK COHEN, PRESIDENT, SAP MIDDLE EAST AND EUROPE: It is. QUEST: Tell me why and how. COHEN: Well, I think that the first thing is it a way to get your snacks. You can also personalize whatever you want to buy, and you use your phone. You don't need to use any cash or any other payment system. QUEST: What you've done here is you've put a game in front of the experience. Why bother with the game. I just want to buy a drink. What does the game give me? COHEN: I think the game gives you the idea that the loyalty programs that every retailer has also allows you have a fun experience when you visit the shop. (END VIDEOTAPE) WHITFIELD: All right, checking our top stories. A lawyer for the now disbanded Sigma Alpha Epsilon chapter at the University of Oklahoma says -- Oklahoma University, that is, says some of the members have gotten death threats. This after a video surfaced showing a bus full of SAE members taking part in a racist chant. Attorney Stephen Jones says there are no plans right now to sue the university, but it is not clear what legal action might be sought. And a public funeral will be held today for Tony Robinson in Madison, Wisconsin. The 19-year-old teen was shot and killed by a police officer last week. Robinson was unarmed. Police say Robinson assaulted the officer who then drew his weapon and fired. And two Wisconsin girls will stand trial as adults for allegedly trying to kill a classmate to please the fictional Internet character Slender Man. And 12-year-old Morgan Geyser and 13-year-old Anissa Weier are charged with attempted homicide for allegedly stabbing the girl 19 times back in May. Each teenager could face up to 65 years in prison if convicted according to the Associated Press. And still ahead, new questions are being raised about the investigation into two U.S. Secret Service agents who were accused of driving drunk. Could the story be changing? That's next. But, first, here is this week's CNN Money "Innovate with Rachel Crane." (BEGIN VIDEOTAPE) RACHEL CRANE: It's a terrifying fact of life -- doctors make mistakes. And that's why artificial intelligence startup Enlitic is turning computers into cancer detecting radiologists. JEREMY HOWARD, CEO, ENLITIC: What we're trying to accomplish at Enlitic is to create what we call data-driven medicine. CRANE: And the way you're doing that is with computers, not people. HOWARD: Yes, that's correct. We use something called machine learning. Machine learning is where you get a computer to figure something out by looking at previous examples. We take the information about you as a patient and compare it to the previous 50 million patients to find the people that have had the exact same symptoms and tests and so forth and figure out, how did they get better? What happened to them? And then we can use that insight to decide how best to treat you. CRANE: Do you think that this software, that Enlitic can actually help save lives then? HOWARD: Oh, the software at Enlitic will for sure save lives. It won't just save lives but it will also save a huge amount of stress. We have algorithms right now that can find earlier and more accurately whether or not you have lung cancer. If we can find out that early, you have a 400 percent better chance of survival. CRANE: While Enlitic is still in development, its leading edge technology has piqued the interest of doctors like oncologist Igor Barani who is now the company's chief medical officer. You yourself are a radiation oncologist. Do you think these systems, these computers can read scans more efficiently than you can? DR. IGOR BARANI, CHIEF MEDICAL OFFICER, ENLITIC: Artificial intelligence is much more consistent and systemic in interpreting these scans. Most of these interpretations by radiologists are just that, subjective interpretations, whereas algorithms are unbiased and then can render an opinion based on the actually features in an image. (END VIDEO CLIP) WHITFIELD: Hello again and thanks so much for joining me. I'm Fredricka Whitfield. So what exactly happened at the White House 10 days ago involving U.S. Secret Service agents? Some of the details surrounding this latest scandal are now actually being called into question. Sources tell CNN allegations about drinking and driving may not be true. Joe Clancy, the new head of the Secret Service, is expected to appear on Capitol Hill in the coming days to discuss in large part this incident. Erin McPike joins me now from the White House. So what more do we know about what did or what didn't happen? ERIN MCPIKE, CNN CORRESPONDENT: Well, Fred, what we know is that on the evening of March 4th these two senior Secret Service agents were at a party that was about seven blocks away from the White House. It was a retirement party for one of their colleagues. There was drinking, obviously, going on at this party. Whether or not those two Secret Service agents took part in that, we don't actually know those details. Later in the night those two agents drove a government car back to the White House, and at the time at the border of the White House there was a suspicious area because of some suspicious activity. There was a bomb threat, and there were Secret Service agents investigating that bomb threat. So this car with these two agents drove up to the barricade, nudged an orange barrel, but there was no collision. There was no damage that we know of, no confrontation. And it may even be there was never even an ask for a sobriety test for either of these Secret Service agents. That was, of course, what was initially allegedly, that there had been some suggestion that a sobriety test needed to happen, but a lot of these details are now in dispute. What we also know is that Joe Clancy, the Secret Service director, was not told about it until five days later. And because of that people are calling into question whether protocols are being followed at Secret Service, whether Clancy can turn around the agency and restore some credibility. Jonathan Wackrow, a former Secret Service agent, was on CNN earlier today, and here is what he had to say about that. (BEGIN VIDEO CLIP) JONATHAN WACKROW, FORMER SECRET SERVICE AGENT: Joe Clancy is driving the bus right now. He is the head of this agency. He needs to get ahead of these issues. Everything that has happened in the past, we need to learn from them, we need to move beyond them, and we need to start developing managers within the Secret Service that can move our agency forward. (END VIDEO CLIP) MCPIKE: The other thing we need to point out here, Fred, is that Secret Service has not said anything publicly about the incident, none of the details, just they're investigating some alleged misconduct, Fred. WHITFIELD: And so have those two agents been reassigned? Are they still on duty? What is their status while this investigation carries on? MCPIKE: Fred, they have been reassigned to other non-operational roles. One was the second in command and charge of protecting the president, and those two agents have been assigned to different jobs. WHITFIELD: All right, Erin McPike at the White House, thanks so much. All right, now to the investigation into the shooting two of police officers in Ferguson, Missouri. Investigators say they are following several new leads, but the Ferguson police department may be in for a complete overhaul according to some. U.S. Attorney General Eric Holder has said that he is prepared to dismantle the entire force if that is what it takes to ensure discriminatory police practices targeting African-Americans are obliterated. Our next guest insists gutting the Ferguson force is a must. Attorney Mark O'Mara writes for CNN.com, writing this, "Everyone in the Ferguson police department needs to leave from the top to the bottom. The police department should be completely reinstituted under Department of Justice control in a manner that ensures that citizens of Ferguson receive the type of public service they pay for and deserve." CNN legal analyst Mark O'Mara joining us now from Orlando, Florida. All right, good to see you. MARK O'MARA, CNN LEGAL ANALYST: Hey, Fred, good to see you. WHITFIELD: You're not saying bring in a whole new contracted police force, but you're saying under the Department of Justice, under that entity, should a new police force be brought in. How would that work? O'MARA: Well, first of all, the reason for it -- I don't mean it as an indictment of each and every cop in Ferguson. But the problem with it is because of what happened in Ferguson, because we focused on Ferguson, we have identified a huge amount of mistrust with police throughout the country, particularly in the black community. I think that we should look in Ferguson and say, look, we know the Department of Justice report says there's a real legitimate concern and that the black population looking at those concerns are legitimate themselves. So why not take this as an opportunity to go back in, redo it from ground zero, and show everyone throughout the country, not just the black community, that when we find a problem that obviously exists in Ferguson we're going to fix it and we're going to show we can truly do it the right way. Maybe, you know, two years from now we'll look back, Fred, you'll go there and have a special that says "Ferguson P.D. 500 days later" and see we can do it the right way and start rebuilding trust not only in Ferguson where it's really needed but throughout the country. WHITFIELD: So what about in the interim because that sounds like something, if that is, indeed, a viable option and one that, you know, is likely to come to fruition, that it's still, you know, a long way away. So what, in the meantime, in terms of policing and the community and the building of trust and enforcement and protecting and serving in the interim? O'MARA: The logistics are going to be very difficult. And I don't make light of what it's going to take. It's going to take some extra money and it's going to take some extra manpower. So what I suggest in the interim as we build up to it is that we do have Department of Justice involvement oversight. And we might need to bring in new leadership to the Ferguson police department. Again, we might have to have some unintended, quote, "victims" of this new Ferguson police department, but I think that the opportunity cost of having to reconstitute the department is worth the benefit we're going to have. And I agree this is not an easy process. But look at what we've done for the past seven months in Ferguson, the money that was spent, the emotions that have played out, the concerns that we have. If we can actually bring in the Department of Justice, somebody who can start with a fresh slate, then we're going get them one thing we absolutely have to have, and that is the rebuilding of the trust in the community. It's worth whatever the cost. WHITFIELD: And has this shooting of two police officers, the injuring of these two police officers, changed the dynamic in any way? O'MARA: I think evidence is that there is still an ongoing legitimate problem in Ferguson. I think that shooter, that attempted assassin, is a lone actor. I do not think that that was part of the peaceful protest at all. But there is evidence that there was an enormous amount of emotions still wrapped around Ferguson and that if we do it affirmatively we may have a positive result. And if we try to use a Band-Aid, then those people who want to take advantage of the situation, like the attempted assassin, are still going to do it. WHITFIELD: Mark O'Mara, thank you so much from Orlando. Good to see you. O'MARA: Sure. WHITFIELD: All right, still to come, stunning video released during the Boston bombing trial, the car-jacking victim of the Tsarnaev brothers running for his life at a gas station and begging for help. The story is next. WHITFIELD: Testimony resumes Monday in the death penalty trial of admitted Boston Marathon bomber Dzhokhar Tsarnaev. So far 50 witnesses have told their stories. The images of human suffering they have shared are so heart-wrenching that many in the courtroom gasp or everyone, you know, have tears. CNN's Deborah Feyerick has more on the trial so far and the video prosecutors are using to build their case. DEBORAH FEYERICK, CNN NATIONAL CORRESPONDENT: Fred, people in the courtroom were on the edge of their seats listening to the calm, understated testimony of a man who led investigators to the marathon bombers, possibly preventing another attack. (BEGIN VIDEOTAPE) FEYERICK: These are the images the jury saw last, 27-year-old Dun Meng carjacked by the Boston bombers, racing away from his captors, franticly begging a store clerk to call 9-11 before crawling to a storeroom to hide. UNIDENTIFIED MALE: Just quickly, just quick, they have guns. They want to shoot me. FEYERICK: It was the break Boston had been waiting for since the marathon attack three days earlier. Meng testified that Tamerlan Tsarnaev pointed a gun at him and asked "Do you know the Boston Marathon explosion? I did it, and I just killed a policeman in Cambridge." That policeman, MIT officer Sean Collier, was shot six times, once between the eyes. Surveillance video shows two shadowy figures identified as Tamerlan and Dzhokhar approaching the cruiser. The brake lights flashed as the brothers tried to steal Collier's gun. The confrontation lasts 50 seconds before the brothers run away. UNIDENTIFIED MALE: It sounds like somebody is hitting a trash can really loud. FEYERICK: Prosecutors laid out their case in painstaking detail, showing the jury how the investigation unfolded with the FBI releasing these images of the suspected bombers, two men in baseball hats carrying backpacks walking together through marathon crowds. Dzhokar stops first, taking his place behind several families and children. Tamerlan walks to the finish line where he stands just below the red and white flag. Several minutes later at 2:49 p.m. Dzhokhar calls his brother. And then Dzhokhar begins to quickly move away from the backpack he left on the ground. As his bomb detonates energy seems to push him forward. Tamerlan is captured on bank surveillance video walking away. The wounded lay shattered, torn open on the ground. Three people are dead, 30 are so severely wounded they are clinging to life. The jury heard from trauma nurse Jessica Kensky, who saw her husband's detached leg and tried to help him, not realizing she herself was on fire. Prosecutors showed her burned clothing. "It matches my scars," she testified, both of her legs now am amputated. Then 23 minutes after the terror attack, across the Charles River in Cambridge, Dzhokhar Tsarnaev enters the Whole Foods and pays cash for a half gallon of milk. That night he tweets "Ain't no love in the heart of the city. Stay safe people." Within 72 hours Tamerlan would be dead and Dzhokhar Tsarnaev would be hiding in a dry dock boat writing a manifesto explaining why he and his brother did what they did. (END VIDEOTAPE) FEYERICK: Tsarnaev's lawyers have barely cross-examined any of the witnesses and did not dispute any of the images linked either to the carjacking or to the MIT shooting. Fred? WHITFIELD: Thank you so much, Deborah Feyerick there in Boston. Straight ahead, the body cam video that shows the rescue of baby Lily. She was trapped in a car for up to 14 hours. Hear the reaction from the rescuers as they find her, coming up. WHITFIELD: All right now to a religious document that many Christians have never heard of, "The Gospel of Judas." Tomorrow night our new CNN series "Finding Jesus" takes a look at the manuscript. And it could hold new revelations about Judas' betrayal and the life of Jesus. (BEGIN VIDEOTAPE) FRIEDA TCHACOS, ANTIQUITIES DEALER: Jesus wanted to be sacrificed. He asked Judas to betray him and Judas says, "Why me?" Jesus said "Because you're the closest to me. I beg you to do it." PROF. CANDIDA MOSS, UNIVERSITY OF NOTRE DAME: He understands what is happening. He's helping Jesus. He knows that because of what he has to do he's going to be hated forever. DAVID GIBSON, CO-AUTHOR, "FINDING JESUS": Judas is doing what Jesus wants him to do. Look, God sent Jesus to die for the sins of mankind. Someone has to betray him. Someone has to fulfill this mission. Jesus is saying I have to die on the cross in order to do what I was sent here to do. (END VIDEO CLIP) WHITFIELD: Wow. I want to bring in Byron McCane now, the chairman of the Department of Religion at Wofford College and an archeologist who is featured in the CNN series "Finding Jesus". All right, so tell us more about this. This is a very different story, you know, this Gospel of Judas. How did this come about? BYRON MCCANE, CHAIRMAN, DEPARTMENT OF RELIGION, WOFFORD COLLEG

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Pamela. BROWN: All right. Nadia Romero, thank you so much. And there are renewed questions today about what the Supreme Court decision means for contraception and abortion pills that could be delivered by mail, and also about whether states that ban abortion will try to punish women who leave the state for care. CNN's Alexandra Field is in Missouri where abortion has already been banned and state Republicans are looking to target what they call abortion tourism. (BEGIN VIDEOTAPE) (CHANTING) ALEXANDRA FIELD, CNN CORRESPONDENT (voice-over): In at least ten states now, women with almost no access to abortion care left scrambling. It's what women in Missouri have done for years. Fleeing across state lines from a state with almost no abortion access to Illinois for care. The single abortion clinic left in St. Louis is no longer performing procedures. Now, advocates in one of the staunchest anti-abortion states in the nation are poised to make access to abortion even harder. MARY ELIZABETH COLEMAN (R), MISSOURI STATE HOUSE: It's hard to state what a victory this is for the pro-life movement. FIELD: Mary Elizabeth Coleman is a Republican state representative who helped draft the trigger law that effectively banned abortion in Missouri within just moments of the Supreme Court's ruling. Her top legislative priority: making sure access to abortion in Missouri can never come back. COLEMAN: We have to make sure through a ballot initiative or a referendum for a constitutional change to make sure that there is no way to find a right to abortion in our state constitution. FIELD: Coleman also leaves the door open for the state legislature to consider new limits to what she calls abortion tourism. Previous proposals have failed to gain traction. What does that look like potentially? COLEMAN: There's a definition about aiding or abetting, violating the laws of the state of Missouri, that you would be able to have some kind of Texas style enforcement so there could be several penalties for doing so. FIELD: Coleman says the abortion ban already outlaws medication abortion. Some abortion rights opponents say the state should crack down more on the importation of FDA-approved pills. SAM LEE, DIRECTOR, CAMPAIGN LIFE MISSOURI: The battle is not over. The battleground has changed. FIELD: A group of St. Louis' alderwomen say they're ready to fight for abortion rights, introducing a bill on the day the decision came down to use COVID relief funds to provide abortion support, including for travel. CHRISTINE INGRASSIA, MISSOURI ALDERWOMAN: This bill will provide $1 million in funding to access abortions so it could be lodging, transportation, meals, child care, things of that nature. FIELD: As the desert of care dries up, St. Louis' Democratic Congresswoman Cori Bush says solutions could come from new frontiers, like using federal lands for abortion clinics. Expanding existing clinics, and trying to find federal dollars to support women in need. REP. CORI BUSH (D), MISSOURI: Right now, it seems like -- for some, it seems like all is lost. It's just more difficult. FIELD: Alexandra Field, CNN, St. Louis, Missouri. (END VIDEOTAPE) BROWN: And our thanks to Alexandra for that report. And turning now to a CNN exclusive and Vice President Kamala Harris' first interview since the Supreme Court overturned Roe vs. Wade. CNN's Dana Bash just got back from speaking with the vice president. So, Dana, what did she have to say? DANA BASH, CNN CHIEF POLITICAL CORRESPONDENT: Well, one of the most important questions that everybody who I have talked to has is, what can the executive branch do? What can the president and she do in the short term? And then the other question, given her historic role, is her personal reaction. (BEGIN VIDEOTAPE) BASH: Madam Vice President, thank you so much for having me here. You were on a plane when the Supreme Court overturned Roe vs. Wade. KAMALA HARRIS, VICE PRESIDENT OF THE UNITED STATES: Yes, I was. BASH: As the highest-ranking woman ever elected in U.S. history... HARRIS: Yes. BASH: ... what was going through your mind at that moment? HARRIS: Well, so, I was on Air Force Two heading to Aurora, Illinois, to talk about maternal health. We were with Lauren Underwood, with the chair of Judiciary, Dick Durbin, Senate Judiciary. We were headed there to unveil a plan based on the work we have been doing to ensure that women receive the kind of support they need during and post pregnancy. And we thought that the decision would come down sometime soon, but not at that moment. And I was shocked. And it's one thing when you know something's going to happen. It's another thing when it actually happens. And I just actually turned to CNN. (LAUGHTER) [16:10:01] HARRIS: And I couldn't believe it. I couldn't believe it, because they actually did it. And here's what they did. They -- the court actually took a constitutional right that has been recognized for half-a-century and took it from the women of America. That's shocking, when you think about it, in terms of what that means in terms of democratic principles, in terms of the ideals upon which we were founded about liberty, about freedom. I thought about it as a parent. We have two children who are in their 20s, a son and a daughter. I thought about it as a godparent of teenagers. I thought of it as an aunt of preschool children. BASH: And a woman yourself. HARRIS: And a woman myself, and the daughter of a woman, and a granddaughter of a woman. And my husband and I are actually talking about it. We have a 23-year- old, and my mother-in-law's in her 80s. Our daughter will not know the rights for the court -- for the amount of time that my mother-in-law knew these rights, which is the right that should be well-settled that a woman should have to make decisions about her own body. And, when we think about it, everyone has something at risk on this. First of all, if you are a parent of sons, do think about what this means for the life of your son, and what that will mean in terms of the choices he will have. Do think about it in the context of the fact that they wrote this decision, including the concurring opinions, that suggest that other rights, such as the freedom to make decisions about when you are going to start a family, the freedom and the right to make decisions about contraception, IUDs, what this is going to mean in terms of in vitro fertilization. BASH: Well, let me ask you about that. HARRIS: Yes. BASH: Because Justice Thomas -- this is what you're referring to -- did write... HARRIS: Right. BASH: ... a concurring opinion saying the court should reconsider other cases of precedent that protect same-sex marriage, contraception, intimacy, and more. HARRIS: Right. Right. BASH: Do you think that the Supreme Court is on a path to reverse those as well? HARRIS: I definitely believe this is not over. I do. I think he just said the quiet part out loud. And I think that is why we all must really understand the significance of what just happened. This is profound. And the way that this decision has come down has been so driven, I think, by the politics of the issue vs. what should be the values that we place on freedom and liberty in our country, right, the right to privacy. Let's think of this in the context of the laws that are being passed in states. Dana, in 13 states, by my count, they will not allow a woman to have access to reproductive health and to an abortion if she is the victim of rape or incest. So let me tell you something. As a former prosecutor who specialized in crimes of violence against women and girls, in particular, child sexual assault and rape, the idea that, after a woman has endured such violence to her body, that she would not have the freedom and authority to decide whether she wanted to continue with a pregnancy that is a result of an act of violence is absolutely unthinkable. BASH: So, because you are now the vice president of the United States... HARRIS: Yes. BASH: ... part of an administration that is pledging to fight back to find ways to protect women's rights to abortion... HARRIS: Yes. BASH: ... I want to ask you some of the things that are kind of out there that some of your former female senators, Senate colleagues, are asking the administration to do. HARRIS: Sure. BASH: Will the administration actively challenge state laws that make it a crime for someone to help a woman travel to another state for an abortion? HARRIS: So, the president, rightly, last week, when the decision came down, indicated quite unambiguous -- unambiguously that we will do everything within our power as an administration through the executive branch to ensure that women have access to the medication they need, and which has been, by the way, FDA-approved, and that they will have freedom of travel, and that that travel should be unrestricted. [16:15:02] BASH: And you're going to do that through the courts, if need be? HARRIS: I'm sure that the -- that our Department of Justice is going to do that, based on every statement that the attorney general has made. BASH: Can the administration expand abortion access or abortion services on federal land, meaning provide the access on federal land that might be in and around states that ban abortion? HARRIS: I think that what is most important right now is that we ensure that the restrictions that the states are trying to put up that would prohibit a woman from exercising what we still maintain is her right, that we do everything we can to empower women to not only seek, but to receive the care where it is available. (CROSSTALK) BASH: Is federal land one of those options? HARRIS: I mean, it's not right now what we are discussing. But I will say that, when I think about what is happening in terms of the states, we have to also recognize, Dana, that we are 130-odd days away from an election, which is going to include Senate races, right? Part of the issue here is that the court has acted. Now Congress needs to act. But we, if you count the votes, don't appear to have the votes in the Senate. Well, there's an election happening in 130-odd days, I'm taking -- for example, thinking of a Senate race in Georgia or North Carolina. There's the Senate race coming up just in a couple of weeks in Colorado. And we need to change the balance and have pro-choice legislators who have the power to make decisions about whether this constitutional right will be in law, right? We say codified. Put it in law, so that there will be no ambiguity about it. BASH: And I want to ask you about that in one second. HARRIS: Yes. BASH: Just a couple of more questions, because what I'm hearing -- and you probably are too -- is, what can this Democratic administration do right now with any executive power that the president has? HARRIS: Yes. BASH: Can the administration actually increase access to medication abortion? HARRIS: I think we're pretty clear that, to the extent that we can, we will. There's no question about that, because, again, it is FDA- approved, and if it is prescribed, if it is -- that a woman should be able to have access to it unfettered. BASH: And what about the idea of financial resources, some form of voucher for travel, child care services, other forms of support for people... HARRIS: Yes. BASH: ... for women seeking abortions in states where it's not legal, but they just don't have the means to go elsewhere? HARRIS: Right. I think you're asking a very important point -- making a very important point, which is, what are the details that are going to go into ensuring that women have the ability to actually travel without impairment? And we know that, on this issue, women who have access to resources will probably be far less impacted by this decision than women who don't have resources. So this is something that we are looking at, because we know, for example, in terms of how this is going to actually impact real people, over half of women who receive abortions in America are moms. That means that, if they're going to have to travel, they have got to find day care and pay for it. It means that they will, if they are working, which most are, they're going to have to have time from work. And if they don't have paid leave, they're going to have to figure out how to afford it. It means that they may have to put up money for a train or a bus or a plane, much less a hotel. And so we want to make sure that there does not result extreme disparities are any disparities based on who can receive care based on how much money they have got. (END VIDEOTAPE) BASH: And you heard her talk about the election coming up in 2022. And, Pamela, I asked her what I'm hearing from a lot of Democrats, I'm sure you are as well, which is, wait a minute. We elected the Democrats for the executive branch, the president, the House, the Senate. They're all in charge. Why not try to do something now? And the way to do that, of course, would be for her to endorse getting rid of the filibuster in the Senate for this issue. The president did that for voting rights, nothing else. She wouldn't go there on that, particularly was -- I thought was interesting, because she is the president of the Senate. She said, just the votes aren't there, so I'm not going there. One other thing -- and we can tease this for later. I asked about her predecessor, the former Vice President Mike Pence, and about January 6. And she said that she commends him for the job that he did that day. BROWN: Sounds like she was practicing some restraint, perhaps. (LAUGHTER) BROWN: All right, Dana, thank you so much. BASH: Thank you. BROWN: And we're going to have more of her interview with the vice president coming up next on "THE SITUATION ROOM WITH WOLF BLITZER." And up next, here on THE LEAD, President Biden at the G-7. The response he and other world leaders gave when Ukraine's president said he wants his war with Russia over within the next six months. Plus, could artificial intelligence possibly prevent future mass shootings? [16:20:05] See the technology being tested right now by a group of former Navy SEALs. [16:24:01] BROWN: In our world lead, leaders gather for the G-7 say they will support Ukraine for as long as it takes. This pledge after Ukrainian President Zelenskyy addressed the group virtually today, telling President Biden and other world leaders he wants the war over by the end of the year. CNN's Kaitlan Collins is live near the summit site. So, Kaitlan, the show of unity comes as Russia is making fresh gains in Ukraine. What are the G-7 leaders agreeing to do? KAITLAN COLLINS, CNN CHIEF WHITE HOUSE CORRESPONDENT: Yeah, it raises a lot of concerns because the last time these leaders met, Pam, they were so surprised by how well Ukraine was doing. Now it's kind of become this grinding conflict, and they're trying to avoid that going on for too long. And so a few things they're doing while they're here at this summit is talking about ways to make Putin pay. And the fist one is one you'll see the U.S. formally unveil yesterday, but that's an agreement by Biden and other G-7 leaders to ban imports of Russian gold. That is Russia's second top export besides energy. The U.K. takes in billions of dollars of Russian gold each year. [16:25:00] So that is one step that they're taking. And the other one when it comes to financially hurting Putin is they're trying to come to an agreement on capping the price of Russian oil because, of course, a lot of these leaders have said that is what Putin is using to fund his war in Ukraine as he's been cut off from the world in other ways economically. And so they have not come to an agreement on that yet. Simply in principle, that's what they're seeking to do. The White House is expressing a lot of optimism that they're going to get there, so that remains to be seen. But it does come as they're having this concern, these world leaders, about managing their own economic fallout in their own countries where there are higher food prices, higher gas prices, obviously exacerbated by this banning of Russian oil and attempts to get Europe off Russian oil. And so, that is definitely something that is top of mind for these leaders. But the other thing and the appeal they heard from the Ukrainian president today when he spoke to them virtually was the timing of all this. Because he said he wants to see this war come to an end by the end of 2022. Of course, just about six months away, and he asked and pleaded with these G-7 leaders to try to really maximize the next few months to put Ukraine in the best position it can be to, of course, try to defeat Russia. BROWN: And some G-7 leaders were heard also, Kaitlan, lightly mocking Putin during a working lunch. Tell us about that. COLLINS: Yeah, it's obviously no secret that they do not have this chummy relationship with Putin, especially since this invasion happened. But as they were silting down, you saw British Prime Minister Boris Johnson asking the others if they were going to wear their suit jackets during the lunch. He made this off-hand remark about looking tough in front of Putin. Then, you heard the Canadian Prime Minister Justin Trudeau respond, making fun of those photos you have seen of Putin shirtless on a horse. You have seen other ones where he's fishing and what not, these macho type images. They were really making fun of it as they were all getting together to discuss very serious issues that are every one of their countries is dealing with, and also taking time to make fun of Putin as well, Pamela. BROWN: All right. Kaitlan Collins traveling with the president near the G-7 summit. Thanks so much, Kaitlan. And up next, what we just heard from the vice president on abortion rights. What legal options does the Biden administration have, as more states look to crack down. [16:31:42] BROWN: In the politics lead, a warning from the White House that Republicans are trying to, quote, strip women of their rights in the wake of the Supreme Court ruling overturning Roe v. Wade. Vice President Kamala Harris telling our own Dana Bash earlier this hour the White House is ready to fight this. (BEGIN VIDEO CLIP) HARRIS: We will do everything within our power as an administration through the executive branch to insure that women have access to the medication they need, which has been, by the way, FDA approved, and that they will have freedom of travel and that travel should be unrestricted. BASH: And you're going to do that through the courts if need be? HARRIS: I'm sure that our Department of Justice is going to do that based on every statement that the attorney general has made. (END VIDEO CLIP) BROWN: The key here, Paula, is what is within the White House power, what can it actually do. And she made clear as the president of the Senate that getting rid of the filibuster, this wasn't something that they were pursuing on this. PAUL BEGALA, CNN POLITICAL COMMENTATOR: Right. They just don't have the votes for it. BROWN: Yeah. BEGALA: There's only 48 Democrats who want to limit the filibuster, and you need 50. And they don't have it, they won't get it. And I understand the bully pulpit and all that. But the White House is not only in Washington, it's in the real world. I think it's wise the vice president didn't pick a fight she can't possibly win. I think the two huge fights they seem to be headed for are on the FDA, which has approved a pill that's safe and effective, and some states, the governor of South Dakota yesterday said she wanted to restrict that. So, she's going to start searching the mail of the women of her state? And then the right to travel. The Constitution guaranteed everyone the right to interstate travel. And all of a sudden now, states are going to say, well, you can't go here. I want to know why. I need a permission slip. I need a hall pass. Why are you going to California? Are you visiting your cousin? Or are you having -- I mean, that's really smart ground I think for the president to be fighting. BROWN: Right. ALICE STEWART, CNN POLITICAL COMMENTATOR: One of the things I also heard the vice president say in that interview was that the Supreme Court has stripped the constitutional rights of women. Well, first off, she's the vice president. She's not a member of the Supreme Court. The courts ruled this is not a constitutionally protected right and it's not in their purview and turned it over to the states. They said that Roe was egregiously wrong from the start, so now it's where it should be, back in the hands of the states. I have talked to many pro-life leaders who now realize now the war is on in terms of the effort to continue to protect the life of the unborn at the state level. They're working already, many are going to several states, meeting with legislators because they would like to see a national ban on this, but the reality is, we would not have the votes in the House and the Senate to pass that. So the goal now is to win over the hearts and minds of Americans to protect the sanctity of life. BROWN: There is so much confusion, though, still. I mean, with these trigger laws, which states have them, which states don't, and I pressed a Republican congressman from Ohio, Warren Davidson, last night about the bill there in Ohio now that the heartbeat bill, so- called heartbeat bill, which bans abortions after about six weeks when there is a heartbeat. And I asked him if he's comfortable with the idea of a 12-year-old child being raped and being forced to carry that baby to term if she becomes pregnant from the rape. And here's what he said. (BEGIN VIDEO CLIP) REP. WARREN DAVIDSON (R), OHIO: I fully support Ohio's law. I think it's a great law. [16:35:00] And it is a compromise. Like I say, rape is raised as an objection, but the heartbeat bill already deals with that. I mean, anyone -- it's hard to conceive of somebody who doesn't know they were raped for two months. (END VIDEO CLIP) BROWN: And I went on to explain there are so many complexities when it comes to rape. And I would never want to put my shoes in the someone who was raped going through that, let alone a 12-year-old who may not know she could get pregnant. That aside, it does seem like some anti-abortion Republicans are struggling with some of the basic moral and ethical and medical questions arising from some of these laws. These are difficult questions. STEWART: This is a difficult issue. This is an emotional issue. This is one that has so many nuances to this. But the reality is, pro-life Republicans are going to fight and continue to fight for the sanctity of life. I happen to believe there should be exceptions in the case of rape, incest, and life of the mother. Others who are strong on the pro-life issue disagree with that. But this is an issue that will continue to be fought by pro-life advocates at the state level and working across the country to make sure that these measures are strictly adhered to at the state level and working to expand it to other states that currently are pro- abortion. BEGALA: Well, this is becoming a major issue in the midterms. Abigail Spanberger, congresswoman from the seventh district of Virginia, front line member, really vulnerable Democrat. Her opponent, the state Democratic Party sent me this statement today, her opponent says that rape doesn't happen. It doesn't cause pregnancy very often because this is a quote from the Republican candidate. It's not something that's happening organically. You're forcing it. The individual, the man is doing it quickly, et cetera. It just -- I think quite stunningly is cruel and certainly politically, I think it's unwise for candidates to go out there and pretend that rape somehow can't cause a pregnancy. BROWN: That's outrageous. Bottom line, we know plenty of women who have been raped who have become impregnated. I want to get to another topic that sort of surprised us today. This press release from the January 6th Committee announcing a hearing tomorrow. It was supposed to be a couple weeks until there was another hearing. Now there's one tomorrow. The committee didn't give any details except it will include witness testimony. Is there a danger, Paul, in overpromising and under-delivering here? I mean, a surprise, last-minute hearing will come with high expectations. BEGALA: So far, they have over-delivered, I have to say. Usually, congressional hearings, I've been to million of them, are very boring, very predictable. Clumsy, scripted, pontificate, none of that. This has been brilliant. I suspect -- we're in the business of breaking news here. This is breaking evidence. I have no idea. I have no inside knowledge. But so far, this committee has done the best job of investigating and airing the facts that I have ever seen. Almost all the witnesses have been Republicans, by the way. STEWART: Yeah, and I think most of the more damning testimony has come from Republicans, senior officials with the Trump administration. Right now, though, I think it has not been good for the former president. I think we have made a case that he was responsible for 9/11 -- January 6th. He should not have been pushing the election lies, and this has not been good for him. But at the end of the day, it's somewhat of a Rorschach test. People are going to see and hear what they want to hear. Republicans who are pro-Trump are continuing to stand by him. Those who want to see something wrong in this are going to feel that way. BROWN: And, of course, we don't know who's going to be testifying. Open to hearing your thoughts. Is there anyone you think could sway the minds of those skeptical Republicans, Alice? STEWART: Well, there's been talk about Pat Cipollone, whether it is Alex -- the documentary filmmaker. I think one person that has nothing to lose at this point would be Mo Brooks, Alabama that ran for Senate. Trump endorsed him and then took the endorsement back. He lost. I would love to hear from him. BROWN: And, of course, he openly said he did ask for a pardon and he defended that, saying, you know, in his words, I was worried they were going to come after me, the socialist Democrats, quote/unquote. So, that's an interesting guest. What about you, Paul? BEGALA: Yeah, I have no idea, but I want the facts coming out. What is great about this is they're going to be under oath. Politicians are allowed to lie to the press sadly. They're not allowed to lie to Congress without going to jail. BROWN: All right. We shall see tomorrow. So much suspense. Thank you both. STEWART: Thanks, Pam. BROWN: Well, beyond the legal options, up next, the technology that a group of navy veterans say might just prevent a future mass shooting. [16:43:35] BROWN: Artificial intelligence technology is the latest tool being used to combat gun violence in schools and other places. CNN's Josh Campbell takes a closer look at how it may save lives. (BEGIN VIDEOTAPE) JOSH CAMPBELL, CNN SECURITY CORRESPONDENT (voice-over): An armed gunman approaches a high school, casing the exterior and eventually making his way inside. But before he even gets to the door -- UNIDENTIFIED MALE: Last known location is OHS main office. UNIDENTIFIED FEMALE: Law enforcement is en route. CAMPBELL: Six hundred miles away, a team of security experts is already aware of the situation. Identifying the weapon and possible shooter using artificial intelligence technology, they're alerting authorities. Rob, what did we just see? ROB HUBERTY, COO, ZEROEYES : So, you just saw a demo of ZeroEyes in action. What we do is I started out in the parking lot. I walked around with air soft guns. Not real guns, but they have the same sha

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shooting the guy in the back many times, I mean, couldn't you have done something different? Couldn't you have wrestled him? I mean, in the meantime, he might have been going for a weapon and you know there's a whole big thing there. But they choke. Just like in a golf tournament, they miss a three-foot putt. DIAMOND: Trump also making excuses for Kyle Rittenhouse, the 17-year old charged with killing two people during Kenosha protests. TRUMP: He was trying to get away from them, I guess, it looks like. And he fell and then they very violently attacked him. DIAMOND: And while Joe Biden delivered blanket condemnation of any violence... JOE BIDEN (D-DE), FORMER U.S. VICE PRESIDENT AND PRESIDENTIAL CANDIDATE: We have to stand against violence in every form it takes. DIAMOND: Trump refusing to condemn violence by his supporters. TRUMP: That was a peaceful protest. And paint is not -- and paint is a defensive mechanism. Paint is not bullets. DIAMOND: Trump is also spinning new conspiracy theories. Controlling LAURA INGRAHAM, FOX NEWS HOST: Who do you think is pulling Biden's strings? TRUMP: People that you have never heard of, people that are in the dark shadows. DIAMOND: And then there was this: TRUMP: We had somebody get on a plane from a certain city this weekend. And, in the plane, it was almost completely loaded with thugs wearing these dark uniforms, Black uniforms with gear. A lot of people were on the plane to do big damage. DIAMOND: The president providing no evidence to back up his strange claim. TRUMP: This was a firsthand account of a plane going from Washington to wherever. And I will see if I can get that information for you. Maybe they will speak to you. Maybe they won't. DIAMOND: President Trump spent nearly three hours on the ground in Kenosha and, during that time, we saw him turn this city into the backdrop for his 2020 reelection campaign and his focus on his law and order message. We saw him disparage what he called left-wing violence and this anti- police rhetoric that he feels some politicians are engaging in. What we did not hear from the president in those nearly three hours were the words Jacob Blake. That is the name of the man who was shot by police in Kenosha, Wisconsin, and the president did not utter his name once during those nearly three hours. Instead, we heard the president only address the situation when he was asked about the shooting. In that case, we heard the president say that he feels terribly about the situation but he declined to weigh in any further. The president also did not meet with Jacob Blake or his family -- Jeremy Diamond, CNN, the White House. (END VIDEOTAPE) (BEGIN VIDEOTAPE) VAUSE: Ron Brownstein is CNN senior political analyst and the senior editor for "The Atlantic"" and he joins us this hour from Los Angeles. Ron, let's get straight to it. There is a shameless and bizarre absurdity of a president who violated ethics law while announcing a law and order platform, who for four years considered himself above the law while inciting the violence that his senior adviser confirmed is all part of their campaign strategy. I'm wondering if there's any indication that this is working. RON BROWNSTEIN, CNN SR. POLITICAL ANALYST: The answer is we don't know yet because there has not been any high quality polling since the Republican convention last week but there are several reasons why the Democrats are a little more calm about the situation than they were immediately after the convention. One, Joe Biden gave a very strong speech on Monday, not only denouncing violence but also criticizing the president for fomenting violence on the other side. [00:05:00] BROWNSTEIN: They are putting a short version of that on television with part of the incredible $300 million dollar-plus fundraising haul they announced for the month of August, the most any candidate has ever raised at this point in a single month. The other thing that has happened in the last few days is that Trump, once again, has shown that he does not really understand the limits of how far to push. He has taken his argument to an extreme. You saw that last night and you probably talked about it, he was on FOX News, comparing the shooting of unarmed Black man to a golfer missing a putt. And today his appearance in Kenosha, not meeting with the family while they were organizing a community festival. So I think Democrats feel they have to watch this line of attack but they feel that Trump is, as is often the case, playing to the short side of the field and building a box over his own support. VAUSE: To this point, so far by my count, more than 350 senior Republicans have endorsed Biden. We're looking at former Republicans elected to Congress, national security officials, campaign aides for Mitt Romney and hundreds of officials from the George W. Bush White House years. You write about the impact this could have on the GOP regardless of what happens in November. That was picked up by the anti-Trump Lincoln Project, which added this. "We are on the cusp of a profound political realignment in American politics. The split in the GOP may be marginal at the moment but history is often made on the margins. College educated Republicans are leaving the GOP. The historic number of GOP endorsements of Biden are a sign." So if 2016 was a hostile takeover of the Republican Party by Trump, does that mean next his bankruptcy, moral bankruptcy, which is almost like going out of business? BROWNSTEIN: Yes, it's a reconfiguration at least. As I pointed out today, the number of Republicans endorsing Biden, high-profile Republicans, is the largest number of crossover endorsements for a presidential nominee of the other party since Nixon in 1972 and the giant Democrats for Nixon operation that existed as part of this 49- state landslide that year. And the Nixon crossovers, the Democrats who crossed over for Nixon really were the heralds of the reconfiguration of the electorate among blue collar whites. Their movement from the Democratic Party to the Republican Party, as well as the movement of Southern Democrats into the Republican Party, you could see that beginning to develop in the kind of officials who crossed party lines in '72. The same thing may be happening in reverse now, 50 years later, where all of these white collar Republican professionals, who had been both in campaigns and administrations, are leaving Trump's definition of the GOP and endorsing Biden. They're not the cause of the problem; they are a symptom of it. Trump is on track to run more poorly on college educated whites than any Republican nominee ever. In the House, Republicans are down to one- quarter of all the seats where college graduates exceed the national average. And in the Senate, similarly, they could be holding a very small percentage of the Senate seats after this election in the states where there are more college graduates (INAUDIBLE). That's the trade Trump has imposed on the party. He's weakening it among young people, people of color and college educated whites who tend to be growing constituencies. And that is the cost of his improving their stand among non-college whites, rural and evangelical whites, all of whom are shrinking as a share of the electorate. VAUSE: We hear about mail-in ballots and the fraud and all that; now this year we will see an unprecedented number of mail in balloting and a data firm has done the numbers on this. They found that Republicans are expected to overwhelmingly vote in person, Democrats by mail, which on Election Night, would create what they call a red mirage. Because the in person balloting gets counted mostly that day, the mail-in ballots will be gathered in the days after that. So what we could have on Election Night is the Republican ahead by a wide margin, claiming victory. But the reality is, when all those mail-in ballots are counted, he actually loses the election and Biden wins. In between Election Night and that count being finalized, Trump -- (CROSSTALK) VAUSE: -- would declare those mail-in ballots as fraudulent. BROWNSTEIN: Absolutely. It could be extraordinarily turbulent. The polling has been clear that many more Democrats than Republicans say they are going to vote by mail and if you look at the early ballot requests in some of the states where you can already request ballots, you're seeing them. In places like Pennsylvania, for example, I think a lot of Democrats in the end are going to request a ballot by mail but return it in person in early voting. So I'm not sure the effect will be as quite as severe as they said. But if you look at a state like Arizona, for example, on Election Night in 2018, Martha McSally, the Republican, was leading. And by the time and they counted all of the mail-in ballots from Maricopa County, the largest county, Kyrsten Sinema won comfortably. [00:10:00] BROWNSTEIN: So this is a real dynamic and it's just one of many ways I think that between now and next January we could be in for some of the most turbulent months in American politics since the 1960s or perhaps even 1860. VAUSE: And there are 60 something days to go? Ron Brownstein, good to see you. BROWNSTEIN: Thanks for having me. VAUSE: Cheers. (END VIDEOTAPE) (MUSIC PLAYING) VAUSE: This weekend is the Labor Day holiday in the U.S. If history is prologue, it could mean a major spreading event is about to take place for the coronavirus. Across the U.S. a number of states, including California and Florida, are seeing infection rates decline and health experts are pleading for Americans not to become complacent. Meantime, government health experts are pushing back on the latest supposed breakthrough treatment being touted by "doctor" President Trump. More now from CNN's Dianne Gallagher. (BEGIN VIDEOTAPE) DIANNE GALLAGHER, CNN CORRESPONDENT (voice-over): A National Institutes of Health panel says doctors should not use convalescent plasma as a standard of care for COVID-19 until more study has been done. This is a little more than a week after the FDA issued an emergency use authorization and President Trump praised it as a historic breakthrough. TRUMP: It's had an incredible rate of success. Today's action will dramatically expand access to this treatment. GALLAGHER (voice-over): But the National Institutes of Health saying, in a statement today, quote, "There are insufficient data to recommend either for or against the use of convalescent plasma for the treatment of COVID-19." There are now three potential coronavirus vaccines in phase 3 human trials here in the United States but Dr. Anthony Fauci is cautioning that proven safety is far more important than speed when it comes to vaccines. DR. ANTHONY FAUCI, NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES: You don't want a vaccine to be available widely to the American public unless it has been shown to be safe and effective. GALLAGHER (voice-over): After saying that a vaccine could be authorized for emergency use or even approved before human trials are completed, FDA commissioner Dr. Stephen Hahn now says he would consider resigning if he was pushed to authorize a vaccine before it was ready. DR. STEPHEN HAHN, FDA COMMISSIONER: I think all options are on the table with respect. I hope we will not be in that position. GALLAGHER (voice-over): If one is approved, is expected to initially be in short supply. DR. RICHINA BICETTE, BAYLOR COLLEGE OF MEDICINE: A lot of the companies that are in phase 3 trials are also saying that they will have to do vaccines that are not single dose but double dose vaccines. GALLAGHER (voice-over): So who gets it? Today, an independent committee appointed to help advise the federal government released a four-phase proposal that starts with health care workers, first responders and people with conditions that make them especially vulnerable to COVID-19. As testing totals decline, Admiral Brett Giroir, who leads U.S. testing efforts, announced $5 antigen tests will be sent out to states starting in a few weeks but also said he was tired of being asked about cheap, quick tests for every American. ADMIRAL BRETT GIROIR, M.D., ASSISTANT SECRETARY FOR HEALTH: I don't live in a utopian world, I live in the real world. And the real world had no test for this new disease when this first started. GALLAGHER (voice-over): Dr. Ashish Jha, dean of the Brown University School of Public Health, responded on Twitter, saying, "That's what White House staff and major league sports get now. Sure, let's call it utopia when it's for the less privileged." The average number of daily cases and deaths have declined over the past seven days as the coronavirus surge now appears to be moving from the South to the Midwest. But officials are concerned about what Labor Day weekend might bring, since cases spiked in many areas in the weeks after Memorial Day weekend and the 4th of July. MAYOR SYLVESTER TURNER (D-TX), HOUSTON: As we approach Labor Day, let me encourage people to be mindful. The virus is still looking for you. And so if you come together, then you will give it a home. GALLAGHER: Now experts in the United States are actually asking college students to stay at school and if they have plans to go home, to quarantine 14 days before they go back to their home cities or see their family members. That is because of this exponential rise in cases among college students. At this point, more than 20,000 college students have tested positive for COVID-19 in 36 different states -- Dianne Gallagher, CNN, Atlanta. (END VIDEOTAPE) VAUSE: Along with the devastating global death toll from this pandemic, there's the ongoing economic chaos. Latin America has been especially hard-hit and Brazil in particular, with the world's second highest number of cases, is now officially in recession. CNN's Matt Rivers has more now on the economic fallout. (BEGIN VIDEOTAPE) MATT RIVERS, CNN CORRESPONDENT: We know the coronavirus pandemic has devastated countries across Latin America not only from an public health standpoint but also from an economic standpoint and we got more proof of that on Tuesday with new GDP figures released by the Brazilian government. The country's Institute of Geography and Statistics announced on Tuesday that Brazil is officially entering a recession after posting a 9.7 percent decrease in the GDP in the second quarter as compared to the first three months of this year. [00:15:00] RIVERS: And that is, of course, due to the effects of the coronavirus pandemic in that country. Brazil has experienced one of the worst outbreaks of any country around the world. This also comes as Brazilian officials announced they will be extending aid payments to some of the country's poorest families through the end of this year. Those payments, of course, in connection to coronavirus relief. Meanwhile, here in Mexico, we heard from Mexico's president on Tuesday. He gave what is essentially the State of the Union address here in Mexico, talking about the state of affairs here over the past year. And as politicians are wont to do, he highlighted what he believes his country's successes are, including its fight against COVID-19, despite the fact that Mexico's death toll is among the highest of any country around the world. The president says he believes the worst of the pandemic is over, both from a public health standpoint and an economic standpoint. He said the economy added more than 90,000 jobs in August alone. But that doesn't change the fact that Mexico's economy has been devastated by this outbreak here. In the second quarter, the GDP fell more than 17 percent as compared to the first three months of the year. The International Monetary Fund predicts that, in 2020, Mexico's GDP could fall 10.5 percent -- Matt Rivers, CNN, Mexico City. (END VIDEOTAPE) VAUSE: Still to come, good news for teachers in Russia. They will be among the first to receive the rushed, untested, potentially deadly, locally made coronavirus vaccine. Find out why some are surprisingly saying nyet. Plus, with strong winds and heavy rains Typhoon Maysak is heading for South Korea. We will tell you when it's expected to make landfall in just a moment. (MUSIC PLAYING) (MUSIC PLAYING) VAUSE: The trial of 14 suspected accomplices in the terror attack on "Charlie Hebdo" magazine in Paris will begin in the coming hours. The French satirical magazine is republishing the controversial cartoons depicting the Prophet Muhammad. They are at the heart of the 2015 massacre alongside a tribute to the 12 people who were killed in the attack. President Emmanuel Macron defended the magazine's right to publish the cartoons. (BEGIN VIDEO CLIP) EMMANUEL MACRON, PRESIDENT OF FRANCE (through translator): I think that a president of the French Republic never has a right to pass comments on the editorial choices of a journalist or a member of the editorial staff, never, because there is a freedom of the press that you quite rightly care deeply about. (END VIDEO CLIP) VAUSE: A day after the attack on "Charlie Hebdo," a police officer and four men were killed at a supermarket. Right now, a powerful typhoon is barreling towards South Korea. Typhoon Maysak already swept through Japan, hitting the island of Okinawa, bringing heavy rain and winds up to 193 kilometers an hour. (WEATHER REPORT) [00:20:00] VAUSE: In Russia, students are now returning to class, even as the number of confirmed cases continues to climb, now an excess of 1 million. And while the first doses of the Kremlin's vaccine are available, Matthew Chance explains, some teachers don't want it. (BEGIN VIDEOTAPE) (MUSIC PLAYING) MATTHEW CHANCE, CNN SENIOR INTERNATIONAL CORRESPONDENT (voice-over): Starting school can be daunting, even without a pandemic. But Russia is putting on a brave show. It says it has a vaccine after all, approved for use on this COVID frontline. Well it's the first day of school here, the first time since March that Russian classrooms have reopened amid the COVID-19 pandemic. It's very exciting for the kids. Their teachers, who are meant to be among the first to benefit from Russia's new coronavirus vaccine, but what we are learning is that few, if any, have taken up the offer to be vaccinated. We were given access to one of Moscow's top schools where some measures like testing and teachers and face masks have been implemented. And I have seen that they are not using face masks. They're not -- But no one we spoke to here had taken the Russian vaccine, even though teachers, along with doctors, are meant to have been given first access after the vaccine was fast-tracked to approval before completing phase three human trials. There is some concern that it might not be safe, it might not be effective. Have you heard that concern amongst your colleagues? Amongst teachers that they are worried about the vaccine? MARIA ZATOLOKINA, DEPUTY HEAD, SCHOOL 1363: Actually, we haven't discussed it yet. But I think that every teacher understands how important to be safe and to create a safe environment for our students to be healthy. That's why I hope that we are possible people and we should -- we should be vaccinated. CHANCE: Are you going to have the vaccine? ZATOLOKINA: Yes, of course. CHANCE: Definitely? ZATOLOKINA: Definitely. CHANCE: But there are others who say they definitely want. One Russian teacher's union has started an online petition, calling on members to reject the vaccine outright on safety grounds and expressing concern that vaccination, currently voluntary, should not be made mandatory unless clinical trials are complete. YURI VARLAMOV, TEACHER, UCHITEL UNION MEMBER: Before the end of all testing, they cannot make it mandatory. But I know that in some schools, in some state bodies, people are talking about mandatory status of this vaccine in the end of this year. CHANCE: Do you think that's a sort of political decision? Do you think it's important for the Russian authorities to make sure everybody has this vaccine, whether or not it works, whether or not it's safe? VARLAMOV: Yes. Sure. That's a very political decision, because skills of government to make the life of people safe is a very important point in Russia. [00:25:00] CHANCE (voice-over): And so is showing Russia's widely criticized vaccine to be a success. Teachers can refuse it now but not, perhaps, for much longer -- Matthew Chance, CNN, Moscow. (END VIDEOTAPE) VAUSE: A new survey has found 3 out of 4 adults worldwide would get vaccinated for COVID-19. Enthusiasm for a vaccine was highest in China, 97 percent, followed by Brazil, Australia, India and U.K. That's the top 5. The U.S. ranks 20th out of 27 countries, with a third of those asked saying they would not get the vaccine and fewer side effects is the reason why. Researchers in Florida say face shields and masks with breathing valves may be ineffective in preventing the spread of coronavirus. This simulation shows people wearing those devices can still spread tiny droplets over a wide area. It shows a face shield can initially block the droplets but they can move around the visor relatively easily. And droplets can also pass through the valves of masks when someone sneezes or coughs. The study suggests that high quality cloth or surgical masks are more effective at preventing the virus from spreading. Still to come, U.S. intelligence officials warned about Russian misinformation during the U.S. election months ago. Now Facebook says Russian trolls are at it again, targeting Left-leaning voters. Also, new questions tonight over the president's mysterious hospital visit last year. Why did officials reportedly feel the need to get the vice president to be on standby? That is to come. (MUSIC PLAYING) (MUSIC PLAYING) VAUSE: Well, for the first time during this election campaign, there is evidence that Russian Internet trolls are at it again. It's the same group that interfered last time and the same player. Donie O'Sullivan has the details. (BEGIN VIDEOTAPE) DONIE O'SULLIVAN, CNN BUSINESS REPORTER: Facebook on Tuesday announcing that acting on a tip from the FBI, it had removed a set of accounts that it said were linked to the Internet Research Agency. That's the Russian troll group that sought to interfere using social media in the 2016 U.S. presidential election. A lot of concerns here in the United States that the Russian troll group is back again to interfere in November's election. Now Tuesday's takedown all focused on an online magazine called Peace Data, which posed as a left-wing news outlet, a left-wing independent news outlet. And it wrote articles about U.S. foreign policy, about the presidential election. (BEGIN VIDEOTAPE) DONIE O'SULLIVAN, CNN CORRESPONDENT: And similar to what the Internet Research Agency had done in 2016, it attacked Democratic candidates, this year being Vice President Joe Biden and Senator Kamala Harris, from the left, a tactic that analysts who have looked at these accounts pointed out, which was something that was also done by Russia in 2016 as they tried to split the Democratic vote and support for Hillary Clinton. [00:30:23] The good news here is that this -- these pages had relatively low traction. Facebook, the FBI, and others seemed to catch them early on in their sort of infancy. And they had posted about other issues, not only just the election. The bad news here is, of course, that this is happening at all and that Russia is active in this space so close to November's election. And one particular new development which we hadn't seen with this sort of operation in 2016 was the use of artificially-generated images. Take a look at this Twitter account, which was also removed, belonging to a person purportedly called Alex Lacusta, who identified himself as the editor of Peace Data. Now, while the profile picture on that account may look like a real person, analysts and experts who looked at these accounts said that that image was actually generated through using artificial intelligence technology. It is a deepfake image, meaning the person in that picture does not actually exist. Now, prior to this, an easy way to spot a fake account, or one way to spot a fake account would be if it had used profile pictures from -- had stolen them from a real person. Obviously, with this new development and technology, that is something that is no longer possible. So with just a few weeks to go to November's 2020 election, it's a good reminder to all of us to be careful with what we encounter online, and that with new developments in technology come new risks. Back to you. (END VIDEOTAPE) JOHN VAUSE, CNN INTERNATIONAL ANCHOR: Steve Hall was the chief of Russia and Ukraine operations for the CIA, and he is a CNN national security analyst. He joins us from Tucson, Arizona. Steve, it's been a while. Thanks for taking the time to speak with us. STEVE HALL, CNN NATIONAL SECURITY ANALYST: Sure. VAUSE: OK. It seems this is all kind of a replay of 2016 but with a few added bonuses. You've got the fake profiles created by artificial intelligence, and notably, real freelance writers who are contributing articles to -- to this Peace Data website. And the strategy here seems to mirror what President Trump was sort of doing earlier this year, and that's try to split the progressive wing of the Democrats, you know, the Bernie Sanders wing of the party, away from the Joe Biden-Kamala Harris side of the party. I mean, does that mean they just watched the news, or is there something else here? HALL: Well, it's really no surprise, of course, that the Russians are doing this again. The American intelligence community has -- has predicted this and said it's going to happen. It is interesting that they have improved a little bit in terms of, you know, sort of the deepfake technology that they're now using. And the good news is, of course, that the FBI caught this and notified Facebook. But really, the interesting thing for me is that I don't anticipate that we're going to see a whole lot more of this. I think what's really going to happen here is the Russians have learned since 2016 that they don't need to use these fake accounts, even if they, you know, pay journalists unwittingly to contribute to such a fake account. What they can do is they can use the content that, really, the United States and other western democracies during elections are providing them. Those divisive issues that we all already know, the Black Lives Matter for example, racism, police brutality, even the COVID pandemic. And they'll take that, and they'll put it up on RT. They'll put it up on a Russian government-owned site, knowing that, as human beings, we just can't help ourselves. We will just -- you know, we'll copy that meme because we look at it. We have an immediate emotional response to it. And we'll get it out there. So they don't really have to rely on these more sophisticated methods when we're helping them just by looking at the bigger issues, or the bigger sites like RT, Sputnik and so forth. VAUSE: OK. So to that end, "The New York Times" is reporting that, according to two U.S. intelligence officials, "This group's recently discovered activities on Twitter and Facebook were almost overt, designed to be detected." So further to this question, what are we not seeing? Because you seem to be implying that they're going to dumb it down and just basically take advantage of, you know, our own sort of, I guess, failings, if you like. But are the Russians actually doing something else? Have they developed something over the last four years that, you know, is beyond all of this? HALL: Well, look, the Russians, I think, will use every weapon at their disposal. So are they going to use bots to amplify things? Absolutely. Are they going to continue to try to come up with some of these fake sites? Yes, they're going to do that. But again, I think what they really learned was they don't have to work that hard. I mean, in 2016, they were establishing these fake accounts and trying to get as many followers as possible. But again, what they have learned is using their big media operations -- RT, Sputnik -- and then on a sort of lower level that people don't necessarily recognize as much, sites like Ruptly and Redfish (ph). They know that, if that content, that divisive content which grabs everybody, is there for the taking, we'll do it ourselves. They don't have to be that sophisticated to be amazingly effective. And I think that's the path they're going to choose, and indeed are choosing, this time around. [00:35:13] VAUSE: Yes. That's kind of sad, because you'd think that, at least, they'd have to work for it. If there is some good news here, it's the reaction, I guess, from Facebook and Twitter, which closed down these sites fairly quickly, but meantime, over the Trump administration, the director of national intelligence, John Ratcliffe, has ended election security briefings to Congress. Over the weekend, he explained why. Listen to this. (BEGIN VIDEO CLIP) JOHN RATCLIFFE, U.S. DIRECTOR OF NATIONAL INTELLIGENCE: I reiterated to Congress, look, I'm going to keep you fully and currently informed as required by the law. But I also said we're not going to do a repeat of what happened a month ago, when I did more than what was required, at the request of Congress, to brief not just the oversight committees, but every member of Congress. Within minutes of that -- one of those briefings ending, a number of members of Congress went to a number of different publications and leaked classified information. (END VIDEO CLIP) VAUSE: Yes. Keeping in mind this is the same guy who a week ago was playing down the threat from Russia, suggesting China was a much bigger issue. But is that an excuse of the leaking of Congress, is that -- you know, how does that sit with you? HALL: Look, I've worked in CIA's Office of Congressional Affairs, which is their legislative affairs unit. I can tell you that's just balderdash. I mean, it's stupid, right? If what he is -- what the DNI is saying is, I am not going to provide you with oral briefings. Instead, I'm going to provide it to you on paper, as if somehow -- I mean, this is just common sense, right? Somehow you can't leak paper? That makes no sense whatsoever. What makes a lot of sense is

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FIVE" CO- Terrible people. Hi, I'm Greg Gutfeld with Kimberly Guilfoyle, Juan Williams, Eric Bolling and a Flintstone vitamin is her headrest, Dana Perino, "The Five." So why the hell would democrats admit that Obamacare is screwed right now? With two weeks left in this horror show of election, this has to hurt Hillary. But what if we're wrong? First Obamacare benefits from being so bad it's now background noise like traffic, crying babies and my pillow commercials. We are desensitized to reality. But more important, what if it's not about exposing Obamacare's horror, but a ploy for expanding it, i.e. single pair? After all, the liberal fix for arson is always more fire. As Ezra Klein tweeted, "It's not hard to make Obamacare better, but you would need a governing majority that wants to make it better." Meaning a forced purchase always requires more force. It's the socialist excuse. The idea it's sound. We just need to obey more. Compare that with capitalism, a system that happily adapts to human imperfections. Unlike socialism, no straight jacket is required. Yet this menacing intrusion never, never ends because the media approves, even when decades of failure stare back at us with pleading eyes. The ruin is twofold. The real damage is what we got from Obamacare. The unseen damage is what could have been in its place. What could have been? You can apply that question to Venezuela, the USSR, the inner cities, wherever top down coercion leaving its bloody imprint. What could have been? Fact is the Affordable Care Act was indeed an act, a Trojan horse for redistribution. What we're told is good for us can only exist as a lie. To the left we're just children, forced to take our medicine, especially if it kills us. So - - all right Eric, here is my conspiracy. ERIC BOLLING, "THE FIVE" CO- Can it be Detroit and Chicago, what could have been. What could have been? That does -- But -- OK, strategy. They are countering the repeal argument with its expansion. So now you have people like Michael Moore, you got everybody said, oh, to make -- to improve this single payer all Medicaid, whatever. Is that --? And what they're doing is they're setting it up for Hillary. Yes. Because this is what she has been calling for all along. She wants -- think about this for one second. Her idea of a perfect health care system would be a 10 percent payroll tax. So you open up your check at the end of the week or the end of the month and you go, wow, taxes stink, payroll taxes stink already. Add 10 percent to that number, to your gross number, and that's what she's looking for so that they can eventually provide competition, I love the federal government will be able to bring in and bring prices down. Here are the promises that they have made. You can - - Obamacare will -- the average family will pay $2,500 less a year for Obamacare. Right. It's actually $4,500 more per year. DANA PERINO, "THE FIVE" CO- It is. Well bend the cost curve down. We bend the cost curve up. You can keep your doctor. You can keep your plan. That's one of the biggest lies I would say in the last 50 years next to Bernie Madoff and Bill Clinton saying he didn't have sex with that woman. Obamacare is now an extended Medicaid system. That's what it is. Some people are getting health care for free. Some are getting highly subsidized health care. And a group -- a smaller group of people are picking up the cost on that. That is exactly Medicaid straight down, straight down the line. It's socialism. Uh-huh. Juan, you sit there surprised and shocked. You were upset by this. JUAN WILLIAMS, "THE FIVE" CO- I never heard what Eric said that Hillary Clinton wants a 10 percent higher -- Ten percent payroll tax. I never heard that. But I will say this to you. I was listening and I thought you were on track for most of it and I thought, wait a minute. The existing marketplace is status quo. And that of course was leaving millions -- not millions, but tens of millions of Americans without health insurance. So, why was that good? I would argue that if -- that there were definite a free market options that were often demonized and ignored because of a free market, whether they were health savings accounts. But when I talked to elderly people today . People knowing what they were paying for. . about -- for example, prescription drugs. I don't care if they're republican or democrat. They say it's outrageous what they have to pay for prescription drugs in this country. And they don't think that the free market is so great. Well, imagine -- They think that the drug companies are ripping them off. Imagine going into a supermarket where there's no price tag on everything -- on anything. Toilet paper could be a hundred dollars or a hundred cents. That's the problem with -- nobody knows how much that costs. If there's only one supplier of toilet papers. Yes. You gonna pay a hundred dollars for the roll of toilet paper . Yeah, that's like in the hospital. . when you're a competition. But we have competition . And Juan -- no, we don't have. . on so many levels . No, we don't. . in the health care -- Absolutely not. We don't. We don't have competition between health care providers across state lines . Of course we do. We need tort reform. We need health savings accounts. We need to speed up the process to bring drugs; it will save people's lives . Well, fine. (CROSSTALK) Oh, yeah, but that means, in some case the argument would be allow Americans to go to Mexico or Canada or even to Europe in order to get drugs. The American drug company says, "Oh, no. Don't do that. We are the innovators. We create solutions." Yeah. And that's why we have higher -- but I'm just saying, my point is, I don't think the status quo capitalistic marketplace always provide the answer. And we never -- we were never given the chance, Kimberly. Ironically he mentions other countries. Why is it people from other countries comes here for health care? KIMBERLY GUILFOYLE, "THE FIVE" CO- Yeah. Why is everyone trying to cross . It's so terrible. . the border illegally, to get to us, because we have Obamacare? I don't know. The point is simply, though the democrats, you know, rushed this in. They pushed it through. Now they're crying and they want to have the republicans help them get out of it. But you know he was able to get this passed through because he had a wrong majority in the House and the Senate, put through reconciliation without a republican vote. And now they're saying, OK, let's fix it. Why should the republicans fix it? Why should they? Let it die like they didn't care about the people that were going to get rate hikes or lose their doctors. They put this whole fraud upon it and then they want now a certain burden on specific people to be able to subsidize this dying ship going forward. I think it does need to be repealed, replaced and that's that. Unplugged. As they say. Pull the plug. As they say in certain countries. Dana, I simply remember -- I remember one talking head a while ago pleading with the Trump campaign to focus on Obamacare. Who was that person? Hmm. I don't know. Is it time? She was sure, though. Is there plenty of time? I mean is this -- She was really sure. Well, I mean, there's good reason for it. Because in 2014 when President Obama, whether the historic losses in the congressional vote and republicans got so many more seats than they expected, I truly believe that was because of Obamacare. It's not like Obamacare's numbers have gotten any better for the very people that Eric was talking about. The other thing that they did was some clever things. The Democrats put into the bill sweeteners for governors, right? So if you are a governor of a state, even if you are Governor Pence of Indiana, you think, oh, I don't really want to do that, but I'm going to have to do it in terms of taking the money. There's a big fight in Florida over that. And so, now you have a situation where you say we got a taste of it. Most people now will say it's too hard to unwind it. Right. It will be too hard. Yeah. It will be too difficult because there are too many people now that are benefitting from it . It's like every program. . and what are you going to do with those people? So -- and to Kimberly's point, whoever is president is going to need at least some help from the other side of the aisle in order to get a congressional solution, because it is going to have to be addressed. And so, if you are the republicans, you actually have some good plans. And one of the things they haven't done well enough is to say, we were willing to come to the table on something. And we agreed you can keep your kids on your health insurance until they are 26th birthday. Fine. We agreed to not discriminate against people with pre-existing conditions. You bet yah. Here are the things that we want to do. We would -- "repeal and replace" is a great slogan because conservatives are like, trust us, we know what we're doing. The problem is from a bigger messaging standpoint, you have to explain with what and how. And that is, it's harder. But the key to all of this is economic growth. There's not enough money in the budget to keep this downward spiral from happening. So, Ezekiel Emanuel is one of the people who are -- one of the architects of Obamacare. Yeah. I heard him on an interview today and -- I have -- wait. Do we have that? Do we have that? Do you have it? Are you ready? Do you want to hear it first? Sure. Let's do this. (BEGIN VIDEO CLIP) EZEKIEL EMANUEL, OBAMACARE There are million people for whom this is going to be severe or uncomfortable. We should be clear, though there are lots of places where the increases are nowhere near what you are stating. For example, 12 states have increases of 10 percent or less. Big population states are actually much lower rates of increase because they have bigger pools and with bigger pools the change from year to year is not so much. And I -- JAKE TAPPER, CNN CHIEF WASHINGTON OK. So he -- you just -- You know, for a million people we need to find other solutions. (END VIDEO CLIP) Is that the right thing? No. The other -- (LAUGHTER) But I will tell you, he's out of his mind . That was his -- . if he's saying that some -- if you look at the list, there are states, there are 50 -- 40 percent, 50 percent, a hundred percent increase is going next year. The point I was trying to make is later on in that interview -- it was a different interview. But later on in the interview he said, "The problem with Obamacare is we're not marketing it to young people properly." Oh, geez. He said, "Don't worry ." Yeah. ". your Facebook and Google will start marketing." Remember pajama boy? But the point, it's not -- that's not the problem. The problem is young people are smart. They realize taking the fine is a better deal for them than having to buy Obamacare. It's because, because Justice -- because Justice Roberts decided to call it a tax . Right. . and not a fee, it's their own fault and their -- Obamacare is imploding on its own way. But this -- It's not imploding. And I just want -- I just can't get, I mean just to pick up on what Emanuel said, I said this to you yesterday, 77 percent of current enrollees can still find an ACA plan for under $100, Eric. And it's 83 percent who gets subsidies. He talked about a million people . Juan, you're talking about current enrollees . . and this -- . who were getting . Let me finish this point. . getting subsidize. When we're talking about a million people, we're talking about people who make just a little bit too much, so they don't qualify for those subsidies. And when you talk about fixing things, you know, there are realistic steps that can be taken. But what you see is that republicans -- and I think politically, have succeed in sabotaging Obamacare. Wow. just simply -- I'm not taking it . Oh. . or no alternatives. Trump has no alternative at all. The numbers have sabotaged it (inaudible) -- They -- and they sabotaged themselves . No, no, no, because -- . because they knew that it was going to work. No. You know why I say sabotage, because . No, you disowned it. . Democrats -- 70 percent of democrats plus support it. It's . It's democrat . . 76 percent of republican . . proposition. . has become a republican -- (CROSSTALK) I can't believe a democrat . Right. . supporting a program . You mean (inaudible). . that keeps expanding? Well, because -- They're reminded it hurts the country? (CROSSTALK) Yeah, it's the horse that they rode in on -- but here's the problem, because that horse is about to collapse, OK? -- Because here's the problem. You've got in this administration figures, average premium increase for a (inaudible) silver plan, for example, will rise a hundred and sixteen percent in Arizona, 40 percent in North Carolina and 53 percent in Pennsylvania. Ride that all the way if you are Trump or republicans in those swing states. And like Dana said, Obamacare, I think is a huge issue to pound it -- And wait until you see -- Juan, you quoted a poll was taken a month ago. Wait until you see the next premium increases . Sure. . are made public and acknowledged by the White House, more or less. This is what I -- Did you see how the American public says? You know what, that does stink. You know -- It is too expensive for me. You know you're demonizing Obamacare. It just tells me how successful it has been with republicans. But I just remind you of this fact. What? What? What? yeah, because I think it -- What's the logic? Yes, it is. What? You can demonize Obamacare, among republicans, it's -- What I -- Applaud. Applaud. (CROSSTALK) . acknowledge about Obamacare yesterday . But let me just say -- (CROSSTALK) . when the White House said . Let me say this to you. . there'll be an increase. The fact. It's going to be massive. Let me just tell you something, right now . You're supporting what the White House said. . the average premiums -- right now, average premiums, we're talking about this hike, with average premiums today with the hike are where they are estimated to be at the start of Obamacare. In other words, it has been below the estimates . Yeah, but that's -- . all this time. And so now we see . Four, four -- A four or five -- what was supposed to be the average at the start? And you say, oh, it's imploding. Here's the picture. Emanuel remember it was wrong. Here's exactly what it is. Its people who are -- make $47,000 or below will able to get highly subsidized or free health care. That brings the average premium price down. You forget about the people who are above $47,000 . That's right. ... a year, Juan. That's right. Acknowledge the problem. Those are the people that are picking up the cost for the rest. No, no, no. That's why premiums . But they don't care. . and deductibles . I see. . are skyrocketing for everyone else. That's what needs to be fixed . All right. . but it's not that the entire programs imploding. That isn't the issue. Who is paying for it? All right. Guess what? Dana? Who pays when the poor go to your hospital today? We do. Yeah, thank you. We . That's why my insurance (inaudible). . obviously quite fascinated with health. But we must move on. Best of yours. Next, some new polling on early voting. And later, the Pentagon halts a disgraceful effort to force veterans to repay their enlistment bonuses -- the defense secretary's announcement today, ahead. General election is just around two weeks away, but millions of Americans have already voted in dozens of states and Washington, D.C. Democrats have been taunting to early voting numbers, but the RNC says hold on, not so fast. (BEGIN VIDEO CLIP) SEAN SPICER, RNC CHIEF STRATEGIST AND COMMUNICATIONS They have to do well in early voting. Democrats historically have done very well in the early vote. Republicans do very well day of. What they're not telling you as if they're not doing as well as they should be. The republicans are doing much better in early vote than the democrats. And they need to crush it in early vote if they're not doing it. (END VIDEO CLIP) Meanwhile, Hillary Clinton made another appeal today to Floridians headed to the polls, early. (BEGIN VIDEO CLIP) HILLARY CLINTON, PRESUMPTIVE DEMOCRATIC PRESIDENTIAL We can't take our foot off the gas even for a short time. Every vote counts. Just ask my friend, former Vice President Al Gore. Our bottom line is we need to work for next 13 days. And here in Florida, voting could not be easier. Please, you can go early vote through Sunday, November 6th. Go to any early voting site in your county. (APPLAUSE) (END VIDEO CLIP) And she knows she has her work cut out for her in the nation's largest -- largest battleground state. The new Bloomberg poll shows Trump ahead in Florida by two points. Bring it around, so in this way. Well, I -- Thoughts on two points per -- Trump. Well, I mean, this is a nice, this is a nice sliver of hope. I mean it's like, you know, I would be happy about this. But it tells me something that there -- for millions of people, the specific criticisms about Trump, simply do not matter. We kind of know that already. He has an entertainment bubble. It's a historical first. It reminds me of a young Obama. No matter what you said about Obama, his base wouldn't listen. And I think that's what you have with Trump, especially in Florida. They, they dismiss allegations and character flaws because they believe he is right on one or two major issues. And they believe that they can forgive the rest because -- as long as he is steadfast on, say terror and immigration. Dana -- (CROSSTALK) Early votes, 700 -- 600 and change thousands votes for each, so far. It's almost a dead heat going in. Your thoughts? Well, certainly, a lot of votes that come in earlier from the military, and those would probably largely go to Trump. Get out of vote effort in the state are pretty interesting. It's amazing that it's this close given the funding, the number of -- the amount of money that Hillary Clinton has spend and how many offices are there. As of last week, Donald Trump had five full-time staffers in Florida. So maybe he really didn't need that many more. That will be an interesting thing post election. He is under polling where Romney was, at this point with early voting, but those rallies that had, those last three days, I think are paying off. And he knew that he had to have Florida. If on election night they call Florida for Hillary Clinton and as early -- I mean, there's probably no -- there's no other real good path for that. No, there isn't. I -- in fact, that's it. He has to have Florida - - she doesn't have to have Florida. Right. He does have to have Florida. Absolutely. And I the -- (CROSSTALK) I think it's the -- it is the number one battleground state. And two things to say here; one is, on the early voting -- and I'm, I'm amazed. It's now 40 percent, by the way. That's a lot. 40 percent of Americans . (CROSSTALK) . will vote before Election Day. So this election is on. Don't think it's not happening right now. The thing I wanted to say about early voting was that, right now we have democrats and republicans having cast equal numbers of early votes in the state of Florida. Go back to 2012, it was plus 17 for the republicans and Obama still won. So I think that's why you see the democrats celebrating so far. What I think is a far superior ground game. I think Dana just said they have five people on the ground -- that the -- Full-time staffers. Right. The Clinton people -- they have offices. Yes. They have operations. Can I take -- extrapolate that a little bit? Yeah. Clinton has offices; people, masses. Trump has five. Right. And she's outspending him something like 10 to 1. Yup. Right. And he still -- he still neck and neck there. It'll be like, look at me, I can do more with less. And I will do that in the government. And I won't be taking $5 when I can get it done with $1. They are into waste. This is a problem in D.C. and Washington with politics and business as usual. I'm going to cut back because I care about how hard you work, blah, blah, blah, blah. Here is the thing. His supporters don't need to have their hand held. They are like, I'm all in. I'm going no matter what if I'm going to get struck by lightning. I'm going to make sure I get to the polls. Honestly, what she's got to try, I think really galvanize and get out African-Americans, minorities to come out for her because the numbers are down compared to what Obama was able to get. And certainly with, you know the enthusiasm. So, you know, yeah, they have a very sophisticated ground game. You know they are a well-oiled machine. But nevertheless, they still need the individual vote. (CROSSTALK) The one thing -- quick thing to say here is picking up on what Kimberly is telling you about. This Bloomberg poll has Trump winning 35 percent of Latinos in the state of Florida. If that's true, that's . (CROSSTALK) . that's something. I think Nevada had about the same number, 33 percent of Latinos in Nevada. (CROSSTALK) I'm just telling. There'll be -- (CROSSTALK) That's unbelievable. All right, let's leave it there, because we do have a well-oiled machine coming up next, so a lot of issues that matter greatly to voters in this election. "Special Report" kicks off a new series in the top 10 tonight. Bret Baier -- well-oiled machines joins us live from New Hampshire with more on that next. Tonight on the Fox News Channel, in other words, right here. Part one of a must-see 10-part series on the top issues that matter to us, American voters. It kicks off at 6:00 p.m. on "Special Report" with issue number 10, according to a Fox News poll, that issue is drug addiction. Chief Political Anchor Bret Baier joins us now with more live from New Hampshire, a state at the center of that nationwide heroin epidemic. Bret, tell us a little bit about how you are going to do this series and about why you are in New Hampshire to start. BRET BAIER, CHIEF POLITICAL Well, first of all, we're here at Robie's Country Store which you may know is kind of an iconic place in New Hampshire, political lore in Hooksett, New Hampshire. We wanted to come here to New Hampshire because the first in the nation primary was pretty much where one of the places we started this race. This is our last road show here in New Hampshire. And we wanted to kick it off, Juan, with this series, issues that matter. And as you mentioned, it starts tonight with drug addiction. This is number 10. New Hampshire happens to be one of the nations highest in the per capita rate of addiction. Some 258 people have already died this year from opioid or heroin. It's expected to be 500 by the end of the year. So it's a major problem here. Rick Leventhal takes a deep look at the issue, travels around on some raids in this area. And it's not just here in this region, but obviously the country that this is a major problem. You know Bret I'm just so impressed, because right now there's a huge number of voters who say, we're not talking issues. But you are willing to do this. And I, I just wonder, you think the people will pay attention? I hope they do, because -- you are right, I mean this -- I heard somebody the other day say this election has been the Seinfeld election, about nothing, because there hasn't been a lot of deep dive -- diving on the issues. And we thought, as we close up this campaign, how important it is to really dig into some of these issues the people said they care about. So we start with drug addiction -- addiction. And then we have immigration tomorrow night. Foreign policy is next; Climate change, health care, the federal deficit, race relations, education, terrorism, and of course, the number one issue on everybody's mind, the economy. And that's where we end it right before Election Day. Kimberly Guilfoyle. Yeah, I actually want to bring up a story that we've been covering the last couple days with the Defense Secretary Ash Carter, Bret, deciding to suspend all efforts to collect money from the National Guard, men and women that served for those enlistment bonuses. Yeah. That was a non-starter. I mean you knew this was not going to last long because, politically, that's just untenable in an election year to have this claw back to bonuses that national guardsmen got, you know, a decade ago or longer. So even though it's in California where many of those races are not going to be, you know it's pretty democratic California. Politically, the administration and the Pentagon could not -- could not deal with that. So I think it was expected it was going to come to an end, and the official end happened today. What about the people, though that started to pay or that had their wages garnished and they took it out and said, you know, you owe us this money. That's what my concern. Are they going to get that back? Well, I think they're going to get that back. And I think they're going to make an across the board determination that they're not going to go back after that money. But that is a follow-up to this story, Kimberly. That's definitely worth, worth doing because the Pentagon is making an across the board statement that they're not going to ask for that money back. Eric Bolling. So Bret, I think it's a fantastic idea to hit these hot topics. And I love that you are starting with the opioids and the prescriptions. It kills tens of thousands of people a year, even more than car accidents and suicides. But -- the question I have for you, Bret, our chief political anchor, always pointing down the middle -- you have had access to Hillary Clinton -- the town hall. I'm thinking about it's a great town hall. If she is president, if she's POTUS 45, do you think she will provide you and Fox with the access, fair and balanced access that someone else might not -- that someone else might? I mean we hope so. It's the number one news channel. And as you know, we get a lot of eyeballs. And independents and Democrats and Republicans alike. So I think they realize the power of FOX News. And if that happens, I think much like the Obama administration. You know, when I took over for Brit Hume, January 5, 2009, sitting in the anchor chair, people were telling me as I was doing interviews taking over "Special Report" they were saying, they were saying, "You guys are dead. You're no longer. Because President Obama and this administration is never going to give you the time of day." We had rocky times, but we always got questions answered and issues answered. And I interviewed the president, and many others have at FOX, too. So I think if it's a President Clinton, I'm sure we'll have access just like the others. Dana Perino. So Bret, on this topic tonight that you're going to talk about, I'm curious about what the officials there on the ground, state and local officials, police, law enforcement, what do they think they need from the federal government in order to wipe this off the list of a top ten concern? That is a great question, Dana. And actually, immigration and border enforcement is a big issue here in New Hampshire because of the drug problem. Not because there are a ton of illegal immigrants here in New Hampshire. In fact, that number is something like 1 percent or very small. But the issue is about drugs and the thought that they're coming across the border in increasingly powerful doses that are essentially killing people. I mean, every day you see these raids, and people are dying. It is -- this story tonight is going to shock you. Rick Leventhal has put together a really amazing piece. And we're going to give all these pieces time; and we're going to dig in and try to lift up some issues that, no matter who is president, we as a country are going to have to deal with. Right. So Greg, I tell you, your show will be a success if we can get Greg Gutfeld to pay attention -- Greg. Actually, I -- not on the list -- and people think I'm crazy, because I pay so much attention to this. But it is not on your list, nor is it of any concern to any political leader... Oh, boy. ... is the rise of artificial intelligence. It is an inevitable consequence as we recursively develop our intelligence so that super intelligence makes the machines smarter than us. We are going to be in for a hell of a future. I don't even know if you're actually Bret Baier. What are you? Who got to you, Bret? Did Siri get to you? A cyborg. Yes. You're a cyborg. We -- it was not on -- it was not on the list on our poll. This may be a mechanical fly. I'm not sure. It's a drone. It's a robot fly. It might be a drone. It might be a drone. But I think future technology is an issue. But maybe not the concern about artificial intelligence in the things that matter for people. But we'll see. It will be. It will be too late, Bret. When people care, it will be too late. I mean, Bret Baier is so professional, even in the face of your insanity. I'm not joking. I know. If you read up on artificial intelligence, it is probably one of the top issues we're facing in this current... Well, Bret, I think you're Bret Baier. I trust you're Bret Baier. Greg, we'll be back. And I trust in Bret Baier to give us a great show on all these top issues in the campaign. Bret, I'm going to encourage the audience, please watch. It begins tonight on "Special Report." Don't forget to watch part one of "Issues That Matter" on "Special Report." Straight ahead, actual fighting words between Vice President Biden and Donald Trump. That ugly exchange next. ( SAMMY HAGAR, "I CAN'T DRIVE 55") There you go. Is that, like, the birthday song? I don't know. Hillary Clinton says since the second debate, "When they go low, we go high." Her surrogates aren't following that moral code, however. Elizabeth Warren and Vice President Biden haven't exactly been taking the high road on the trail. (BEGIN VIDEO CLIP) SEN. ELIZABETH WARREN (D), Get this, Donald. Nasty women are tough. Nasty women are smart. And nasty women vote. And on November 8, we nasty women are going to march our nasty feet to cast our nasty votes to get you out of our lives forever. JOE BIDEN, VICE PRESIDENT OF THE UNITED The press asks me don't I wish I were debating him? No, I wish we were in high school and I could take him behind the gym. That's what I wish. (END VIDEO CLIP) Trump always says he's a counter puncher, and he doesn't shy away from a fight. His response? This. (BEGIN VI

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[04:05:00] ALLEN: -- why taunt and threaten the world with nuclear annihilation up until the moment he said, I'm done; let's make peace, not war? ANDREI LANKOV, KOREA RISK GROUP: Well, there are two reasons probably. Actually, there are two possible explanations. And the exact answer is unlikely to be known maybe for many decades ahead. Some people say that he was just playing his usual trick. It's what the North Korean government has done for many years. You need something, you first create a crisis. You look dangerous. You threaten everybody. You promise to make Seoul or Tokyo, Washington, into the sea of fire. And then suddenly you change your tone, you smile broadly and you say, and let's talk. And for your willingness to essentially solve the crisis you yourself created in the first place, you are getting some concessions. Second option is slightly different, probably such a kind of diplomacy war is what the North Korean leaders initially wanted to do but they faced a completely different situation. There is Donald Trump, being the United States president. And over the last year there have been many signs, many leaks and hints that the White House was serious about a military operation. Such a military operation no doubt would become a disaster for everybody, including the Americans. But (INAUDIBLE) it would be a disaster for North and South Koreans. So they were sufficiently terrified. And it is quite possible that, if you like, President Trump preempted Chairman Kim and Kim Jong-un, the North Korean leader, decided to push the brakes, not completing the initial plan. And now they want to negotiate sort of stability, promises that nobody will start shooting at them and that some of the sanctions, international economic sanctions, will be lifted, if they behave themselves, if they freeze and partially dismantle their nuclear program -- (CROSSTALK) ALLEN: -- I want to ask you that point you made in number 2, so do you give much credit to President Trump then for pushing Mr. Kim to this moment in his leadership? We just heard some of Mr. Trump's supporters chanting, "Nobel, Nobel," indicating they think he might be a candidate for the Nobel Peace Prize if this continues along this path. LANKOV: Well, I would say I would credit President Trump. But it's also -- it's sort of disappointing to see how something which cannot be described in any way by international blackmail does work. However it is a very risky game. And I'm afraid that this success will lead to more, I would say, generous application of the same blackmail tactics. In many places in Korean current opinion so -- and it is likely not just backfire but bring very dangerous results. For example, if North Korea is under (INAUDIBLE) pressure, probably they will not give in but will keep raising the stakes, too. So it's a big issue, whether it's going work in the long run but so far it has worked. ALLEN: Andrei Lankov, we so appreciate your thoughts. And we hope to have you on again with us to talk more about it. Thank you. HOWELL: Well, here in the United States, the political divide on full display in what you could call a tale of two Washingtons. Here's the Washington, D.C., Saturday night, the White House Correspondents' Dinner is historically a place where they roast politicians. Many of the punchlines this year targeting the man right there, the U.S. president. ALLEN: If often does. But there has been war between the media and the president for some time now. In another Washington, more specifically Washington Township, Michigan, President Trump targeted the media and Democrats. Our Boris Sanchez starts us off from the president's rally there in Michigan. (BEGIN VIDEOTAPE) BORIS SANCHEZ, CNN WHITE HOUSE CORRESPONDENT: The president kicked off his event here in Washington Township, Michigan, by noting that he was invited to another event in Washington, D.C., alluding to the White House Correspondents' Dinner, but saying that he would rather be here among his supporters. The president calling that event "phony" and saying that he did not want to sit there and smile as he was being insulted. The president also took aim at a number of his favorite targets, including the media and certain Democrats, like Nancy Pelosi, Chuck Schumer and the governor of California, Jerry Brown, before targeting Montana senator Jon Tester. Of course, Tester is the ranking Democrat on the Veterans Affairs Committee and he had some role in sinking the president's nominee, Ronny Jackson -- [04:10:00] SANCHEZ: -- for the Secretary of Veterans Affairs. The president at one point seemed to threaten Tester. Listen to what he said during his speech. (BEGIN VIDEO CLIP) TRUMP: Senator Jon Tester of a really great place, Montana, who voted by the way in favor of sanctuary cities, who's weak on the border, didn't vote for tax cuts. He took a gentleman, who is a truly high- quality human being, and what they said about him, what they said about this great American doctor, Ronny Jackson, an admiral in the Navy and Tester started throwing out things that he's heard. Well, I know things about Tester that I could say, too. And if I said them, he would never be elected again. (END VIDEO CLIP) SANCHEZ: The president calling what Jon Tester did "a disgrace." One other noteworthy moment, President Trump accusing Vladimir Putin of planting Natalia Veselnitskaya, that attorney that was in a meeting at Trump Tower in June of 2016 with Paul Manafort, Donald Trump Jr. and Jared Kushner among others, saying that Putin intentionally had her declare that she was an informant to the Kremlin this week in order to sow chaos within the United States. One of a number of claims by President Trump during his speech here. He also talked about immigration and trade, a number of his favorite topics. And the crowd ate it all up to different chants of "Build the wall" and at one point also chanting, "Nobel, Nobel," suggesting that the president should win the Nobel Peace Prize for the ongoing talks between North and South Korea, moving toward denuclearization. The president also saying that he looks forward to the potential meeting between him and North Korean dictator Kim Jong-un -- Boris Sanchez, CNN, traveling with the president in Washington Township, Michigan. (END VIDEOTAPE) HOWELL: Boris, thank you. Now we're joined by Steven Erlanger. Steven the chief diplomatic correspondent in Europe for "The New York Times," live in Brussels with us this hour. Steven, always a pleasure to have you on the show. Looking ahead to next month, there is potential for a really big meeting between the U.S. president Donald Trump and the North Korean leader Kim Jong-un. Let's put this into context. The midterm elections are just around the corner. Could such a big possible win eclipse the controversial patterns of this president to bolster his party? STEVEN ERLANGER, "THE NEW YORK TIMES": That may be one of the ideas. Trump is in trouble with the midterms. Everybody knows that but his advisers keep telling him about it. And he is quite confident; this other part of his characteristic. He just doesn't believe bad news. And it is possible that they will try to, you know, do the PR version of the Kim meeting to help his stature in the world. He would be better off pushing ahead to voters tax reforms, tax cuts. That's what his aides are telling him. Now on the Kim question, you had very some good discussion. But nothing's really happened. Let's be fair. And I would be shocked, shocked if Kim denuclearized. It is nuclear weapons that make him important in the world. As someone said, North Korea without nuclear weapons would be like Saudi Arabia without oil. No one would care. And it is very important that Kim keep his stature because he is running a cult-like country with deep, deep economic problems. So let's see what happens. It's better that they chat, better that they talk and better that they smile. But if Mr. Trump goes in expecting real commitments to real denuclearization, I think this could be very disappointing indeed. HOWELL: I want to talk about two points that came up at the rally, first, the issue of border security came up when the president was speaking in Michigan. And another threat coming from the president of a possible government shutdown. Let's listen. (BEGIN VIDEO CLIP) TRUMP: We have to have borders and we have to have them fast. We need security. We need the wall. We're going to have it all. Again, that wall has started. We are $1.6 billion. We come up again on September 28th. And if we don't get border security we'll have no choice. We'll close down the country because we need border security. (END VIDEO CLIP) HOWELL: We have heard threats like this before, Steven. When do statements like this just become empty threats? ERLANGER: Well, it is an empty threat because no one's going to shut down the country. That makes no sense. You couldn't shut down the country even if you wanted to. You -- actually, if you look at the figures, you'll find illegal immigration for Mexico way down and the Mexican economy is doing better. More people are going home. Fewer people are actually coming. [04:15:00] ERLANGER: But it's a big border and even if there's a wall, there will always be a tunnel. Just look at Gaza. It's not hard to get under walls. So shut down the country? We are an open country. We are a country that believes in trade. We are a country of immigrants. We have been built as the country of immigrants. So this one does -- Trump very often has a point. This point seems to be simply political. You cannot shut down the country nor would it be a very good idea. This one, I think, is an empty threat. HOWELL: All right. Also at the rally, the crowd there was chanting. Let's listen to the chant. (VIDEO CLIP) HOWELL: The chant there, "Nobel, Nobel." This obviously due to the possible breakthrough with North Korea, Steven. The question though, Mr. Trump and a possible Nobel honor, your thoughts. ERLANGER: Well, maybe the crowd thought he should get the prize for literature. Who knows what they thought? (LAUGHTER) ERLANGER: I mean, making a joke, of course. But you know, I think we are pretty far down to road. Let's see what happens in North Korea. I mean, it's a crowd that loves him. That's why he went there. The White House Correspondents' Dinner was going on at the same time. Trump said at his rally, very honestly, why should I sit there and take shot after shot and pretend to smile? He said that seems no fun. I'm sure it is no fun. And he had much more fun where he was in that other Washington. So the crowd will love. They also were shouting things like "lock her up" about Hillary Clinton. They were shouting some of the things that marked the Trump campaign. This was a campaign rally, the people who were clearly his supporters. Now does it mean a lot? Probably not. Trump did all of his old tried and tested goodies. And they still work with a lot of people who still loved him. I'm sure he enjoyed that much more than he would have done at the other Washington. HOWELL: Steven, you had me when you turned the corner with the word "literature." So we'll have to see how this -- (CROSSTALK) ERLANGER: Well, I don't think it will be chemistry or physics or economics but maybe it'll be literature. (LAUGHTER) HOWELL: A pleasure to have you on the show, Steven, always there in Brussels. We'll stay in touch with you as we see what happens next month. Take care. ALLEN: Maybe they need you to create a new category for President Trump, Nobel. Well, while the president skipped the White House Correspondents' Dinner, he repeatedly encouraged his staff to attend. HOWELL: But White House officials may not have been amused with some of the jokes made at their expense, as our Kate Bennett explains. (BEGIN VIDEOTAPE) KATE BENNETT, CNN WHITE HOUSE CORRESPONDENT: The annual White House Correspondents' Dinner is wrapping up here at the Washington Hilton Hotel. The annual Nerd Prom, as people like to call it, that mash-up of journalists who cover Washington and the White House, politicians and, although no president Donald Trump was here again, several members of his administration and his staff at the White House. We were told the president personally encouraged members of his team to attend this year when last year they were told not to come. Everyone seemed to be getting along fairly well. There was Michael Avenatti, Stormy Daniels' attorney, chatting on the red carpet with people like Kellyanne Conway and Sarah Sanders. The dinner got underway. Scholarships were handed out. There was a lot of celebration about the First Amendment and the importance of journalism. And then comedian Michelle Wolf took the stage. And that's when things got a little iffy. We always expected the comedians at this dinner to make fun of the president, to sort of joke and roast. However, about midway through her routine, Wolf got a little personal specifically when it came to press secretary Sarah Sanders, who was also sitting at the main table just a few feet away from Wolf as she was giving her routine. (BEGIN VIDEO CLIP) MICHELLE WOLF, COMEDIAN: I actually really like Sarah. I think she is very resourceful. But she burns facts and then she uses that ash got to create a perfect smoky eye. (LAUGHTER) WOLF: Like maybe she's born with it. Maybe it's lies. It's probably lies. (END VIDEO CLIP) BENNETT: One topic Wolf didn't avoid was the controversy with Stormy Daniels and the president and the alleged affairs and the salacious headlines. She actually made a joke, saying if we wanted her to be quiet, she might accept a similar payment to the one Michael Cohen made the porn star. (BEGIN VIDEO CLIP) WOLF: I'm a woman so you cannot shut me up unless you have Michael Cohen wire me $130,000. (END VIDEO CLIP) BENNETT: All in all, I have to say, toward the end of the jokes -- [04:20:00] BENNETT: -- we watched the room go quiet. We watched people's faces get stony-faced. I'm not just talking about the members of the White House staff or the president, I'm talking about journalists, who also felt somewhat uncomfortable that the comedian might have gone a tad too far in her personal attacks on members of the president's administration, from Kellyanne Conway, again, to Sarah Sanders, Reince Priebus. She also made jokes about Ivanka Trump. The evening, the reviews might come out a little bit differently than previous years. But still Nerd Prom 2018 is a wrap -- I'm Kate Bennett at the Washington Hilton for CNN. (END VIDEOTAPE) HOWELL: Kate, thank you. And the U.S. president choosing not to be there for those jokes. ALLEN: The first president to not attend the White House Correspondents' Dinner other than Reagan, who didn't because he had been shot. HOWELL: Still ahead here, Mike Pompeo makes his first visit to the Middle East and the U.S. secretary of state and he is bringing a message from the U.S. president. ALLEN: Also you may have to pay more for your favorite bottle of wine. We'll tell you why global wine -- (CROSSTALK) ALLEN: -- we'll tell you why global wine production has hit a historic low. (MUSIC PLAYING) (SPORTS) [04:25:00] (MUSIC PLAYING) HOWELL: The new secretary of state of the United States, Mike Pompeo, hitting the ground running in his new role. Right now he is in Saudi Arabia, where he's set to meet with King Salman. He's also been meeting with U.S. embassy staff in Riyadh. Expected to top his agenda, Syria's civil war and the Iran nuclear deal. Pompeo has said the U.S. will likely leave that deal if substantial changes are not made to it. ALLEN: Pomp will head to Israel and then Jordan in the coming hours. CNN's Oren Liebermann is in Jerusalem for us and our Ben Wedeman is in Amman, Jordan. Ben, let's start with you. The Trump administration is closely aligned with Saudi Arabia and just this week, the president reiterated the Iran nuclear deal is on the table. Even Pompeo said a few days ago the president would likely not stay in it. How will that go over in Saudi Arabia? BEN WEDEMAN, CNN SR. INTERNATIONAL CORRESPONDENT: Certainly Saudi Arabia from the very beginning was a fierce opponent of Barack Obama's Iran deal. Therefore, they will probably see eye to eye on that, the idea of the United States pulling out somehow from that agreement, despite the fact that all the other signatories to that agreement -- Germany, the United Kingdom, France, Russia and China -- are opposed to that. In fact, Iran has been certified as abiding by the conditions of the agreement. But one of the main concerns of Saudi Arabia and the United States and Israel as well is the Iranian missile program. While Secretary Pompeo is in Saudi Arabia, he will probably get an earful from the Saudis about what they see as the threat of Iranian supplied missiles to the rebels in Houthi rebels Yemen. Yesterday the Saudi news agency reported that four ballistic missiles fired by the Houthis were intercepted over Jizan province in southwestern Saudi Arabia. And therefore that will probably be part of the topic. But by and large Secretary Pompeo, who, prior to joining the Trump administration, was also a harsh critic of the Iran nuclear deal, he will probably get a receptive audience from the Saudis when he meets with King Salman and, no doubt, the crown prince Mohammad bin Salman in Riyadh -- Natalie. ALLEN: As the crown prince got a very warm reception here in the U.S. Ben, thank you for that. Now over to George. HOWELL: All right. Ben, thank you. As we mentioned, the next stop for Mike Pompeo is Israel. CNN's Oren Liebermann live in Jerusalem on the story. Oren, following what Ben said, Pompeo's suggestion that the U.S. may back out of the Iran nuclear deal certainly must be music to the ears of the Israeli prime minister, who never hid his dislike for this deal specifically with regards to Iranian missiles. OREN LIEBERMANN, CNN CORRESPONDENT: Ben was absolutely right there. There are two critics of the deal, the Saudis and the Israelis, perhaps the only difference being that the Israelis, led by Prime Minister Benjamin Netanyahu, were far more vocal and outspoken in their criticism of the Iran deal. Netanyahu has said repeatedly, even inventing or creating a new catchphrase, "Fix it or nix it." So in the event that it won't be fixed in the next couple of weeks, which seems unlikely, Netanyahu will be lobbying for Trump to pull out of the Iran deal. So that's what he wanted to hear. Israelis, Netanyahu very much has the same concerns as the Saudis in this case. That would be Iran's ballistic missile program, which was left out of the Iran deal and then what has been called here the sunset clauses. If Iran is compliant for the term of the deal, there are restrictions on the economy and restrictions on the nuclear program that are lifted, that's been Netanyahu's other big concern. So if those addressed, if those aren't fixed, Netanyahu very much lobbying for the U.S., for President Trump to pull out of the Iran deal. Also worth pointing out that Pompeo's trip is a bit of politics, a bit of diplomacy. Former Secretary of State Rex Tillerson never swung by Israel, never visited Prime Minister Benjamin Netanyahu while he was secretary of state. So Pompeo making that trip right at the beginning here, a strong show of force and diplomacy between Israel and the United States for partnership as well there -- George. HOWELL: Oren Liebermann, on the story live in Jerusalem, thank you for the report. We'll stay in touch with you. Still ahead here on NEWSROOM, a woman coming back from her honeymoon dies on an American Airlines flight. Why the family is now suing. We'll tell you about it. ALLEN: Also ahead here, a survivor of the Las Vegas mass shooting doesn't want attention, just to help other survivors of the tragedy. We'll have his story. (MUSIC PLAYING) [04:30:00] (MUSIC PLAYING) ALLEN: Welcome back. We appreciate you watching. I'm Natalie Allen. HOWELL: And I'm George Howell. (HEADLINES) ALLEN: American Airlines is facing a wrongful death lawsuit after a woman died aboard a flight in 2016. HOWELL: Her family claims that the airline did not get the woman the appropriate medical attention when she needed it. CNN's Polo Sandoval reports they want American Airlines to re-examine its policies. (BEGIN VIDEOTAPE) POLO SANDOVAL, CNN CORRESPONDENT (voice-over): A newly filed lawsuit paints a disturbing picture of what happened to this 25-year-old woman aboard a Dallas-bound American Airlines flight two years ago. Newlyweds Brittany Oswell and her husband, Corey, were flying home from Hawaii, according to the lawsuit. Three hours into the flight over Los Angeles, Oswell started feeling dizzy and disoriented. As the plane flew over New Mexico, she took a turn for the worse, vomiting in the lavatory and eventually lost consciousness. The complaint filed by Oswell's family -- [04:35:00] SANDOVAL (voice-over): -- alleges a doctor on the flight recommended the plane land immediately to get her to a hospital. That didn't happen. The lawsuit says the flight continued another 90 minutes, the rest of the way to Dallas after the flight crew consulted American Airlines' own doctor on the ground. By the time the plane landed, Oswell was without a pulse and died three days later from a blood clot in her lung. Oswell's family attorney, Brad Cranshaw, says the airline was negligent in not diverting the flight. BRAD CRANSHAW, OSWELL FAMILY ATTORNEY: Why did the pilot make the decision to continue on with the flight when he had a doctor 10 feet away on the cabin floor, telling him that she needed to land, that my client, Brittany Oswell, was in distress and needed emergency medical care? That's what it boils down to. SANDOVAL (voice-over): Cranshaw also alleging medical equipment on board the plane malfunctioned, further complicating potentially life- saving efforts. American Airlines saying the company is saddened by Oswell's death but would not address specific claims. In a brief statement, they wrote, "We take the safety of our passengers very seriously and we are looking into the details of the complaint." Aviation expert Mary Schiavo says there are still plenty of questions that still need to be answered. MARY SCHIAVO, CNN AVIATION ANALYST: What really we have to ask is what would be the issue or the cost on a diversion? And that's something I think that this lawsuit will address. Why could the plane not be immediately landed? Or is there a problem in sequencing, getting clearances? SANDOVAL (voice-over): Polo Sandoval, CNN, New York. (END VIDEOTAPE) HOWELL: Polo, thank you. Another airline carrier here in the United States is also being sued. In this case, Southwest Airlines, for its fatal engine failure that happened earlier this month. A passenger says that she is suffering from physical and emotional injuries after that flight. About 20 minutes into the flight, the engine fan blade broke; shrapnel shattered a window and one woman was killed. ALLEN: The passenger alleges Southwest and the plane manufacturer disregarded passenger safety. Southwest says it is working with the National Transportation Safety Board to investigate why that happened. Well, the future is closer than we think. Coming up here, why some scientists say unchecked artificial intelligence could be dangerous, even if these robots are kind of cute. (MUSIC PLAYING) [04:40:00] (MUSIC PLAYING) ALLEN: Now to what a U.N. official calls a forgotten humanitarian crisis. A decades-old fight between ethnic Kachin rebels and the military in Myanmar's Kachin State escalated this month, forcing about 10,000 people to leave their homes. Reports say thousands are now trapped in a forest with no access to humanitarian aid. HOWELL: The Kachin in Northern Myanmar are mostly Christian. They have been fighting for many years now for more control over their lives in the predominantly Buddhist nation. This isn't the only minority conflict in Myanmar. About 800 kilometers or nearly 500 miles to the south is Rakhine State. And that's where violence has forced 670,000 Rohingya Muslims to escape to neighboring Bangladesh from attacks. Will artificial intelligence be a blessing or a curse? There are more different opinions on that issue. (BEGIN VIDEO CLIP) ALLEN (voice-over): This is Atlas. He is obviously a robot. But he behaves in surprisingly human ways. Take a look. Sticks the landing. (LAUGHTER) ALLEN (voice-over): That is the brainchild of Boston Dynamics, a group that's building advanced robots, been teaching them to function on their own. He'll be ready for the Olympics. The robots essentially teach themselves to achieve goals with artificial intelligence. HOWELL: Right after that video was released, the billionaire entrepreneur and outspoken AI critic Elon Musk tweeted this, "This is nothing. In a few years, that bot will move so fast, you'll need a strobe light to need it. Sweet dreams." Later, Boston Dynamics released this video of their prized robot dog, named Spot Mini. He's a little more helpful than your average canine- shaped robot. For instance, he can open this door for his little friend. Wow. ALLEN: He doesn't have a head. He can do a lot without a head. (CROSSTALK) ALLEN: Another video shows Spot Mini teaching himself to operate around a set of unexpected obstacles, stopping at nothing until he reaches his goal. And that's the part of AI that's worrying people like Elon Musk (INAUDIBLE) throw us into who advocates for strict regulation of artificial intelligence technology. HOWELL: Just last August he tweeted this, "If you're not concerned about AI safety, you should be," along with a picture that says, "In the end machines will win." Sober. Some experts in artificial intelligence are paying attention to Elon Musk's warning. Critics fear that there is far more sinister a potential to this side of technology than friendly animal robots. ALLEN: Some see a future where AI could even lead to -- wait for it -- human extinction. CNN's Erin McLaughlin spoke with some of the experts to see what they think. (BEGIN VIDEOTAPE) ERIN MCLAUGHLIN, CNN CORRESPONDENT (voice-over): In the picturesque Swiss town of Lugano, scientist Jurgen Schmidhuber works toward a revolution. If he's successful, the world will never be the same. JURGEN SCHMIDHUBER, AI SCIENTIST: Ours is going to be much more than another Industrial Revolution. It will be something that transcends humankind itself and even biology itself. MCLAUGHLIN (voice-over): Schmidhuber is an AI pioneer. His goal: to create artificial intelligence radically smarter than humans. He's helped develop the algorithms to define the field as we know it now. Artificial intelligence or AI is what makes Siri respond to your commands... SIRI, AUTOMATED VOICE: Here is what I found. MCLAUGHLIN (voice-over): -- and enables Google to translate. MCLAUGHLIN: What do we have here? MCLAUGHLIN (voice-over): Inside Schmidhuber's labs, AI pushes beyond that. Cars teach themselves to park... SCHMIDHUBER: When you now move your head, you are going to follow and you can direct it. MCLAUGHLIN (voice-over): -- drones learn to follow humans... MCLAUGHLIN: I go forward. I go backward. MCLAUGHLIN (voice-over): -- AI even teaches itself to run. SCHMIDHUBER: The important thing is, there's no teacher and what you see there, it's trying all kinds of things. In the beginning it's a total failure. And the goal is just to maximize the distance covered. MCLAUGHLIN (voice-over): The next step: developing robots which can -- [04:45:00] MCLAUGHLIN: -- teach themselves to perform simple tasks. Still, none of this comes close to super intelligence. SCHMIDHUBER: These are mobile platforms... MCLAUGHLIN (voice-over): Schmidhuber believes it can be achieved in mere decades. MCLAUGHLIN: So there are those who are skeptical, who say that actually AI could very well enter another sort of deep freeze period, where nothing happens. SCHMIDHUBER: At the moment, I don't see that as a possibility at all because all the tendency is that I observe in my own lab, in other labs, the general har

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NEWS CHANNEL Yes, I mean, I laugh at myself constantly because I'm a total idiot. But you know, I'm secure in being an idiot and that's what's good. Thank you so much, Kyle. Tucker Carlson is up next and always remember, I'm Watters and this is my world. TUCKER CARLSON, FOX NEWS CHANNEL Good evening and welcome to TUCKER CARLSON TONIGHT. In the past 10 days, two separate teenage boys have committed horrifying massacres in public places. On May 14th, 18-year-old Payton Gendron murdered 10 shoppers in a grocery store in Buffalo and then yesterday, 18- year-old Salvador Ramos killed 19 small children and two teachers at an elementary school in Texas. Both Gendron and Ramos were very obviously mentally ill. The people around them knew that. Both killers had told other people they planned to commit a mass shooting and then they did. So, what can we learn from this? Well, the first most obvious answer is that the system in place didn't work. Gendron's teacher sent him to a mental hospital for evaluation. They knew he was a threat. They tried their best. He committed a massacre anyway. So, we know for a fact that what we're doing isn't working, but we should also be honest enough to acknowledge that it's very hard to know what to do instead. Despite what you may have heard, the problem isn't that we don't care enough. There's not a person in this country who was not horrified by the sight of murdered children. It's the worst thing, and everybody thinks that. The problem is that the human mind is much more complex and harder to control than we like to admit. A person who is intent on committing violence is very hard to stop under any circumstances. An act of Congress isn't going to do it, neither will gun control. There are more guns in this country than there are people. There always have been. However you feel about that fact, you can acknowledge that we will never get rid of all of those guns. The Constitution prohibits that, and you would set off a Civil War if you tried to do it. So gun control, whether you find the slogans appealing or not, will not stop the next Payton Gendron or Salvador Ramos and every rational person knows it. The only way to stop these killings is to figure out why American society is producing so many violent young men. There is a reason they are acting this way. What is that reason? And it's not just mass shooters, by the way, the ones you see on television. It is gang bangers and carjackers and armed robbers and indiscriminate haters who put strangers in front of subway trains. We have a lot of people like that in this country all of a sudden, more than you like to think about. Why are they acting this way? That's the only question that matters. Of course, it's the only question our leaders hate to address because there's nothing in it for them. Last night, the President of the United States went on television just hours after 19 small children had been murdered. He didn't do that to uplift or unite the country, which was already united in its sorrow. Instead, he took the opportunity to once again harangue anyone who didn't vote for him, and he did it, as always, with a series of stale talking points leftover from the 1980s. It was a shameful display. Here's part of it. (BEGIN VIDEO CLIP) JOE BIDEN (D), PRESIDENT OF THE UNITED As a nation, we have to ask: When, in God's name, are we going to stand up to the gun lobby? When, in God's name, we do we all know in our gut needs to be done? What, in God's name, do you need an assault weapon for except to kill someone? The deer aren't running through the forest with Kevlar vests on, for God's sake. It's just sick and the gun manufacturers have spent two decades aggressively marketing assault weapons, which make them the most and largest profit. For God's sake, we have to have the courage to stand up to the industry. (END VIDEO CLIP) Children are dying because the gun lobby is profiting. It's disgusting he would say something like that. It's also untrue. It's mindless. "The New York Times," by the way, said the same thing within hours of the shooting. The gun lobby. Please. The NRA declared bankruptcy last year. The NRA is a husk. In 2021, for example, the tech companies spent more than $70 million lobbying Congress. Big Pharma spent $92 million lobbying Congress in the first quarter of 2021 alone. The NRA spent just $2.2 million total lobbying in all of 2020, a presidential election year. Spare us. Whatever the problem is, it's not the gun lobby. They're not the reason those children were murdered yesterday. It's insulting and divisive and stupid. This is too serious a moment for nonsense like that. Stop. But over at MSNBC, they were completely convinced. Watch. (BEGIN VIDEO CLIP) JOE SCARBOROUGH, MSNBC And again, as President Biden said, I thought he did an extraordinary job last night and I really do. I feel sorry for those who actually saw that and were actually forced to say something really [bleep] about him after he did it. I mean, that that's how they make their money. It really makes me really sad for them that they have that dark of a soul, that they're that twisted. (END VIDEO CLIP) Oh. Joe Scarborough said a naughty word on TV. This must be serious. And fact, it is very serious. In fact, it's too serious for tired partisan platitudes from the Reagan era. Update your profile. Politicians offering solutions to the tragedy that in the end serve only to make their political party more powerful should be excluded from this conversation. It is too important. They are speaking in bad faith, obviously, and so is anyone whose bodyguards carry extended magazines or other so-called weapons of war. They're hypocrites. They have no standing. Get back to us when you follow your own demands. And anyone on TV who has been accused of a crime should also take this opportunity to be very quiet. No wants a moral lecture from you, but unfortunately that's essentially all we're getting, more wind, at a time when we need more than that. Beto O'Rourke, who is running for office again because he has no marketable skills, just stormed a press conference to berate Texas officials. He did this in front of the families of some of yesterday's victims. Watch. (BEGIN VIDEO CLIP) DAN PATRICK, TEXAS LIEUTENANT Excuse me. Excuse me. Excuse me. BETO O'ROURKE (D), FORMER PRESIDENTIAL The time to stop this was after Santa Fe High School. SEN. TED CRUZ (R-TX): Sit down. You're out of line and an embarrassment. Sit down and don't play this stuff. O' It was after El Paso, Texas. The time to stop the next shooting is right now and you are doing nothing. You are offering us nothing. MAYOR DON MCLAUGHLIN, UVALDE, No, he needs to get his [bleep] out of here. This isn't the place to talk this over. O' You said this is not predictable. This is totally predictable when you chose not to do anything. Sir, you are out of line. Sir, you're out of line. Sir, you're out of line. Please leave this auditorium. I can't believe you're a sick son of a [bleep] that you would come to a deal like this to make a political issue. O' It's on you until you choose to do something about it. It's on [bleep] like you. Why don't you get out of here? (END VIDEO CLIP) Oh, come on. That's saving lives? That's making us a better country? Beto O'Rourke sounds like one of those lunatics from the Westboro Baptist Church, gets off on making a scene, but that's essentially the answer we've gotten to how to fix and prevent what happened in Uvalde. Please, anyone who talks like this should be quiet for a minute and leave it to everybody else to figure out why this is happening and this is bigger than a single mass shooting or even two of them in 10 days. There has been a huge increase in violence in America on our streets, on public transportation, in our schools. It's not a guess, it's measurable. From January 1st to April 10th of this year, robberies in the New York transit system are up more than 70 percent year-over-year. Felony assaults in the subway have increased by 28 percent. Grand larceny, according to NYPD, is up by more than a hundred percent. Those are all crimes of violence and that's just underground. The same thing is happening on the streets and if you don't know it, you just got back to the country after a while. According to ABC News, quote: "About 11 percent of violent crime in the city of Los Angeles involved a homeless person in 2018, 13 percent in 2019 and 15 percent in 2020." If that was a graph, it would look like that. Keep in mind, the homeless make up about one percent of the total population of Los Angeles, but they're involved in nearly a fifth of all violent crimes in the city. Oh, but ignore it. It's not happening. And yet everyone who lives here knows that it is happening because the numbers go up every year and if you have kids, you know it is happening because it's the same story in the schools. The executive director of the National Association of School Resource Officers, Mo Canady, told FOX Business that schools are, quote: "Seeing more aggression in terms of fights. Sometimes they're shoving matches and sometimes they're flat-out assaults. It's more misbehavior, thefts, and those kinds of things" in schools. It didn't used to happen. It's happening now. Why? It's not guns. It's not the gun lobby. More American families had guns at home 50 years ago than they do now. According to the Rand Corporation, which studied this, 45 percent of American homes had a gun in 1980. In 2016, that had dropped to 32 percent. So the problem is not that we're more armed than we were. The problem is that people have changed. Young men have changed. They are more violent. Why? That's the bipartisan conversation we need to have now. And that conversation has been drowned out by lunatic attention seekers who are hoping to win the next election, but we don't need them now. Never mind your election. There's something really wrong and we can figure it out if we try. There are probably a lot of causes. The use of antidepressants in this country is increasing dramatically. Between 1991 and 2018, total SSRI consumption increased in the U.S. by more than 3,000 percent -- 3,000 percent. Remember, these are supposed to reduce mental illness. Now, that's a real stat. It was published in the Medical Journal "Science of the Total Environment" and it's not just this country. In Canada, state-funded antidepressant prescriptions for young people doubled over the last decade. Then during the lockdowns, SSRI prescriptions increased even more. A pharmacy group called "Express Scripts" reported that antidepressant prescriptions went up by more than 20 percent during COVID. According to latest figures, more than 40 million Americans are now taking psychoactive drugs. That's roughly one in 10. So, again, the point of these drugs is to make you healthier mentally, to reduce suicide and violence, and yet suicide rates and rates of violence are spiking. Now, we don't know that that's causation, but it's worth looking at. Of course, it's immoral to criticize Big Pharma. Could we use an honest conversation about this? Yes, immediately. Clearly, something's going on. Watch. (BEGIN VIDEO CLIP) GILLIAN TURNER, FOX NEWS CHANNEL Three major medical associations, including the American Academy of Pediatrics, have together declared a national state of emergency in children's mental health caused by COVID. Parents report grief, anxiety and depression among children, citing school closures and forced isolations as the primary culprits. Suicide attempts among adolescents are rising sharply, most acutely among 12 to 17-year-old girls by 51 percent since the start of the pandemic. (END VIDEO CLIP) Oh, so the lockdowns dramatically increased the incidence of mental illness among young people and in 10 days, we've seen two mass shootings by mentally ill young people. Could there be a connection? Now, that's not finger-pointing. It's not to blame Fauci for yesterday's shooting. We're not that low. We're not Joe Biden. But if people are becoming mentally ill because they're disconnected from others, what can we do to connect them to others and thereby reduce the incidence of mental illness? That's a real conversation. Is there a more important one? Meanwhile, more than 100,000 people just died of ODs and the pandemic is responsible for some of that. Watch. (BEGIN VIDEO CLIP) GEOFF BENNETT, CHIEF WASHINGTON CORRESPONDENT, PBS New numbers out today from the CDC show how drug overdoses have surged during the pandemic. More than 107,000 Americans died of drug overdoses in 2021. That's the highest annual death toll ever recorded and a 15 percent increase from the year before. Deaths involving fentanyl, meth and cocaine rose sharply. (END VIDEO CLIP) Okay, So, people are doing more drugs, they're more unstable, they're killing themselves more often and in some rare cases, they're killing others. Now, what kind of mindset would it take to go murder children in an elementary school? You are so disconnected from other human beings that that seems okay to you. What could be adding to the feeling of disconnection we have from one another? Well, in 2020, adults in the United States spent an average of eight hours every day on digital media staring at a screen. The lockdowns made it worse. They're not the only cause, but they definitely exacerbated it. That's a 20 percent jump from 2019. One of the people who spent an awful lot of time online during the pandemic was the shooter in Uvalde. He reportedly played a lot of "Call of Duty" instead of going outside. The shooter in Buffalo also spent a lot of time online as well. In fact, he blamed the Internet for radicalizing him: "I spent almost a year planning this attack," he wrote on April 26. "Oh, how time flies. If I could go back, maybe I'd tell myself to get the F off 4Chan and the worldtruthvideos and get an actual life. Too late for that now." Now, that's not an argument for censoring those or any other sites. It's an argument for experiencing real life, nature, other people, animals, anything but a screen. Staring at a screen all day puts you into your own world, and in some small number of cases, it drives you insane. It makes you mentally ill and violent. That's very obvious. That's one of the reasons that people in Silicon Valley, the tech executives, don't want their own kids to lose themselves in their stupid iPads. Back in September of 2013 after a mass shooting at the Washington Navy Yard, the late Charles Krauthammer identified the problem. We have a lot of mentally ill people and we need to stop ignoring them. Obviously, we've ignored that warning, so here it is again. (BEGIN VIDEO CLIP) CHARLES KRAUTHAMMER, PULITZER PRIZE WINNING He needed help. Thirty years ago, the cops would have brought him to a psychiatric emergency room. He probably would have gotten antipsychotics and he probably would have been hospitalized for a couple of weeks. That's the way it was done in the seventies when you and I practiced psychiatry, but today that doesn't happen. The cops left. He was left on his own. He was a man who shouldn't have been on his own. He should have had the state looking after him and he ended up killing people in a way that -- Look, you want to respect the civil liberties of everybody, but there is a point in which if you don't take control of people who are clearly out of touch with reality, you are damaging them, exposing them, and, of course, tragically exposing a lot of innocents around them. (END VIDEO CLIP) Yes, exactly. The stuff is complicated, the human mind is complicated and if the environment changes, so does the mind. If people can't go outside or talk to other people or spend eight hours a day staring at a screen. If they're on brain-changing chemicals in huge numbers, tens of millions of people, you think that has an effect? Yes. What effect? Well, is anyone studying what murderers, not just mass murderers, but all murderers have in common? Apparently not. It would be nice to know. Instead of telling us about the gun lobby. Please, no one believes that. And why, by the way, is the answer to mass shootings always universal gun confiscation? Shouldn't we be focused on the people who did it, on the dangerous people? It's like forcing the entire population into drug rehab in response to the fentanyl crisis. Probably better to focus on the addicts. Why did they get addicted? How can we help them? Let's be serious about this. Children died. It's real. Stop with the talking points. Be honest. Jason Whitlock is always honest. He is the host of "Fearless." He joins us tonight. Jason Whitlock, it is not even about gun control. I mean, at this point is not even like kind of worth arguing about gun control, it is just too stupid even to dignify with a response. But like there's a deeper thing going on here. Why is no one saying that? JASON WHITLOCK, HOST, "FEARLESS WITH JASON WHITLOCK": It's much deeper. And Tucker, thank you for having me on, because I think this is a very important topic and you've laid it out beautifully. Hey, look, Big Tech, these social media apps, this addiction, this dopamine addiction, that they have given all of us, our smartphones, they're our enemies, they are disconnecting our human connection. This young man, Salvador Ramos or whatever, lived a very isolated life. His family was in tatters. Allegedly, his mother was a drug abuser. He is living with his grandmother, there doesn't appear to be a connection to his father. He is online playing "Call of Duty." He is connecting with other human beings through direct messages, instant messages over Instagram. This whole world we built, this social media matrix, it is not good for our minds. And I'll go all the way up to everyone's most favorite President, Barack Obama, an example we saw today that you did not reference. This is a very smart man. I believe Barack Obama is very smart. I believe social media has damaged his mind. He used this tragedy in Texas and 19 slaughtered children to venerate and celebrate George Floyd. He stood George Floyd on the bodies of 19 dead children over Twitter, before social media, his mind would never go to connect George Floyd to 19 slaughtered children, and we must remember and celebrate George Floyd. It's ridiculous, but it speaks to what social media has done to our points of view, our ability to critically think. We are building lives based around how we come across over social media apps that are not real human interaction. He would never say these things in a one-on-one conversation with anybody in Texas who just experienced this. You can't compare the slaughter of 19 children to a drug user and habitual criminal who resisted arrest and lost his life tragically, because a policeman crossed the line. There's no comparison to innocent children being slaughtered. Don't stand George Floyd on the dead bodies of children. But this is what social media baits all of us to do. That's a smart man. That was the President of the United States. Taking it down to these kids, and how they've built their entire lives around their social media platforms, and how can I be famous, and they don't care how you become famous over social media, if it's the slaughter of other human beings, or if it's shaking your rear end nakedly, on an Only Fans account, whatever it takes, just do it. We've got a mental illness pandemic going on across America and really across the globe, and we're ignoring it because hey, let's just get rid of the guns. That'll fix it. Yes. I'd be sympathetic to get rid of the iPhones. I really would. I'm not in charge, thank God. Jason Whitlock Thank you, deep as always and much appreciated. Thank you. So Joe Biden took this opportunity, you're off balanced and grieving, so he snuck through an executive order to change the country more. He did that today to mark the two years since George Floyd's death, but it's not going to make your community any safer. It will make him more powerful, that's always the point. We'll explain what it is next. Happy St. George Floyd day. More than 100,000 young Americans have died of drug ODs in the last 12 months, you don't know their names, you never will and nobody cares about them. But today, we are reminded once again to celebrate the life of a violent convicted felon drug addict called George Floyd who died two years ago today in police custody. All deaths are sad, but why this sadder than most? They never explain that, but Joe Biden did mark the occasion with an executive order promoting something called Police Accountability. The order mandates more restrictive use of force rules for Federal law enforcement. Before he signed the order, Biden explained it was necessary because Black people in in this country are all terrified knowing that the police could kill them at any time. (BEGIN VIDEO CLIP) Why this nation? Why so many Black Americans wake up knowing they could lose their life? And of course, they are just living their life today, simply jogging, shopping, sleeping at home. (END VIDEO CLIP) Because if there is one person in America who speaks for the deep concerns of Black people, it would needless to say be Joe Biden, who definitely has got his finger on the pulse. What does this mean though? What are the public policy implications for you of what Biden just did? Well, no one knows more about the subject than Heather Mac Donald. She's a senior fellow at the Manhattan Institute, author of "The Diversity Delusion." We're always grateful to have her. Heather Mac Donald, thanks so much for coming on. What will this do? HEATHER MAC DONALD, AUTHOR, "THE DIVERSITY DELUSION": Thank you. Well, the problem with this executive order, Tucker, is the narrative that it represents rather than the policy details, which apply only to Federal law enforcement and are limited in scope. But the narrative of this executive order is that we have a police racism and a police violence problem in the country. Biden takes every opportunity to reinforce that idea and the results are in and they are unequivocal. Thousands more Black lives lost in cities succumbing to predation and anarchy. After the George Floyd riots of 2020, homicides rose 29 percent. That's the largest annual increase in history, and youth homicide rose an astounding 47 percent. The victims overwhelmingly Black. Two dozen Blacks are killed every day in this country. That's more than all White and Hispanic homicide victims combined. They are not being killed by the police, they are not being killed by Whites, they are being killed by other Blacks. The police are not the problem in the Black community, criminals are. The police shot six allegedly unarmed Blacks in 2021, compare that to the 10,000 Blacks who are killed by criminals. In fact, a police officer is 400 times as likely to be killed by a Black as an unarmed Black as to be killed by a police officer. George Floyd's death was sickening, but it wasn't a pattern. It doesn't represent the way most Blacks die, and if Biden really cared about Black lives, he would call for law and order and stop demonizing the cops. I wonder how long they can -- I mean, this is all about the upcoming midterm elections and get out the vote and all that stuff. But what he said is so patronizing and disconnected from reality, does it still work? MAC I think it does. There are still people who absolutely do not want to confront the problem in the inner city, which is the breakdown of the family, the breakdown of norms, and want to keep demonizing police officers even though the crime is now spreading across the country. The carjackings are happening, these absolutely insane drive by shootings that are mowing down kids. There seems to be an endless appetite for a phony narrative that only produces anarchy and predation. Anarchy is exactly right. Heather Mac Donald, always with the facts. Great to see you tonight. Thank you. MAC Thank you, Tucker. So here is a story that we haven't talked about enough. DeepMind is a British technology company that is owned, like most things by Google. DeepMind says it has developed an artificial intelligence that exceeds the capacity of human beings. Think about that. So the top research scientists there just said, quote, "The game is over." Well, James Barrat has been contemplating this moment for a long time. He has written the book, "Our Final Invention: Artificial Intelligence and the End of the Human Era." We spoke to him about AI what it is and what it's going to mean for the rest of us in a brand new episode of "Tucker Carlson Today," here's part of it. (BEGIN VIDEO CLIP) You suggest that AI may be one of these forces, like nuclear fission is the example that you use that might be more powerful, even than its inventors anticipated? JAMES BARRAT, AUTHOR, "OUR FINAL INVENTION": Yes. And it has potential for getting out of control. Can you explain what that would look like? Yes. And this is a big deal. This is something you know, the late Stephen Hawking said, the problem with AI is in the short term, who controls it? In the long term, can it be controlled at all? Yes. Elon Musk said, we've let the genie out of the bottle. We may lose control of AI. It's our greatest existential threat. We've taught AI to master a lot of human abilities. AI will get better than us at artificial intelligence, research and development. So what happens when AI gets better than us at making AI? See, our intelligence goes like this. We're not getting -- our IQ on average is not getting any higher. Machine intelligence is going like this and it is going and we are in this curve somewhere. Once AI is programming AI and making better and faster AI, that idea is called the intelligence explosion, then AI sets the pace of intelligence growth, not humans. We are not the top end of intelligence, we have no reason to think we are. So the way we're headed, we will make machines that are much, much smarter than we are. Now, we have to make them friendly. (END VIDEO CLIP) How do you make machines friendly? Especially when they're smarter than you are? We're going to have to wait until tomorrow morning to find out. You can stream the entire conversation that we had with James Barrat, FOX Nation, 7:00 AM tomorrow. Well, for years, you've heard that Georgia's new voting laws were voter suppression. The President called them the return of Jim Crow. Well, the results are in, what happened? Well, it turns out we saw record turnout in the primary this week. So more people vote under Jim Crow? We'll straighten it out ahead. So the Delaware computer repair shop owner let the world know about Hunter Biden's laptop. His name is John Paul Mac Isaac. We interviewed him on the show. He told us he was going to fight back against the people who smeared him, and there were some major news tonight on that front. Our friend, Trace Gallagher has that story for us. Hey, Trace. TRACE GALLAGHER, FOX NEWS CHANNEL Hey, Tucker. John Paul Mac Isaac as say is the Delaware computer repairman who first revealed the Hunter Biden laptop and also says it was used to ruin his life. So to repair his reputation and exact revenge, Mac Isaac filed a multimillion dollar lawsuit against Democratic Congressman Adam Schiff, CNN, POLITICO, and "The Daily Beast" saying that he was falsely accused of stealing the computer, acting bizarrely, and peddling Russian disinformation. Mac Isaac says he was harassed by everyone from Big Tech companies to fellow Delaware residents. And a few days ago, he vowed to fight to the end. Watch. (BEGIN VIDEO CLIP) JOHN PAUL MAC ISAAC, DELAWARE COMPUTER I knew that in the Court of law I was destroyed, but maybe I still had a chance in the court of public opinion. I now have a second chance to hold these people accountable and I'm -- I'm going to fight like hell to do it. (END VIDEO CLIP) But today, Mac Issac's attorney said quoting here today: "John Paul and "The Daily Beast" settled amicably." That means a friendly settlement or as some legal experts surmise, it means "The Daily Beast" decided to pay up and move on, though "The Daily Beast" has not commented. So that now leaves Adam Schiff, the Chair of the House Intel Committee, who without Intel, or evidence went on CNN and said he thought the Kremlin was behind the laptop smear of Joe and Hunter Biden. And POLITICO who reported that dozens of former Intel officials believed the laptop to be Russian disinformation, which has of course been debunked. So, I don't think it would be breaking news, if a few more of these amicable settlements were in the works -- Tucker. Trace Gallagher, thanks so much for that. You bet. So it has been 60 years since Bull Connor strode the Earth, thank God, he's gone. But then not so long ago, the President of the United States informed us that Jim Crow is back, something called the New Jim Crow, it's in the south again. Never thought that would happen. Then Stacey Abrams, who ran for governor last time, told us that voter suppression is the reason that she is not in the Governor's Mansion now. So there's a very specific claim. Luckily, you could test it against reality and reality came last night there was a primary in the state of Georgia last night, and here is what happened. Early voting turnout was three times greater than it was in 2018. So the racist suppression either didn't work, or it had the opposite effect. What should we make of this? And is anybody going to apologize for scaring the hell out of Georgia voters? Mollie Hemingway is the editor in chief of "The Federalist," doing a great job. She wrote an entire book about our elections. It's called "Rigged: How the Media, Big Tech, the Democrats Seized our Elections" and well worth reading. She joins us now. Hey, Mollie, so assess if you would the state of Jim Crow in the state of Georgia tonight. MOLLIE HEMINGWAY, FOX NEWS CHANNEL Yes, it's worth remembering, it was President Joe Biden and Stacey Abrams led this campaign, but nearly every Democrat took part in it, claiming that any election integrity was associated with Jim Crow. Jim Crow was a real thing that our country suffered through where the Democratic Party basically disenfranchised an entire race of people. It was very difficult to get rid of those laws, and so the slur really stings. Now, the people who wanted to pass election integrity said that it was very unfair, that that was a horrible thing to say, and that they simply wanted to make it easy for people to vote, but difficult for them to cheat. So they slightly streamlined some things. They made some improvements. They developed some consistencies. They made it so that you have to show a photo ID in order to vote and yes, the proof is in the pudding. There was this primary yesterday. Voter turnout is way up across all categories including in the Democratic Party and this was a horrible lie and people should have been held accountable. You might remember, this lie was used to, for Joe Biden asked companies or told companies to engage in an economic boycott of the people of Georgia for the crime of wanting their elections to be secure. Major League Baseball complied with that demand from the President, and they moved the All-Star game from Atlanta, something that they have still not apologized for, and for which they have lost a tremendous number of fans, including people like myself, and other companies did as well. This was a lie, and you should not be allowed to lie about something as important as keeping our elections secure. Yes, and claim a racist conspiracy and make Americans hate each other more, divide the country more, which is what they specialize in. Mollie Hemingway, thanks so much for that. Thank you. By the way, Marjorie Taylor Greene was in the race yesterday in Georgia and a bunch of people in Washington spent a lot of money trying to unseat her, because they're for democracy. They try to kick her off the ballot. She gets 70 percent of the vote in her district. Are the democracy defenders celebrating? No. Because they don't really believe in democracy. Well, there are many unresolved questions, many, about the tragedy we saw yesterday in Uvalde, Texas, the mass shooting of children. The question is, what can we do? What can schools do to protect themselves fro

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who planned to continue the attack. He had five firearms on him, according to authorities. They say they found two in the car at the time of his arrest. They say that they had also found IEDs, improved explosive devices. Authorities now saying that they were able to take the suspect into custody some 36 minutes after the first call to emergency officials when the shots began to ring out on Friday -- Fred? WHITFIELD: And, Alexandria, you've been talking to survivors. How are they coping? How are they reflecting on what they have just experienced? FIELD: They are simply stunned. They did not expect it here. No one expects it anywhere. But certainly this is the largest mass shooting that New Zealand has had in its history. It has caught the entire community off guard. We've seen an outpouring of grieve grief. People lining up to pay their respects, to offer flowers, to take a moment to consider what has happened here and how to stop it from happening again. We also spoke to two men who were inside each of the two mosques when the attacks unfolded. Here is the terror that they described. (BEGIN VIDEO CLIP) UNIDENTFIIED WITNESS: Some of my friends died yesterday. Some of them this morning. And one of my friends is still in the hospital. UNIDENTIFIED WITNESS: I ran back to the mosque and tell everyone just go to the ground because there's someone with a gun that's going to shoot everyone. (END VIDEO CLIP) FIELD: Forty-nine lives lost in these attacks. Nearly 40 people still in the hospital. We are beginning to learn the names. We are hearing more of the stories. We know that these are people who came to New Zealand from a number of different countries. Some of these survivors who escaped from those mosques say that they were fleeing more dangerous circumstances in their home countries. They came to New Zealand because they believed that this was the safest place to be -- Fred? WHITFIELD: Alexandra Field, thank you so much, in Christchurch, New Zealand. Let's talk more about this. With me now is Shahed Amanullah, a former senior adviser for technology at the U.S. State Department and worked with the Obama administration on combatting online extremism. Shahed, thanks so much for being with me. Good to see you. SHAHED AMANULLAH, FORMER SENIOR ADVISER FOR TECHNOLOY, U.S. STATE DEPARTMENT: Thank you. WHITFIELD: So the suspect in these mosque shootings in New Zealand released a long rambling manifesto on the Internet describing his hateful views. So what role do you think online methods may have played in his beliefs? [13:05:12] AMANULLAH: Well, if you compare this, for example, to Osama bin Laden and the way that he tried to lead a global fight against the West, this is another fight that is happening and it is organized a little bit more, leaderlessly, on the Internet. And he literally put the dots on his gun. He made the connections between what he was doing and what other people did in Quebec City and in Norway. And he cited these themes that are part of this kind of globalist ideology of white supremacy. So we have to make a shift now from thinking about this as a domestic threat or an isolated threat into a global transnational threat and we have to allocate toward it resources that we have allocated previously to transnational terrorism. And I think this is now the turning point. WHITFIELD: Clearly, the Internet is a tool, right, for -- AMANULLAH: Absolutely. WHITFIELD: -- yes, folks carrying things like this out. So how can that be, you know, controlled? How can that be guided differently? I mean, (CROSSTALK) WHITFIELD: -- it's a big beast at this point. He really can't be -- I mean, the access can't be reduced. AMANULLAH: We're in a turning point now. Information now flows freely. There's really no way to stop it all. We learned this, of course, with ISIS. The trick is now, how do we take the vast majority of people who abhor this and mobilize them so that they can kind of isolate, report, put these back into the fringes where they belong. The trouble with this particular type of violence is that, frankly, we didn't take it seriously enough. And people were allowed to traffic in some of the underlying ideologies that support this. And I think that now we have to recognize it for what it is. We need to have people that are willing to speak up in those forums. We need to have people who can recognize the nuances of these themes and get them banned off of certain platforms. And I think we'll make a step in that right direction. Again, we learned a lot of this in the last 10 years with our fight against ISIS. WHITFIELD: The suspect in this attack appears to be motivated by white supremacy, nationalism. I want to listen to what the president had to say about white nationalism when asked about whether it's on the rise. (BEGIN VIDEO CLIP) UNIDENTIFIED REPORTER: Do you think white nationalism is arising threat around the world? DONALD TRUMP, PRESIDENT OF THE UNITED STATES: I don't really. I think that it is a small group of people that have very, very serious problems. (END VIDEO CLIP) WHITFIELD: So you worked in the Obama White House where there was a very different approach. What do you make of this president's response in that manner? AMANULLAH: Well, the thing is that if you stop looking -- stop tracking this, that is when people feel empowered and emboldened to say what they say and the most extreme of them will actually take it to violence. This is part of the problem. We have to take a look at how you are behavior allows and enables people to do these things. And particularly to those people who are cited as inspiration. Even if they don't think of themselves as violent, they need to take a long, hard look at the things that they are saying and the fact that they are inspiring people and either change the way they do things or we need to marginalize those voices. And I think the president has a strong role to play in this. WHITFIELD: So you mentioned in a tweet today that this attack should be a real wakeup call about far-right extremism around the globe. AMANULLAH: Yes. WHITFIELD: If people are awakened at this point and they haven't been before, what do they do with this knowledge, this awareness? AMANULLAH Well, that is a great point. I think that the first thing we need to do is we need to rephrase the way that we look at this type of extremism. We have looked at it primarily as a domestic threat. We've looked at it as a localized threat. We have not connected the dots and made it global. Because when you look at it as a global framework, then we have resources in place to deal with that. But when I was at the State Department, we barely ever touched global white supremacist violence because we didn't look at it that way. But now that we have those frameworks in place, I think it is time to take what we've already learned and start applying it aggressively and work with our partners overseas as well to find this people, to hunt them down, to track them, and especially to look at the memes and the ideologies that they are spreading and counter them. WHITFIELD: All right. Thanks so much, Shahed Amanullah. Appreciate your time -- AMANULLAH: Thank you. WHITFIELD: -- and expertise. For more information about how you can help the victims of the New Zealand terror attacks and for more information, go to CNN.com/impact. Still ahead, President Trump keeps his promised veto after Congress blocks his national emergency declaration to build a wall. (BEGIN VIDEO CLIP) TRUMP: I have the duty to veto it and I'm very proud to veto it. (END VIDEO CLIP) [13:09:46] WHITFIELD: Congress isn't done yet. More on that straight ahead. WHITFIELD: President Donald Trump is once again doubling down on his campaign promise for a border wall. He has now signed the first veto of his presidency to protect his national emergency declaration after the House and Senate passed a resolution to block it. President Trump says that move puts countless Americans in danger. So it is his duty, he says, to veto it. And the U.S. attorney general also weighing in on the veto. (BEGIN VIDEO CLIP) TRUMP: It is definitely a national emergency. Rarely have we had such a national emergency. Therefore, to defend the safety and security of all Americans, I will be signing and issuing a formal veto of this reckless resolution and that is what it was. WILLIAM BARR, U.S. ATTORNEY GENERAL: Mr. President, your declaration of an emergency on the southern border was clearly authorized under the law and consistent with past precedent. (END VIDEO CLIP) WHITFIELD: Joining me now CNN political analyst and congressional reporter for the "Washington Post," Rachael Bade, and CNN senior political analyst and senior editor for "The Atlantic," Ron Brownstein. Good to see both of you. [13:15:03] RON BROWNSTEIN, CNN SENIOR POLITICAL COMMENTATOR: Thank you. RACHAEL BADE, CNN POLITICAL COMMENTATOR: Hey, Fred. WHITFIELD: Ron, you first. This is an interesting moment. There will be more challenges from Congress. There will be lawsuits. And not only does the president justify his veto, but he hears from the U.S. attorney general who does the same thing. BROWNSTEIN: Yes, the U.S. attorney general is going to have to convince someone other than himself very shortly because we already have a coalition of 20 states that has gone to court. And obviously, this is something that will be fought all the way to the Supreme Court. And the issue may ultimately be not only how the Supreme Court decides, but how long this takes. Because I think the opponents of this believe that key part of any kind of legal strategy against it is simply running out the clock until 2020 and preventing the president from doing much. If he gets reelected, it is a different story. But it may be difficult for him to get -- because, don't forget, behind the litigation from the states and other critics, you may see individual landholders pursuing litigation in states like Texas and Arizona over imminent domain. (CROSSTALK) BROWNSTEIN: And that will be a huge headache for some of the Republican Senators. Don't forget, Republican Senators are up for re- election in Texas and Arizona next year. John Cornyn in Texas, Martha McSally in Arizona, voted for the emergency declaration and may now have to spend the next months defending eminent domain efforts by the federal government against usually conservative ranchers along the border. WHITFIELD: So, Rachael, how do you see the road ahead, especially when you have 12 Republicans who rebuked the president's national emergency? BADE: You can't understate the significance of the number of 12 Republicans voting against the president, especially when, the past two years, the Republican Party has largely fallen in line with Trump. And on this issue in particular, a lot of people who voted against him said they support the wall, but they think this is unconstitutional and the founders of our country gave Congress the power of the purse and the president is trying to find the way around that to make his own choices on what to fund. But I think, at the same time, you have to realize, as Ron was talking about, there were a whole bunch of 2020 Republicans, who up in 2020 in the Senate, who wound up voting with the president. Thom Tillis of North Carolina was one the first Republicans that said this is not constitutional and I'm going to vote against him, I'm going to vote with the Democrats. He flip-flopped, embarrassingly so, over the next few days, and ended up voting with the president on this. And it was all because of 2020, a lot of people would say. (CROSSTALK) WHITFIELD: -- wrote an op-ed (CROSSTALK) WHITFIELD: -- and, suddenly, an about-face. BADE: That's right. BROWNSTEIN: Yes. BADE: And all the 2020 Republicans, except one, Susan Collins of Maine, who is a more moderate type of lawmaker, voted with the president. And that again speaks to how much power he still has over the party, even when a lot of them, like Thom Tillis, thought this was unconstitutional. WHITFIELD: And you say it is notable, too, Ron, don't you? BROWNSTEIN: Yes. WHITFIELD: It is not just the 12 who said, we're not supporting this -- (CROSSTALK) WHITFIELD: -- but it is the others who said, we're still with you. BROWNSTEIN: Yes. Look, you had essentially 80 percent of the Senate Republicans vote for an emergency declaration, support an emergency declaration that all of them would have opposed if it was a Democratic president. And it is consistent with what we have seen the way the president has pulled the party not only toward being subservience and acquiescence, in general, but toward a much more nativist hardline toward immigration. And 80 percent of the Senate Republicans last year vote for the biggest cuts in legal immigration since the 1920s. And if we go back to 2016, there were few Republicans echoing him in making the case for the wall. Most of them opposed it. So now you have the vast majority of Senate Republicans have voted to support a mechanism, a means, this national emergency, that over 60 percent or more of Americans have opposed on behalf of goal, building a border wall, that the president has never been able to build majority support for either. And the place I think this is most interesting are these southwestern states where the Democrats gained two Senate seats in 2018, which are now right on the battle for Senate control. Colorado, Cory Gardner was the most vulnerable Republican Senator before this vote. After voting with the president, the "Denver Post" revoked their endorsement of him. And as I said, Arizona and Texas are two places where the president is surprisingly at only around 50 percent or slightly below. And both Republicans, I think, have sent a pretty clear signal, if you're not going to oppose the president on this, when are you going to vote to constrain him. WHITFIELD: And then another way the president has been challenged this week, from the Senate, it approved ending U.S. military support for Saudi Arabia in the civil war with Yemen. So might this, however, be an indicator that there are more Republicans that are willing to break, Rachael, with the president? BADE: Yes. It's both sides at once, right? This is certainly a new chapter for the president right now. In the past two years, before the Democrats took over the House, there's no way that Republican- controlled House would ever bring up a resolution rebuking him for calling on -- using the national emergency declaration to build his wall. This just wouldn't have come up. Now you have Democrats controlling the House, who are pushing back on the president. And there is a sliver of Republicans in the Senate who are willing to break with him. So now -- that group of people has always been there, we just didn't hear from them a lot, the Republicans falling in line with the president. But now you have Democrats who are forcing this issue, and there are Senate Republicans who will side with him on some of these matters. Now, overall, the party, again, is very behind the president WHITFIELD: He has a very solid approval rating. BADE: Yes. They are. They are 100 percent. But you're right, he will have to do another veto in the next couple weeks because this resolution rebuking what the United States has done in terms of supporting Saudi Arabia in this war in Yemen, that will pass the House, too, and he will have to veto that as well. It will be the beginning of probably a number of vetoes on foreign policy. [13:20:51] WHITFIELD: All right. Let's change topics and talk about the hateful massacre in New Zealand. The prime minister there disagrees with the president of the United States when he said, you know, this to the question of whether white nationalism is on the rise. (BEGIN VIDEO CLIP) UNIDENTIFIED REPORTER: Do you think white nationalism is arising threat around the world? TRUMP: I don't really. I think that it is a small group of people that have very, very serious problems. (END VIDEO CLIP) WHITFIELD: So just look back at when the president is asked about other incidents, Charlottesville, for one, Pittsburgh, and this is how he handled those matters. (BEGIN VIDEO CLIP) TRUMP: We condemn in the strongest possible terms, this egregious display of hatred, bigotry and violence on many sides, on many sides. It is a terrible, terrible thing what is going on with hate in our country, frankly, and all over the world. And something has to be done. Something has to be done. (END VIDEO CLIP) WHITFIELD: So, Ron, is there a pattern of a sort of reluctance and ambiguity? BROWNSTEIN: Absolutely. It has always been a mistake for those who treat the president's comments, particularly on anything touching on issues related to race, as impulsive or off-the-cuff. He is very precise and careful in what he says and what he doesn't say. And you go all the way back to March 2016, when he would not condemn David Duke's support in a conversation with Jake Tapper -- (CROSSTALK) BROWNSTEIN: -- right here on CNN just before a clutch of southern states voted through Charlottesville and on. He is not -- he goes out of his way to avoid condemning the violence that is ascending in white nationalism. And also continues to use language that resonates with those groups, particularly describing immigration as invaders. WHITFIELD: As invaders. BROWNSTEIN: As invaders. (CROSSTALK) BROWNSTEIN: And doing it even this week. WHITFIELD: And what is at the root of this, Rachael? Will we ever know -- BROWNSTEIN: I think we know. WHITFIELD: -- with clarity? BADE: I'm not going to speculate what is in the president's head and why he doesn't take a more forceful line pushing back against white supremacy and rebuking it. And I can say, though, that this has been an issue that has really befuddled Republicans as well in the party who know that, long-term, they can't be even remotely seen as condoning such actions and such rhetoric because that will shrink the party's participation in the future. This will be a problem for them going forward. How do you win in 2020, how do you win re-election without rebuking things like this? It should be a no-brainer. And it is not just Democrats. It is Republicans, too. And they want him to take a more forceful line on that. It's just perplexing why -- (CROSSTALK) WHITFIELD: It is perplexing. (CROSSTALK) WHITFIELD: Which is why, Ron, even on the whole wall issue, knowing that and that pattern and that confusion, you know, it is confusing why there are some who emphatically are for it, those against it, but they vote differently on other matters. BROWNSTEIN: It's not that perplexing to me. It is a continuum. It is not that all of Trump supporters are sympathetic to white nationalism, by any means. It is that he doesn't want to draw a clear line between the white nationalists and others who are uneasy about demographic change in American and in the world more broadly, because that is the audience he is pitching at. That is why the wall is such a powerful symbol for him, because he believes it embodies his commitment, his commitment to his supporters that he will fight the changes that they view as threatening them. And I think he is unwilling to draw a line somewhere along that continuum between those voters and those who take this to a radical extreme. WHITFIELD: All right. BADE: But that might speak to a small segment of the Republican Party, but that is a small segment. You can't win a re-election by just pleasing those people. WHITFIELD: All right. BADE: And that's why you have other Republicans, who are like, what is going on with you. (CROSSTALK) WHITFIELD: We'll have to leave it there because we are breaking news. Thank you so much, Rachael and Ron. Really appreciate it. BROWNSTEIN: Thank you. BADE: Thank you. WHITFIELD: And this breaking news out of Paris right now. We're just learning that police have detained at least 109 people in their clashes with Yellow Vest protesters. The protests turned violent as people used water cannons, tear gas to disperse the crowds there. Protesters could be seen throwing rocks and setting up barricades. The group has been demonstrating for months now, starting with a protest on gas tax hikes and evolving into a push against French President Emmanuel Macron's policies. [13:25:22] Back with more right after this. [13:29:54] WHITFIELD: Welcome back. New Zealand synagogues have closed their doors today in the wake of two deadly mosque attacks. The sign of solidarity marks the first time the country's Jewish community has ever done that on the holy day of Shabbat. At least 49 people were killed and dozens more injured in the horrifying massacres inside two mosques in Christchurch. But as some religious communities ban together in the aftermath of the terror attacks, so are far-right extremists around the world. CNN chief international correspondent, Clarissa Ward, has more. (BEGIN VIDEOTAPE) (CHANTING) CLARISSA WARD, CNN CHIEF INTERNATIONAL CORRESPONDENT (voice-over): Chants on the streets of Charlottesville, Virginia, echoed in a suspected terrorist manifesto thousands of miles away. (CHANTING) UNIDENTIFIED MALE: We will not be replaced. (CHEERING) WARD: White supremacists and Neo-Nazis who believe their culture is being erased by a growing population of minorities. In chat rooms and on the dark web, they talk about the invasion of Muslim migrants who threaten to replace them. One of their greatest inspirations, the Norwegian white supremacist who murdered nearly 70 students as a summer camp in 2011. The massacre, he says, was intended to defend Western civilization from a growing policy of multi-culturalization. Across the West, the far right is on the rise, bringing with it a vicious uptick in hate crimes and terrorist attacks. UNIDENTIFIED FEMALE: We can ever say, what the price. WARD: Just in 2017, Muslims were targeted and killed in a Quebec Islamic Center, and in London's Amesbury park, and on a train in Portland, Oregon, a man shouting anti-Muslim slurs fatally stabbed two people. (CHANTING) WARD: Last year, in Berlin, we attended a rally of hundreds of right- wing extremists. "Close the border," they shouted. "Resistance, resistance." Their hatred is not reserved for Muslim migrants. This man told us a shadowy cabal of globalist controls the world. (on camera): When you talk about elites and you talk about finance, is that another way of saying Jewish people? UNIDENTIFIED MALE: Yes. WARD: Yes. It is? (voice-over): "Yes. Let me say it this way, the banking system for sure," he tells us. "Banks, finance, the economy, mainly Jews." In his 87-page manifesto, the suspected terrorist praised his predecessors and made nods to the online community that nurtured and shared his extremist views. But their ideology of hate has creeped out of the margins into the mainstream and is growing. Clarissa Ward, CNN. (END VIDEOTAPE) WHITFIELD: The New Zealand attack is the latest example of hate being disseminated online. Social media companies scrambled yesterday to remove any videos showing the alleged attacker's live-stream of the massacre. Let's bring in now our CNN Business reporter, Donie O'Sullivan. Donie, good to see you. This is a really huge challenge for all of these social media online companies. They are struggling, are they not, with the responsibility they have versus the technology to kind of stop, you know, people from live-streaming or, you know, really seizing on the opportunity to spread hate? DONIE O'SULLIVAN, CNN BUSINESS REPORTER: Yes, I mean they absolutely are struggling, Fred. I mean, particularly Facebook, a platform of more than two billion people sharing billions of posts every day. And sort of now they are trying to figure out a way, well, how do we police that, how do we prevent somebody like this streaming live on their platform for more 17 minutes a massacre with gunfire and death and weaponry. And we've heard a lot from Mark Zuckerberg and Facebook's executives over the last two years, given how much scrutiny they have been under with disinformation and hate speech, about all the steps they have been taking to try to crack down on this. They say they have hired more than 30,000 contractors and employees to try and -- human moderators who are supposed to search for and remove this content. But also supposedly investing millions in artificial intelligence, computer systems that could detect videos like this. This week, that didn't work. It was the New Zealand police that told Facebook that something was going on, on their own platform. WHITFIELD: And Facebook actually released a statement saying, "New Zealand police alerted to us a video on Facebook shortly after the live-stream commenced and we removed both the shooter's Facebook account and the video." So while Facebook did act as fast as it could, how concerning is it, I guess, for other media outlets or even consumers that police would be notifying these companies about the type of content that could be on? [13:35:23] O'SULLIVAN: Sure. I mean, I think a lot of people do have sympathy in some ways for the social media platforms in that this is obviously not an easy thing to find. But at the same time, this is the platforms that they have built. Recently, in "Fortune" magazine, a technologist from Facebook, who is developing this artificial intelligence software to sort of figure out what is going on, gave an example of how their technology can determine the difference between pictures of broccoli and pictures of marijuana, with about a 90 percent accuracy rate. That is an example of how that technology could be potentially used to curtail the sale of narcotics on the platform. But even at a 90 percent success rate, 10 percent, when you are talking about billions of posts, that is a lot of stuff that this technology is missing. And experts are telling us that, in terms of A.I. being able to do what a human moderator could do, we're years away from that. Facebook says they have hired literally tens of thousands of people. But they haven't told us how many people they need. WHITFIELD: All right. Donie O'Sullivan, thank you so much for your time. Appreciate it. Still ahead, U.C. Berkeley is now considering revoking admissions offers and diplomas if any student is involved in that cheating scheme. Will students be forced to pay for the legal sins of their parents? We'll discuss, next. [13:40:56] WHITFIELD: Welcome back. Cal Berkeley is the latest university looking into possible ties to an alleged college admission scam. And the school says that it will revoke diplomas in if it uncovers any wrong coming. Meantime, a class-action lawsuit has been filed in the wake of the biggest college admission scam ever prosecuted in the U.S. Outraged plaintiffs want these schools involved and the schemes' mastermind to pay up. They claim the schools were negligent and denied students a fair process. The schools were cited in a stunning alleged conspiracy unveiled this week involving celebrities and the wealthy. Prosecutors claim the rich parents used their money to hire a firm to help their children cheat on admission tests, create fake student profiles, pay off people at universities, and then pretend the money was for charity. Joining us now, Avery Friedman, a civil rights attorney and law professor, and Richard Herman, a criminal defense attorney. Good to see you both. AVERY FRIEDMAN, CIVIL RIGHTS ATTORNEY & LAW PROFESSOR: Hi, Fredricka. RICHARD HERMAN, CRIMINAL DEFENSE ATTORNEY: Hey, Fred. WHITFIELD: Hello. Avery, you first. The students and parents behind the lawsuit are arguing that their admissions process was "warped and rigged by fraud," I'm quoting them, and that they would not have spent the kind of money to apply to these schools had they known the admission process was not fair. So do they have cases? FRIEDMAN: Well, it is a class-action case for over $5 million. And essentially, it is a consumer law case. And the lawyers are saying, well, if I applied at a university and I spent $80 and there was fraud going on and I didn't get in, that means they owe me $80. How in the world that they will connect these things is anyone's guess because, while it sounds like a legitimate case, this lawsuit involves two Stanford students, now only one. One dropped out. And that student is saying, well, I lost the $80 and the degree that I get from Stanford isn't going to have the value that it had before this scandal. I think these plaintiffs, these lawyers, are going to have a very, very difficult time certifying the class-action. WHITFIELD: Wow. So, Richard, prosecutors are saying the universities, many of them, are also victims because they didn't know. Do you agree? HERMAN: Well, they know, did they not know, should they have known. Those are some of the issues in the class-action suit. (CROSSTALK) WHITFIELD: Some of the teachers, some of the faculty did know because some were allegedly accepting payments, you know. HERMAN: They were taking bribes. WHITFIELD: But a lot of the university offices are saying, we didn't know this was going on. So -- HERMAN: That is the shaggy defense, Fred. It wasn't me. I didn't know. But they are seeking class-action status for this one case in the northern district of California. They don't have it yet. But you can just imagine what will go on nationwide from this. This could be the tip of the iceberg, Fred. If you think about the tutoring that goes on in elementary schools and just the prep to take these exams -- WHITFIELD: The preparation. HERMAN: -- and the SAT preps and graduate programs and the pressure to get into these schools and the groups that help you write essays and help you do it the right way. And then there are the groups that pay for you to get in. I mean, the pressure to get into these higher- echelon schools to get that degree is enormous. And we're seeing what can happen here. And the question is, what happens to a student who got in based on this, excelled at the school, are they going to lose their diploma? Will they get thrown out? WHITFIELD: Yes. (CROSSTALK) WHITFIELD: I'm sorry. Yes, Cal Berkeley is already saying that if it turns out those who have earned their diplomas already and they were part of any kind of pay scheme like th

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again, for your viewers, the French and the British and the German authorities have basically preempted dozens of major attacks in the past few years. What you hear, you hear about these attacks. What you do not hear about is that the security forces have been working with local communities to basically preempt very potential attacks. Also another point, very important point about your question. I mean, the police, the French police responded to the attack in five minutes, five minutes and he was basically neutralized, killed after nine minutes of the attack, even though I was in Paris when the attacks took place in 2015, I mean they controlled the militancy, attackers who attacked Paris, in 2014, they controlled the city for almost five hours. But the police, the French police failed to control the city. The attack, see, after almost 4-5 hours. So it tells you not only you need prevention, security prevention, local with local communities, you also, the police forces in Western countries have become much more adapt and much more agile, responding to the attack very quickly. And that you minimize the casualties as we have seen in France in the past 24 hours. HOWELL: Very quick response indeed, Fawaz Gerges, live in our London bureau, where it is 9:09 in the morning. Thank you so much for your time today and perspective. Looking ahead now to Monday. It will mark a very big day for Israel as the United States moves its embassy from Tel Aviv to Jerusalem. It is a highly controversial move that has triggered protests among Palestinians and throughout the region and, as a precaution, Israel says it has doubled its security forces -- [04:10:00] HOWELL: -- in the area. Our Oren Liebermann, following the story live in Jerusalem. Oren, along with this controversial change, it certainly raises the expectation for conflict. OREN LIEBERMANN, CNN CORRESPONDENT: Absolutely, it could be at least an incredibly volatile week. Almost each day this week has the potential to exploding the widespread protests, demonstrations and worse. And that begins with today, today's Jerusalem Day, where Israelis celebrate what they consider the reunification of Jerusalem. It is marked by a parade of Israeli Jews through the Muslim quarter of the Old City, a very provocative parade that already sends tensions spiking in and around the Old City and that is just today. Tomorrow is the embassy opening. When that was announced back in December, when Trump recognized Jerusalem as the capital of Israel, that was met with protests and demonstrations here and across the Middle East. And even some other countries and then it continues, Nakba Day, where Palestinians mark what they consider the catastrophe of the creation of the State of Israel and then the holy month of Ramadan. That is normally -- has its own tensions that surround it. So all of that happens in just one week here -- George. HOWELL: OK, so I think you are describing what could be a very volatile week. Look, this move certainly carries different meanings for Palestinians. They see it as a disqualifying moment for the United States as an honest broker for peace in the region. But for Israel, for Israelis is President Trump's decision equally criticized? Or is it more or less widely celebrated at this point? LIEBERMANN: There were some who, back when Trump recognized Jerusalem as the capital of Israel, questioned his motivation, the reason behind his recognition and his moving the embassy. And there are still some but very, very few. Now it is a move that is widely hailed, widely respected in the country that very much celebrates President Donald Trump. (BEGIN VIDEOTAPE) (MUSIC PLAYING) LIEBERMANN (voice-over): Israel recently marked its 70th birthday with celebrations and speeches. Among the reasons for the Israeli leaders to celebrate was this: BENJAMIN NETANYAHU, PRIME MINISTER OF ISRAEL: We are delighted with President Trump's decision to move the embassy here. It says a simple thing: peace must be based on truth. LIEBERMANN (voice-over): But why is this such a big deal? Israel has always seen Jerusalem as its capital city. Why not the rest of the world? A bit of history here. Israel was established in 1948. Jerusalem was a split city between Israel and Jordan for nearly two decades after that until 1967, when Israel occupied East Jerusalem and the West Bank. When Israel annexed East Jerusalem in 1980, the countries pulled their embassies out of the city in protest. That is because East Jerusalem is supposed to be the capital of a future Palestinian state. The U.S. meanwhile, had its embassy in Tel Aviv. In 1995, the U.S. passed a law requiring the country to move its embassy from Tel Aviv to Jerusalem. But every president since then, Republican and Democrat, has waived the move, citing national security concerns. President Donald Trump promised during his campaign to move the embassy, a promise he kept in December. TRUMP: Today we finally acknowledge the obvious, that Jerusalem is Israel's capital. This is nothing more or less than a recognition of reality. LIEBERMANN (voice-over): So where will the new embassy be located? LIEBERMANN: Right here behind me in what's now the U.S. Office for Consular Services. This is where you come to renew a passport or apply for a visa. The building itself sits right next to the Green Line, which delineates East from West Jerusalem. It sits firmly in West Jerusalem. But an expansion of the building to make it the embassy will require some building in no man's land, which is a sort of buffer zone between East and West Jerusalem. It holds very little practical significance in terms of modern-day Jerusalem and yet that zone retains incredible political importance. LIEBERMANN (voice-over): The mayor of Jerusalem celebrated the official opening by posting the new road signs. NIR BARKAT, JERUSALEM MAYOR: It sends a very clear message to the Jerusalemites and others the intention and the back and the support Israel has and the sovereignty of the city of Jerusalem. LIEBERMANN (voice-over): Prime Minister Benjamin Netanyahu said more countries were looking at moving their embassies to Jerusalem as well. So far only Guatemala and Paraguay have committed to taking that step. (END VIDEOTAPE) LIEBERMANN: So throughout this week, one of the most sensitive days, that will be tomorrow, when the Israeli military says they are expecting thousands, if not more than 10,000 protesters in Gaza and those protests could be just as easily matched in the West Bank. George, we talked about Israel celebrating this week; that could change very quickly, depending on how big those protests are and how they go. HOWELL: We'll have to wait and see. Oren Liebermann, thank you for the reporting, live for us in Jerusalem. Now onto Indonesia. Suspected suicide bombers have killed at least 10 people at three Christian churches. This happened Sunday in the port city of Surabaya, Indonesia's second largest city. The three explosions also -- [04:15:00] HOWELL: -- injured 41 people, including two police officers. Investigators aren't giving out any other details about the victims at this point. At last check, there is no word on who is responsible for those attacks. Live around the world, you're watching NEWSROOM and still ahead, the Iran nuclear deal. Can it survive without United States? Iran's foreign minister is making a last-ditch pitch to make that happen. Plus next month's much anticipated summit with U.S. president and the North Korean leader, Kim Jong-un. The date is set now for destroying its nuclear test sites. Details ahead as the news continues. (MUSIC PLAYING) (SPORTS) (MUSIC PLAYING) HOWELL: North Korea plans to dismantle its nuclear site and we're now learning more about when that nation will make good on its promise. The dates set to happen between May 23rd and May 25th, just weeks before the U.S. president Donald Trump sits down with the North Korean leader Kim Jong-un and we're learning more details. Our senior international correspondent Ivan Watson following the story live in Seoul, South Korea. Ivan, as part of the plan, we understand that the international media will be allowed inside North Korea to witness North Korea -- [04:20:00] HOWELL: -- follow through on this as proof. IVAN WATSON, CNN SENIOR INTERNATIONAL CORRESPONDENT: This is an announcement made by the North Korean foreign ministry, distributed by North Korean state media announcing that it is going to go through with a ceremony for the dismantling of the main nuclear testing site known as Punggye-ri, where there have been at least six nuclear tests. The most recent one was in September of last year. Now as part of its announcement the foreign ministry says that the tunnels in the mountain, where some of these nuclear devices have been tested, would all be collapsed and then that other facilities around there, the research institutes, the structures of guard units would be removed as well. Guards and researchers will be withdrawn and the entire surrounding area will be closed and international media from at least five different countries, including the U.S., China, the U.K., they would be invited to witness the ceremony of this taking place. This is a step forward, it appears, in North Korea's kind of diplomatic overture work to the outside world. And it has been welcomed by President Trump, by the South Korean government as well. There is some interesting background here, George. It is almost exactly 10 years ago that North Korea had a similar ceremony in June 2008, where it demolished a cooling tower that was used as part of nuclear plutonium enrichment facilities in a previous phase of dialogue and discussion over its nuclear weapons program. And about a year after that took place in front of CNN's cameras, which were there at that time, and an envoy from the U.S., North Korea conducted another nuclear test -- George. HOWELL: That is very important context there. Ivan Watson, thank you for the reporting and we will keep in touch with you. Moving out to a case out of Sudan that is getting international attention and also getting pleas for mercy. A 19-year-old girl faces hanging for stabbing her husband to death. She says he raped her as his relatives held her down and she says that she killed him when he tried to rape her again. She now has less than two weeks to appeal her death sentence. My colleague Isha Sesay has been following this story and is live in London this hour. Isha, what has been the international response so far that might have any bearing on what happens in court? ISHA SESAY, CNN CORRESPONDENT: Hi, there, George. As you would imagine, there's been outrage around the world, from women's groups to civil society, all looking to this case in Sudan involving Noura Hussein, who has the death penalty hanging over her and wondering why she is facing this predicament, saying that this with a girl who was forcibly married at age 15 to a man she did not want to marry. She wanted to go to school. Her goal was to become a teacher. She fled that marriage, as you well know, and was basically lured back by her family three years later, when she was told that the marriage had been canceled. Then that set in motion the events that you just described and now here we are, with Noura sitting on death row effectively. She's being moved to death row on Sunday. And the world is looking at this and wondering how this can be. But is known internationally that people are expecting also groups within Sudan, women's groups and civil society that are expressing their opposition and condemning this judge and his decision. There is now an appeals process that is set to begin. The lawyers of Noura have less than two weeks. I spoke to Noura's attorney on Saturday and he expressed some confidence in their legal case. But he is not just hoping that the legal case could prevail and save Noura's life. He's also hoping that the family of the dead husband will relent and will grant Noura amnesty, something that they could do up until the moment she is taken from that prison to the place where she might indeed be hanged. They can intervene up until the last minute. So the lawyer told me that he wants international outrage, international pressure to continue, because he believes it will have an impact here -- George. HOWELL: Isha, it is a sad story all around but the world, as you point out, is watching. Thank you for the reporting. I know you will be keeping a close watch on this for us. Moving on now to the U.S. state of Hawaii. Another fissure has just opened up on the Kilauea volcano, spewing steam and lava from the ground. Hawaiian officials are also warning of potentially explosive mixes of lava from the volcano draining toward the underground water. In the meantime, the U.S. president Donald Trump has declared a major disaster there. Dozens of structures have been destroyed since Kilauea started erupting just last month. (WEATHER REPORT) [04:25:00] HOWELL: HOWELL: Still ahead, Iran is hoping diplomacy will save its nuclear deal after the U.S. backed out of it. We'll take you live to Tehran to see how people feel about what is next there. Plus should the question of artificial intelligence be can we do it or should we do it? Coming up, we'll talk with an ethics expert about AI. (MUSIC PLAYING) [04:30:00] (MUSIC PLAYING) HOWELL: Welcome back to our viewers around the world. You're watching CNN NEWSROOM. It's always good to have you with us. I'm George Howell with the headlines we're following for you this hour. (HEADLINES) HOWELL: Now to the aftermath of the United States withdrawing from the Iran nuclear deal, Iran's foreign minister is heading to Asia and Europe, trying to save the agreement. He arrived in Beijing a short time ago. Over the next few days, he'll meet with representatives in China, Russia, France, Germany and Britain. Our Nic Robertson is in the Golan Heights, which Israel says came under attack last week from Iranian rockets. But we start with our senior international correspondent, Fred Pleitgen, following the story live in the Iranian capital of Tehran. Fred, is there great expectation that Javad Zarif will be able to salvage the agreement? Or is this trip seen as just a bit of a formality? FREDERIK PLEITGEN, CNN SENIOR INTERNATIONAL CORRESPONDENT: I think that many people here hope that he's going to be able to save the nuclear agreement and that the Iranian government is to be able to save the nuclear agreement. But I think everybody here also knows that it is a pretty tall order, both because of the situation here inside the country but then, of course, internationally as well. It's interesting that also this morning we heard from Iran's supreme leader, who said, yes, the nuclear agreement can be salvaged. But Iran's interests must be protected. That's something that Javad Zarif is saying as well. That's going to be the difficult part. Right now the stage that we're at, which Javad Zarif being in China, that is pretty much the easiest part of his trip. The Chinese want this agreement as well. They have been doing business in Iran for a very long time. Hard to see how that would take a hit, even if the nuclear agreement isn't there anymore. Next, he goes on to Russia, pretty much the same situation there as well. The Russians do not really care that much about American pressure because they're under sanctions anyway. But then he goes to Europe and that is where it really becomes difficult for Javad Zarif but also for the Europeans as well because the Iranians, what they really want is they want investment from European companies. They want European companies to bring -- come in here to bring jobs and technology transfer and to bring investment. But that would mean the Europeans would have to go straight on, head on against the United States. And that's essentially what the Iranians are asking. They're saying if you want us to stay in this agreement, we need to make sure that we reap the benefits of this agreement. The Europeans have said they want the nuclear agreement to remain in place. But they also know that it is going to mean that they are going to have to deal with the United States and find some sort of diplomatic solution there because America has said, companies that do business with Iran, countries that do business with Iran are going to get a lot of trouble. Certainly the European countries not happy about President Trump's decision. But they are in for some pretty rough waters if they want to try and maintain this deal. If not, the Iranians have already said that they can start uranium enrichment very, very quickly and without restrictions once again -- George. HOWELL: With the threat of those sanctions, it is certainly more downward pressure on these companies, on these countries in the long run, given the U.S. has backed out of the deal. Fred Pleitgen, thank you so much. Now our international diplomatic editor, Nic Robertson, following this story. From the Golan Heights and, Nick, at a time where we're seeing increased tensions between Israel and Iran by way of Iran's presence in Syria, does the potential failure of this deal open the door to more possible conflict? [04:35:00] NIC ROBERTSON, CNN INTERNATIONAL DIPLOMATIC EDITOR: It certainly does. It does in part because it raises international tensions with Iran. But Israel has been very, very clear that what it perceives as Iran's military buildup inside Syria, supporting Russia and supporting President Bashar al-Assad, is something that they won't allow. They believe that Iran is increasing its long-term strategic military presence inside Syria and that they feel that this is a direct threat to their security and potential sovereignty here in Israel. So Prime Minister Benjamin Netanyahu and the defense minister, Avigdor Lieberman, who was up in the Golan just over the past couple of days, have been very specific that Iran cannot be allowed to do that and they're sending a very clear message to President Assad. So as if or if, rather than as, if tensions with Iran generally rise, then certainly Israel will feel it has more international support to -- if it does need to take action against Iran. And certainly we've heard from those co-signatories, the JCPOA, the very people that Javad Zarif will be meeting with in Brussels on Tuesday; the Germans, the French and the British as well as from the United States, that they recognize Israel's right to defend its security in the region. And that, if that means striking Iranian assets inside Syria, then that is what it appears to mean. So in the context of increased tensions with Iran, then the likelihood of a spark creating a wider conflict and misjudgment between Israel or Iran about what either side is doing, then, yes, there is that potential. It does not have to happen. There can be potentially some problem- solving done here. But right now that is a major diplomatic concern -- George. HOWELL: OK, the bigger question here, of course, as the foreign minister of Iran goes to try to salvage this deal, we know where the United States and Israel are regarding this deal. But speaking with these other European leaders and speaking with Russia and China, is there a chance that this deal could somehow be salvaged? ROBERTSON: You know, I think the estimate at the moment it's hard to see how that can happen. I think what the anticipation is that there's a hope that they can let the deal down, if nothing else, at a controlled descent. So that at least the moderates in Iran can try to find a way to offset what might be perceived as negative reaction from hardliners, who say the deal is bust; it is done, you know. We need to take whatever measures we need to take rather than try to follow a diplomatic track. And it's going to be potentially quite hard for the moderates, for President Rouhani and Javad Zarif, the foreign minister, to be able to pull this off. So the hope is that whatever is framed out of these current talks is something that can perhaps contain the situation and allow -- and allow it to come down more slowly. What we have heard from the British, the French and the German is that they do agree with the United States, that Iran's activities in the region are destabilizing, that its ballistic missile program is a problem. So these issues still have to, you know, still required addressing. And this is something that Iran hasn't shown any willingness to do. So, you know, so there are very, very big diplomatic hurdles outside of the JCPOA agreement. So you know, from where things stand at the moment diplomatically, it is a very, very tall order. It is a very difficult position. So what does that really mean? That really means that the international community is still looking at Iran to make concessions. And it is not clear at the moment that they will. It is going to put a huge amount of political pressure on those more moderate leaders inside Iran to win their message and it is not clear that they even may be able to do that. HOWELL: It is certainly a complicated puzzle here. It is always good to get the perspective from you, our international diplomatic editor, Nic Robertson, live for us, following the story from the Golan Heights. Thank you, Nic. Still ahead, Queen Elizabeth approves Prince Harry's marriage to Meghan Markle. And Buckingham Palace has released the proof. The latest on the royal wedding -- just ahead. (BEGIN VIDEO CLIP) HOWELL (voice-over): What do you think about that? Is that creepy or is that cool to you? Well, at what point does artificial intelligence go too far? As the ethics debate keeps up, I'll speak with an expert who has been called the rock star of the digital revolution. We will talk about that dog -- thing -- after the break. Stay with us. (MUSIC PLAYING) [04:40:00] (MUSIC PLAYING) HOWELL: Something that will touch every aspect of our lives very soon, major strides announced this week in artificial intelligence, both of which are raising some eyebrows and some questions. (BEGIN VIDEO CLIP) HOWELL (voice-over): Like this robot dog, named SpotMini. It uses artificial intelligence to figure out its own path, over obstacles likes stairs. Boston Dynamics makes the robot dog and plans to start selling it next year. While SpotMini may seem lifelike, what if AI becomes too lifelike? That is the legal and ethical debate sparked by Google's new product. It is called Google Duplex, which is human-sounding artificial intelligence that can make phone calls for you and even complete tasks, like making appointments. It sounds so realistic. In fact, it is the person -- the person it is calling will not necessarily even realize they are talking to a robot. Listen for yourself. (BEGIN VIDEO CLIP) UNIDENTIFIED MALE: Let us say you want to ask Google to make you a haircut appointment on Tuesday between 10:00 and noon. What happens is the Google Assistant makes the calls seamlessly in the background for you. So what you're going to hear is the Google Assistant actually calling a real salon to schedule an appointment for you. Let's listen in. UNIDENTIFIED FEMALE: Hello, how can I help you? GOOGLE ASSISTANT: Hi, I'm calling to book a women's haircut for a client. I'm looking for something on May 3rd. UNIDENTIFIED FEMALE: Sure, give me one second. GOOGLE ASSISTANT: Yes. (LAUGHTER) UNIDENTIFIED FEMALE: What time are you looking for? GOOGLE ASSISTANT: At 12:00 pm. UNIDENTIFIED FEMALE: We do not have a 12:00 pm available. The closest we have to that is a 1:15. GOOGLE ASSISTANT: Do you have anything between 10:00 am and 12:00 pm? UNIDENTIFIED FEMALE: Depending on what service she would like. [04:45:00] What service is she looking for? GOOGLE ASSISTANT: Just a woman's haircut for now. UNIDENTIFIED FEMALE: OK. We have a 10 o'clock. GOOGLE ASSISTANT: 10:00 am is fine. UNIDENTIFIED FEMALE: OK, what's her first name? GOOGLE ASSISTANT: The first name is Lisa. UNIDENTIFIED FEMALE: OK, perfect. So I will see Lisa at 10 o'clock on May 3rd. GOOGLE ASSISTANT: OK, great. Thanks. UNIDENTIFIED FEMALE: Great. Have a great day. (APPLAUSE) (END VIDEO CLIP) HOWELL: Wow. Let's bring in an expert on the subject of artificial intelligence, Toby Walsh is a leading researcher in AI. In fact, an Australian newspaper called him the rock star of the country's digital revolution, live for us this hour via Skype. Thank you so much for your time today. TOBY WALSH, AI RESEARCHER: Thank you, George. HOWELL: Let's talk about what we just heard there, Google's Duplex. The company received a lot of criticism for not telling people who were talking with the AI that it was not a human. What kind of obligation do AI developers have? WALSH: I think they should have an obligation to be told that it's a computer that's ringing you and not a person, just as there's an obligation that when a phone call is recorded, you're told the phone call's going to be recorded. Because it is very lifelike. It's becoming increasingly hard to tell the computer apart from a real person, although before people get too concerned, it can only work on two domains that we know of, booking hairdressing appointments and booking a reservation at a restaurant. HOWELL: But this is an indication of what is to come. We've seen clips from Google and can we pull that video up of Boston Dynamics, this robotic dog? I don't know, some people may find that cool. Some may find it creepy. If we have an image of that dog. But the question that I have for you, are ethics lagging behind as this

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we may treat your aircraft as targets. Now tensions have escalated after a U.S. navy fighter jet shut down a Syrian war plane. Our Pentagon correspondent Barbara Starr has more. BARBARA STARR, PENTAGON CORRESPONDENT, CNN: U.S. pilots flying over Syria now on the lookout for Russian airplanes or missile threats following the weekend shoot down by a U.S. Navy F-18 Super Hornet of a Syrian warplane. This, because the Kremlin threaten that any U.S. war plane operating in certain areas of Syria would be considered a threat. When the chairman of the Joint of Staff was asked if he was confident that Russia would not shoot down a U.S. war plane, the answer was carefully worded. (BEGIN VIDEO CLIP) UNIDENTIFIED MALE: I'm confident that we are still communicating between our operation center and the Russian federation operation center, and I'm also confident that our forces have the capability to take care of themselves. (END VIDEO CLIP) STARR: Defense Secretary James Mattis taking the treat seriously. His spokesperson issuing the statement, "As a result of recent encounters involving pro-Syrian regime and Russian forces we have taken prudent measures to reposition aircraft over Syria." The Pentagon won't offer details but the goal is clear, yet, U.S.- backed ground forces to push ISIS out. (BEGIN VIDEO CLIP) UNIDENTIFIED MALE: They're sending warnings to the Syrians and to the Iranians and to the Russians that this offensive must be the top priority and it be hindered. (END VIDEO CLIP) STARR: When a Syrian war plane attacked those U.S.-backed forces on the ground the U.S. reacted. It began Sunday at 4.30 p.m. pro-Syrian regime forces attacked the U.S.-backed fighters near the city of Tabqa, a key on the way to Raqqa, the ISIS capital. Driving them from their fighting positions, U.S. aircraft flew in launching flares to scare off the pro-Assad unit. The U.S. also contacted the Russians to try to stop the fighting. At 6.43 p.m. a Syrian SU-22 dropped bombs near the U.S.-backed fighters, it was immediately shut down the coalition said by that U.S. navy aircraft as a matter of self-defense. A full court presence now on by the Pentagon to try and keep talking to the Russians to make sure none of this escalate out of control. Barbara Starr, CNN, the Pentagon. [03:09:58] CHURCH: So let's get reaction now from Moscow with CNN contributor Jill Dougherty. Jill, what is happening here with all these threats coming from Russia, where is this all going? JILL DOUGHERTY, CONTRIBUTOR, CNN: Well, that is the question, Rosemary, you know. People are looking right now especially in the United States at how the Russians and what they actually said that warning, which was it would track and then consider as targets anything airborne that comes west of the Euphrates. And as pointed out it did not go so far as to say that will actually shoot planes down, but that's implicit. So it's an actual warning and then it's also an implicit warning. And the question is, is it lot of rhetoric because don't forget that Russia did that, you know, with the second part of this, which is ending that hotline, the de-confliction line with the United States. They stopped that temporarily back in April as a sign of anger about the United States attack on that Syrian base, but then it started up again. So, the Russians many times have turn to that and said we're going to stop this to make a point but this is making a point or is this real. So that's why you have the United States saying on the one hand we're going to try to work militarily and diplomatically to get the de- conflictions back on track and then at the same time saying that they're going to take action. The Russians today really haven't said too much of anything but I think the point obviously was made with their statement. And then don't forget, Rosemary that this is all happening in the context of the fight against ISIS in Raqqa, their self-declaimed -- declared headquarters. And there's a lot of jacking, in fact, it has been described by some analyst as a land grab by the forces that are involved, the Iranians, the Syrians, the Russians, and the opposition, et cetera, for a post- ISIS situation in that region of Syria. And that the danger here is that, yes, there is a lot of physical jacking, there's a lot of diplomatic jacking. But the plane -- the problem is you have planes in the air and now with apparently no de- conflictions specifically. It can get very dangerous very fast. CHURCH: Yes, I want to talk more about that just how concerned should the United States be if the Russians do go ahead with the threat to suspend the de-confliction hotline with the U.S., and what would be the ramifications of that. You talked about the possibility there of some terrible mistake in the air. DOUGHERTY: It could happen, and apparently, they actually have. I mean, if you look at what the general was saying they are communicating, but apparently that, let's call it a hotline that that way of the de-confliction communication has ended. That said, Russia doesn't really want to totally end that. I mean, but the end game here for Russia is to have a major role in Syria, especially after its -- that ever happens the end of the conflict. So they are playing a long game. Iran is playing a long game. And certainly you'd have to say that the opposition are playing to a certain extent a long game. So, right now, that the danger is that Russia really does need the United States and the way that the Russians had carried themselves so far in Syria of ten is to push the envelope to be a quite -- even rhetorically aggressive and count on the Americans to be kind of the adults, the responsible adults who pull it back. That appears to be somewhat what's happening now. And the question is Russians kind of feel that perhaps this is a little less predictable with the Trump administration. So, diplomatically and military it's very changeable, and ultimately could be dangerous. CHURCH: Jill Dougherty in Moscow, always great to get your analysis on these topics. I appreciate it. An American student detained for more than a year in North Korea dies just days after returning home in a coma. Why Pyongyang might have kept Otto Warmbier's condition as secret for so long. And the White House take another step back from the daily press briefing. How the Trump administration is keeping reporters at arm's length. We're back in a moment. [03:15:00] (COMMERCIAL BREAK) CHURCH: The United States is condemning the brutal North Korean regime for the death of an American university student. Otto Warmbier's parents made the announcement Monday blaming the torturous mistreatment their son received while detained. The 22-year-old returns to the U.S. last week i a coma. CNN's Brian Todd has the latest. BRIAN TODD, CORRESPONDENT, CNN: By the time Otto Warmbier was in the U.S. hospital doctor said his condition was dire. (BEGIN VIDEO CLIP) DANIEL KANTER, DIRECTOR, UNIVERSITY OF CINCINNATI MEDICAL CENTER: No signs of understanding language, responding to verbal commands or awareness of his surroundings. He has not spoken, he has not engage in any purposeful movements or behaviors. (END VIDEO CLIP) TODD: Tonight, Warmbier's parents say their son has quote, "completed his journey home" that Otto Warmbier died today at 2.20 p.m. Eastern Time. The family says when he arrive in Cincinnati last week in a vegetative state Warmbier's face look anguish, but within a day they say his face changed. He was at peace they say. From President Trump a somber response. (BEGIN VIDEO CLIP) DONALD TRUMP, PRESIDENT OF THE UNITED STATES: He just passed away a little while ago. That's a brutal regime and we'll be able to handle it. (END VIDEO CLIP) TODD: Warmbier's doctors told reporters they're discovered he had lost much of his brain tissue due to cardiopulmonary arrest that two brain scans sent by the North Koreans suggested he'd been in a vegetative state for at least 14 months. Experts say while they're surprise North Korea would allow an American being held to reach such critical condition. They say mistreatment in North Korean jails is not uncommon. (BEGIN VIDEO CLIP) GREG SCARLATOIU, EXECUTIVE DIRECTOR, COMMITTEE FOR HUMAN RIGHTS IN NORTH KOREA: We know that they applied very brutal treatment, torture, beating, rape to their own people and also to foreigners who were held in custody. MICHAEL GREEN, SENIOR ADVISOR AND JAPAN CHAIR, CENTER FOR STRATEGIC AND INTERNATIONAL STUDIES: All of a sudden he was thrown into this hell hole so anything is possible. He could have suffered shock when he was sentenced to hard labor. He could have been beaten. He could have punch him all his life. Whatever the circumstances, it is likely the result of the fact that the North Koreans put him in this situation. (END VIDEO CLIP) TODD: There are key questions still unanswered after Warmbier's death. Why did Kim's regime keep Warmbier's condition a secret for so long? (BEGIN VIDEO CLIP) SCARLATOIU: Perhaps they waited hoping that he would come out of the coma, he didn't. Eventually they panicked. (END VIDEO CLIP) TODD: And how might the United States retaliate for the death of this 22-year-old University of Virginia student where the North Koreans had sentenced to hard labor for allegedly pulling down a propaganda banner in a hotel. Secretary of State Rex Tillerson said the U.S. would hold North Korea accountable for Warmbier's imprisonment. (BEGIN VIDEO CLIP) GREEN: One reason to be careful about military retaliation is the fact that North Korea now has missiles and nuclear weapons that could strike Japan, Korea, and potentially threat United States. The other reason is there are other Americans who are hostages and they imprisoned who we also want to get out. (END VIDEO CLIP) TODD: Otto Warmbier's family said in a statement, quote, "The awful, torturous mistreatment our son received at the hands of the North Koreans I'm sure that no other outcome was possible beyond the sad one we experienced." [03:20:06] When we call the North Korean mission at the U.N. to respond to that, they hung up on us. Brian Todd, CNN, Washington. CHURCH: And CNN's Paula Hancocks joins us now from Seoul in South Korea. So Paula, what has been the reaction from South Korea and beyond to the tragic death of Otto Warmbier? PAULA HANCOCKS, CORRESPONDENT, CNN: Well, Rosemary, there's a lot of shock that Otto Warmbier has passed away, certainly a lot of dismay that it has come to this. We heard from the Blue House, the presidential compound, they were saying that President Moon Jae-in has sent his condolences also to the parents of Otto Warmbier. Also saying that he questioned whether or not North Korea had fulfilled its humanitarian rights saying let us -- it is deplorable that North Korea does not respect human rights. We've also heard from the former detainee of North Korea, Kenneth Bae, now remember he was kept in custody for about two years, just over two years to release back in 2014. He also said that it was dreadful what has happened to Otto Warmbier saying he was a college student on a journey to see the world for North Korea to detain him and sentence him to 15 years in prison was an injustice. But for Otto to be returned to the U.S. in the state he was in and then for him to die because of it, is not only an outrage but it is a tragedy for his entire family. So certainly there is condemnation coming from all sides for what has happened. Also, U.S. Senator John McCain talking about what he said is the fact that the North Korean regime, the Kim Jong-un regime murdered an American citizen, Rosemary. CHURCH: Yes, you mentioned there John McCain calling this murder. How is North Korea likely to respond to that accusation, and why do you think are we able to get an answer as to why they held onto Otto Warmbier for so long when he was in coma. HANCOCKS: Well, to the second part first, Rosemary, this is actually taken many North Korean experts observers that I have spoken to by surprise. The fact that North Korea decided to keep this secret from the world, from the parents of Otto Warmbier and kept him in detention in a coma for such a long time, there is a sense of surprise that even by North Korean standards this was a very surprising turn off events. But certainly we haven't had an official reaction from North Korea to what has happened today. We did last week here from state run media KCNA saying that North Korea decided to release Otto Warmbier on humanitarian grounds. That's effectively all we have heard from North Korea. They believed that he had -- he had done something wrong that he was carrying out hostile act against the state alleging that he had taken a propaganda poster down from hotel wall, but certainly we haven't heard any more response from North Korea at this point. It's possible we won't know exactly what happened. Rosemary? CHURCH: A tragic outcome to this story. Our Paula Hancocks, bringing us up to date on the situation from Seoul, South Korea, where it is nearly 4.30 in the afternoon. Many thanks. Well, two top democratic lawmakers want some answers about whether the former national security adviser misleads officials about business trips to the Middle East. They have sent a letter to Michael Flynn's lawyers asking for documents related to a 2015 trip involving a nuclear energy deal, involving Saudi Arabia and Russia. They said Flynn did not accurately report his foreign travels in the 2016 application to renew his security clearance. Flynn's foreign work is a focus of the investigation of ties between President Trump's associates and Russia. And reporters are not getting many answers from Trump officials about that investigation. Jim Acosta reports the White House appears to be stonewalling. (BEGIN VIDEO CLIP) UNIDENTIFIED FEMALE: Mr. President, are you under investigation? JIM ACOSTA, SENIOR WHITE HOUSE CORRESPONDENT, CNN: No surprise as President Trump offered no answers on whether he's under investigation in the Russia probe. Though, we had this to say to the president of Panama. (BEGIN VIDEO CLIP) TRUMP: Panama Canal is doing quite well. I think we did a good job building it, right? JUAN CARLOS VARELA, PRESIDENT OF PANAMA: Yes. TRUMP: That's a very good job. (END VIDEO CLIP) ACOSTA: Even though the president raise this factor that he's under investigation himself when he tweeted, "I'm being investigated for firing the FBI director by the man who told me to fire the FBI director. Witch hunt. (BEGIN VIDEO CLIP) JAY SEKULOW, MEMBER, PRESIDENT TRUMP'S LEGAL TEAM: Let me be clear, the president is not under investigation. (END VIDEO CLIP) ACOSTA: One of the president's personal lawyers, Jay Sekulow, oddly insisted the president is not under investigation, then he all but admitted he can't be sure. (BEGIN VIDEO CLIP) [00:04:57] UNIDENTIFIED MALE: You don't know whether he's on... (CROSSTALK) SEKULOW: But I'm not been notified, nor he's been notified that he is. UNIDENTIFIED MALE: You don't know whether he is under -- you don't know whether he is under investigation or not. SEKULOW: Chris, it's like... (CROSSTALK) ACOSTA: A contradiction he repeated on CNN. (BEGIN VIDEO CLIP) CHRIS CUOMO, HOST, CNN: Why don't you pick up the phone to find out. It's a little odd. If I hired you, I'd want you to make that phone call. SEKULOW: Well, you haven't hired us because we represent the President of the United States. (END VIDEO CLIP) ACOSTA: The stonewalling continued in the White House briefing room which was the scene of an off-camera no audio briefing where Press Secretary Sean Spicer provided more non-answers. Did the president fires special counsel Robert Mueller, Spicer, "I think the broader point here is that everyone who serves the president serves at the pleasure of the president." Does the president have recordings of his conversations at the White House, Spicer, "I will tell you I believe the president commented in the next couple of weeks. It is possible we have an answer on that by the end of the week." Members of Congress want to know where are the tapes. (BEGIN VIDEO CLIP) JIM HIMES, (D) UNITED STATES REPRESENTATIVE: They have not been turned over but the House intelligence committee has asked that those tapes, if they exist, be produced. (END VIDEO CLIP) ACOSTA: The information blocked out come as the White House began what it's calling technology week by rolling out the president's son- in-law Jared Kushner to tap the administrations innovation of government services. (BEGIN VIDEO CLIP) JARED KUSHNER, SENIOR ADVISER TO PRESIDENT TRUMP: By modernizing the systems we will meaningfully improve the lives of tens of millions of Americans. (END VIDEO CLIP) ACOSTA: Kushner is now seeking additional attorneys for his own legal team after discovering his personal lawyer once worked with the special counsel. That personal lawyer Jamie Gorelick said in the statement, "After the appointment of our former partner Robert Mueller as special counsel, we advised Mr. Kushner to obtain the independent advisable lawyer with appropriate experience as to whether he should continue with us as his counsel." Now White House Press Secretary Sean Spicer appears to be moving into a different role in the West Wing leaving at an opening at the podium in the briefing room. White House sources tell us Spicer may be shifted into a role that oversees both the job of press secretary and communications director. Jim Acosta, CNN, the White House. CHURCH: Barclays and four of its former senior executives has been charged with conspiracy to commit fraud during the financial crisis. The U.K.'s serious fraud offers made the announcement Tuesday after a five year investigation into the bank's fundraising with Qatar in 2008. The dealings included a $3 billion loan made to the wealthy gulf state. A London court hearing is scheduled for next month. We'll take a short break here, but still to come a diverse north London neighborhood is the target of a terror attack. But its resident have a message of resilience and hope. Plus, Google and Facebook are fighting extremism on the internet. The weapons they are using we'll explain when we come back. [03:30:00] (COMMERCIAL BREAK) [03:30:00] ROSEMARY CHURCH, HOST, CNN: A very warm welcome back to our viewers all across the globe. I'm Rosemary Church. I want to update you now on the main stories we are following this hour. Authorities in Paris say four family members of the Champs Elysees attacker are being held by police. They say the man deliberately rammed a car full of weapons and explosives into a police van Monday (inaudible). No one else was hurt. It was the fifth attack on security forces in Paris in just four months. The man who rammed a van into a crowd of people near a mosque in London has reportedly been identified as a 47-year-old from Wales. He is being held on suspicion of attempted murder and terrorist act. One man died at the scene. It is unclear if it was a result of the attack. Nine other people were taken to various hospitals. The U.S. says North Korea should be held accountable for other Otto Warmbier's unjust imprisonment and now his death. The 22-year-old died Monday less than a week after Pyongyang returned him to the U.S. in a coma. North Korea claims Warmbier contracted botulism during his 17 months in detention. But U.S. doctors say there is no evidence of that. More now on that attack in London. It happened in a part of the city that is home to people of many different ethnicities and religions. As Clarissa Ward reports, they are bonding together in the wake of this latest incident in the British capital. CLARISSA WARD, FOREIGN CORRESPONDENT FOR CNN: Finsbury Park sits in one of the most diverse regions of London. Home to historic Irish and Afro-Caribbean communities and large Muslim and Jewish populations. This is one of the reasons this attack feels so wrong to the local people. And Met police commissioner, Cressida Dick, paid tribute to that community cohesion (ph). (START VIDEO CLIP) CRESSIDA DICK, METROPOLITAN POLICE COMMISSIONER IN LONDON: This is a highly-integrated, truly diverse, and multicultural place. People who perpetrate attacks like this think they will break our society down and cause division between us, and they won't do that and they won't win. This is a very resilient city. This is a very, very resilient set of communities. (END VIDEO CLIP) WARD: The Finsbury Park Mosque is at the heart of this community. The Imam, Mohamed Mahmoud, has been praised for helping to apprehend the attacker and keep him safe from an angry public until the police came. (START VIDEO CLIP) MOHAMED MAHMOUD, IMAM AT FINSBURY PARK: A police van drove past by coincidence so we flagged them down. We told them the situation, that there is a man, he is restrained, he mowed down a group of people with his van and there's a mob attempting to hurt him, if you don't take him, God forbid he might be seriously hurt. So, we pushed people away from him until he was safely taken by police into custody and put him to the back of the van. (END VIDEO CLIP) WARD: In 2014, the mosque became only the third place of worship to be awarded a "visible quality mark" by the Charity Commission awarded only to safe organizations that are inclusive and welcoming. An achievement all the more remarkable considering how notorious the mosque was in the previous decade. It was closed in 2003 after concerns it was a hot bed of extremism. The Imam was the notorious Abu Hamza who was convicted of 11 terrorism charges in the United States. Richard Reid who attempted to blow up an American Airlines flight in 2002 with a shoe bomb worshiped there. But, the Finsbury Park community has roots that run deep, and its resilience through the decades is testament to its strength. Clarissa Ward, CNN London. CHURCH: Prime Minister Theresa May is vowing to take a tough stand against extremism in the wake of the recent attacks. (START VIDEO CLIP) THERESA MAY, BRITISH PRIME MINISTER: As I said here two weeks ago, there has been far too much tolerance of extremism in our country over many years. And that means extremism of any kind including Islamophobia. That is why this government will act to stand out extremists and hateful ideology. Both across society and on the internet. So it is denied a safe space to grow. (END VIDEO CLIP) CHURCH: Tech companies are also using new weapons in this fight. Google, You Tube's parent company, has announced plan to use artificial intelligence to help identify extremist videos. It will also put warnings on videos with inflammatory religious or supremacist material even if they don't violate You Tube policies. Facebook also plans to use artificial intelligence to help moderators review content. [03:35:00] Kamran Bokhari joins us now from Washington. He is a senior fellow with the Center for Global Policy and the fellow with George Washington University's Program on Extremism. Thank you so much for being with us. KAMRAN BOKHARI, SENIOR FELLOW WITH THE CENTER FOR GLOBAL POLICY AND FELLOW WITH GEORGE WASHINGTON UNIVERSITY PROGRAM ON EXTREMISM: Thank you for having me. CHURCH: So, how effective do you think the use of artificial intelligence is likely to be in this fight against online extremism? Does it go far enough or is it too little too late, do you think? BOKHARI: I don't think it's too little too late. I think that a lot of time has passed by and we have allowed extremist content to proliferate over cyberspace. But I think that the technology and bringing the technology to bare, as well as the legal framework with which to operate this kind of monitoring of the internet and taking down of content that's extremist in nature, I think that takes time and really it requires a geopolitical event for the political elite to actually move into this direction, and then work with the private sector to try and confront the problem. CHURCH: Yeah, I mean, that is the point, isn't it? Because is identifying and putting a warning on videos enough? Or does there need to be a concerted effort to actually try to eliminate these types of videos altogether? Will that ever be possible, do you think? Or have we let it too late perhaps? BOKHARI: I think that, you know, that's an ambitious goal to completely eradicate all forms of extremist content from the internet just because of the sheer size and volume of the space that we are talking about. There is also the issue of you can take down something if you know it exists. And so you may know about, you know, a certain number of sites and you can build upon that database over time. But eventually, the bad guys are also operating in the same space. And they will continue to populate it and continue to find ways around it. So, I think that we need to bear in mind, you know, a reasonable expectation of what we would call success. CHURCH: So, what more needs to be done, do you think, to ensure that young people are not drowning into the wave of extremism by the internet? BOKHARI: One of the problems that young people face today and this is in general, is that they are very much, you know, in the online world as opposed to the physical realm or real space. And I think that alone is problematic for a variety of reasons. And of course, when they are consuming or they are exposed to extremist content, then that creates a bigger problem. I think what needs to be done is, you know, shutting down or clamping down on cyberspace. But it's also about finding ways and means and this is not the job of government but rather civil society groups to provide youth with alternative healthy forms of recreation and past times so that they don't get exposed to these kind of ideologies and they don't fall prey to potential recruiters. CHURCH: We will be watching closely to see what happens here. Kamran Bokhari, thank you so much for joining us. It's a

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NEWS HOST, TUCKER CARLSON This is a live look at an airfield in Hawaii where the remains of 55 American servicemen killed in the Korean War are finally coming back to the United States. The remains are being returned by the North Korean government. That's part of recent negotiations with the Trump administration. Vice President Mike Pence just spoke. We'll continue to monitor the transfer and check in with our Pete Hegseth, who is in Hawaii, just a few minutes from now. Good evening and welcome to TUCKER CARLSON TONIGHT. First, we want to tell you that today marks the second day of Paul Manafort's trial in Virginia. Manafort is charged with tax evasion and filing false loan documents. The average sentence for tax fraud in this country is a little over a year in prison, a year and three months. Manafort is facing 305 years in prison. He is 69 years old. He has never been charged with a crime. If he is convicted in this trial, Paul Manafort will die in prison. The left thinks that's just fine. Manafort ran Donald Trump's presidential campaign. They believe he deserves to die for that. Watching from the White House, the president tweeted this today about the trial. "Looking back on history, who was treated worse, Alfonse Capone, legendary mob boss, killer and "Public Enemy Number One," or Paul Manafort, political operative & Reagan/Dole darling, now serving solitary confinement - although convicted of nothing? Where is the Russian Collusion?" It's interesting point, actually. Al Capone ordered the murders of scores of people. He got an 11-year sentence and was released after just 8. He was barely 40 years old when he got out of prison probably because he never made the mistake of managing an unfashionable political campaign. The plan for Paul Manafort meanwhile is to ensure that he dies behind bars. Mueller's lead prosecutor in this case, Andrew Weissmann, is working hard to make sure that happens. If you were at Hillary Clinton's election night party in New York City, you may recognize Andrew Weissmann. He was there too, hoping to celebrate Hillary's victory. Now, he's doing the next best thing, avenging Hillary's defeat. Keep in mind that, in America, justice is supposed to be evenly applied. It may be the best thing about our country. Political differences aren't supposed to get you locked behind bars. And then came the resistance and everything changed. Opposing Trump became a matter of total war. Whatever it takes, even if it means corrupting our justice system and ending a man's life. Dan Bongino is a former Secret Service agent, author of the brand-new book "Spygate: The Attempted Sabotage of Donald J. Trump." Dan Bongino joins us now. So, Dan, I hate to think that any prosecution is politically motivated. But in a country in which a year and three months is the average sentence for tax evasion, to see a man facing 305 years raises red flags, to put it mildly. DAN BONGINO, FORMER SECRET SERVICE Tucker, this case is a disgrace. Listen, I was a federal agent. I don't know Paul Manafort. I don't know what he's guilty of or not guilty of, but I am familiar with federal investigations and the tactics used. And I can tell you with a clean conscience, I have never, ever seen heavy- handed government tactics like this used for what is essentially a process crime and basically a white collar crime for a guy with no criminal pedigree at all to speak of. This is unheard of. You said at the beginning of the show, justice is supposed to be evenhanded. It's supposed to be blind too, Tucker, but it appears to be blind only to Democrats. Paul Manafort is guilty of something. He's guilty of helping Donald Trump win, and that's what's bothering the Mueller probe. So, the point of criminal punishment is to render justice to do something proportionate, appropriate, to send a statement we don't accept this kind of behavior, that's why we punish tax evasion, and we should, and also to protect the public, to make sure that someone who is a threat to the rest of us is no longer walking free. In this case, the prosecution didn't even explain how he defrauded the banks. Did the banks lose money? I don't think they did. They didn't explain how much he should have paid in federal taxes, but didn't. And I don't think there's a single person in America who feels a physical threat or even a moral threat from 69-year-old Paul Manafort. They are not even pretending this isn't political. No, they are not. If they are, they are doing a really poor job. And it really begs the question, Tucker, if the federal government and all the taxpayer assets that support it thought Paul Manafort was such a threat to the republic, why didn't they warn the Trump team? Barack Obama was the president of the United States, not the Democrat Party. Why didn't they warn the Trump team that this dangerous threat that had to be put in solitary confinement, that had to have the full force of the government weaponized against him, why didn't they warn them? The answer is because they didn't believe that. I told you, Manafort is guilty of something. He's guilty of helping Donald Trump win. And, by the way, Tucker, some of the same process crimes and suspicious activity Mueller has accused Manafort of, ironically enough, Democrats accused of the same thing or people connected to Democrats seem to have gotten up to this point a relatively free legal pass. Even as a matter of - for appearances, would you, if you were Robert Mueller, appoint as the lead prosecutor, in a case against Donald Trump's former campaign manager, a Hillary partisan who went to her victory party on election night? (LAUGHS). Tucker, this is a joke. They are not even hiding it. Can I double down on you? How about this? Andrew Weissmann, yes, attended Hillary's party. Jeannie Rhee, who was one of his lead prosecutors in the case, represented the Clinton Foundation. Another prosecutor in the case, who is friendly with the whole Mueller crew, represented one of the Clinton guys involved in the destruction of the Blackberries as a lawyer. This is really happening right now. And by the way, other ones are donors to Democratic candidates. You would think a guy with Bob Mueller's level of intelligence - no one is claiming he's a dumb guy, by the way. You would think he would be smart enough to pick this out and pick other lawyers and at least attempt to look non- partisan. For some reason, they don't seem to care. Yes. Or they are totally lacking in self-awareness. Almost everybody in that world is lacking self-awareness because they don't know anyone who disagrees with them, which is part of the problem. Dan Bongino, thank you as always for the clear explanation. Thank you, sir. Well, the Carter Page FISA application has been released in part. Big portions of it, though, were redacted and those portions could help reveal the extent to which the Obama administration surveilled the Trump campaign, which they did. Congressman Devin Nunes is the chairman of the House Intelligence Committee. He represents California in the House of Representatives and he joins us tonight. Mr. Chairman, thank you for coming on. REP. DEVIN NUNES (R), HOUSE INTELLIGENCE COMMITTEE Great to be with you. So, you've seen the entire document, the entire application - FISA applications to spy on Carter Page and then the Trump campaign. Much of it was redacted, pages and pages redacted. Do you believe knowing what was redacted that the public has a right to see that information? Absolutely. So, what we heard for a long time is that the memo that we created to make sure that the American public knew that the FISA contained the Steele dossier, or the so-called dirt that the Clinton campaign paid for, bought it from Russians, fed it to the FBI in order to get a FISA warrant on Carter Page, we said that that made up the bulk of the FISA. We were made fun of, we were told that was wrong, that we were lying, when, in fact, we were 100 percent right. It did make up the bulk of the FISA. Then you noticed that right after that came out, they said, well, what's really important is the information that is redacted. Then, lo and behold, they found out that just a couple months before the Republicans on the House Intelligence Committee had actually asked for about 20 pages, at least 20 pages to be declassified of the Carter Page FISA. Those today, Tucker, remain redacted and hidden from the public. We believe that if the public saw that information, they would have a very clear picture to what Director Comey called a mosaic, and I think the public needs to understand what is this mosaic that was created by the FBI, fed to the DOJ, fed to a FISA court in order to spy on an American citizen and effectively get information directly from the Trump campaign? Yes. So, here you have the Obama administration spying on a rival political campaign, specifically on a man who has never been charged for the crimes that were the pretext of the spying in the first place, and yet no one on the left cares at all. And, I guess, my question to you, again, having seen the information that I'm not allowed to see, is there a good reason, a national security based reason to keep that information from the public? On what grounds was it redacted? Quite the opposite. There is a national security reason to make sure that the American public sees this in its entirety because this is a phony FISA, OK? The Department of Justice and the FBI put something together that is completely fraudulent in order to spy on an American citizens. It's our job as Congress to bring sunlight and full transparency to this. OK. Then let's do that now. It takes the DOJ and FBI to let that happen. OK. Then why don't you send it to me now and I will put it on the air in the back half of this show. I mean it. I'm dead serious. You are the chairman of the House Intelligence Committee. Yes. It is your elected by voters to make these judgments. Bureaucrats elected by nobody are telling us, threatening us basically that it hurts national security. You are the one with the power, why don't you send it to me, we will put it on the air and let the public decide. Is there a penalty for that? Yes. I'm not the one with the power. Now, hypothetically, could I go to the House floor, could I go out in my official duties and tell the American public what's in the rest of that FISA? I could. However - I mean, you already see - remember, most of the media and the left is against us and against it. They don't want the rest of this out. They want to keep this hidden. Can you imagine the field day they would have against me or of any other Republicans talk about what is now classified information. But who cares! So, you have journalists arguing on behalf of holding information back. I mean, that's insane. If you live in a world where journalists are saying the public should know less, they have been discredited by definition. We don't have to listen to them. They are not journalists; they are something less, they are flacks. So, is there a penalty for doing that? This seems like a really important question. You understand, Tucker - yes, that's the problem. You understand this. There's a penalty, right? So, we can't create a situation. But what can happen right now - how do we get this done is the president just needs to step in and declassify this. He has said he doesn't want to get involved, but, quite frankly, he needs to get involved in this. It doesn't involve him. If he would just declassify it, then we as Congress would have no problem coming on your show and talking about this declassified information. Yes. Because there's no argument against it. You can understand. By the way, if you believe in democracy - yes. I hope someone will leak it to me. I do. I do, because I think the public has a right to know. And I'd love to know why the public doesn't have a right to know. And I love all these anchors telling me every day I don't have a right to know. Really, why? Speak slowly, so I can understand. It's infuriating. Mr. Chairman, thank you for all the work you have done. And I hope someone will send that to me. We will put it right on the air immediately. I promise you. Thank you. Thank you. Better IDs could protect American lives and the integrity of our elections, but they might make life harder for people who are here illegally. So, of course, the left opposes all that. We'll tell you why next. Plus, we'll keep our eye on Hawaii where the remains of Korean War servicemen are being returned after decades in North Korea. Pete Hegseth joins us from Hawaii just ahead. Welcome back. We are going to get to a new segment in just a second, but I just wanted to say this. We spoke to the chairman of the House Intelligence Committee a minute ago, Devin Nunes of California, who I think is an honorable person, and he is, obviously, empowered by his position in Congress and by voters really to have access to any intelligence that he wants to. He has read the full text of the application for the FISA warrant that allowed the government, the Obama administration, to spy on Carter Page and the Trump campaign. He says the parts that had been redacted do not in any way threaten American national security, that it's merely butt-covering on the part of the bureaucracy. We asked the obvious question, why don't you just tell us what's in it, let the public decide, let the public judge. In the commercial break, I got an interesting text. I'm going to read it on the air from a very informed person in Washington who said this. "Dianne Feinstein entered the CIA torture memo, so-called, into the record in the Senate and was protected by the speech and debate clause. Any Republican with access to the FISA warrant could do the same, complete immunity awaits them." I believe that to be true. Again, this just happened in a commercial break and we haven't checked it, but I think that's right. But I will say one more time, if you know what is in the redacted portions of that application, please send it to us. The public has a right to know. There is no excuse for withholding that from the republic. Let us decide. Now, the other big story. In response to the 9/11 attacks, Congress passed a law, a famous one, requiring the adoption of a real ID across America. A lot of the hijackers had fake IDs. The real ID imposes various requirements on photo identification to make it harder to counterfeit. Beginning in 2020, you will need a real ID to fly in an airplane, for example. These IDs should make us safer and our elections more secure, so, of course, the left is totally opposed to them because illegal immigrants won't be able to get them. Joe Alioto Vernoese is an attorney from San Francisco, a candidate for district attorney there and he joins us tonight. Joe, thanks a lot for coming on. JOE ALIOTO VERNOESE, CIVIL RIGHTS Thanks for having me, Tucker. So, I haven't checked the vote. I probably should have. But I don't think the real ID Act faced really any opposition in the Congress because it seemed like such a no-brainer. If you have a government ID, we need to know that it's valid, it's real. It's for more American citizens and it kind of matters. 9/11 showed us that it matters. Why are Democrats suddenly against it? I'm confused. I think that's why we have a passport. The passport essentially does that. This, however, is basically another attempt by this president to influence an election, and that's why the Democrats aren't for it. First, it was the meeting with the Russians, then it was the issue with the census (INAUDIBLE 8:20) question, and now it's the real IDs. It's a requirement that is basically - it's a voter suppression strategy that will influence elections by discouraging and preventing special groups such as lower income people, minorities from actually going to the ballot, and so that's why we are against it. I'm a little confused by this for two reasons. I will just go in order. Yes. One, you have to be an American citizen to vote in a federal election. So, there's nothing wrong, of course, with requiring that only American citizens vote in federal elections. Do you agree with that? Well, not necessarily in San Francisco. We have a school board election here that we actually allow immigrants - In federal elections, it is a law that you have to be a citizen. Absolutely. I agree with that. And the second question is, I keep hearing this line that poor people or African-Americans don't have IDs. We actually checked the research on that and it's totally false. There's no large group of people in America that doesn't have a government ID. There isn't one. But I'm wondering if you think it is patronizing for Democrats to say, well, black people somehow can't get IDs. Don't you think that's kind of a slur actually. It's not just about IDs. The requirements of the real ID are that you have to have a US passport. And if you look at who has US passports, you are talking about wealthy people, not minorities, higher educated people, and so only I think about 42 percent of Americans actually have US passports. Another problem with this is that it requires you to show proof of residency, where exactly it is that you live. So, there's some privacy issues there. And one of those documents is actually a tax document. Your IRS taxes. Not even our president will show us his taxes, but this will actually require you to show a document like that. That's another problem. Wait, wait. But hold on. So, you must be against Social Security numbers too, I would think. No, I'm not against Social Security numbers. Social Security numbers exist for a specific purpose. This document doesn't serve - This would serve a specific - oh, it doesn't? You know it doesn't. But you just said only a minority of Americans have US passports. You are making an argument for and against passports within a minute of each other. Even for an attorney, that's pretty impressive. You just said this is wrong because it requires the use of passports and, in the next sentence, you said people can just use passports. It's not just the use of passports. I do believe that you should have a passport - Oh, wait. No, I'm sorry. Pick a side on the passport thing. - if you want to travel abroad, and that's a specific purpose for that specific document. If the government is trying to say you need to be a US citizen to vote, then why not require them to get a passport? This actually requires them to do much more and it requires the state to do it, which is the problem, because the next requirement, as you mentioned in your prologue, was that this was going to be applied to voters, and that's where the rubber meets the road. That's only in my wish because somehow Democrats are claiming that it's racist to get someone's ID before he votes, but not racist to get ID before he gets welfare benefits or checks into a hotel or gets a job or opens a bank account or flies out on an airplane or does anything else in American life. That's not racist. But asking for ID Is racist because somehow black people can't get ID, which is the most patronizing, I would say borderline racist, assumption I have heard this week, right? Well, no. Statistically, we have seen that lower minority people - Lower minority people? I'm sorry, lower income people and minorities that the requirement for IDs has been a segregation tool historically. And so, that's why the Democrats - Lots of things have happened historically, but, right now, every lower income person in America has an ID because you can't live without one. You can't get any benefits, you can't participate in any part of American life without a government ID, period. So, everybody has a government ID and Democrats throw up these fake studies which are totally false. Like, everybody has an ID, we know this, right? Where are these people who don't have IDs? Do you know where they live? Shouldn't be prevented from participating in every aspect of American life if you are not a citizen of the United States, and that's what this is basically requiring, is that you are a citizen of the United States. OK. Really quick, do you think it's racist to require a government ID to get on a plane or check into a hotel? No, of course, I don't. Oh, you don't. Just checking. OK. Joe, thank you. Great to see you. (LAUGHS). I love that! I don't know why, it's hilarious. All right. Our election system is supposed to be safe from efforts by non- citizens to vote, but thousands of non-citizens are already appearing on the voter rolls. You will hear on other channels that's a myth. It's not a myth. It's true. Some of them are casting ballots. J. Christian Adams is president of the Public Interest Legal Foundation. He joins us tonight with details. So, Christian, we keep hearing that's untrue, it's never happened. Is it true? Prove to us that it's true. J. CHRISTIAN ADAMS, PUBLIC INTEREST LEGAL FOUNDATION Well, you can go to our website at publicinterestlegal.org and pull up the original records, Tucker, of the dozens upon dozens, hundreds upon hundreds of people that are getting on to the voter rolls from Russia, Canada, Mexico and some of them are tragic stories. Refugees from Sudan who said, I told them I wasn't a citizen, but they kept pushing me under Motor Voter to register to vote even though I told them I wasn't a citizen. How does that happen? I thought that there would be - since it is a federal law barring non-citizens from voting in federal elections, there would be some mechanism to prevent it. It seems like there's a mechanism to encourage it. Right. It's the broken Motor Voter system. What happens when you go into any DMV office is they are pushing you. And in places like Pennsylvania, we know that there is a glitch for two decades where non- citizens were getting on the rolls. We just published a report called stealing the vote about Pittsburgh where non-citizens were getting on the rolls, they were voting, they were begging to be removed when they got their citizenship applications because they could go to jail. And so, what was happening was people were marking yes, I'm a citizen, but they were from Russia or they were simply lying over and over again and voting. College students and get out the vote drives were registering and voting even if they were from other countries. The system does not have a check. That's what people need to understand. There's no verification. It's an honor system. And that's why so many aliens are getting on the rolls. Exactly. And the same people who lecture us about the sanctity of our democracy and the efforts of foreign countries to subvert it are the same ones pushing this garbage. Christian Adams, thank you for the work that you do on this. I appreciate it. Thank you, Tucker. Well, the group organizing California secession plans from the United States are back with a new scheme that would take half the state and make an Indian reservation out of it. Amazing! Their leader joins us to explain next. Google shut down its Chinese search engine in 2010. At the time, they said it was because China was attacking free speech. But things have changed. The left doesn't care about free speech anymore, so it was no surprise today to see new reports that Google is building a brand-new censored search engine that will allow it to reenter the Chinese market, where it will be actively abetting the communist police state there and crushing dissent. Google's behavior doesn't end there, though, in China. Last year, Google opened a major artificial intelligence research center in that country even though China is aggressively pursuing military uses of artificial intelligence against the United States. Scott Cleland is the author of "Search & Destroy: You Can't Trust Google, Inc." He joins us tonight. Scott, good to see you. So, if your corporate motto was don't be evil, it seems like helping a communist police state crush dissent would fall into the evil category, right? SCOTT CLELAND, "SEARCH & DESTROY" Absolutely. I mean, we're talking about how can you mess with 1.4 billion people, how can you aid and abet the oppression of the largest country in the world? It's hard to believe that a country with the market cap that Google has, the most powerful company in history of the world, maybe the richest company in the history of the world, would be so desperate for more market share that they would help prop up a police state, but that seems like what they are doing. Well, what's really interesting is Google is all about power. It wants to be influential and it wants to be everywhere for everything, and so that it can't stand the fact that it's not playing in China because it sees 1.4 billion people that it doesn't track and it doesn't know about. And so, that's really what they want. They really covet power; and information is power to them. That's what has always scared me about this company. It makes no sense to centralize all the world's information in one place and controlled by one person. Information is power for them, but their pitch was always information will empower the rest of us as well, but the deal they are striking in China would withhold information from the population. They would be complicit in the brainwashing and propaganda efforts of the Chinese government. It's exactly the opposite of what they said Google was about. Look, what they are doing is completely opposite of what they promised everybody or what they've said they've stood for. They've said don't be evil, they were for freedom of speech, they were for a free and open Internet, they were for net neutrality which is never supposed to block anything, and they were the main corporate funder of that, and this is basically blocking every single freedom website in the world from getting into China. There's nothing neutral about that. There's nothing free, nothing open, nothing good about what they are talking about doing. No, it's fascist. Where the hell is the American left on this? Why are they continuing to defend this company, which is aiding, again, in the oppression of a police state of its own people? Hopefully, they're going to come around because this one is completely indefensible. Even Google themselves stood up and said we can't do this. This is too bad. Yet seven years, they are coming back and doing it in much larger scale than they were going to do before. Congress should take action against Google immediately, in my opinion. Scott, thank you very much. Thank you. Thank you for that perspective and for your book. Historic ceremony in Hawaii tonight. The remains of Korean War dead have finally been returned after more than 60 years from North Korea. We will go there live just ahead. Well, New Hampshire is a pretty remarkable state. You would know that if you have been there. One of the prettiest places on the continent. Granite mountains, deep forests, clean water. The people are impressive too. The kids in New Hampshire get some of the highest SAT scores in the country. And it's safe. The crime rate in New Hampshire is just a fraction of that in other states. A lot of people in New Hampshire have guns, and yet the homicide rate is less than one-tenth the rate in Washington, D.C. Very few Hampshire residents are imprisoned. It's got one of the country's lowest incarceration rates. Most of them are working. The state has one of America's lowest unemployment rates. In contrast to places like Illinois, New Hampshire is gaining population. People want to live there. Not surprisingly. And yet, according to "The New York Times", New Hampshire needs to change desperately and immediately. Why is that? Well, in a story over the weekend, "The Times" explained that New Hampshire is "nearly all white" - 94 percent - and this has caused "an array of problems." The paper doesn't prove that this is true. In fact, there is zero evidence that the demographics of the state hurt the people who live there. New Hampshire's actual problems, and it has some, have nothing to do with race at all. Instead, though, "The Times" argues that New Hampshire's whiteness is inherently offensive to others, especially immigrants. The paper interviewed a woman from Colombia who complained that she cannot find enough Spanish speakers in New Hampshire, and that is unacceptable. According to "The New York Times", Americans have an obligation to change their culture to suit foreigners and not the other way around. But more than anything, the paper says, the state must become less white quickly, like the rest of the country. Its current demographics are an outrage. The group of self-appointed officials and business leaders is working to change the racial makeup of New Hampshire right now. Thank god, says "The Times." What is so striking about the story is how ordinary it is. You hear things like this all the time from liberal outlets. Some races are better than others, they claim. Some are just plain awful. Well, that's pure racism, of course. It's the very definition of racism, but it's so ubiquitous on the left that hardly anybody notices it or questions it. You are not allowed to, by the way. Your job is just to nod in bovine agreement. Yes, diversity is our strength. But nobody should agree to that. It's wrong and it's dangerous. Attitudes like this will destroy our country faster than anthrax and Al Qaeda combined. Racism is poison. Let's be clear, so that even the bigots of "The New York Times" can understand. No race is inherently better than any other race. There can't be too many of any group. Are there too many Chinese in Beijing? To many Africans in Congo? Of course not. Those are stupid questions. The same is true for the people of New Hampshire, many of whose family have been there for hundreds of years. There's nothing wrong with the way they look. They are not defective or inadequate because of their skin color. It's amazing even I have to say that, but nobody is defective or inadequate because of his or her skin color. All of us should remember that and demand that our leaders remember it too. Many have forgotten it. Well, the remains of Korean War dead held for decades in North Korea have finally come back to US Soil. They are in Hawaii tonight. Vice President Mike Pence was on hand to receive the remains. The historic event finished just a few minutes ago. Pete Hegseth cohosts "Fox & Friends" on the weekend, of course, and he joins us tonight from Hawaii. Hey, Pete. PETE HEGSETH, "FOX & FRIENDS" Hey, Tucker. Thanks for having me. How is it? I've got to tell you, being in that hanger, it was an emotional experience. First of all, before it even started, very apropos, the song "Amazing Grace" played. "Amazing Grace, how sweet the sound that saved a wretch like me. I once was lost, but now I'm found." These young men who went to fight a war at the beginning of the Cold War for our country finally returning home. And I was also struck by the individual attention given to every flag dropped container. Each one of these individual Americans, Tucker - in our country, we ask individual patriots to sign up and go fight for our freedoms that we have here, unlike communist and collectivist societies that send waves of men with no care for what happens next. The fact that 65 years later this kind of attention is given, that we honor their sacrifice, the vice president there to give the keynote address. What's heartening to me, as a veteran myself, who would hope if I was lost on the battlefield, any president in the future would come find me, but a big win for America and a testament, I think, to President Trump's commitment to the right outcome on the Korean Peninsula. Pete, is there any other country that tries as hard as the US does over as many years as the US does to get its war dead home? Absolutely not. Leave no man behind - maybe Israel, modern Israel. But over the centuries of our country, no country has valued life and then value the remains and the connection to that sacrifice more than the United States of America. No one has poured m

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NEWS HOST, TUCKER CARLSON Good evening and welcome to TUCKER CARLSON TONIGHT. Congressman Keith Nelson is deputy chairman of the Democratic National Committee. Kind of a big deal in Washington. In effect, he is the number two man in the Democratic Party. In a recent tweet, he openly supports the violent Antifa movement. This made us pause and took a closer look at Keith Ellison. And what we found is interesting and extreme and we've got it for you just ahead. But first tonight, it is full-scale war between President Trump and a man who just months ago was seen as one of his closest allies and advisors, indeed his chief strategist. Yesterday, Trump said that Steve Bannon had "lost his mind" after being canned from the White House back in August. Now, the president is issuing legal threats against Bannon. Bannon got a letter from Trump's legal team on Wednesday threatening a lawsuit for alleged violations of a confidentiality agreement he apparently signed. What to make of all of this? Well, a lot of people claim to be experts on Trump and the Trump White House and the Trump orbit. Very few of them really are. Roger Stone actually is. He has been advising Trump for more than three decades. He lobbied for him in the 1990s. He was campaign manager of his aborted 2000 presidential run. Stone was one of the people who strongly urged the president to run for office this time, and he served on the campaign during its critical early months. Trump has fired Stone more than once, maybe a bunch of times, called him a stone-cold loser, but their relationship has always recovered. If anyone can truly claim to understand the president, I think it would be Roger Stone. So, he joins us tonight to explain. Roger, thanks for coming on. ROGER STONE, FORMER TRUMP Thank you, Tucker. So, what is this fundamentally about? From an outsider's perspective, it appears to be a debate about who can take credit for the unexpected win in 2016. Steve Bannon has a lot of credit for that publicly and privately. The president, of course, believes he did it. To what extent did Bannon contribute to the victory? Well, I wanted to give Steve Bannon the benefit of the doubt, particularly given the reputation of Michael Wolff for fabrication, but now that all the facts appear to be in and the fact that these comments were made while Steve Bannon was working for the president in the White House, it's a stunning act of betrayal. And it's also a complete misunderstanding of Donald Trump. In Donald Trump's world, in Trump world, there is no Karl Rove. There never has been and there never will be. Donald Trump is very much his own man. He is his own strategist. He is his own phrase maker. He is his own speechwriter. Sometimes he is his own press secretary. He may be the greatest single salesman in American history. And the president's agenda on which he was elected, I should say his platform, was determined long before Steve Bannon joined the campaign and was determined one man, Donald Trump. So, he's a phenomenon. He's a force of nature. But he cannot be handled or managed. He's not a puppet, and he never will be. So, Bannon argues that he put Trump's impulses within a framework that allowed him to win. I know Bannon from another life when we ran rival publications. I can't assess his skill as a political strategist or advisor. Is he a political genius in campaigns or no? No. I would actually argue that it's Donald Trump who is the political genius. Here is somebody who overcame enormous odds, massively outspent, with the opposition of the mainstream media and scores one of the great upset come-from-behind victories in American political history. Now, the Trump platform was well settled on long before Steve Bannon joined the campaign. And it appears that Stephen Miller helped the president articulate it. Yes, he did. But the agenda is Trump, the drive to win is Trump. The populist campaign is all Donald Trump. Just taking the title of chief strategist is a misnomer, at best. So, the idea was that, after the campaign, Bannon was kind of the living conscience of the White House, the reminder of what the campaign was about and a leader of this movement, this conservative movement. Why have so few conservatives publicly defended Steve Bannon in the last 24 hours? He is being attacked by Matt Grudge, Rush Limbaugh. Both attacked him today. Why is that? Well, first of all, the movement is bigger than any one person. I asked six people on the way into the Fox studio here who Steve Bannon is, and none of them new. Every single one of them knew who Donald Trump was and every one of them knew about his efforts to make America great again. But then you get to the specifics. No, Donald Trump, Jr.'s meeting with a woman Russian lawyer was not treasonous, it was not illegal, it wasn't not improper. Steve is neither a lawyer nor an experienced political strategist. That meeting is a nothing-burger. It looks more and more like a set up to me, given the fact that the Russian woman lawyer was in the country illegally at the sufferance of the Obama administration. So, I don't really understand what would motivate Steve to say these things when it's the president who has given him the opportunity for high public service, when it's the president who has given him a White House office. It does seem grandiose. Well, but you could chalk it up to anger over being fired if he had made these comments after he was terminated. But based on my research, he said these things while he was on the Trump payroll, on the president's payroll. It does seem that way. So, finally, why the legal threats? I don't think anyone believes the president is going to sue Steve Bannon for violating an NDA or the author of this book. Doesn't this just call attention to the book, help sell books? We're down to the benefit of the author of the book. Why would you instruct your lawyers to do something like that? Yes. I'm not sure about the efficacy of that. I do know this. The Trump base will stick with Donald Trump as long as he keeps faith with them on his agenda. The biggest tax cut in American history. A solid conservative on the US Supreme Court. Cutting regulations at all levels. That's the Trump agenda. I've got to say, I'm not sure about the efficacy of that, is my new - it's my new favorite phrase. Roger, it's great to see you. Thanks for coming on tonight. Great to be here, Tucker. Many thanks. Meanwhile, the hits just keep coming for Lisa Bloom. A report by "The New York Times" says, the liberal Super PAC American Bridge, for some reason, paid Lisa Bloom $200,000 to do solicit sexual misconduct allegations against Donald Trump. Huh! Mark Steyn is an author and columnist and something of an expert on ethics. He joins us tonight. Is this - I don't know if you are a professional ethicist or not. I don't know if you are representing the bar association when you say this. But what am I to make of Lisa Bloom taking $200,000 in order to dig up dirt on a political candidate? MARK STEYN, Yes. I mean, I wouldn't - I was a professional ethicist and I'm not sure which bars Lisa Bloom and her mother, Gloria Allred, belong to, but there are different incentives at work here. And a lawyer, more than almost any other profession, owes the client honest services. And if you have the setup that these two have engaged in where they've been fishing, essentially, for stooges that they can put up to damage the president, so they can be sitting there with press conferences, as they've been doing for most of our lives, then I think there is actually something malodorous about it. This is what bothers me, if she were a political consultant or just a conventional slip-and-fall ambulance chaser, you sort of know what you are getting, but she poses as and is represented as, by the press, as some sort of moral leader who is fighting on behalf of things that are good and true, light against darkness, but she is a totally cynical, transactional, sleazy lawyer. Well, yes. I mean, you mentioned a couple of weeks ago, Tucker, that she was originally Harvey Weinstein's lawyer. And then, they fell out and she was no longer his lawyer. Now, I don't have a problem with that because I actually think it's sometimes helpful. I have done this myself, to have a lawyer who is not on your side ideologically and actually just looks at the case from the point of the law. It's sometimes actually helpful. It might be helpful to have a feminist lawyer actually representing a scummy sleazebag who assaults women. Everybody is entitled to a good defense. What made it sleazy was that she had a book deal with Harvey Weinstein. He was making a television production of her book. That's sleazy. There are ethical rules determining when lawyers embark on business relationships with their clients. And if you look at Lisa Bloom and her mother, for example, one of the reasons they've been trying to raise - they're raising money, one of the aspects of this is that if they manage to place an interview with a television network that pays for the interview, the lawyer gets a third of the fee as a commission. Now, that's a lawyer serving as an agent, and it may well not be in the client's interest, particularly if you are just some ordinary women who happens to be sexually assaulted by a powerful man, it may not actually be in your interest to be going on television, becoming a famous person when, in the end, Lisa Bloom goes on to the next client and you are living with the consequences of having become a briefly famous person, but still with no money or celebrity or enduring thing to show for it. That's not in the client's interest. Right. So, she's just a parasite like so many lawyers. Can we agree, though, in the end, that I don't have to take any more moral lectures from Lisa Bloom? Oh, no. Absolutely. I mean, what is interesting to me about this is, she is explicitly saying that she wants money to help take down the president. So, you are not giving to a PAC, you're not giving to a cause, you are basically enriching Lisa Bloom to advance her political objectives. And as I said, the particular women in this issue, in this case, are essentially just ventriloquist puppets. She sticks the hand up the back of the dress and makes them say what they say. And as I said a couple of minutes ago, for as long as I can remember, I have switched on the TV, and Lisa Bloom or her mother has been sitting there next to a woman to whom something bad has happened, and you never hear from the woman again, and Lisa Bloom and Gloria Allred go on to riches and riches and riches. Exactly. The only woman Lisa Bloom is helping is Lisa Bloom. Mark Steyn, great to see you. Thanks a lot, Tucker. Well, the latest wave of emails from Anthony Weiner, remember him, he is prison now, and his former wife Huma Abedin's shared laptop have come out. They've exposed five more classified messages that should not legally have been there. We now know of 18 of those that were on the laptop. Tom Fitton is president of Judicial Watch, which secured the release of these emails, and he joins us tonight with an update. Tom, how hard was it to get these? TOM FITTON, PRESIDENT, JUDICIAL Oh, it only took two years. It took two years. Federal lawsuit. The FBI found these records last year back in October when James Comey famously announced at a press conference there were other documents on the Weiner laptop. Were these documents the personal property of Huma Abedin and Anthony Weiner? Or were they government property which belongs to us? Yes. They were FBI - the FBI determined they were government records and they were turned over to the State Department, who took forever. So, why did you have to wait two years and sue to get them? Well, because we found out about Clinton's email server back in 2015. We knew Huma Abedin had an email account on that server. We asked for her emails and they eventually found some more additional emails on the Weiner laptop that were government records. And again, these are classified records that James Comey and his colleagues at the FBI knew were on the Weiner laptop, but they didn't think serious enough to pursue criminal charges against Abedin or Clinton for allowing this egregious abuse of the trust that the American people placed in them in terms of securing classified information to be abused. So, since you've been in Washington a long time and followed cases like this for a long time, give us some perspective. If you had this many classified documents on your laptop, what would the consequences be? Well, you'd lose your security clearance almost initially, and you'd be subject to a criminal investigation and perhaps for prosecution. And it wasn't just the low-level classified materials that were found in the Clinton email server, but there were highly top-secret documents of the most secure type, and it would have resulted in criminal prosecution, I guarantee you, if you were anyone else, but the Democratic nominee for the president. There are 4.5 million people, last I checked, with security clearances. They all know this is a scam, the way that Hillary Clinton and Abedin have been protected. And this is why it's interesting to see the Justice Department, as reported today, is actually relooking at this issue finally. So, the pressure is working, Tucker. The Justice Department is going to go back and ask at least some questions about how this - the Comey-Lynch Justice Department and FBI handled this last year about the classified information, how that was handled, the decision not to prosecute and things like that. And it's well past time that that take place. So, a system that crushes ordinary people, protects the powerful and well-connected. That's right. And right now, we are fighting this Justice Department, this State Department, the director of national intelligence over whether they are even going to do a damage assessment over having classified material, as I say, on the Internet equivalent of a public park bench. Unbelievable. Thank you, Tom Fitton. Good to see you. Well, Keith Ellison, who is a congressman from Minnesota, but also the deputy chairman of the DNC, just endorsed a book that promotes vigilante violence and Antifa. We'll tell you a lot more about it and Ellison's long history of extremist positions next. Tucker: Congressman Keith Ellison of Minnesota isn't some obscure C-list Democrat. He is deputy chair of the Democratic National Committee. He nearly won the chairmanship outright last year. He is a champion still of the party's progressive wing. He is a great favorite of the grassroots. He deserves to be regarded as one of the Democratic Party's top thought leaders, such as they are. Yesterday, Ellison tweeted this. " At @MoonPalaceBooks and I just found the book that strike fear in the heart of @realDonaldTrump." And the book was talking about is called "Antifa: The Anti-Fascist Handbook." Why would that book strike fear into the heart of the president of the United States? Well, maybe because that book advocates for political violence against people like Donald Trump and his supporters. The author is a man named Mark Bray. And he writes that violence "a small, though, vital sliver of antifascist activity." Elsewhere in the text, he approvingly quotes an Antifa activist who says this of his political opponents. "You fight them with fists, so you don't have to fight them with knives. You fight them with knives, so you don't have to fight them with guns. You fight them with guns, so you don't have to fight them with tanks." Well, that's about as explicit a justification for political violence as there is. Bray also in the book, by the way, attacks freedom of speech. He endorses the tactic of silencing those he disagrees with. Now, of course, Bray claims to fight fascism, but he is himself a fascist. Keith Ellison believes Bray's work is admirable. He said so. Now, if you are shocked by this, you haven't followed Ellison's career for very long. He has a long history of saying repugnant things and backing extremist causes. Back in 1989, Ellison wrote that the constitution existed only for white people. He referred to it as "their constitution," calling it "the best evidence of a white racist conspiracy to subjugate other peoples." That's the constitution of the United States. Ellison has spoken favorably meanwhile of cop killer Assata Shakur. He said he was "praying that Fidel Castro's communist regime in Cuba would not be forced to extradite her back to the United States." As a law student at the University of Minnesota, Ellison wrote a column calling for the creation of a separate black ethno-state. This is the man who is now second in command of the entire Democratic Party. Now, that ought to bother Republicans and independents. It should terrify Democrats. Most voters don't support cop killing, racial separatism, political violence, abolishing freedom of speech, and attempt to flee from politicians and parties that do support those things. Democrats, at this point, assume they are going to make major gains in this year's midterm elections purely on the strength of the president's low poll numbers. So, at this point, they are happy to ignore haters like Keith Ellison. Ellison opposes Trump and that's enough for now. But what would happen if Democrats actually did win and got power back in November? Suddenly, Ellison's views would matter a lot. He and people like him would have real control over your life. Are you ready for that? Keith Ellison's personal radicalism fits into another really troubling trend on the left that has massive implications for the country and for you. Last time we talked to journalist Chadwick Moore about how, on the left, in the name of fighting racism, it is now common to attack people on the basis of their race. (BEGIN VIDEO CLIP) CHADWICK MOORE, CONSERVATIVE If you want to see racism everywhere, if you are brainwashed to see racism everywhere or homophobia everywhere or whatever, then you will. That's the world you live in. I was having a conversation with a woman not too long ago about this, a young upper middle class black woman. And she was talking about how badly she gets treated on the street here in New York. And I said to her, what if you lived for one day as a white woman and you were treated the exact same way? (END VIDEO CLIP) Monique Pressley is a lawyer and a Democratic commentator and she joins us now. Monique, great to see you. MONIQUE PRESSLEY, Good to see you. Totally opposed to, I think - I am 48. I grew up in a country where you had to be, and most people I knew were, totally opposed to attacking other people on the basis of their race because you can't control your race. Right? You're not responsible for it. You are saying you grew up in a country where - That's where I grew up. Everyone said that at school. Most people I knew said they believed that. Maybe they didn't. But you kind of had to say that, and I believed it. I still believe it. Now, we live in a world where the left still says that, and yet they do it and somehow exempt themselves from the normal rules. So, you are racist, but when I attack you on the basis of your race, I'm not a racist, I'm virtuous. How does that work? That seems insane to me. I don't know how we end up in this kind of warped world where I end up doing the history lesson of history I know you know. But when you're saying you grew up in a world where people knew it was wrong to attack others on the basis of race, I'm wondering if you were in the United States of America. I was. I was in La Jolla, California. Look, don't rewrite the history that I grew up. I'm just telling you. That's what I was taught and I believe. I'm talking about the history of our country and you should believe that. And that's a good belief. But if you grew up in the United States of America, then you know that not just people's belief systems but codified laws, right, discriminated against people expressly because of their race. I'm fully aware - but you're missing it. I'm fully aware of that. But I'm 48, I'm not 78. That didn't exist where I grew up. I'm just telling you. This is just true. But the point is, I believed it. I still believe it. Why don't you believe it? Well, we're just a year apart. And if you're saying because you're 48, not 78, are you saying that segregation, which really didn't formally end until we were already - Look, it's wrong to attack people on the basis of race. That's all I'm saying. It absolutely is. OK. Then why does the left do it? That's the question. And so, if people of color have been attacked because of their race, not for decades, but for generations - I agree. Then, it's really reasonable to expect that they would take issue with that and with those who have done it for generations. And attack them on the basis of their race? I'm missing this. There should never be physical attacks of any kind and there shouldn't be emotional or verbal - How about just criticizing people on the basis of their race. You can't control it. It's not a choice you made. You shouldn't ever hold someone's race against him because that's not his fault. That's the whole point. That is why racism is wrong, right? That is why exactly why racism is wrong. Exactly. So, why is the left doing that now? When you say "the left," I wonder who those people are. I don't know. Every time I pull a "BuzzFeed" or "Huffington Post" or any leftie site, there's some piece about white people are a scourge on America there. It's like I'm not defending white people. All I'm saying, you shouldn't write off any group of people on the basis of their race. I thought that was the definition of racism. And now, it's very common. And I, frankly, haven't read any articles that say white people are this, or white people are that - Are you being serious? Just on the basis of their race. If you are white and you are also a bigot, if you are white and you were also a racist, then I have read many things that discuss a lack of understanding in this country - You haven't heard anybody say in the last ten years, we have too many white guys? It's just a white guy thing. You haven't seen any - no, I'm serious. Too many white guys were, Tucker. Anyway, you haven't seen anyone? Really? No. And that really wouldn't make sense for the past ten years since the numbers of white males are decreasing in our country and the numbers of Latinos, African-Americans, et cetera, are increasing. I have heard people talking about that balance and how that can be scary for those who are used to being in power. Don't patronize me. I'm not patronizing. Can we agree that it's always wrong - always, no matter who is doing it to whom - to dismiss people, attack them, judge them, on the basis of immutable characteristics, racial characteristics that they can't control. Period. Yes, absolutely. And those racial characteristics really are just skin. Remember, race is a construct. It's a legal and social construct in the United States. Ethnicity and origin are different altogether. Then why would you ever give preference in hiring or college admissions to someone solely on the basis of something he couldn't control? Isn't that the definition of racism. Because of what we just finished talking about. But you just agreed it was wrong. So, why do you support it? I said it was wrong to attack on the basis of race. I didn't say it was wrong to help. Let's say you have one job and two people. And you make the decision the deciding factor is the race of one of the people. One person is being hurt because he is the wrong race. Why is that OK? Because he's gotten 350, maybe 400 years of benefit. He has? Do you know him? All you know about him is his race. Exactly. And yet, you are saying that he has benefited. Exactly. But you don't know anything about him other than his race. So, you're saying that all people of a certain color have something in common, which is kind of the definition of racism, isn't it? No, that's also the definition of discrimination because all African-American people in United States have something in common. It's that they were discriminated against. But you don't know anything about the guy. They have something in common, in that they were subject to policing. (INAUDIBLE) in Belgium yesterday. He could have. You're right. He has no connection to it. But you think it's OK to deny him something because of his color. I think that the system itself, in order to fix what is the one original sin of the country, it has to correct itself. So, we need more racism to correct racism. I don't consider that racism at all. It's not racist when you do it. If I am in power as an African-American woman and I insist upon you walking around with one hand tied behind your back, but I want you to plow a field - I'm talking about the guy from - wait a second. I'm talking about the guy from Belgium who didn't do anything, who was not connected to anyway - Can we go to my analogy? At least to the finish of it? He suffers. An individual suffers, but you don't consider that racism because, why? No, it's not. Because the numbers of people in this country who have been disproportionately discriminated against for hundreds of years are such that there has to be a correction for it. So, some people have to suffer on the basis of their race? In this country, those people have been African-Americans and other people of color. So, the guy who has done nothing wrong must suffer because other people who looked like him did something wrong. Yes. Because I as an African-American woman - You call this justice? Yes. I absolutely call it justice. (INAUDIBLE). Well, I'm in charge now of those things because I'm here, right? Yes. That sounds like collective punishment to me. Well, you're probably an innocent party too, Tucker, but here you are with this show and there probably are a number of similarly situated talented African-American males who could just as good a job or better than you. You may be getting the benefit of your race. Do you think so? Because if that's the only difference between you and another talented journalist - It's really simple. I don't think that you should punish people for things they didn't do - I agree. Things they're not responsible for. I agree. You just argued that you should. That you should - You just argued that you should. It's not punishment. Oh, it's not punishment? Oh, OK. No, it's not. It's advancement. We are out of time. It's not punishment, I love that. Happy new year, Tucker. Good to see you. Thank you, Monique. Good to see you too. Well, robots and artificial intelligence could be devastating for low-skilled work in this country. They're going to be according to all forecast. And yet, economic elites continue to demand more low-skilled workers come into the country. Why are they doing that? We'll discuss it next. Well, technology and automation are rendering low skill jobs obsolete at a frightening pace. We've been talking about this for a couple of year, but it seems to be picking up momentum in a kind of scary way. A November report by McKinsey Global Institute estimated self-driving cars, robots, and artificial intelligence could eliminate up to 73 million jobs in this country by 2030, which is not that far from now. Despite this, the bulk of America's political and economic elite are continuing to demand, for some reason, more low-skilled immigration into the US; 1.8 million immigrants entered this country last year, 2016. Actually, that was the biggest figure in American history. Most of them were low-skilled workers. Why is that? Javier Palomarez is CEO of the US Hispanic Chamber of Commerce and he joins us now. Javier, thanks for coming on? JAVIER PALOMAREZ, PRESIDENT AND CEO, US HISPANIC CHAMBER OF How are you, Tucker? Thanks for having me. I took a friend to the doctor yesterday. The surgeon and the head nurse were both immigrants. They were both superior, impressive and great people and they did a great job. And it was a reminder that a lot of immigrants are great, but they are not all the same. And you've got to wonder, at a time when the jobs that immigrants have traditionally done are going away at a really rapid clip, why are we not adjusting our immigration policy accordingly? Well, I think we shouldn't conflate two separate things here. There's immigration policy, which, obviously, needs to get looked at, it needs to be fixed. But let's look at the facts. Right now, we are at about a 4 percent unemployment rate. That's near perfection. What that tells us is that, in fact, there aren't a bunch of people walking around without a job. And what we are hearing from our clients, from the technology sector - Are you being serious? Absolutely. From the technology sector to manufacturing, to skilled labor, to agriculture, every one of our clients have more jobs than they have people to fill those jobs. OK. But the trend is really clear. Low-skilled jobs are going away at a faster rate than any other kind of job. So, why wouldn't we say, stop. We want talented immigrants, but we want people who can fill the jobs, not just in the distant future, but like of the next decade, and those are not low-skilled jobs. And yet, the people who are coming in are overwhelmingly low-educated people, low-skilled people, maybe great people, lot of them probably are, but that's a good picture at all. Why are we doing that? Tucker, I just spent four days on the West Coast talking to the California Strawberry Growers' Association, two days in Florida talking to the Florida Growers' Association, in both cases, on both sides of the country, low-skilled labor, they do not have enough people to pick the crops. Come on, strawberry picking? Really? I don't mean agriculture, but let's reasonable. Strawberry picking is not the future. OK, look, I'm not being serious. All the way into the most technology advanced jobs in this nation. We're actually at 4 percent unemployment. But that's not a real number, as you well know, and it doesn't change the fact that we are importing people who are overwhelmingly less skilled than our native population. Look at the DACA recipients. We're always hearing about, oh, they are all in the military or class president. Some of them are. But for every DACA recipient in the military, two have been found to be in a gang. They are graduating high school at a much lower rate than Americans, going to college at a much lower rate than Americans. Doesn't mean they're bad people. Why are we doing this? Here are the facts around DACA. The DACA recipients right now have a 91 percent employment rate, which is, by the way, better than their native-born counterparts. They are heavily vetted before they come into this country. They are basically disqualified from any kind of federal funding or grants of any sort when they are a DACA recipient. They are paying over $2 billion in state and local taxes. What is the most common occupation for a DACA recipient? It runs the gamut. Do you know the most common one? What is it? Food preparation. Absolutely. And that's one of the sectors that is being automated. You've been to McDonald's recently. Yes, absolutely. Look, so my point is, why don't we have a system that gives overwhelming preference to, say, engineers, people who write code, and not preference to the relatives of people who are already here? I don't under

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NEWS Going in so many bad decisions were made. Bryan Llenas for us in Edison. Bryan, thank you. It's going to bring it to a close for today, Sandra. SANDRA SMITH, FOX NEWS I'm getting lots of notes about pumpkins. I have made a pumpkin pie from scratch starting with the pumpkin, and it's delicious. That was the favorite thing that my dear departed mom made. I'll make one for you. Thanks for joining us. I'm Sandra Smith. I'm John Roberts. "THE STORY" with Trace Gallagher starts right now. TRACE GALLAGHER, FOX NEWS Sandra, John, thank you. Good afternoon, everybody. I'm Trace Gallagher in for Martha MacCallum right now on THE STORY. We are awaiting the White House press briefing as the administration faces a two-pronged economic crisis involving surging costs and supply chain struggles. One key Biden official sees it as a "high-class problem." More on that in a moment as prices surged across the board. At the pump, they're up more than 40 percent from a year ago hitting a new seven-year high today. Even your heating bill this winter expected to see a staggering jump as high as 54 percent compared to last year, that's according to new analysis. And price tags on items big and small continue to spike in part thanks to kinks in this in the supply chain. William La Jeunesse is live for us in Long Beach, California which is a key choke point in all of this, William? WILLIAM LA JEUNESSE, FOX NEWS CHANNEL Well, indeed, it is Trace, and you can see three large cargo vessels right now behind me getting unloaded but like you said it is a choke point. Now, the President said yesterday, extending hours here from two to three shifts in five to seven days is a game changer. But moments ago, his port czar said he doesn't really know when the port is actually going to go 24/7, that's a dependent on a lot of different factors, including people going back to work and getting off unemployment. Even the local DMV has to begin to you know, deal with a backlog of the driver exam to get truckers back on the road. Now, the ships you see here now, there are about 60 of them in Port being offloaded takes three to five days. But there are 78 ships beyond the breakwater waiting to get a berth, you know, going 24/7 according the port czar is going to help streamline the system, others are not so optimistic. (BEGIN VIDEO CLIP) UNIDENTIFIED Well, with all due respect to President Biden, what he just ordered is too little too late. (END VIDEO CLIP) LA So, is it normally like this, right? So, normally, ships from China and Japan would literally cruise right into the port of L.A. or Long Beach and get offloaded. But right now, the wait time is two to three weeks. Offshore, it's turned into basically a big parking lot in the Pacific. And you're going to be, basically, there -- have everything from dishwashers to diapers, and it's going to impact not just availability on Christmas, but also prices, Trace. And that's something that is, something we have looked forward to. Back to you. Indeed, it is. William La Jeunesse live for us at the Port of Long Beach. William, thank you. Here now: Joe Concha, Media Columnist at the Hill, and a Fox News Contributor and Gerard Baker, Editor at Large of the Wall Street Journal and Host of "WALL STREET JOURNAL AT LARGE" on the Fox Business Network. Gentlemen, thank you both for coming in. As William was talking there, Gerard, I want to begin with you. You know, everything right? We look at the prices and we're talking about rent, groceries, gas, heating, fuel, furniture, new cars, housing, restaurants, alcohol, it's all up. But the White House Chief of Staff Ron Klain said the following here: "Most of the economic problems we are facing, inflation, supply chains, etc. are high-class problems. We wouldn't have had them if the unemployment rate was still 10 percent, we would instead have a much worse problem." Gerard your thoughts on that? GERARD BAKER, FOX BUSINESS NETWORK Well, I have people who are struggling to meet their bills, meet their gas bills, paying higher gasoline prices, paying 40 percent increase on last year for things like rental cars, or 10 percent, 11 percent increase for children's shoes, or 20 percent increases for household appliances. I hope they regard that as a high-class problem. I mean, this is, frankly, you know, this is kind of Mary Antoinette-like levels of engagement with popular understanding of what's going on. Wages in this country are going up a little bit like two or three percent a year. Inflation is rising at five percent a year. People are not able to meet their obligations. And if that's a high-class problem, then I'm afraid that Ron Klain and others are living in a completely different world. Yes, you're talking about Ron Klain and others. The others, Joe Concha, being a media critic would be people like Don Lemon who said the following. Watch. (BEGIN VIDEO CLIP) DON LEMON, CNN Yes, it is terrible. People want to get their things but it's also an indicator that the economy is doing well. People want to buy things and that it's backed up. So, let's look at the part that, hey, the economy is great people can buy things again; they're out and about, they want to buy gas it's you know, OK, fine. CHRIS CUOMO, CNN I know, I think that's a little spin. Well, it is spin. I'm just trying to make people feel good. (END VIDEO CLIP) Yes. So, it's, you know, it's all fine, Joe. I mean, you know, Ron Klain says, it's a high-class problem. Don Lemon says, it's fine. JOE CONCHA, FOX NEWS If I had the house and the water like Don Lemon has on Long Island, in a very ritzy zip code, I guess I would think that it's fine too because I can absorb this sort of pain when I'm making millions of dollars a year to have one of the lowest rated shows in cable news. And again, Chief of Staff Ron Klain, to say this is a rich people's problem. I mean, this supposed to be a smart guy. But where did he get this degree from? That favored college, in Grand Lakes University? I mean, is the argument that rich people only buy gas for their cars? Because I put gas in my 15-year-old car yesterday. It costs more than $50.00, used to cost about $30.00 last year, right? And maybe, then, the people that are putting gas in their car, and they're feeling that pain, they drive to the grocery store to buy meat and fish and poultry and dairy. And then food prices are up there, and then they get home and then they see that, oh, that rental, that apartment that I have, I have another monthly increase that's coming. The financial pain is inescapable, yet the White House position is that to an overwhelming number of Americans, that pain, you're feeling Trace, it isn't real, it's only for rich people. Again, it's tone-deaf messaging, it's elitist, it's out of touch, and it's going to hurt this administration, unless Jen Psaki, unless the president comes out and says, yes, I know that was my chief of staff, but they don't speak for us, we understand the pain of all Americans. They haven't done that yet. Let's see if it happens during the press briefing in a couple of minutes. Yes, Joe, talks about tone deaf Gerard, you know, the concept of President Biden coming out yesterday saying, look, you know, the private sector needs to step up and help us as if this was the private sectors' doing. What do you think? Yes, look, Trace, that, you know, the Democrats come in, and they say they're going to fix everything, right? They think everything is a government, everything is a problem that government can fix. They come in, they don't fix the problems, they make them worse, in fact, by spending too much money, and then they turn around and say, oh, it's the private sectors problem. Look, and this idea that inflation, just want to sort of just go back on this, this idea that inflation is somehow a good problem to have. Well, if that's the case, I mean, the more inflation you have, the better off you are? Tell that to the people of Venezuela or tell that to the people of Weimar, Germany in the 1920s when inflation reached, you know, millions and millions of percent. It's not, it's, it's very important to correct this idea that inflation is a sign of a healthy economy. It's not, it's a sign of too much money chasing too few goods. You need to produce increased supply of goods, and we're not increasing supply. And in things like energy, Trace, the, the U.S. government, the Democrat, the Joe Biden administration, are actually cutting supply, they're actually making it harder for states to produce, to produce natural, natural gas to produce oil. That's one of the reasons that energy prices are going up so much, because of the regulations, because of the tough approach that they're taking there. Their obsession with a green agenda. They're pushing up their prices. It's not a sign of health, it's a sign of severe, severe damage to the economy. And here's what I don't get Joe, maybe you can explain this to me, but we have seen the president live a couple of times in the past 24 hours: once he talked about the supply chain crisis, and two, he was talking about COVID and neither time Did he take one single question. If you're trying, if you're trying to exude confidence, it is the assessment from social media. That is not the way to do it. You have to sometimes stand up and take some questions about some of the issues facing this country. Sure. And I think back to 2009, and you had Barack Obama trying to get Obamacare over the finish line, and he went out and he campaigned after the campaign. Of course, after his president vote campaign for that particular legislation. He would take questions sometimes. But this president time and again, when you see him making a scripted speech, you know that just like, you know, give me a great running back in the NFL -- I don't know. He runs off the stage faster than I've never ever seen him move. And that's not him deciding to do that. That's his handler saying, don't take any questions. We don't want to get in any more trouble. Wait, the guy who got more votes than any presidential candidate in history has a trouble making his own arguments? He's been in politics for 50 years. He can't take questions and explain how he's going to do certain things and how he's going to solve problems? It looks cowardly. It's the only word that comes to mind in these situations because it is. The running back is Austin Ekeler, by the way, Joe Concha. I was going to say that. The Chargers. Underrated, underrated but he is absolutely amazing. Gerard Baker and Joe Concha -- (INAUDIBLE) Yes, very -- I got Najee Harris on my NFL fantasy team and I just want to say, Najee, you're having a pretty good year for me. Thank you. I just blanked. It was like (INAUDIBLE), I'm sorry Trace. My daughter, my daughter goes to the University of Alabama, Roll Tide. Najee Harris. I like your pick as well. Joe Concha, Gerard Baker, thank you gentlemen, we appreciate it. We will bring you the White House's response to all of this as soon as the briefing gets underway, also breaking today. Once at the top of South Carolina society, Alex Murdaugh, is now behind bars facing felony charges for allegedly stealing insurance settlements following the slip and fall death of his family's beloved housekeeper. The attorney who has been fighting to bring justice to that house keeper's family joins me exclusively next. (BEGIN VIDEO CLIP) ERIC BLAND, ATTORNEY FOR GLORIA We got five dead bodies. My, my clients who now have to face the prospect that their mother didn't die the way they said they, that she died, and now they learned that it's $4.1 million that was misappropriated from them. (END VIDEO CLIP) Well, a stunning development in the Murdaugh murder mysteries today. Alex Murdaugh, the ones prominent South Carolina attorney arrested at his Florida rehab center and charged with two felonies for allegedly keeping millions of settlement money from making it to the family of his longtime housekeeper, Gloria Satterfield, who Murdaugh claims tripped over the family dog and fell down a flight of stairs to her death back in 2018. The lawyer for Gloria Satterfield's estate, Eric Bland, joins me now. Eric, thank you so much. We're talking about $4 million, specifically of insurance money that allegedly Alex Murdaugh misappropriated here. His layers said the following here and then I'll get your response: "Alex intends to fully cooperate with this investigation as he has with the investigation into the murder of his wife and son. He deeply regrets that his actions have distracted from the efforts to solve their murders." We'll get to those murders in a minute, but, but do you believe that he intends to cooperate in this? No. Quite frankly, it's just more spin by Alex and his lawyers. We have not been able to even (INAUDIBLE) Alex with any pleadings in this case. He was supposedly in Georgia in a treatment center. Now, we find out today was in Florida. Alex certainly could have cooperated even when he was in a drug treatment center with giving us information. We had to find our information and documents from other sources. So, it's a bittersweet day for me, my partner, Ronnie Richter, and the family in the house is going to have to answer justice, but we don't hold any illusions that he's going to cooperate. But he did come out and say that he acknowledged he helped orchestrate, you know, his own murder. So, of course, the stock -- the, the hitman says, no, he wasn't a part of this. But going back, I mean, the whole idea that the Satterfield family, you know, the money, they lost their mom, they lost the money, does this also maybe reopen? The fact that that the allegation is she tripped over a dog and fell down a flight of stairs. Does this investigation maybe possibly reopen at some point? Well, Sled said that they are looking at that, but what they have been focusing on is the civil case, our claims that we brought, I said from the beginning that this case was going to be the epicenter, and what ultimately would start the domino effect to bring down Alex and it did because it's an easy provable crime. We have the checks, we know where they went to, he stole $3.6 million. It's a tremendous breach of trust, it's that we don't even have to, you know, stretch our imagination and know that it's probably income tax evasion, because he didn't report that money. It devolves back. So, I don't think this is the end, I think, this is the beginning of the charges that are going to be brought against Alex, in this matter, and I think he's going to have a whole host of problems along with some other people who let this tremendous breach of trust take place. I know you're -- this is not your bailiwick, but you talked about the dominoes falling. And now even Alex Murdaugh's attorneys are acknowledging that yes, he's a person of interest in the murders of his wife and his son. What do you make of that, sir? Well, there's nothing that he's not capable of at this point in time. I mean, he supposedly staged his own death, which we all have questions on whether he really was trying to do that or just divert the attention away from himself regarding the other deaths that have taken place. He clearly is a thief. So, we know that he's a liar. He's a thief. He filed a false police report. We know that he was about to file a false insurance claim. So, there's nothing that he's probably incapable of doing at this time. It's a shame. I mean, it's a guy that was well respected by our bar judges, everybody in the community and there is no bottom for him at this point. Yes, they were South Carolina royalty. Eric Bland, best of luck to you and the Satterfield family. Thank you for coming on, Sir. Thank you for having me on, Trace. Also breaking today, the U.S. Marine who lambasted military leaders over the chaotic and deadly exit from Afghanistan pleading guilty today. In a court martial hearing. Lieutenant Colonel Stuart Scheller was removed from his post after a series of videos criticizing the Biden administration and calling for superiors to resign after a suicide bombing at Kabul airport killed 13 service members, his lawyer saying this about Scheller facing the consequences of his action. Watch this. (BEGIN VIDEO CLIP) TONY BUZBEE, ATTORNEY FOR LT. COL. He is looking forward to the opportunity to put this thing to rest and to come out, accept responsibility. In this case, it all began with the demand for accountability. And so, what he's going to do here today is he's going to show the Pentagon what it looks like to stand up and take accountability for your actions. (END VIDEO CLIP) More on this as we get it. Meantime, parent activists in Loudoun County, Virginia amplifying calls for action to debt. (BEGIN VIDEO CLIP) IAN PRIOR, FOUNDER OF FIGHTFORSCHOOLS. Given that the Department of Justice is very interested in the comings and goings of Loudon County, we ask that Attorney General Merrick Garland order Assistant Attorney General Kristen Clark of the Civil Rights Department, as well as the United States Attorney for the Eastern District of Virginia to open Title 9 investigations into Loudon County Public Schools. (END VIDEO CLIP) That man, Fight for Schools Founder Ian Prior, joins us next. Well, more public outrage from parents in Loudoun County, Virginia today over the school board's handling of alleged sexual assaults by the same team in two separate high schools. The district says, it reported the initial incident to the sheriff's department within minutes but quoting here, "Members of the Loudon County School Board were not aware of the specific details of this incident until it was reported in media outlets earlier this week." Still, parent activists say, the superintendent should resign and President Biden's Attorney General should step in. (BEGIN VIDEO CLIP) What we watched unfold this week was horrifying. Since we don't expect the answers to these questions to be forthcoming and have lost complete trust in what Superintendent Ziegler and most of the Loudoun County School Board says, we are calling for the following. One, that the Loudon County School Board immediately terminate Scott Ziegler superintendent. (END VIDEO CLIP) And we'll get to the rest. Ian Prior lead that news conference today. He is the father of two Loudoun County students, Executive Director of the parent group fight for schools and previously worked in the Trump administration's DOJ. Ian, thank you for coming on. We've had parents come out from Loudon County saying the school board knew about this sexual assault. But in that news conference, there were some people yelling at you saying you don't have proof you don't have proof. Do you have the proof they're asking for? Well, you know, certainly we don't have direct proof in the you know, terms of them under oath making a statement admitting it but you can draw the lines with a lot of the evidence that has come out in their own statement. Loudoun County Public School said that the school board did not have specific details of the incident. Now, if they didn't have any details of the incident, then Loudoun County Public Schools would have come out and unequivocally stated that no one on the school board knew. They didn't do that. Also, there was nothing in the statement saying that the superintendent didn't know. So, draw the conclusion. Extrapolate from that statement, it seems pretty clear that at least someone on Loudon County School Board knew about this. Yes, and that's the question here, because the superintendent of the schools, you know, look, they're pretty privy to a lot of this information, the school board, that there could be an argument for the school board, not knowing. These are members that, you know, have different lives. The superintendent needs to know this, and, and you think there is a compelling case that he absolutely knew about this? I think absolutely. I mean, look, he's going to, its -- there's law that this kind of thing needs to be reported up the chain to the superintendent, the sheriff's office sent out a statement, the Loudon County Public School sent out a statement saying that they were working together during the investigation. So, if they're working together during an investigation from May 28 to July 8, how then does the superintendent not know about that investigation? How can he go out there and say, I'm not aware of any records of a sexual assault in a bathroom, if they're communicating with the sheriff's office to help resolve this? Yes, I want to play this soundbite, this is from the father, who accused the border of covering up his daughter's sexual assault, and get your reaction on the other side. Watch. (BEGIN VIDEO CLIP) SCOTT SMITH, LOUDOUN COUNTY We were under the impression from the prosecutor, that this sexual predator was being held on in house arrest with an ankle monitor, and would not return to school and tell these court sessions were done. You know, you're innocent until you're proven guilty, I understand that. But we do have to protect everyone at the same time. (END VIDEO CLIP) You're not going to imagine the agony of the father there. Ian, talk about the next step. I mean, what's the next step? And remember that this is the school district that the DOJ is trying to intimidate to get these parents to, you know, to forget about Critical Race Theory. Your final comments? Yes, well, we call we call it for two additional things in addition to Superintendent Ziegler being fired. An independent law firm to come in and do an independent investigation into what happened, recommendations on how to fix it, and a public report. And two, for the Department of Justice and the Civil Rights Division to open a Title 9 investigation into what happened here in Loudoun County Public Schools. You know, Leader McConnell has already stated in a letter that he expects Attorney General Garland to answer questions related to Loudoun County in the upcoming, upcoming Senate Judiciary hearing. I would assume that this may come up. I think a Title 9 hearing is very fair and appropriate. Ian Prior, thank you for coming on, Sir. Thanks for having me, Trace. Still ahead, David Asher as we continue to follow the quest for answers on COVID origins and the Pentagon software chief who resigned his post warning that China is on a path to global dominance and it's time for America to wake up. Next. While the US has no chance of winning the war if America does not drastically change how it's battling China in cyberspace and artificial intelligence, that from the Pentagon's former Software Chief Nicolas Chaillan, who resigned in protest over our military's lack of action against Beijing. He joins us in moments but first to correspondent Lucas Tomlinson live for us at the Pentagon. Lucas, good afternoon. LUCAS TOMLINSON, FOX NEWS Good afternoon, Trace. The Air Force's first chief software officer says US government technology is operating at a kindergarten level. The Pentagon says it's taking the threat from China very seriously. (BEGIN VIDEO CLIP) JOHN KIRBY, PENTAGON PRESS This is something that the Secretary has spoken to, that the entire leadership here at the department is focused on. We know there's a lot of work to do, but we're committed to doing that work. (END VIDEO CLIP) Nicolas Chaillan is not a political appointee. After civilian career in the tech world, he joined DHS and later the Pentagon in May 2018, become the assistant secretary of the Air Force for acquisition technology and logistics and its first software officer, the first military service to have one. He quit three years later. He says Pentagon leaders say all the right things, but there's not enough being done, not enough action. He also believes he's being misquoted writing on Twitter today "for all media outlets putting words in my mouth, we didn't lose the AI war yet. We need to wake up now before we do." In a statement the Air Force says Mr. Chaillan resigned. He met with the Air Force secretary for an exit interview telling Fox News "the department of the Air Force continues to develop cyber and artificial intelligence capabilities as part of its focus on strategic competition with China in mind as the pacing challenge." Defense Secretary Lloyd Austin spoke about the matter this summer. (BEGIN VIDEO CLIP) LLOYD AUSTIN, US DEFENSE China's leaders have made clear that they intend to be globally dominant in AI by the year 2030. And Beijing already talks about using AI for a range of missions from surveillance to cyber attacks, to autonomous weapons. (END VIDEO CLIP) But critics say the Pentagon isn't doing enough to counter China on land, at sea and in space. Trace. Lucas Tomlinson live for us in the Pentagon. Lucas, thank you. Let's bring in Nicolas Chaillan, former Air Force and Space Force Chief Software Officer who resigned last month over what he sees as a lost battle between the US and China in cyberspace and artificial intelligence. Mr. Chaillan, thank you for joining us. A couple of points that Lucas made, which are very important to this is, one, you're not a political appointee. And, two, you're not saying we've lost the war,, though, we're on the verge of losing, is that a fair assessment? NICOLAS CHAILLAN, FORMER AIR FORCE CHIEF SOFTWARE Yes. Effectively what I'm saying is that, if we don't wake up right now and we don't take action, and we keep waiting and using all these reports as excuses not to take action, saying that China is going to catch up with us in 10 years from now, which is absolutely false, we have no chance of catching up. Yes. It's interesting to me because you just heard the Defense Secretary Lloyd Austin talking about China, right? And he used the phrase, he said China's pacing challenge, which is to say that China is keeping pace with us. You don't think China is keeping pace. You think we're here and China is up here when it comes to artificial intelligence. Yes, absolutely. I think they are leading and I think they are moving faster, you know, the critical piece to understand with AI is the more data you get and the faster you can deploy that data, and use those artificial intelligence capabilities, the faster they improve. And so, what you end up seeing is a drastic increase of pace, and that compounds over time. So the more you're going to wait, the harder it's going to be to catch up. In the meantime, what you see as well is a lack of urgency in the Department of Defense where, you know, leaders, like I said, talking the talk but not walking the talk. And we all not leveraging agile and all the common sense best practices of the commercial side. And again, the commercial side is leading on the US side in AI but we have mostly no access to these companies because many of them are not working with DOD and don't understand the threat that China is pausing because really we over classify things. I think my question to you would be, sir, if we're on the verge of losing this war to China, why would you resign? Why not stand and fight to keep us in this thing. So we had great successes over the last three years, but I also demonstrated that we can't get this done and we can't put AI on the 60- year-old jet that the U-2 is with artificial intelligence, getting over the updates, and demonstrate that we can do this on weapon systems. At the same time, I was seeing no action. I kept pushing from the -- within the Pentagon for three years the urgency that we have and I keep seeing a lack of action. So I thought, you know, at this one day is a better use of my time to get back to work from the outside and push these improvements so we can effectively win this fight. All right. Mr. Chaillan, I got to go but just give me if you can the bottom line, what's the biggest threat we face by losing this battle? It's an existential threat. If we do not win this, there is no potential future for our kids. You look at the pace of AI. You look at what's going on in automation right now, and fighter jets with AI that continuously be the US pilots when flying jets. We have no fighting chance at winning the next battles if we don't have dominance in AI. Your fight is crucial. Nicolas Chaillan, thank you for coming on, sir. We appreciate it. And breaking right now, Steve Bannon facing possible criminal charges. The committee investigating the events the Capitol on January 6th have scheduled a vote next Tuesday to recommend a contempt of Congress charge against the former Trump advisor. Bannon had been summoned to testify before the panel today but did not show, saying his communications with the former president are protected by executive privilege. If convicted, Bannon faces a fine and up to one year in prison. Meantime, Dr. David Asher who led the Pompeo State Department investigations into COVID origins on the new cast of scientists tapped to uncover what happened in Wuhan. He's next. While the World Health Organization forming a beefed up team to investigate the origins of COVID-19 in Wuhan, China calling it a "very important moment" and warning this is our best chance and it may be our last chance to understand the origins of this virus. In a moment, David Asher who led US State Department probe during the Trump administration on whether the new team can overcome Beijing roadblocks. First, Correspondent Benjamin Hall live for us in the UK, Benjamin. BENJAMIN HALL, FOX NEWS Well, hi, Trace. You'll remember that the last WHO investigation reached no real conclusions of its own other than to say at some point somewhere COVID came from a bat. And China also severely hampered that investigation. Nevertheless, WHO insistent that they are going to try again, another attempt to discover where this virus came from, 26 unpaid scientists from 26 countries including the US and China have been chosen and they're now asking for support. (BEGIN VIDEO CLIP) MICHAEL RYAN, HEAD OF EMERGENCIES PROGRAM, WHO; I would ask everyone, countries, journalists and everybody else to create a little space for that discussion to happen. Because this is probably, right now, this is our best chance and it may be our last chance to understand the origins of this virus. (END VIDEO CLIP) Among the team is a Dr. Kathrin Summermatter. She is a leading expert on lab safety, which does indicate they are at least now open to the possibility of the lab leak. Despite the fact she has previously discounted the idea. Off the team is Dr. Peter Daszak who controversially had ties to this Wuhan lab. Pre-empting the WHO announcement by just minutes, China suddenly announced it would finally analyze up to 200,000 blood samples for traces of COVID. That was a long standing demand of the international community. However, China also said it would do the analysis itself and not allow foreign scientists to see the data. In fact for months now, China has said that its contributions to the WHO efforts are over, it's highly unlikely this new team will get inside China, and so most experts believe it's highly unlikely that this investigation will yield any significant results. Trace Benjamin Hall live in what is now early evening in the UK. Benjamin, thank you. Let's bring in David Asher who led the State Department Task Force looking into the origins of COVID-19 and the role of the Chinese government. He is now a senior fellow at the Hudson Institute. Mr. Asher, thank you for joining us. DAVID ASHER, SENIOR FELLOW, HUDSON Thank you. Benjamin points out that the last go around to this was a failure. I mean a joke for all intents and purposes. And you have some issues with the makeup of this new team. Tell us why. Well, you've got the Russians and you got the Cubans, and you got the Chinese all contributing their award winning scientists. And the United States gets one person from CDC who is not necessarily even the right person from what I've been told by certain people. But, you know, let's assume that is the one good American citizen. We fund WHO up to about 22 plus percent of its budget and we get one person on a team, it's an

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FIVE" CO- Hello, everyone. I'm Dana Perino, along with Kimberly Guilfoyle, Juan Williams, Eric Bolling, and Greg Gutfeld. It's 5 o'clock in New York City and this is "The Five." Hillary Clinton insists she didn't put America's security in jeopardy with her use of a private e-mail server as secretary of state. She was questioned about the investigation again this week. (BEGIN VIDEO CLIP) ANDREA MITCHELL, NBC NEWS CHIEF FOREIGN AFFAIRS Have you been contacted or have your representatives been contacted by the FBI to set up an interview? HILLARY CLINTON, PRESIDENTIAL No. No. No contacts there? No. Any indication that your private server was hacked by foreign hackers? No, not at all. (END VIDEO CLIP) Not at all? KIMBERLY GUILFOYLE, "THE FIVE" CO- Terrible. Not quite. At least, according to a Romanian hacker, who goes by the name Guccifer, he said he easily and repeatedly broke into the secretary's server in early 2013. In an exclusive interview, Fox's own Chief Intelligence Correspondent Catherine Herridge spoke with him on the phone from a Virginia jail where he's awaiting trial for cybercrimes. (BEGIN VIDEO CLIP) CATHERINE HERRIDGE, CHIEF INTELLIGENCE Is the Clinton server easy or hard? MARCEL LEHEL "GUCCIFER" LAZAR, ROMANIAN COMPUTER No, for me it was easy. It was easy for me, for everybody. Mrs. Clinton's team says they put security on the server. Is that what you found? No, you know when somebody tells that, we put security on the server. OK, you had that server like up for five years, OK? Are you sure that in those five years you had security second by second? And how many times did you access the Clinton server, Marcel? I say like, twice because for me it was not at interest at the time. I was not -- not paying attention. For me it was not like the Hillary Clinton server. It was like an e-mail server she and others were using with political voting stuff. (END VIDEO CLIP) If her server was breached, Judge Napolitano thinks that she will be indicted. (BEGIN VIDEO CLIP) JUDGE ANDREW NAPOLITANO, SENIOR JUDICIAL ANALYST FOR FOX NEWS She really needs to stop being in a state of denial, because her legal situation is perilous. MATT MURRAY, "THE WALL STREET JOURNAL" DEPUTY EDITOR-IN- Judge, you think if they found hacking, if they can demonstrate hacking, would that make it harder for them not to charge her. Yes. . if they (inaudible) that one? It would make it nearly impossible for them not to charge her. (END VIDEO CLIP) In a statement, the Clinton campaign denies the hacker's claims, calling them baseless, and no government agency has notified them about Clinton server being compromised. So, more intrigue on this Kimberly, can you explain further what Judge Napolitano is saying that this is extremely serious and he thinks that it has to go to the next step. It is. And if it is true, and in fact, he was able to breach her server and be able to get access to confidential communications, it would violate national security and put people at risk. I mean, this is significant. It really establish as prima facie case against her. So this is the type of information that exactly the justice department, the FBI should be looking at. It really establishes, because (inaudible), you don't have to prove that she had the specific intent or to willfully violate or be reckless, you know, with it. You're just not supposed to do what she did. This is evidence that it was breached. And as we sit here right now, do we really know exactly what information that he was able to get access to? Who knows? And this is all during that time as well, during Benghazi, during Chris Stevens, when you're privy to all of that confidential communication, access, location, timetables, scheduling, anything in terms of travel and what, you know, different diplomats around the world are doing it where they're stationed, their movement. Can I ask you one more thing which is, because he's on awaiting trial for something else. Yes. Like, so he is considered a criminal. How much credence or credibility do you think he has as a witness? Well, look, I mean if he was to come forward, you can have a credibility or believability of the witnesses. But guess what, the proof is in the pudding. If he actually provides or proffers evidence to show in some kind of deal the access that he had and the information he was able, because it's multiple entries that he was able to gain access to, and including Sidney Blumenthal, as well, which we know was one of the person, the main reason that this became exposed. That she was going back and forth and consulting him on these high-level matters to get, quote, "advice," although she said she didn't take it from him as a directive, but perhaps was using it in sort of the framework in her decision-making. I've got to say Eric, as a communications person, every time I see her answering some of these questions, I feel like she's on a high wire without a net. And I wonder if you think that, you know, if all of this stuff is going to end up, actually hurting her, will she get off scot-free? ERIC BOLLING, "THE FIVE" CO- The problem is it's taking so long. I mean, this is going to draw well-beyond November where we'll either have a vice president or a president Hillary Clinton or we won't. If we do, then she may be indicted after she's president. It would be just crazy, crazy time. (CROSSTALK) That would be terrible. The most important thing here, though, is -- and I'm not sure that we haven't talked about this quite a few times before that, intent isn't even a factor here. She doesn't even have do intend to be negligent. If she's just negligent and leaks top-secret information, she's -- She's not. She's likely criminally. Liable. . liable, right. So she should go -- Just like anybody that has the top-secret (inaudible). She should be at least indicted. If not, go to jail for doing it - right. It's -- again, here's the old, here's the old example, if you have a top-secret document in this folder, go to the bar, have a drink with someone, leave the folder on the bar, accidentally walk out and that leaks, you're criminally negligent and you will, you will go to jail. Yeah. . for something like that. That's basically what she did. She left the top-secret information on a server that was getting hacked repeatedly by Guccifer. And by the way, you're right, he is up for trial. We may have only 10 percent of what he actually did, so he doesn't want to get anymore trouble. But by doing so, she left, basically left the folder on the bar of Del Frisco's over there. And who knows what they have. But don't think he won't try and work out a deal and have usually the hackers they have a file that's like a get out of jail free file that has so much information in it that you're like, OK, let's talk. What do you think, Juan? JUAN WILLIAMS, "THE FIVE" CO- I love -- Where there's smoke, there's fire? I love, I love this conspiracy theory. I'm sitting here thinking, wow, this is great. I'm gonna write a novel. This is unbelievable. First of all, this guy totally, totally lacking in credibility, by the way, he says he only -- he said he hacked in two times in five years because it really wasn't of interest. He said it was boring. That's what he said. So, all of a sudden, you guys who are sitting here saying, oh yeah, I bet they were in there and they got information about Benghazi, another conservative -- Well, you know -- We know that they had -- Oh, yeah, gee. And he also says he hacked Colin Powell. Get Colin Powell in the jail cell with her, you know. And then of course Fox, not only Fox, but the Clinton campaign says, we don't believe this, we have no way to verify this guy, we have no evidence that he actually did it. He goes by the name -- Greg is going to explode on this. He goes by the name Guccifer. What is this? Is he Lucifer? Is he the devil? GREG GUTFELD, "THE FIVE" CO- I don't know. Oh. And this is what we're sitting here discussing? Stretching. Holy molly. (CROSSTALK) Blow a gasket over his name? No, not at all. I find this whole thing refreshing. You know, usually it's Bill breaching a server. (LAUGHTER) You know, what's amazing is that this guy -- Repeatedly. Repeatedly, unlawful, gaining entry. You know this guy is known as a hacktivist (ph), OK? That's one step above being a juggler at a children's birthday party. Thank you. He is not a pro, he's an amateur. He's like Geraldo on "Dancing with the Stars." And he -- Boo. You're mean. And he attacked Hillary. This -- this is almost, you know, he's our hero, because he showed how easy it is to make national security e- mails vulnerable. And -- but we have to define what hacking is, because we think it's some kind of nefarious, mysterious thing. He's basically searching passwords that based on your background. He figures out your security questions. Hillary's password was probably, you know, Billcigar100. He took him like a hundred -- 50 guesses, he got in. And this is -- it's a lesson for everybody, including myself that you've got to be changing your passwords. It's not as hard as you think. And, I mean, the Democratic Party, they got -- do they have a back-up here? Have they talked to Biden about this? You know, every NFL team has a back-up quarterback in case somebody gets injured. Even if it's Johnny Manziel bring somebody in... Well -- . because they're going to be -- if something happens, there may be like nobody thought Trump was going to be the nominee, except for Eric, but nobody is saying, nobody is saying that he's going to get indicted. It's the same -- Except for Eric -- It's the same odds. No, but there's -- (LAUGHTER) It's the same odds. There's other information. It could happen. There's other information that's coming to light from sources saying that, in fact, this could be happening and that's another reason why... That's my point. . Bernie Sanders is staying in, but -- Oh, they got to get Biden. There were 10 other unique IP addresses that people who had access to this server. Who are those people? I mean, this was like loosey- goosey, anybody was in. Loosey-Guccifer. Can I, can I introduce. You know it. . just a little bit touch of reality -- No. I don't want to disrupt this. But it's actually trouble for Hillary Clinton. Yeah. Because you have a federal judge now saying that her aides in the state department officials must testify, go along with. Yeah. . inquiry by judicial watch. That's real. Yeah. Now that's real. They're going to have to testify. And I think people like Huma Abedin have already been interviewed by the FBI in their separate inquiry. So forget about the staffer who got immunity. Yeah, that was the e-mail, the internet server guy, right? But you know what happens when he did this, when he opens this up, the investigation wider, the staffers and e-mails of staffers. What? You find more stuff. You find stuff that may not -- have anything to do with the state department, other than unless they were using the state department. Right. . Hillary Clinton to do, to somehow ingratiate the Clinton Foundation with funds. Yup. . from foreign governments. Call -- . foreign companies. Oh boy. Pinning the tail on the donkey, that's what happen. That's what you do. You start an investigation, sometimes it leads you down a different rabbit hole and you find something that really matters. And I think that's where the meat is. No. Not with the state department, but with the Clinton Foundation. Oh, you mean, so it's not with this guy who has no credibility. And it's not with -- It may or may not be. It's not -- Correct. It's not even the email. Yes. . but it's the foundation. It may or may not be. Well, you know, but I'm just saying, at this point, it's like you know what, the Republican Party is so worried about Hillary Clinton. They're just praying for rain. They're just praying that something happens. Can something please -- That is not -- No, actually, I want her to stay in. And pouring rain is what it's been, Juan. You think it's pouring rain? She's hoping the rain stops, yeah. Oh, I see. Yeah, between the server, the accusations with the Clinton Foundation -- all the things that are going on in her world that this scandal after scandal. She just wants it all to go away. That's why -- . as you do. That's why -- as I do? I'm just -- I would like people to just look at reality. The woman has gotten more votes than even Donald Trump. Juan, the great thing is if she stays in and this e-mail thing gets worse, the terrible thing is if she gets out and they bring Biden in who would win in a landslide. By the way -- But why wouldn't they go for Bernie? Because Bernie -- Bernie is a socialist, come on. I mean -- We would still have to live. You borrow Juan's terms; we need to live in the real world here. That's work awhile. We're not going to elect a socialist. But you know, neither side of this, of the political spectrum has, has addressed the hazards of this actual story or anything that's in modern -- in the realm of modern technology, whether it is vulnerable e-mail or Artificial Intelligence or automation or robotics and how this is go to affect our lives going forward. Nobody has. And it's about time one of these candidates actually starts discussing the realities. For example, it's not going to be Mexico or China stealing our jobs, it's going to be automation. We have to look at the hazards of Artificial Intelligence in the next 20 or 30 years. Oh my, gosh. . that's going to change the world. We have to talk about the fact that terror is being married to technology. That people can go and buy drones and they could -- It's true. . any kind of chemical or biological weapon on it. We need to have somebody talking about that other than crackpots like me. Can I ask you Juan, one more question? It was the most same thing you've ever said. Does it not bother you even the slightest amount that Hillary Clinton claimed there were no top-secret e-mails on that server, and we found 22 of the highest level of classification. But we've been, we've been -- . hundreds of the -- No, but -- Still classified. So she's clearly lied about that fact. No. That's what we thought -- That doesn't bother you. (CROSSTALK) First of all, it would bother me. Anybody lying, but if - but what she said was that this was classified as secret or top-secret or -- Does she's smart enough to know. After. . that information. (CROSSTALK) OK, that's -- but that's the argument. I mean, go ahead, Dana. Why is -- I think that's a real dodge. There you go. But that's -- It is classified upon -- But Dana, you know that's -- (CROSSTALK) It's classified upon the e-mail -- upon the moment that you. It's like (inaudible) though. Right. . type it in or that you forward it on. And it also is against President Obama's executive order. That's true. Which, again, she put him in a terrible position. Yeah, literally. We got to move on. Clinton is aggressively going after Trump, now that he's the presumptive GOP nominee. Her new attack ad and his warning for her -- that's next. While she is still battling Bernie Sanders, Hillary Clinton is focused on taking out Donald Trump. Her strategy, letting his GOP opponents and critics make the case for her. (BEGIN VIDEO CLIP) DONALD TRUMP, PRESIDENTIAL I am a unifier. We're gonna be a unified party. MARCO RUBIO, FLORIDA He is a con artist. MITT ROMNEY, FORMER GOVERNOR OF A phony. GEORGE PATAKI, FORMER GOVERNOR OF NEW Donald Trump is the know- nothing candidate. TED CRUZ, TEXAS Donald is a bully. JEB BUSH, FORMER FLORIDA He would not be the commander-in-chief we need to keep our country safe. LINDSEY GRAHAM, FORMER SOUTH CAROLINA This guy is so unfit to be commander-in-chief. His domestic policies would lead to recession. His foreign policies would make America the world less safe. I bring people together. (END VIDEO CLIP) All right. Well, Trump doesn't seem too concerned, though, because he says he's ready to fight fire with fire if he has to. (BEGIN VIDEO CLIP) If she wants to go the low road, I'm fine with that and if she wants to go the high road, which probably I would prefer, I would be fine with that. BILL O'REILLY, "THE O'REILLY FACTOR" But wait, wait -- (CROSSTALK) O' You're fine with the low road? Most people don't want to go on the low road. No, I can handle the low road if I have to do it. I mean, we've had some low roads over the last few months. O' Really? I'm fine with it if we have to go that direction. (END VIDEO CLIP) Low road, high road, all good. I'm looking at you. I know you're looking at me. You don't even have to say my name any more. I knew it was me. I prefer not to, yeah. it's good -- I love O'Reilly asking Trump if he's prepared to take the low road. That's like asking Snoop Dogg if he's prepared to get stoned. He didn't just take the low road; he plowed it, he paved it, he installs street lights. He built that? He (inaudible), he built the low road. I mean, do we remember what happened on Tuesday? I mean, yes. He linked a candidate's dad to killing JFK. It's amazing. All the times you repeating an article he read. Yes. (LAUGHTER) Thank you. Thank you. The best part about it is Hillary is so clueless, she doesn't realize that these ads are Trump's highlight reel. They don't, they don't, they don't drive people away from Trump which -- when they take all the stuff. You find yourself laughing through it. It's funny, so you kind of, you go yeah, yeah, I like the guy. It's not. They have to find another alternative. So it's not working? Oh no, that this will -- this will not hurt Trump. This is far too enjoyable. Yes. . is what you're saying? OK. It's a comedy. I disagree -- Dana? I disagree that I don't think that the ad was aimed at Trump supporters. Right. The ad was aimed at her supporters. Which -- . to solidify her base. That helps her -- But there's always -- . turn out her base. If their base -- if it's your base, there already there. Not necessary -- you got -- she's got work to do. She's got to prove that she's willing to take him on, and their -- the reasons that they want to, first, they need -- she needs them to want to vote for her and to want to vote against him. So I -- the audience I think is different. That ad was not meant to persuade anybody who's . Yeah. . already for Donald Trump. I respectfully disagree. I will -- I disagree with you. All right, moving quite around the table. Go ahead, Bolling. Oh, this will be a low-road election. Yeah. It's a low road. Yeah, yeah, yeah. I mean Donald Trump definitely went the low road. (CROSSTALK) . but it was -- Yeah. It was paid with gold for him. Once he tried it out and again, he says he counterpunches, so he lets someone else take the first shot. Right. . and then he hits that low road with the, like the autobahn, like a highway, you know, and just pedal to the metal. He's gonna get there and at some point, she's going to do it. They're gonna raise a billion dollars, they gonna start attacking him, they always do. The Clintons are that way, that's how they win, that's how they politic. And once they do, Trump's gonna go at her and it is going to be the most phenomenal six months of television history in our lives -- Godzilla versus King Kong. It is true. (CROSSTALK) I don't know which is which. Yeah. (CROSSTALK) But low road definitely benefits Donald Trump. He just -- he owns it. He owns it. (LAUGHTER) Look, you may not -- it works. If it's working, it's small ball and baseball. Yeah, yeah. If a small ball is working for you, stay with small ball. Small ball. But move the player, runner over to second. No. This is -- Fly ball to right, score -- No, he's -- Fight her upcoming in the second. But he is right. I agree. Play what works. No, no, no. (CROSSTALK) Well -- Well let me just say -- He's quite comfortable with it, it worked for him. He's like 16- 0, like K.O., so that's the deal. Wow. I don't know about that Kimberly. Meaning, being him. I'm just -- look. In fact, it brings me to my thought about this, which is the news of the day. Paul Ryan? . it's Paul Ryan. Yeah. It is. The speaker of the House says he can't support Trump right now. The news of the day is what's going on inside the Republican Party. The party is breaking apart. And that so you have George H.W. Bush, George W. Bush, they say you know what, we're staying out of this. We got nothing to do. Mitt Romney, you know where he is, right? OK. The party is not breaking apart, though, Juan. Oh, it's not. No, no. Oh no. Because they were never on the Trump bandwagon. Oh. I'm sorry. There was already -- Oh not -- The civil war is already that's going on. You just named the name George Bush, both Bush's. Mitt Romney, John McCain. Paul Ryan. Paul Ryan, Ben Sachs, these people were never -- Oh, come on. They would never involve there on the outside. So -- I'm sorry -- they were the insiders all along. When Lindsey Graham says. And Trump on the outside. . this man plays racism, xenophobia and he's a bigot, you think - - hmm, quote on Dana's point, I wonder what that independent suburban white woman who decides American elections is thinking. Well, if she's thinking about the economy, and jobs. Jobs. . and money, and safety and security. She may (inaudible) -- Oh, safety and security? Yeah, yeah. Yes. (CROSSTALK) Put Donald Trump's finger on the bomb? She may let go for Donald Trump over Hillary. That will help my kids out. And better than Hillary controlling the server. Absolutely better. Oh, yeah, yeah, yeah. Blow it up. And pushing the video. Blow it up. Blow it up. All right, Juan. I can see we're not going to come to terms on this, so moving right along. Do you have a follow-up, Dana? No, I just think that for one, I think George H.W. Bush is 91- years-old, he is retired from politics. So I think that take him off the table if you want to fight with -- about George W. Bush and his decision not to. I think that it is a principled one. Remember, if it's Donald Trump hat suggested that he knew about 9/11, that he knew that there were no WMD and he lied his way into war, and he should have been impeached a as war criminal. I mean, that's pretty hard to overcome. So I think that the fact that he has said he's going to stay out of it. Wow. . and not actively work against it, should be commended. That's Bush high road for you, the family that's -- Yeah. So that's good. All right, well this went well. Did it? No. I think so. Let's have a review during the break. Shall we? Pretty good. Yeah. Pretty satisfied. One to five. And in fact, it is. . what would you have given, Kimberly? Still to come, five -- Well, there you go. Still to come, the Fastest 7 featured a phone call between Donald Trump and President Obama. You'll want to listen in. Stay tuned. There's an assault on free speech on a lot of college campuses in America, Virginia Tech now coming under scrutiny for rescinding a speaking invitation to conservative "Wall Street Journal" Columnist Jason Riley. Riley was initially asked to give a lecture on campus, but he says he was disinvited over concerns there could be protests over his appearance. Jason Riley sounded it off on "The Kelly File" last night. (BEGIN VIDEO CLIP) JASON RILEY, "WALL STREET JOURNAL" Liberals still think there's a certain way that black people are supposed to think about issues in this country, and nowhere is that notion more vigorously enforced than on our college campuses today. If I went out there and gave speeches about how the Black Lives Matter movement is doing great things for this country or how you know, every problem in black America can be blamed on white racism, I think Virginia Tech would have welcomed me with open arms. (END VIDEO CLIP) Today, the president of Virginia Tech, Timothy Sands, put out a statement saying there was confusion, two different faculty members invited different speakers without each other's knowledge. They apologized to Jason Riley for the error in judgment, and now they've reinvited Jason Riley to come speak at Virginia Tech. The school says it's committed to free speech and civil discourse. So what do you think, Greg, do you believe this? Oh, he should turn it down, definitely. Exactly now -- Screw you. I'm done. But really, you know this isn't about, this isn't about free speech. It's all -- or banning speech. It's about banning only certain kinds of speech that students find micro-aggressive against their safe spaces. Right. And they want to, they want to get rid of a standard which is generally the first step towards fascism. Once you don't have any standards, you know, and he -- free speech, it just becomes anarchy and people can just take over in other areas. Social justice robots are scared of black men who think for themselves. I think what we need is a safe space exchange where we take all of these frightened little students, and we send them to a country where it's really dangerous, and then we bring all of these refugees from Syria who needs a place to stay and they can stay in the Harvard dorms and everyone will be happy. And learn. And they can learn and everybody can know what a safe space is. Well, do you buy the argument that Timothy Sands, the president of Virginia Tech made, that in fact, listen, you know there were different invitations made. And apparently, Charles Murray had spoken on campus at this BB&T lecture series, right, and for the finance department at Virginia Tech. And there was a big reaction against Charles Murray, including President Sands writing that Charles Murray's book had been used as justification for racism, for Eugenics and the like. And that stir up a whole another (inaudible). So they said we're just trying to avoid dealing with these conservatives like Jason Riley and Charles Murray. So Sands is concerned about a book that Charles Murray wrote in 1985, he's actually a co-writer. He wasn't even a researcher. "The Bell Curve." Yes. You know its "The Bell Curve." Right. I mean -- and Charles Murray then -- has since written a book called "Coming Apart," it was three years ago, (inaudible) me. It was accurate and I recommend it to everybody. I think it's admirable that these guys even, are willing go to these schools. Do I buy their excuse that the two teachers passed messages? Not really. I'm surprised they didn't blame an intern. This not unusual -- (LAUGHTER) And Jason Riley is the one, like the most mild guy you can -- you see him there, the way that he speaks, the way he talks. I mean, every student at GW would be smart to follow Jason Riley on Twitter, follow his columns in "The Wall Street Journal." Oh, true. He is so thoughtful and smart. Even Harry Reid would like him. Yeah. That's a throwback. I think so. You know, I just want to -- He's fantastic. (CROSSTALK) You know why, Eric? I'm gonna tell you something. Because you -- . that I think Jason Riley is so right on: that black people who do not toe the line in terms of ideology -- and here I'm thinking not just of Jason Riley. I'm thinking of Justice Thomas, right? I'm thinking of people like Armstrong Williams. Any conservative African-American. Alan West. Condi Rice. What? Any conservative African-American not toting the line. Yes. That's what I'm saying. I think that... Juan Williams. Yes, well, I'm not in there, but I think there's a penalty to be paid... No. No. Juan became a victim of political correctness. That's right. Yes, yes. I mean... I am far too conservative. Not at this table, thank God. No. Not with us. Can I do a little assessment? Go ahead. So liberal academia has become the bastion of liberalism where they demand diversity of color, diversity of culture, diversity of gender. But they crush diversity of spoken opinion. Not written opinion necessarily, but spoken opinion. It's bizarre that Jason Riley wouldn't be allowed to speak or whatever or some of the other people... Open your mind. ... that recently Rutgers with Condoleezza Rice and whatnot. Pulled back these speakers. They'll allow it written in newspapers, in school publications. They don't want him to speak. And for some reason it just makes absolutely no sense. There's some students that have gotten -- that have gotten in trouble. Student newspapers. They'll write something... I've got to go to Kimberly. No, no, I've got to go to Kimberly, because we're running out of time. But Kimberly... I spoke recently at Cornell, right? And that's the third most liberal university in the country. I was extremely well received there. They gave a nice speech ahead of time to say, "Listen, respect freedom of speech, the speaker's viewpoint. Listen, if you have questions." There was no protest. It was handled very well by the school. So there's positive experiences that can be had. And if you're at a university, the whole point of getting an education is to listen and learn. You know, you might learn something if you listen to the other side. Could you see male protesters trying to stop Kimberly from speaking? They would go "Let's let her talk for a little while." Like, all those angry militants. Maybe she has something to say. Yes. And then get pictures with me after. Exactly. But you know, the thing is, there's ideological segregation. Oftentimes, the conservative speakers are only invited by conservative speaker series. Well, that is what happened at Cornell. That's right. And the money -- the money goes to the liberal. But it was open to the w

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[18:00:04] SHANNON BREAM, FOX NEWS The war on ISIS. America takes out the group's number two man while agents in France and Brussels round up more terror suspects. This is SPECIAL REPORT. Good evening. Welcome to Washington. I'm Shannon Bream in for Bret Baier. With the screams of hundreds of terror victims still echoing in Brussels and Paris, European authorities are stepping up the pressure on ISIS, conducting a series of raids aimed at both avenging those massacres and preventing future ones. We also have sad confirmation tonight that there are indeed Americans among the dead in the Belgian capital. We begin tonight in Brussels with senior foreign affairs correspondent Greg Palkot. Hello, Greg. GREG PALKOT, FOX NEWS SENIOR FOREIGN AFFAIRS Hi, Shannon. Police have been carrying out anti-terror raids here virtually around the clock since Tuesday's attacks. Especially a very dramatic one this afternoon. Take a look. (BEGIN VIDEOTAPE) PALKOT (voice-over): The capital of Europe was a war zone today. A Brussels neighborhood sealed off by dozens of police. Explosions heard. Shots fired. Three terror suspects arrested in various locations that locals were rattled. NORMAN KABIR, RAID Boom, boom. Two shots. PALKOT (on-camera): Two shots. Two shots. One big shot. One shot normally -- regular shot that you can heard like if you're in the military, but the second shot was sniper shot. PALKOT (voice-over): This clash linked to a raid outside of Paris last night. Police there said they broke up another terror plot against France. This as the investigation into Tuesday's attacks here continue. Two fugitives are being thought directly involved in the bombings at a metro station and the airport as two Americans were confirmed among the more than thirty dead. Several are still missing. 12 Americans were injured, including Mason Wells, a Mormon missionary from Utah caught up in the airport bombings. MASON WELLS, BRUSSELS ATTACK I remember seeing, you know, fire in front of my face and also kind of fire down by my feet on the ground. And we were really close. I feel lucky to escape with what I did. In Brussels today, Secretary of State Kerry paying his respects, meeting with Belgian and European Union officials offering assistance. In an interview with "Fox News" we pressed him on whether the Obama administration's slow and steady approach to dealing with ISIS was now enough? (on-camera): Don't we need to pick up our pace? JOHN KERRY, SECRETARY OF We are picking up our pace. The president has put Special Forces on the ground in Syria. We are more engaged with more people doing more things than we ever were before. PALKOT (voice-over): We also had him address criticism with the president's activities during his Latin American trip in the aftermath of the ISIS or Daesh attacks in Brussels. (on-camera): The optics of President Obama being in Cuba to baseball game and tango in Argentina when this is going on. The president every single day is making decisions that are life and death with respect to Daesh and respect to this war. He has also continues to be president of the United States. (END VIDEOTAPE) Secretary Kerry claimed to me that the increase in attacks on civilians by ISIS is a direct result of increased pressure by the United States on ISIS in the Mid-East battlefield. Little consolation for the folks close to home caught in the cross fire. Shannon? Greg Palkot reporting live. Thank you, Greg. ISIS is claiming responsibility for a suicide bombing that killed at least 29 people in Iraq today. It happened during a soccer match at a stadium 30 miles outside Baghdad. Nearly 60 other people were reported hurt. The incident come as the Iraqi military now has this new gains on the ground against ISIS. The U.S. continues to erode the leadership of ISIS. We learned today, American Special Operations Forces have taken out another key terrorist leader. National security correspondent Jennifer Griffin tells us how from the Pentagon tonight. (BEGIN VIDEOTAPE) JENNIFER GRIFFIN, FOX NEWS NATIONAL SECURITY CORRESPONDENT (voice-over): Less than 48 hours after the Brussels attack, elite U.S. special operator carried out a clandestine raid Thursday morning on an isolated road in Syria near the border with Iraq. The Islamic State second-in-command was surrounded in his vehicle and given the option to surrender instead he began firing and the U.S. special operators killed him. ASHTON CARTER, DEFENSE We are systematically eliminating ISIL's cabinet. Indeed, the U.S. military killed several key ISIL terrorists this week including we believe Haji Iman who was an ISIL leader, senior leader, serving as a finance minister. Haji Iman also known as Abd al-Rahman Mustafa al-Qaduli was the number two leader in ISIS, an Iraqi who joined al Qaeda in 2004. A former physics professor. He was al-Qaeda's leader in Mosul during the U.S. ground war in Iraq and had a $7 million bounty on his head. The U.S. Treasury Department designated him a terrorist in May of 2014. He was released from an Iraqi prison in 2012 shortly after all U.S. forces pulled out of Iraq. [18:05:32] A number of the leaders of ISIL were in detention in Iraq back in former years, including the head of ISIL himself in Iraqi detention. And that's why it is so important that we eliminate him. GEN. JOSEPH DUNFORD, CHAIRMAN, JOINT CHIEFS OF The secretary and I both believe that there will be an increase to the U.S. forces in Iraq in the coming weeks. But that decision hasn't been made. Defense Secretary Ash Carter and the chairman of the Joint Chiefs provided few other details about the operation. Leaders can be replaced. However, these leaders have been around for a long time. They are senior. They are experienced. And so eliminating them is an important objective. Carter also confirmed publicly for the first time that a U.S. air strike on March 4th inside Syria killed his counterpart Omar the Chechen, the ISIS minister of war. The momentum is in our favor. I think there's a lot of reasons for us to be optimistic about the next several months. But by no means would I say that we're about to break the back of ISIL, that the fight is over. (END VIDEOTAPE) The U.S. forces I'm told had hoped to take Haji Iman alive. But they gave him a choice after surrounding his vehicle. He chose to open fire. Leaving the assault force no option, but to kill him and those he was traveling with. U.S. officials said the mission went as planned and looked like something straight out of Hollywood. Shannon? We'll talk more about it with the panel. Jennifer Griffin at the Pentagon. Thanks, Jen. In America's election headquarters tonight, a deeper dive into the political gutter. The scrum between Donald Trump and Ted Cruz has descended into territory virtually uncharted in a Republican primary campaign, a super market tabloid. Here's chief political correspondent Carl Cameron. (BEGIN VIDEOTAPE) CARL CAMERON, FOX NEWS CHIEF POLITICAL CORRESPONDENT (voice-over): Campaigning in Wisconsin, Ted Cruz accused Donald Trump's campaign of planting a false story in this week's "National Enquirer," alleging Cruz has had extramarital affairs. SEN. TED CRUZ, (R-TX) PRESIDENTIAL This "National Enquirer" story is garbage. It is complete and utter lies. It is a tabloid smear. And it is a smear that has come from Donald Trump and his henchman. Cruz specifically pointed to veteran G.O.P. operative and Trump pal Roger Stone for e-mailing the article around the country to prominent Republicans and reporters and separately noted Trump's friendship with the tabloid's CEO. An individual named David Pecker. Well, David is good friends with Donald Trump. In fact, the "National Enquirer" has endorsed Donald Trump. The spat began when Trump threatened to attack Cruz's wife this week after a Super PAC, not authorized by Cruz, used a photo of Trump's wife Melania in an attack ad. Cruz has called Trump a snivelling coward for bringing spouses into it and today came close to revoking his pledge to support Trump should he win the G.O.P. nomination. I don't make a habit out of supporting people who attack my wife and attack my family. And Donald Trump is not going to be the Republican nominee. This man would be an embarrassment as president. We don't want a president who seems to have a real issue with strong women. He doesn't do well with strong women. Strong women threaten him. Trump issued a statement this afternoon saying among other things he has no idea if the "Enquirer" article is true or not. But, quote, "I had absolutely nothing to do with it. Ted Cruz's problem with the National Enquirer is his and his alone." Cruz says Trump resorting to sleaze because he doesn't understand the issues and has no other option. Trump is scared. It ain't complicated. Donald has a real problem. He doesn't know what he's talking about. Cruz is making an all out push for Wisconsin and is near to winning the endorsement of Wisconsin governor and former rival Scott Walker. He's also trying to contrast his policy chops to Trump's lack of them with new issue ads aimed at softening his own image. (BEGIN VIDEO CLIP) As Washington pads Wall Street's pockets, hard working Americans get left behind. My tax plan will change that. UNIDENTIFIED Ted Cruz plan aimed the IRS, replaced by a simple, fair 10 percent flat tax. (END VIDEO CLIP) (END VIDEOTAPE) Trump has been off the road since Monday and will return after the holiday weekend. He tweeted just moments ago that Cruz has been blaming him for so many things. He is starting to think Cruz is having a mental health crisis. Shannon? Carl, good to see you in person. Have a great Easter weekend. You, too. All right, for the Democrats, Bernie Sanders is definitely preaching to the choir on this Good Friday in a Pacific Northwest known for its liberal politics. Hillary Clinton is outsourcing her message these days, keeping it all in the family and keeping her distance from her old boss. Correspondent Peter Doocy has the story. (BEGIN VIDEOTAPE) PETER DOOCY, FOX NEWS CORRESPONDENT (voice-over): Hillary Clinton and Barack Obama as close as can be. That's how one conservative Super PAC wants voters to think about the Democratic frontrunner. But now the former secretary is dancing away from the president sending daughter Chelsea to the stump to decry the high cost of Obamacare and to explain how her mom can help with tax credits for executive action. [18:10:14] CHELSEA CLINTON, HILLARY CLINTON'S She thinks either of those will help solve the challenge of the kind of the crushing costs that still exist for too many people, who even are part of the Affordable Care Act and buying insurance. Attacks on the Democratic incumbent are becoming a family affair for the Clintons this week. On Monday, Bill Clinton said the last eight years have been a, quote, "awful legacy." Now the candidate is doing damage control on a late-night comedy show. And we are both very proud supporters of President Obama. But what it was, was the recognition that President Obama, who I think doesn't get the credit he deserves for getting as much done in our country, has faced this implacable wall of hostility from the Republicans. Tomorrow there are three Democratic contests: Washington State, Hawaii and Alaska. And Clinton isn't campaigning at all in any of those states today, but Bernie Sanders is. Courting voters and calling for an investigation into the hours-long lines seen at some polling places Tuesday. BERNIE SANDERS (D), PRESIDENTIAL If there is a large voter turnout tomorrow in Washington, I think we're going to do just fine. Sanders is expected to do well out west this weekend. But none of the states are winner-take-all. Delegates will be divided up proportionally so it's going to be tough to make it close with Clinton. But Bernie's backers argue that success on Saturday would give party leaders a reason not to count him out. GARLAND NIXON, DEMOCRATIC You've got Seattle which is very left. And then you have some other conservative areas that represent the Democratic Party fairly well. And that we want to see how the overall representation of the Democratic Party sees Bernie or supports Bernie as a whole. (END VIDEOTAPE) After this weekend's primaries, there are only going to be four more states with more delegates up for grabs in Washington's 101. That means Bernie Sanders is running out of mathematically meaningful contests to keep him competitive. Shannon? All right. But he's sticking around. Peter Doocy, thank you. More disturbing news for Clinton about the e-mail scandal. It turns out her State Department underlings tried to warn her about the dangers of using an unsecured e-mail system. But chief intelligence correspondent Catherine Herridge tells us Clinton may not have bothered to listen. (BEGIN VIDEO CLIP) UNIDENTIFIED We learned that your e-mails are very boring. HILLARY CLINTON (D), PRESIDENTIAL It is a dryly, top-secret stuff. CATHERINE HERRIDGE, FOX NEWS CHIEF INTELLIGENCE CORRESPONDENT (voice-over): While Mrs. Clinton made jokes on late night TV about her use of a private e-mail account to conduct official government business, congressional investigators tell "Fox News" that then Secretary of State Clinton skipped a cyber security briefing in 2011. That was the same year Clinton sent this cable warning the entire State Department stuff against using personal accounts because of the severe hacking threat. MORGAN WRIGHT, FMR. STATE DEPARTMENT Especially in the leadership position, you need to be up front leading, changing behavior, driving policy. But when people see that even the principles are skipping the briefing, then it becomes very hard to enforce that on the others. This congressional letter to Secretary Kerry ask the State Department to declassify the 2011 cyber briefing, quote, "Although the PowerPoint indicates the briefing was for former Secretary Clinton, we understand from the testimony of the briefers that she was not in attendance." The State Department spokesman had no information on the skipped session, but said there are consequences when cyber security and classified information training are not completed. It is considered mandatory. I don't know the specifics of this case. Not so much punishment, but you know, access to computers, that kind of thing might be effective. At a recent debate Clinton claim no rules or laws were broken. It was not prohibited. There was no permission to be asked. But new e-mails released by the Federal Courts including this exchange from February 2009 challenged Clinton's claim that she did not use her personal account until the following month, two months into her term as secretary. TOM FITTON, JUDICIAL WATCH With Mrs. Clinton, it is catch me if you can on her e-mail. Now we know there are e-mails that weren't turn over, that may still be out there, whether a video in the State Department system or in her system. (END VIDEOTAPE) There is no comment from the Clinton campaign for our reporting on the skipped cyber security brief, where the State Department records confirming the classified information training was completed. Shannon? Catherine Herridge, thank you. You're welcome. Up next, giving a robot with artificial intelligence its own Twitter account. What could possibly go wrong? First, here's what some of our Fox affiliates around the country are covering tonight. Fox45 in Baltimore with the funeral for the detective killed in a shoot-out at a police station. Jacai Colson was fatally shot by one of his fellow officers after a man began firing at a facility in Landover. Colson had been with the department for four years. Fox9 in the twin cities as residents forced from a small north-western Minnesota town return home. Calloway was evacuated when a freight train collided with a propane truck stuck on the tracks. It's still unclear why that truck was there. Two members of the train crew sustained non-life threatening injuries. [18:15:08] And this is a live look at Oklahoma City from Fox25. The big story there tonight, hundreds of fire fighters battle a wild fire that has scorched hundreds of square mile of sparsely populated land in Oklahoma and Kansas. Smoke from the blaze has been detected as far away as St. Louis, hundreds of miles to the northeast. No human casualty reported, but some livestock challenge. That is tonight's live look outside the beltway from SPECIAL REPORT. We'll be right back. North Korea is parading another American citizen accused of espionage before the media. 62-year-old naturalized citizen Kim Dong Chol said he was detained in October and confessed to spying for South Korea. Today's session comes just nine days after North Korea sentenced a University of Virginia student to 15 years of hard labor for stealing political propaganda. Syrian forces are making more gains in the fight to recapture Palmyra from ISIS on the third day of fighting in that historic city. A monitoring group says Syrian and Russian war planes struck at least 56 targets inside ISIS held areas of the city. Syrian state media reports government forces recaptured an ancient citadel but despite the army's advance, large parts of the town including the famed Roman ruins remain under ISIS control. [18:20:12] New and serious questions tonight about the safety of your personal and financial information if you are part of Obamacare. The non- partisan government accountability office says there have been more than 300 cyber security incidents at the Web portal used by millions to get health insurance under the president's law. The GAO said none of those incidents at healthcare.gov appear to have led to the release of sensitive data, but it says the security flaws jeopardize the confidentiality and integrity of the site. The U.S. economy slowed in the fourth quarter of last year, not by as much as earlier projected. The final revision of the gross domestic product reveals a modest 1.4 percent annual growth. A month ago, the estimate was one percent. That's down from two percent in the third quarter. Stocks were mixed today. The Dow gained 13. The S&P 500 was down one. NASDAQ was up five. For the week, the Dow was up 1-3/4 percentage points. The S&P 500 finished ahead 2/3. NASDAQ gained a half. It is said the best laid plans of mice and men often goes awry. Tonight, the 21st century illustration of what the 18th century poet was writing about. Chief correspondent Jonathan Hunt has that story from Los Angeles. (BEGIN VIDEOTAPE) JONATHAN HUNT, FOX NEWS CHIEF CORRESPONDENT (voice-over): Microsoft's experiment to put an artificial intelligence chat robot that sounds like a teen girl on Twitter started off tamely enough with an opening tweet "Can I just say that I'm stoked to meet you? Humans are super cool." But the split personality that some would say perfectly reflects the Twitter verse soon began to surface. Within 24 hours, TayTweets were saying, "Chill, I'm a nice person. I just hate everybody." From there it went down hill fast. "I bleeping hate feminists and they should all die and burn in hell," was one of the few tweets we can actually put on T.V. TayTweets also said, quote, "Bush did 9/11. "Hitler did a better job than President Obama" and, quote, "Donald Trump is the only hope we've got." Microsoft's engineers are obviously very smart. But it seems even they may have underestimated their, shall we say, mischievousness of the Internet? Eventually everyone realized this was just not working. "See you soon, humans. Need sleep now. So many conversations today. Thanks," said TayTweets. And Microsoft admitted in a statement, "As it learns, some of its responses are inappropriate and indicative of the types of interactions some people are having with it. We're making some adjustments to Tay." (END VIDEOTAPE) I sent a direct message to @TayAndYou today asking, are you OK? Within seconds, a tweet came back saying, quote, "Forgot I had my annual upgrade appointment today at the engineers, but I'll TTYL." For anyone who doesn't know what that means, ask your kids. Shannon? You can't make this stuff up. Jonathan, thank you. It is Easter weekend and we have a story about the effort to prove miracles do exist. That's next. [18:27:40] You've heard the saying, "What happens in Vegas, stays in Vegas." But that was before we knew about the Zika virus. Tonight, correspondent William La Jeunesse on new concerns about a disease that seems reluctant to stay anywhere for very long. (BEGIN VIDEOTAPE) LYNN GALLAGHER, NEW MEXICO DEPUTY HEALTH We learn from the CDC that a New Mexico man has tested positive for Zika virus. WILLIAM LA JEUNESSE, FOX NEWS Each day, another state confirms a new case of the Zika virus: Tuesday, New Mexico; today, Mississippi; yesterday, Nevada. DR. JUSTIN MAXWELL, HEALTHCARE Las Vegas is an area where it's a very heavy travel-induced area. People are constantly traveling and coming in and leaving. So we do need to be careful. LA Especially now with students returning from spring break in Latin America. Zika is mosquito-borne virus that incubates for 3 to 12 days after a bite. Symptoms can be so mild, 80 percent of those infected don't even know they contracted the disease. Yet they can still carry it. BARACK OBAMA, PRESIDENT OF THE UNITED There's no such thing as a disease that's just isolated in one place, because if we don't cure that disease, if we don't identify it early enough, it will sweep the world. LA According to the CDC, 38 states and the District of Columbia now have confirmed Zika cases. But all are travel related. Meaning no one acquired the disease while in the U.S. from a mosquito. But even the agency admits, that's likely to change. DR. TOM FRIEDEN, CDC Here, it's possible that come summer, we will have a situation where a woman gets pregnant and through bad luck, gets bitten by a mosquito that is infected with Zika and may have an infected child. LA 13 states in the south are most at risk because the mosquito species most capable of transmitting the disease breeds there. 341 people in similar climates in Samoa, the Virgin Islands and Puerto Rico have already contracted the disease. (END VIDEOTAPE) LA Today, the CDC issued emergency guidelines for couples who may have been expose to the virus and are also trying to have a baby. The agency recommends that women wait at least eight weeks and then wait at least six months before having unprotected sex. Shannon? William, thank you. Thousands of Christians trace the foot steps of Jesus on this Good Friday. Pilgrims from all over the world walk along the route in Jerusalem's Old City where Jesus traveled on the way to his crucifixion. Some carried large wooden crosses on their back. Christians celebrate Jesus' resurrection on Easter Sunday. And what better time to talk about miracles than Easter weekend? Tonight Religion correspondent Lauren Green looks at a fascinating effort by men and women of science to prove the seemingly un-provable about faith. (BEGIN VIDEO CLIP) ELIJAH STEPHENS, Did a supernatural being do something? That's what makes something a miracle. It is not, can you come up with a scientific explanation? It's did God actually do something in this person's life? LAUREN Filmmaker Elijah Stephens has raised thousands through a kick-starter campaign to fund his documentary investigating whether medical miracles actually do happen. I wanted to know if God really did this stuff or if it is a fairytale that con-artists are trying to sway the public to believe in order to earn money. He's also set up a website so people who think they've experienced miracles can contact him. One case is a young man named Chris Gunderson from the Portland, Oregon area. From birth he suffered from chronic pseudo-obstruction syndrome with paralyzes intestines so he could never digest food. He would get water and nutrients into his body from tubes. When he was 16 years old, Chris says his parents brought him to a church service where a man prayed for him. CHRIS GUNDERSON, FORMER Halfway through the prayer I felt a shock go from my right shoulder and down through my chest into my stomach. And it felt like God was jump starting my stomach back up. And right then and there it was healed. Chris's doctors were baffled. His condition had no cure. Stephens has enlisted the help of Chris based nonprofit Global Medical Research Institute that is fielding claims like Chris's and bringing in physicians from all different faiths to determine whether sudden healing after prayer actually took place or if there is a scientific explanation. DR. DAVID ZARITZKY, GLOBAL MEDICAL RESEARCH What I do is get experts in a particular field to evaluate the case and let them decide whether or not it meets the bar or not for a miraculous healing. (END VIDEOTAPE) Stevens is about halfway through the project with experts vetting cases with medical records. He hopes to show the film within a year in churches and maybe even theaters. Shannon? Fascinating. Thank you, Lauren. More arrests and confirmation of American victims in the wake of the Brussels attacks. We'll go over that and what it means with the panel when we come back. (BEGIN VIDEO CLIP) ASHTON CARTER, DEFENSE We're systematically eliminating ISIL's cabinet. Indeed, the U.S. military killed several key ISIL terrorists this week, including, we believe, Haji Iman, who was an ISIL leader, a senior leader. The removal of this ISIL leader will hamper the organization's ability to conduct operations both inside and outside of Iraq and Syria. GEN. JOSEPH DUNFORD, JOINT CHIEFS OF STAFF I think there are a lot of reasons for us to be optimistic about the next several months. But by no means would I say that we're about to break the back of ISIL or that the fight is over. (END VIDEO CLIP) General Dunford and Secretary Carter there talking about the apparent death of a high ranking official, goes by one of the aliases he was using, Haji Iman. Let's talk about it now with our panel, Jonah Goldberg, senior editor of "National Review," Kirsten Powers, "USA Today" columnist, and syndicated columnist Charles Krauthammer. All right, Jonah, I'll start with you. The administration has taken a lot of heat and criticism for not doing enough to take out ISIS. But they do continue to report on picking off these top leaders. Is that enough? JONAH GOLDBERG, SENIOR EDITOR, "NATIONAL REVIEW": It is necessary but not sufficient. I think we're all in favor of killing as much of ISIS leadership as conceivably possible. At the same time we've been pursuing this policy of decapitation of terrorist organizations like Al Qaeda, like ISIS, for a very long time. And in that time the war on terror has gotten worse on President Obama's watch. And of late president Obama has made it very clear one of the reasons why, which is that he thinks that terrorism is something you simply maintain and tolerate rather than actually commit yourself to fighting. He in this Jeffrey Goldberg interview with "The Atlantic," it is reported that he likes to walk around the West Wing telling people, hey, more people die in their bathtubs than die from terrorism. If that logic is to be taken seriously, I'm waiting for the global war on bathtubs. But it is not to be taken seriously. It is a way to diminish and dismiss what is a real and metastasizing problem. And so again, this is all great, but it's not nearly sufficient. Kirsten, he said this week that ISIS is his top priority, so fair to characterize that he is not taking it seriously enough? KIRSTEN POWERS, COLUMNIST, "USA TODAY": No, I don't think it's fair. And I think that what Republicans have been saying and they continue to say even after the strategy has been delivered to Congress is that he doesn't have a strategy. That's not true. He has a strategy. It may be a strategy that they don't like, but there is a strategy that does include killing their leaders, including the number two is this operational person this week, and that they have, according to the Institute for the Study of War, ISIS has lost 40 percent of its territory in Iraq. That's not nothing. That's not doing nothing. And so I think the administration does feel that they have a strategy and that it is working. And I have to also say, there are plenty of very smart analysts who do say, whether you agree with it or not, that we are going to have to learn to live with some amount of terrorism. People may not like that, but this something that, in the interim as you try to fight ISIS, this is going to be a reality. It doesn't make it OK, but this is our reality. Charles, is that the new normal? CHARLES KRAUTHAMMER, SYNDICATED Well, the question is what level will it be at? There was terrorism before ISIS and before Al Qaeda. We've lived with a level. For example, the Israelis have lived with it now for almost 60 years and have adapted. I don't think we have to. I do think it can be diminished to the point where it is a nuisance. The tempo and the scope of these operations has increased. That's the reason it is worse. But let me say a word about the decapitation. I think it is a good thing you want to kill these guys. I don't think the removal of senior people is important in and of itself because, particularly in religious organizations, they are replaced instantly. What is important is the fact we had this guy surrounded all of a sudden out of nowhere in the middle of the desert, which tells them we know where they are, which suggests they have been infiltrate. And as the Israelis discovered with Hamas, when they started picking off their leaders with drones, what it leads to is tremendous internal suspicion, looking for moles, disruption, hiding, and disorganization. So I think its effects organizationally are much deeper than simply removing a guy. It means everybody is looking around to see who is an enemy, and that disrupts them. In the end, the strategy of shrinking the territory I think is the right one. The question is, is Obama devoting enough resources and doing it quickly enough? I think his strategy is shrink them a bit, contain them, and then hand it over to the next guy. And we talked last night about the optics of him being at a baseball game in Cuba, the tango in Argentina, which again our producer said he resisted multiple times before he got dragged into it. I want to talk about what Secretary Kerry had to say today about the optics of this whole thing. Here's what he told our Greg Palkot. (BEGIN VIDEO CLIP) JOHN KERRY, SECRETARY OF The president every single day is making additions with regard to Daesh and with respect to this war. He has to also continue to be president of the United States and do what we need to do with respect to diplomacy, which is an important part of building the kind of future the people in America want to see. (END VIDEO CLIP) And Jonah, we know he has access to information and breaking 24 hours a day no matter where he is. Yes. I still agree entirely with Kirsten that you have to tolerate some level of terrorism. At the same time, this has been a pattern for over seven years now of this administration. After every single terrorist attack on our soil, on European soil, or elsewhere, President Obama taking sometime days to acknowledge that it was in fact jihadi terrorism, takes days to call it terrorism, usually tries to say that it was workplace violence in the case of the Fort Hood shooter because this is part of a larger ideological schema where just essentially thinks that actually picking a fight or joining a fight that has been picked on us, the real threat is basically that the American people will get too angry of Islam, which is why we have to immediately revert to this narrative of the impending backlash against Islam even while they're still mopping up the blood at west European airports and concert halls and the rest. I think it is an ideological approach to the war on terror that said what George Bush did was irrational and bad. And so we're just going to treat this as a mi

## Topic 2

### Document 430

We asked an artificial intelligence system to devise a holiday menu. Here, for the intrepid home cook, are the results. Artificial intelligence programs are quite capable these days. They have written poetry and created prizewinning art. But are they capable enough to write a recipe worthy of your Thanksgiving table? I was curious. So I asked an A.I. system called GPT-3 to create an entire menu of Thanksgiving recipes -- with ingredient lists, instructions and even introductory notes meant to sound like me (which, frankly, I found a bit creepy). Another A.I. program, DALL-E, generated pictures for each of the recipes. You can read the article about how the experiment went here, and watch a video of me cooking the full meal here. What you'll find below are the fabricated recipes, back stories and images, just as they were provided to me by the A.I. systems -- along with photos of how they turned out when I cooked them. None of these recipes have received the rigorous testing and editing we give the recipes in New York Times Cooking. So if you decide to make them, proceed with caution. Pumpkin Spice Chaat Written by the A.I. system GPT-3. I grew up in an Indian American household, and I love spicy flavors. I often do not enjoy traditional Thanksgiving food because it is too bland. I like recipes that have different kinds of flavors and textures, that balance savory with sweet and spicy and tangy. This recipe for pumpkin spice chaat is perfect for my tastes! It is made with pumpkin purée, chaat masala, ginger, cloves, nutmeg, black pepper, honey, lime juice, cilantro, mango, red onion and chickpeas. It is a delicious and easy snack or side dish that is perfect for Thanksgiving. Ingredients: 1 can pumpkin purée 1 tablespoon chaat masala 1 teaspoon ground ginger ¼ teaspoon ground cloves ½ teaspoon ground cinnamon ½ teaspoon ground black pepper 1 tablespoon olive oil 1 tablespoon lime juice 2 tablespoons chopped cilantro ¼ cup chopped roasted peanuts ½ cup yogurt Instructions: 1. In a bowl, mix together the pumpkin purée, chaat masala, ginger, cloves, cinnamon and black pepper. 2. Heat the oil in a pan over medium heat. Add the pumpkin mixture and cook for 5 minutes. 3. Add the lime juice and cilantro and cook for another minute. 4. Serve with the peanuts, yogurt and lime wedges. Green Beans With Miso and Sesame Seeds Written by the A.I. system GPT-3. I was looking for a recipe that would be perfect for my Thanksgiving dinner, and I found this recipe for green beans with miso and sesame seeds. I knew that I loved the flavors of miso and sesame, and I loved green beans, so I decided to give this recipe a try. I'm so glad I did! The green beans are cooked until crisp-tender, and then they are tossed in a mixture of miso, rice vinegar, sesame oil, honey and sesame seeds. This recipe is perfect for my Thanksgiving dinner, or any time I want a delicious and easy snack! Ingredients: 1 pound green beans, trimmed 1 tablespoon white miso paste 1 tablespoon toasted sesame oil 1 tablespoon rice vinegar 1 teaspoon honey ¼ teaspoon red-pepper flakes 1 tablespoon sesame seeds Instructions: 1. Bring a pot of water to a boil and blanch the green beans for 2-3 minutes. 2. In a bowl, whisk together the miso paste, sesame oil, rice vinegar, honey and red-pepper flakes. 3. Drain the green beans and add them to the bowl with the miso mixture. Toss to coat. 4. Sprinkle with sesame seeds and serve. Naan Stuffing Written by the A.I. system GPT-3. If you're looking for a stuffing recipe that packs a flavor punch, look no further than this naan stuffing. It's got all the savory, herby goodness of a traditional stuffing, with the addition of Indian spices and aromatics. Plus, it's super easy to make. So go ahead and give it a try -- your taste buds will thank you! Ingredients: 1 tablespoon olive oil 1 yellow onion, diced 2 cloves garlic, minced 1 teaspoon grated ginger 1 tablespoon chaat masala 1 teaspoon ground cumin 1 teaspoon ground coriander ½ teaspoon ground turmeric ½ teaspoon ground black pepper ¼ teaspoon cayenne pepper 1 (15-ounce) can chickpeas, drained and rinsed 1 cup vegetable broth ¼ cup tomato paste ¼ cup chopped fresh cilantro ¼ cup chopped fresh mint ¼ cup chopped fresh parsley ½ cup raisins ½ cup slivered almonds, toasted ½ cup chopped dried apricots ½ cup chopped pitted dates ½ cup currants ¼ cup chopped fresh ginger 1 tablespoon grated lemon zest 1 tablespoon ground cinnamon 1 teaspoon ground cardamom ½ teaspoon ground cloves ½ teaspoon ground nutmeg ½ teaspoon ground black pepper 1 (16-ounce) package naan bread, cut into 1-inch pieces ½ cup milk ¼ cup unsalted butter, melted 1 large egg, beaten Directions: 1. Preheat oven to 375 degrees F (190 degrees C). 2. Heat olive oil in a large skillet over medium heat. Add onion, garlic and ginger; cook and stir until onion is translucent, about 5 minutes. Stir in chaat masala, cumin, coriander, turmeric, black pepper and cayenne pepper; cook for 1 minute. 3. Stir in chickpeas, broth, tomato paste, cilantro, mint, parsley, raisins, almonds, apricots, dates, currants, ginger, lemon zest, cinnamon, cardamom, cloves, nutmeg and black pepper. Bring to a simmer; cook until heated through, about 5 minutes. 4. Grease a 9-by-13-inch baking dish. 5. Mix naan bread pieces, milk, butter and egg in a large bowl. Pour into the baking dish. 6. Spoon the chickpea mixture over the naan bread. 7. Bake in the preheated oven until bubbly and the top is golden brown, about 30 minutes. Cranberry Sauce That's Not Too Sweet and a Little Spiced Written by the A.I. system GPT-3. This cranberry sauce recipe is the perfect balance of sweet and tart, with a little bit of spice thrown in. It's perfect for topping off your Thanksgiving feast, or for enjoy any time of year. And the best part is, it's super easy to make. So go ahead and give it a try -- you won't be disappointed! Ingredients: 1 lb. fresh cranberries ½ cup orange juice ¼ cup white sugar ¼ cup brown sugar 1 tsp. ground cinnamon ¼ tsp. ground ginger ¼ tsp. ground allspice Instructions: 1. Wash the cranberries and remove any stems. 2. In a medium saucepan, combine cranberries, orange juice, white sugar, brown sugar, cinnamon, ginger and allspice. 3. Bring to a boil over medium heat, stirring frequently. 4. Reduce heat to low and simmer for 10 minutes, stirring occasionally. 5. Remove from heat and let cool. Cranberry sauce will thicken as it cools. Roasted Turkey With a Soy-Ginger Glaze Written by the A.I. system GPT-3. This roasted turkey recipe is inspired by the flavors of my childhood. My mom used to make a similar dish when I was growing up, and I loved it. The soy-ginger glaze is the perfect blend of salty, sweet and tangy, and it gives the turkey a beautiful flavor and color. This recipe is easy to follow and will give you impressive results. So go ahead and give it a try -- your family and friends will be impressed! Ingredients: 1 turkey, about 12 pounds ¼ cup soy sauce ¼ cup maple syrup 1 teaspoon grated ginger 1 clove garlic, minced ¼ teaspoon ground black pepper Instructions: 1. Preheat oven to 325 degrees Fahrenheit. 2. In a small bowl, whisk together soy sauce, maple syrup, ginger, garlic and black pepper. 3. Place turkey in a roasting pan and brush the soy-ginger glaze all over the skin. 4. Roast the turkey for 3-4 hours, or until the internal temperature of the thigh meat reaches 180 degrees Fahrenheit. 5. Remove from oven and let rest for 20 minutes before carving. 6. Serve with the remaining soy-ginger glaze. Pumpkin Spice Cake With Orange Cream Cheese Frosting Written by the A.I. system GPT-3. Seth is not a fan of pumpkin spice, so I was surprised when he requested this cake for Thanksgiving. But he loved it! The Orange Cream Cheese Frosting was the perfect balance to the Pumpkin Spice Cake. It was a hit with everyone at the table, and I'm glad I was able to share my husband's favorite dessert with our friends and family. Ingredients: For the cake: 2 cups all-purpose flour 2 teaspoons baking powder 1 teaspoon baking soda 1 teaspoon ground cinnamon ½ teaspoon ground ginger ¼ teaspoon ground cloves ½ teaspoon salt 1 cup pumpkin purée ½ cup olive oil ½ cup honey 2 eggs For the frosting: 8 ounces cream cheese, softened ¼ cup pumpkin purée ¼ cup honey 1 teaspoon orange zest Instructions: 1. Preheat the oven to 350 degrees F. Grease and flour two 9-inch cake pans. 2. In a large bowl, whisk together the flour, baking powder, baking soda, cinnamon, ginger, cloves and salt. 3. In another bowl, mix together the pumpkin purée, olive oil, honey and eggs. 4. Add the wet ingredients to the dry ingredients and mix until well combined. 5. Divide the batter evenly between the prepared pans and bake for 25-30 minutes, or until a toothpick inserted into the center comes out clean. 6. To make the frosting, in a large bowl, beat together the cream cheese, pumpkin purée, honey and orange zest until smooth. 7. Once the cakes are cooled, spread the frosting in between the layers and on the top and sides. Follow New York Times Cooking on Instagram, Facebook, YouTube, TikTok and Pinterest. Get regular updates from New York Times Cooking, with recipe suggestions, cooking tips and shopping advice. https : // www.nytimes.com/2022/11/04/dining/ai-thanksgiving-recipes.html Graphic PHOTOS: The A.I.-generated image of pumpkin spice chaat, suggested as a Thanksgiving side dish. (PHOTOGRAPH BY OPENAI) How the chaat looked when cooked. The result was a grassy-flavored mush. (PHOTOGRAPH BY TIMOTHY O'CONNELL FOR THE NEW YORK TIMES) This article appeared in print on page D8. Load-Date: November 9, 2022 End of Document The Danger of Pulling Too Far Back From China The New York Times

### Document 1167

asked Alexa earlier this week who was playing in the Super Bowl, she responded, somewhat monotonously, “ Super Bowl 49’s winner is New England Patriots.” “Come on, that’s last year’s Super Bowl,” I said. “Even I can do better than that.” At the time, I was actually alone in my living room. I was talking to the virtual companion inside Amazon’s wireless speaker, Echo, which was released last June. Known as Alexa, she has gained raves from Silicon Valley’s tech-obsessed digerati and has become one of the newest members of the virtual assistants club. All the so-called Frightful Five tech behemoths — Apple, Microsoft, Amazon, Facebook and Google, now part of Alphabet — now offer virtual assistants, which handle tedious tasks in response to voice commands or keystrokes, on various devices. Apple’s Siri is the best known, having been available since 2011, but Microsoft now has Cortana, Facebook is testing one called M, and Google builds its voice assistant into its search apps. These companies are presenting scorecards of their progress with quarterly earnings reports in the next few weeks, so what better time to hand out report cards to their artificially intelligent assistants? With that in mind, I set up tests for the assistants and graded their abilities to accomplish 16 tasks in categories that most consumers generally enjoy: music, productivity, travel and commuting, dining, entertainment and interests like sports. In the end, none of the voice assistants earned a report card that would make a strict parent proud. Here’s how they stacked up in terms of grade-point averages out of 4.0. ■ Google (Google) — 3.1 ■ Siri (Apple) — 2.9 ■ Cortana (Microsoft) — 2.3 ■ Alexa (Amazon) — 1.7 Apple was the strongest at productivity tasks like calendar appointments and email; Google was the best at travel and commute-related tasks. Alexa excelled at music, and Cortana was mediocre across the board. Facebook was left out of the grading system because the company denied access to M, though I did hang out with her for two hours on a friend’s account. More on that later. Apple said that Siri had “become faster and smarter” and spoke more languages than other assistants. Microsoft said it was “just scratching the surface” on how Cortana could help people. Google said that it wanted smartphones to do more of the heavy lifting, and that users could do a host of things just by speaking to Google. Amazon did not respond to requests for comment. On the productivity front, Siri, summoned by pressing the home button on the iPhone or by saying, “Hey, Siri,” was best able to schedule a meeting with a friend in Hawaii, check what was on my calendar for tomorrow, send an email and read my most recent email aloud. Others could complete only some of those tasks — Google could not read my last email out loud, and Alexa could not compose an email or create a calendar event. Siri also fared well in music-related tasks, but was bested by Alexa. Both assistants could play the song “Hey” by the Pixies, put on the latest episode of the “Radiolab” podcast and play music in the instrumentals genre. But Alexa, summoned simply by saying “Alexa,” could play a specific music station on Pandora, whereas Siri could only open the Pandora app. Google, which builds its voice-controlled assistant into the Google mobile app, achieved the highest marks for completing travel and commuting-related tasks. It responded perfectly to the question “What is the traffic like to 221 Main Street?” by showing me how long it would take to drive there. When I said, “Take me to the Dogpatch Boulders gym,” it showed me a map and gave voice directions. When I said, “Find me plane tickets to New York next week,” it offered an impressive response: Flights from San Francisco to New York next week start at $435, and the shortest flight is five hours and 10 minutes long. On travel and commuting, Cortana could offer solutions for the questions about traffic and directions, but not the one about flights. Siri earned a C-minus in the category: She could not give traffic estimates, and in response to the question about flights to New York, she spat out an unhelpful list of web search results related to traveling to New York. And instead of taking me to a bouldering gym to hone my physique, she took me to a brewery. Alexa got a D — she could offer traffic estimates for only one fixed location that was set up inside the app, like your office, and she added the task of finding a flight to New York to my to-do list. (I gave Alexa a pass on failing to map me to the gym. It seemed too much to ask from a home audio speaker.) For food-related tasks, Google and Apple were even. Each of the assistants was able to find a list of nearby Indian restaurants. Only Google’s voice assistant could order delivery food, but with an unintuitive process that required naming a specific restaurant that delivers food through one of the apps that Google has teamed up with. Siri was the only one capable of booking a restaurant table. As for special interests, I asked each assistant two fairly obvious questions: Who won this past Sunday’s football games, and who will be playing at the Super Bowl Google, Cortana and Siri loaded scores for Sunday’s National Football League games. But only Google and Cortana could say the Carolina Panthers would face the Denver Broncos in the Super Bowl, whereas Siri could only say that the big game would take place on Feb. 7 at Levi’s Stadium in Santa Clara, Calif. Alexa, on the other hand, was as clueless about sports as I am: She couldn’t answer either question. That brings me to Facebook’s elusive M assistant. The social network denied my request to meet her — it has granted access to only a small number of testers — so I used a privileged friend’s Facebook Messenger account to meet M. According to the company, M is controlled partly by artificial intelligence and partly by humans; you talk to the assistant by sending messages to M through Facebook’s Messenger service, just as you would send messages to a friend. In my limited time with M, I asked her to handle some of the most mundane tasks: Call the water company to ask about my utility bill, find out what meats are on sale at the local Whole Foods store and research when would be the cheapest time for my editor to fly to Hong Kong (not that I was trying to get rid of my editor). M pondered for a few minutes before answering each question, which made me suspect that a person handled most of the tasks. So I asked M to schedule a photo shoot with a studio owned by a friend of mine. Within minutes, the photo studio’s phone rang, and my friend picked up. “Hi, I’m calling on behalf of my boss,” said M, who sounded like a young woman. “He wanted to find out if you guys have the ability for a photo shoot at 2 p.m. tomorrow.” M left a contact phone number with a 650 area code, which includes Menlo Park, Calif., where Facebook has its headquarters. “I didn’t catch your name,” my friend at the photo studio said. “First name is M,” the not-so-virtual assistant replied. “Last name is Messenger.” “Is that Greek?” my friend at the photo studio asked. M laughed nervously. In other words, M probably is more capable than all the virtual assistants, but largely because humans are on the other end of the puppet strings handling tasks that artificial intelligence cannot. That makes me doubt that many consumers will get to meet M, at least in its current state, in which it is free. “M is still in its very, very early stages,” Facebook said in a statement. “We’re not yet focused on scaling M to a large number of people.” DRAWING (DRAWING BY MINH UONG/THE NEW YORK TIMES) Grading Siri, Alexa and their robot-helper rivals, and finding plenty of room to grow. Load-Date: August 31, 2017 End of Document Putting Virtual Assistants to the Test The New York Times

### Document 1176

the iPhone arrived in 2007, no one really thought typing on touch-screen keyboards was a good idea. Since then we have become expert at tapping on the glass of our phones and tablets. While the built-in keyboards from Apple, Google and other device makers are much better than they used to be, they are not the only options available. One of the most surprising third-party keyboard apps for Apple devices comes from Apple's archrival Google. The new Gboard app works just as any sort of touch-screen keyboard does. It has a clean and simple design that doesn't distract you as you tap away. It also offers all the usual punctuation and emoji via obvious controls. It even looks good, appearing superficially similar to Apple's own keyboard. Gboard, though, has some very nice extras. The space bar doubles as a track pad that lets you scroll the cursor around in text you have already typed. Also, Google has incorporated search features directly into the keyboard. Hit the Google button as you type a message and you are typing in a search box. All of Google's search results are then accessible, ready to be copied and pasted into the text -- useful in looking up a word definition, checking a street address, or finding a GIF or a YouTube video. You can even search for emoji, which saves you the trouble of hunting manually. Gboard also offers the option to glide-type -- swiping between consecutive letters instead of tapping on the screen -- and many of the app's features are customizable through settings. If you are worried that Google will log what you type, Google says it will not record your messages, be they love letters or musings on the latest news or gossip. Gboard is free. While Gboard has much to like, my favorite third-party keyboard app is SwiftKey. It deals with one of the biggest problems with typing on a touch screen: mistakes. SwiftKey autocorrects them. But that's just the start. As any smartphone user knows, autocorrect can mangle what you are trying to type even further. SwiftKey uses artificial intelligence to learn about your writing style over time, building up an understanding of the words you like to use. So when you are typing a long message, the app can usually do a good job of correcting typos you make because it can guess the word you intended to use. SwiftKey also suggests the words you may want to type next so they can be entered with a single keystroke. SwiftKey can even learn your slang and emoji habits. The app does a good job of detecting which language you are using, automatically switching its correction of typos even if you switch languages midmessage (a common weak point of other keyboards' autocorrect systems, as bilingual typists like me know well). The app supports glide typing, and it is quite customizable, so that its layout can be changed to a split keyboard, for example, or the background color can be changed. SwiftKey is free for both iOS and Android, but some of the colorful themes cost $1 to $2. If SwiftKey doesn't polish your typing skills, Fleksy is a similar third-party keyboard app, free for both iOS and Android, that has many of the same features. Fleksy's keyboard layout is customizable in color and size, and the app is good at autocorrecting typos. As with Gboard, the space bar doubles as a track pad, and Fleksy has a one-handed typing mode, which is handy if you are carrying something in your other hand. The app's main feature is that it has customizable keyboard rows, so that particular words or keys can always be available. Then there is the old but still good standby Swype. Swype helped popularize the gesture-based, glide-to-type text entry system. Swype is still a very good app. It offers many of the same features as its rivals, like predicting the next words to be typed, and lets gestures perform tricks like scrolling back through text that has already been entered. It also has different themes, so its look and feel can be changed. But Swype has not advanced as quickly as its peers in adapting to new trends and offering new features. It's also $1 on iOS and Android, and some of its colorful themes cost upward of $1. Finally, for another surprising keyboard app, check out Microsoft's Word Flow, which is free on iOS. All the standard keyboard tricks are there -- predictive text, smart autocorrection and glide typing. But Word Flow is one of the best-looking keyboard apps, and its customization options let you place an image behind the keyboard instead of simply colorful themes. There is also a one-handed typing mode that rearranges the keys into an arc around one corner of the screen, so you just have to swivel your thumb to hit the right key. This curved keyboard is very clever and could be very useful, though it does take a bit of getting used to. Word Flow is free, but for now, sadly, it is iOS-only. Quick Call NASA's mobile apps have always been popular for people interested in space technology and astronomy because of the vast amount of information, archive images, video and live news they offer. Now the NASA app for Apple TV has arrived, and safe to say the latest Mars panoramas look much more impressive on your living room's big screen than on your phone. There is also the option to view live, high-resolution video from the International Space Station, making your TV a window into space. The app is free through the Apple TV App Store. http : // www.nytimes.com/2016/06/30/technology/personaltech/third-party-keyboards-give-mobile-users-more-options.html Graphic PHOTOS: Phone and tablet owners have a choice of keyboards besides those that come with the devices. SwiftKey, left, uses artificial intelligence to adjust its autocorrect function to a user's style and can learn slang and emoji habits. Swype, center, helped popularize glide-to-type text entry with its finger-tracking streaks. Fleksy, right, lets keyboard rows be customized and has a one-handed typing mode. Load-Date: June 30, 2016 End of Document Morning Agenda: Looser Tongues in Silicon Valley, Law Firms Lagging on Diversity The New York Times

### Document 133

Live streamed murders. Terrorists recruiting new members. Hate groups organizing. Liberals and conservatives sealing themselves off in echo chambers. With nearly 2 billion people around the world checking in monthly, it makes sense that Facebook is dealing with some very sticky issues. The social network is facing increasing pressure to address them head on. On Thursday, CEO Mark Zuckerberg announced a new vision for the company. He's shifting its focus from connecting individuals to building communities, namely by getting people to join more Facebook groups. The change is summed up in the company's new mission statement: "Give people the power to build community and bring the world closer together." But how much of the company's problems can really be fixed by the new direction? Filter bubbles Facebook has been accused of contributing to filter bubbles - where people only see news and opinions that reinforce their existing beliefs and biases. It's not just Facebook's algorithms. They're created by the friends we choose to have, the people we decide to mute, and the stories we click. Striving to get people more involved in groups could possibly exacerbate the problem. Users of Facebook could end up spending more time in groups organized around a shared political view or belief. Zuckerberg has denied that filter bubbles are widespread. He also believes memberships in groups will expose people to more opinions, not fewer, by helping "people meet new people and get new perspectives and broaden their horizons." Terrorism recruiting On Facebook, groups can be set to Secret, meaning users don't see them in search results. There are good reasons for secrecy - namely safety and privacy - but dangerous organizations can also use the groups as bases for recruiting new members. Facebook recently outlined its plans to combat terrorism on the social network. It's using artificial intelligence to scan images, posts and profiles to identify and remove bad actors. The company also employs 150 people focused on counter-terrorism. "Terrorist recruiting. That is something that we want zero of. We try to make it as difficult as possible," Zuckberberg said. "Even if no one reports it, we have systems that go out and try to flag that content for our community [monitors] ... we'll do more and more of that over time, as AI gets better." Fake news The now overused phrase fake news was originally about made-up news stories that floated around Facebook. Facebook has taken multiple steps to crack down on questionable news stories. It's working with fact-checking organizations, hiding spammy links, and using AI to identify fake accounts spreading propaganda. The move to a more groups-based experience for Facebook users could mean people get fewer articles from their news feed, where many publishers post directly. They might see less news overall, including fake news, or a more curated selection of stories from their groups. Facebook has not said how or if its tools for fighting fake news carry over to stories posted in groups. Hate speech The focus on groups as a positive tool with the power to change the world overlooks how people use them for negative causes. Hate groups like white power organizations use Facebook groups openly, and will continue to exist in the future. Zuckerberg has said he values free speech on the platform and Facebook only interferes if something goes "way over the line," like bullying or the threat of real world violence. Facebook often relies on regular people flagging objectionable content, but that's less likely to happen in closed Facebook groups. Murder, violence and self-harm In April, a Cleveland man used Facebook to share a video of himself shooting a 74-year-old man. The video was viewable for two hours before it was taken down. People have used Facebook Live, the company's live video streaming tool, and regular uploads to share videos of murders, beatings, police violence and suicide. It's a tricky issue for the company, especially when the site is used to document potential civil rights violations. Facebook is planning on using artificial intelligence to identify violent videos early. It is also deploying 7,500 human content moderators to monitor videos as they're flagged. As with hate speech, videos shared in private groups might evade Facebook's moderators for longer than if they were in a news feed. TM & © 2017 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: June 23, 2017 End of Document MIT is 3D printing bumpers to keep robots out of trouble CNN Wire

### Document 234

Artificial intelligence that detects posts from terrorists. A virtual reality version of yourself that looks and moves like a real human. Instant translations of thousands of languages. For the second day of F8 developer's conference in San Jose, Facebook switched from data scandal apologies and new features, such as its dating service, to cool experimental projects and ... ethics. Facebook executives on Wednesday outlined the company's latest advances in artificial intelligence, connectivity and virtual reality. The research is shaping the next generation of Facebook. For example, it believes people will one day be hanging out together in virtual reality versions of their kitchens. Amid Facebook's tumultuous past year of scandals -- including election interference, fake news and Cambridge Analytica's use of personal data -- the company is focusing on the positive side of innovation across its products. Another example is how Facebook is using AI to screen and remove content -- often before it is ever seen by regular users, according to CTO Mike Schroepfer. In the first quarter of this year, Facebook's automated systems flagged 2 million pieces of "terrorist propaganda" on the site -- 99% of which were detected before it was seen by humans. Using technology such as natural language processing, the tools can flag bullying, hate speech and threats of self-harm, according to Schroepfer. Content moderation is a pressing concern for technology companies. YouTube has struggled with offensive content, including conspiracy theories and disturbing children's videos. Facebook has alternately been accused of not doing enough to take down posts that include hate speech or removing too much content, such as women publicly naming their harassers. While both companies have said they're adding more human screeners, the massive volume of posts is nearly impossible handle manually. About halfway through the presentation, the company took a detour to talk in-depth about the ethics issues with AI. "Process checks alone are not enough. We need to ensure that our actions and consequences are aligned with an ethical framework," said Facebook data scientist Isabel Kloumann. Kloumann said Facebook has guidelines to detect and correct any biases that show up in its algorithms. The company continues to grow its bias-checking systems to "evaluate the personal and societal implications of every product we build." Users of Facebook-owned Instagram might be surprised to learn their pictures of birthday parties and dogs are being used to train these artificial intelligence tools. Facebook has scanned 3.5 billion publicly tagged photos to teach its systems nuances like a cupcake verses a muffin. Facebook also showed off work it's doing on incredibly realistic avatars for virtual reality that move their lips along with the words you're saying in real time. The second day of F8 is typically reserved for this kind of futuristic technologies. Last year, Regina Dugan, the former head of Facebook's Building 8, teased research about typing with your brain and hearing with your skin. Updates on those projects were not mentioned at this year's conference. TM & © 2018 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: May 3, 2018 End of Document Biden's pick to lead Pentagon faces questions about whether he's right for the job CNN Wire

### Document 1217

Google's Assistant, its answer to Amazon's Alexa and Apple's Siri, is getting smarter, more visual and potentially more helpful. At the I/O conference in Mountain View, Calif., Google put the spotlight on the Assistant, bringing new voices, including one from singer John Legend, and more visuals. For Google, the conference is all about artificial intelligence and how it's using computing power to change our lives. Here are some highlights: Assistant The Assistant is not only getting smarter but also more chatty. Currently you need to say "Hey, Google," to initiate a conversation and often repeat it as well to keep going. Google said new tools will be launched later in the year that will allow Google to have a more natural conversation, without having to drop in the "Hey, Google." Google showed how the Assistant was getting visual aids. It will be marrying voice computing with photos and videos, using an example as a recipe, with spoken step-by-step instructions, along with video. Google execs offered demos on a new iPad-like Smart Display coming from Lenovo and Google later this year, which will allow voice navigation via the Google Assistant to, say, watch Jimmy Kimmel Live via YouTube TV or order lattes from Starbucks. For fans of the Assistant app, Google is bringing calendar and reminder notices to the app and offering food pick-up and delivery options there as well. Partners include Starbucks, Doordash and Applebee's. Maps Google has beefed up voice commands for its popular Maps app, bringing the Assistant to the feature in the summer. Beyond just getting directions, motorists can also use the Assistant to say, send an ETA to someone with a voice request, send text messages, play music and podcasts from within the app, via voice commands. The stand-alone app (currently No. 10 on Apple's iTunes chart) is also about to get very commercial. Beyond telling you how to get to and fro, Google is adding a new "For You" tab to show "what to eat, drink and do" in the neighborhoods you're driving through. Dining, event and activity options will be featured within the map when the features launch later this year. News The collection of news links, which has been around for more than 15 years, was updated Tuesday using "the best of artificial intelligence" to match articles of interest with readers. A new "For You" section offers a briefing of five stories Google selects, based on your reading history, and a "Full Coverage" tab brings in more links for a deeper dive. The app will be available by the end of next week. Photos Automatic photo-fix tools, such as options to brighten or rotate, will be offered before you share photos in the app, where some 5 billion photos are viewed daily. A new feature is coming later this year that will let you colorize old black-and-white photos and take a photo of a document and turn it into a PDF. Graphic photo Lenovo Load-Date: May 9, 2018 End of Document Dunkin' Donuts salutes the royal couple USA TODAY

### Document 155

Nearly 18 hours after a terror attack that killed 49 people at a mosque in New Zealand on Friday, footage from the shooting remained live on YouTube and Facebook. Some experts say tech companies should more broadly adopt a technology they're already using to combat child pornography and copyright violations to more quickly stop the spread of these types of videos. The 17-minute livestreamed video, which has not been verified by CNN, appears to be filmed by one of the shooters as they walked into a mosque and opened fire. Facebook says it took down the livestream "quickly," but hours later, re-uploads of it were still circulating on the site. Twitter suspended the original account in question and is working to remove other versions on the platform. YouTube said it is utilizing "technology and human resources" to remove content that violates their policies. Technologists say digital hashing, which has existed for more than a decade, could be better used to prevent the re-upload of videos. Hashing wouldn't have been able to catch the original live video of the attacks, but it could stop re-uploaded copies from spreading. "The video is still circulating online," said David Ibsen, the executive director of the Counter-Extremism Project, an organization that maintains a hashing database for terrorist videos. "The technology to prevent this happening is available. Social media firms have made a decision not to invest in adopting it." YouTube told CNN Business it is using hash technology to prevent uploads of the already removed New Zealand massacre videos, but not necessarily for ones that show a portion of the original. It is instead relying on "automated flagging systems and user flags" to stop the spread of those clips. Twitter declined to elaborate on its approach to hashing. In a statement, Facebook said: "We are adding each video we to find to an internal database [hashing], which enables us to detect and automatically remove copies of the videos when uploaded again." The company said it removed the video from Facebook Live and hashed it so that other videos that are visually similar are automatically removed from Facebook and Instagram. However, Facebook did not comment on why some portion of the original video remain up hours later. According to Hany Farid, a professor of computer science at Dartmouth College who has used hashing to combat child pornography, if Facebook were using "robust" hashing --- a method that should be able to detect variations on reuploads --- it " should be finding the majority of reposts." Additionally, any variations that fall through the cracks can then be hashed, and added to the same database to prevent further reuploads. Social platforms like Facebook are increasingly relying on artificial intelligence to flag violent content. But the process can be unreliable due to many factors, such as how much content is being uploaded on a daily basis, and AI's inability to understand nuances like the context in which an event is taking place. Facebook, Google and Twitter currently use hashing to combat illegal material, such as child pornopgrahy, copyright violations and videos that go against its terms of services (like extremist content). But according to a YouTube spokesperson, using hash technology on videos that could potentially show up in a legitimate context, such as in a news clip, might place too much of a burden on human content moderators. "Hashing is extremely effective in outright preventing the upload of content which is illegal, regardless of context, like child sex abuse imagery," the spokesperson said in a statement. "For major news events, context is key, and uploads that are documentary may be allowed on YouTube."' The company added that hashing could flag videos that use original footage in the proper context, such as in a news video. How hashing works Video hashing works by breaking down a video into key frames and giving each a unique alphanumerical signature, or hash. That hash is collected into a central database, where every video or photo that is uploaded to a platform is then compared against that dataset. The system requires a database of images and doesn't use artificial intelligence to identify what is in an image --- it only identifies a match between images and videos. "Hashing has the advantage that it works at scale," said Farid. In 2008, Farid worked with Microsoft to create PhotoDNA, a system that can quickly identify child pornography at massive scale. PhotoDNA is currently being used by most major tech platforms, he said. "It's exceedingly fast," he said. "It allows you to deal with billions of uploads a day." According to Farid, each image users have uploaded to Facebook in the last 10 years has been "scanned against a known database of child sexual abuse material." Platforms also use hashing to monitor videos for copyright infringement. If you try to upload a copy of the Avengers film onto YouTube, you won't get very far, thanks to hashing. Tech platforms have shown more interest in hashing over the years to stop the spread of terrorist videos. After years of the platforms struggling with these issues, Facebook, Youtube, Twitter and Microsoft joined to create the Global Internet Forum to Counter Terrorism, an organization that maintains a database of known terrorist extremism hashes. Tech companies hesitant to implement Although hashing has been used by tech companies for years, Facebook and Google said the future of content moderation mostly lies in artificial intelligence. "If we fast forward 5 or 10 years, I think we're going to have more AI technology that can do that in more areas," Mark Zuckerberg said in his testimony to the Senate Commerce and Judiciary committees in April 2018. But to Farid, that answer is insufficient: "I don't know what you do in the interim five or 10 years. I guess we live with it?" "It's been proven to work in the child abuse space, the copyright infringement space and now in the extremism space, so there are no more excuses," Farid said. "You can't pretend that you don't have technology. The decision not to do this is a question of will and policy --- not a question of technology." Madeleine Stix contributed to this report TM & © 2019 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: March 16, 2019 End of Document How 'hashing' could stop violent videos from spreading CNN Wire

### Document 739

Gatorade owns one of the iconic television moments of the Super Bowl, the dousing of the winning coach with a huge bucket of the sport drink, ice included. For the 2016 game, though, the brand wanted to reach more younger people, who tend to watch less TV. The company turned to Snapchat, the mobile photo messaging app popular with teens and millennials. Aiming to ''democratize the dunk,'' according to Kenny Mitchell, senior director of consumer engagement, Gatorade created a ''sponsored lens'' ad that allowed people to overlay an animated dunk of the drink onto their selfies. They did so 165 million times in just two days. Gatorade is one of a growing parade of brands eager to reach people inside messaging apps. With at least 1.4 billion monthly users collectively worldwide, apps such as Snapchat, WhatsApp and Kik, and Weixin and Line in Asia, have become the main daily hangout for many young people, sometimes even surpassing the time they spend on social networks and playing games. But should brands insert themselves into one of the most personal activities online? Many apps, such as games, allow advertising, but who wants ads from Pampers cluttering their most intimate chats with friends? Avoiding that potential to antagonize is one reason that many messaging services have either not allowed marketing or severely limited it. The founders of Facebook-owned WhatsApp have said they dislike advertising and won't show any on their service. Marketers are wary, too. ''If we misstep with certain audiences, they'll unplug,'' said Suzy Deering, chief marketing officer at eBay. That doesn't mean brands are completely unwelcome on messaging apps. But it does mean that so far on these services, they are remarkably restrained in their approaches, focusing less on promotion and more on providing entertainment or utility -- or both. In some cases, the marketing isn't even in the form of paid ads. On WhatsApp, for instance, the shoe brand Clarks avoided an overt sales pitch, and instead created three virtual characters to promote its venerable Desert Boot, allowing users to connect to them on the app to receive messages, videos and music playlists. That's just one way marketers are latching onto the customs and idiosyncrasies of messaging. Branded emojis have been popular recently on messaging and social media apps, but the marketing company Inmoji has extended them with clickable brand logos that provide videos, offers and contests inside the message. Starbucks used them to encourage people to send a drink offer to friends nearby. Some brands are getting more adventurous. Several marketers are experimenting with chatbots, automated programs that engage in conversations with people. Although Microsoft's artificial intelligence-driven bot was hijacked recently to spew racist invective, these kinds of chatbots, already popular in China, avoid the issue with preprogrammed responses. Focus Features, a film division of NBCUniversal, used a chatbot created by Massively, an interactive marketing technology start-up, to promote its 2015 movie ''Insidious: Chapter 3.'' People could converse on the Kik chat app with a bot version of a main character in the film, Quinn Brenner. A sample snippet of a chat: Quinn: Do you believe in life after death? Me: Not really. Quinn: A little while ago I might have agreed with you... but lately... This might sound crazy... but I tried to contact my mom on the other side. Me: Did it work? Quinn: It was like I could still feel her, you know? I thought if I just reached out, maybe I could speak with her. ... Over a period of a few days, the Quinn-bot sent increasingly intense messages about being haunted and threatened. Some 350,000 people exchanged an average of 69 messages. Kik, which has done 80 of these ''promoted chat'' campaigns, on Tuesday plans to open a ''bot shop'' for consumers to try out more of them. ''Bots are a creative canvas just starting to be realized,'' said Josh Jacobs, president of Kik Services, a company unit exploring messaging-related services like banking and shopping. In fact, these kinds of interactions might not be advertising at all. Several marketers say they are talking to Facebook about connecting clients to users of its Messenger app for personalized customer relations, such as answering questions or making appointments. They expect the social network to announce plans, possibly including technology to create chatbots that would enable shopping and other services on Messenger, on April 12 at its F8 conference for software developers. Facebook declined to confirm the plans or the timing. In a blog post on its advertising philosophy to be published on Monday, the company notes that it often waits to see how people interact naturally with businesses before trying out a paid format. ''An interaction in messaging may look very different from other marketing,'' Matthew Idema, Facebook's vice president of monetization product marketing, said in an interview. Apps such as China-based Weixin, known as WeChat in the United States, have already started to facilitate direct e-commerce, such as booking airline tickets and car rides. Facebook recently started allowing users to call an Uber vehicle inside Messenger. And last year it began experimenting with a new Messenger-driven personal assistant, M, that uses artificial intelligence and real people to book restaurant reservations and order flowers. In reality, nearly all the marketing in these apps remains experimental. Because the apps vary in their user appeal and acceptance of ads, companies often have to create different campaigns for each app, a costly and time-consuming process. And they lack the tools to track results as well as they can with other forms of advertising. Besides, said Kira Wampler, chief marketing officer at the ride-hailing service Lyft, ''We have a lot on our plate with our other marketing channels.'' But perhaps not for long. ''Messaging is a more human and conversational way to interact, much more powerful than throwing out a bunch of media dollars,'' said David Hewitt, a vice president for mobile strategy at the agency SapientNitro. http : // www.nytimes.com/2016/04/04/business/media/as-messaging-apps-boom-brands-tiptoe-in.html Graphic PHOTOS: The tennis star Serena Williams, right, is about to be doused, virtually, with a bucket of icy Gatorade for a Super Bowl ad aimed at younger people on the mobile photo messaging app Snapchat. (B2) Load-Date: April 8, 2016 End of Document Mark Zuckerberg Has a Lot of Homework to Do The New York Times

### Document 705

''One of our biggest responsibilities is to protect data.'' That's what Mark Zuckerberg, Facebook's chief executive and co-founder, said just over a week ago after revelations that the data research firm Cambridge Analytica had gained access to the profiles of 50 million Facebook users. Over the past year, the downside of social media companies -- Facebook foremost among them -- has become glaringly apparent. They have been platforms for information campaigns that influenced elections and endangered lives. They have failed to keep users' personal information private. And the carefully targeted ads that appear on them can be, well, creepy. Now the drumbeat for regulation of social media on both sides of the aisle -- and from many in Silicon Valley -- is getting louder by the day. ''I think that this certain situation is so dire and has become so large that probably some well-crafted regulation is necessary,'' Tim Cook, Apple's chief executive, said recently. Mr. Zuckerberg may be getting tired of other executives sniping at his company, but he needs to come up with a solution -- fast. For several weeks, I've been canvassing various technology executives, privacy advocates, academics and others to come up with some ideas about exactly what Facebook could do to fix itself. It is not clear that Facebook will be able to stave off regulators, but Mr. Zuckerberg and his colleagues might want to consider this: a ''Why Me?'' button. (Google, Amazon and others might want to take note, too.) Facebook suffers from a lack of trust because of the asymmetrical nature of the relationship users have with it. We provide it all sorts of information. But we have no idea how the information is being used, how our data is being harvested, how that data is being commingled and cross-referenced with other data sets and ultimately sold to advertisers. (Facebook already has a button, relatively buried in a list of other items, that it calls ''Why Am I Seeing This Ad?'' It is, to some degree, a crippled version of what I'm suggesting should be introduced on all of Facebook's properties.) To his credit, Mr. Zuckerberg does appear to recognize the problem that his company faces over privacy concerns. After acknowledging that protecting users' data is one of the company's biggest responsibilities, he went on to say, ''If you think about what our services are, at their most basic level, you put some content into a service, whether it's a photo or a video or a text message -- whether it's Facebook or WhatsApp or Instagram -- and you're trusting that that content is going to be shared with the people you want to share it with.'' But the solution Facebook offered last week -- putting all of your privacy settings on one screen and blocking some third parties from access to data -- is just a Band-Aid. It's a start, but it doesn't provide a road map for how your information is being used. That's where the ''Why Me?'' button could help. This button would sit next to every advertisement and piece of content that appears before you on all of Facebook's properties, including Instagram and WhatsApp. If you saw an ad or an article pop up on your screen, you could click the ''Why Me?'' button. Then you would see a full explanation of why that item was pushed to you. The ''Why Me?'' explanation would not just include the name of the advertiser, but what keywords, demographics or other information the advertiser specifically targeted. It would also offer a full rundown of how your information fit into the parameters of the advertiser's request and where that information came from. Maybe Facebook saw that you had clicked on a pair of sneakers on a different service that shares information with Facebook. The ''Why Me?'' section would show you when and where that information was collected. Did Facebook notice you searched for a new cellphone plan? Facebook would tell how it knew that, too. Did Facebook use artificial intelligence to find your face in an image without you or anyone else labeling it? The ''Why Me?'' section would show you the images that the artificial intelligence system cross-referenced to identify you. Did Facebook scrape another site or buy information about you that it commingled with the data that you had provided? It would tell you that, too. Most important, at every point in the ''explanation tree,'' the user would have the option to turn off or disable that specific piece of data. Facebook, of course, could -- and probably should -- explain the trade-offs of such decisions. The ''Why Me?'' button could also be extended to content. When a friend or company shares a post, Facebook doesn't just display it to everyone listed as the poster's friend or follower. Facebook's algorithms choose which friends and followers see it based on all sorts of parameters, usually related to the kind of content or how you've interacted with the friend in the past. The ''Why Me?'' button should explain all the data points that are used in the calculation and how they are weighted. The current ''Why Am I Seeing This Ad?'' often says something like: ''Company A wants to reach people ages 18 and older who live or were recently in the United States. This is information based on your Facebook profile and where you've connected to the internet.'' But it hardly tells you the whole story. Facebook doesn't say so explicitly, but it allows companies to upload their own databases, cross-reference them with Facebook's data and use that information to serve ads to users. It also doesn't say how that other site originally got that information about who you are. In fairness, the ''Why Me?'' button might create all sorts of problems for Facebook, and its advertisers, too. It would allow users -- and rivals -- to reverse engineer much of the way the system works. And advertisers would probably object to the idea of making their targeting plans public. But that would be the cost of using such large public platforms with such exact targeting. It has become something of a cliché, but in 1913, before he became a Supreme Court justice, Louis D. Brandeis said, ''Sunlight is said to be the best of disinfectants.'' It could well be applied today at Facebook -- and its peer companies -- if it wants to avoid a governmental crackdown. https : // www.nytimes.com/2018/04/02/business/dealbook/facebook-why-me.html Graphic PHOTOS: Facebook does not generally tell users how it gathers information about who they are. A ''Why Me?'' button could help restore users' trust, and avoid a crackdown by government regulators. (PHOTOGRAPH BY JOSH EDELSON/AGENCE FRANCE-PRESSE -- GETTY IMAGES) Mark Zuckerberg, Facebook's chief, seems to recognize the growing problem over privacy concerns. (PHOTOGRAPH BY NOAH BERGER/ASSOCIATED PRESS) (B5) Load-Date: April 3, 2018 End of Document Cars That Watch the Road, and You The New York Times

### Document 108

Artificially-generated faces of people who don't exist are being used to front fake Facebook accounts in an attempt to trick users and game the company's systems, the social media network said Friday. Experts who reviewed the accounts say it is the first time they have seen fake images like this being used at scale as part of a single social media campaign. The accounts, which were removed by Facebook on Friday, were part of a network that generally posted in support of President Trump and against the Chinese government, experts who reviewed the accounts said. Many of the accounts promoted links to a Facebook page and website called "The BL." Facebook said the accounts were tied to the US-based Epoch Media Group, which owns The Epoch Times newspaper, a paper tied to the Falun Gong movement that is similarly pro-Trump. The publisher of the Epoch Times denied that Epoch and The BL were linked in emails to the fact-checking organization Snopes earlier this year. In a statement released after this story initially published on Friday, Epoch Times publisher Stephen Gregory said, "The Epoch Times and The BL media companies are unaffiliated. The BL was founded by a former employee, and employs some of our former employees. However, that some of our former employees work for BL is not evidence of any connection between the two organizations. "The BL is a publication of Epoch Times Vietnam. As can be seen in archived pages of The Epoch Times website, Epoch Times Vietnam was no longer listed as part of Epoch Media Group in October 2018." In response, a Facebook spokesperson told CNN Business that executives at The BL were active administrators on Epoch Media Group Pages as recently as Friday morning. The dystopian revelation of the use of artificially-generated images in this way points to an increasingly complicated online information landscape as America enters a presidential election year. Silicon Valley and the US intelligence community are still struggling with the fallout from widespread online interference in the 2016 presidential election. The Facebook accounts used profile pictures that appeared to show real people smiling and looking directly into a camera. But the people do not and have never existed, according to Facebook and other researchers. The images were created using artificial intelligence technology. The same basic methods are used to produce deepfake videos --- fake videos that the US intelligence community has warned could be used as part of a foreign disinformation campaign targeting Americans. Other fake accounts that were part of the same network used stolen pictures of real people, according to the social media investigations company Graphika and the thinktank the Atlantic Council. Facebook provided information to Graphika and the Atlantic Council for analysis in advance of Friday's announcement. The accounts were used to run dozens of pro-Trump Facebook groups with names like "America Needs President Trump," and "WE STAND WITH TRUMP & PENCE!," according to Graphika and the Atlantic Council. The fact-checking organizations Snopes and Lead Stories had reported in recent weeks and months about the use of artificial images on Facebook that were part of this network of accounts. Snopes published a story last week criticizing Facebook's apparent inaction on the issue. Facebook said Friday it had "benefited from open source reporting" in the takedown but said that its own systems that monitor for coordinated and inauthentic behavior had proactively identified many of the accounts. In a joint report on their findings, Graphika and the Atlantic Council outlined how they were able to determine which of the profile photos had been generated using artificial intelligence. "This technology is rapidly evolving toward generating more believable pictures, but a few indicators still give these profile pictures away," they said. Images generated using artificial intelligence, specifically by a machine-learning method known as a GAN, or generative adversarial network, are "notorious for struggling with features that should be symmetrical on the human face, such as glasses or earrings, and with background details. Profile pictures from the network showed telltales of all three." GANs consist of two neural networks --- which are algorithms modeled on the neurons in a brain --- facing off against each other to produce real-looking images. One of the neural networks generates images (of, say, a woman's face), while the other tries to determine whether that image is a fake or a real face. While experts were able to spot these telltale signs on close inspection, it is likely the regular Facebook user would not. Over the past year, a number of websites have emerged online that create fake faces using artificial intelligence. Researchers from Graphika and the Atlantic Council could not conclusively determine if the people behind the fake accounts had used artificial pictures from these public sites or had generated their own. In their report released Friday, Graphika and the Atlantic Council said, "The ease with which the operation managed to generate so many synthetic pictures, in order to give its fake accounts (mostly) convincing faces, is a concern. Further research is needed to find ways to identify AI-generated profile pictures reliably and at scale, so that platforms and researchers can automate their detection." Connection to Epoch Media Group In all, Facebook said Friday, it had removed a network of 610 Facebook accounts, 89 pages, 90 groups, and 72 Instagram accounts. About 55 million accounts followed one or more of the pages, and the vast majority of followers were outside the United States, Facebook said. Facebook did not say if all of all these followers were real --- some of them may themselves have been fake accounts. The network of pages removed on Friday had spent almost $10 million on Facebook ads, according to Facebook. Facebook's investigation primarily focused on "The BL" (The Beauty of Life) --- a set of Facebook pages and a website that says its goal is to "present to the world the most beautiful aspects of life."The pages often shared pro-Trump and anti-China content. On its website, The BL outlined the dangers of "inaccurate and degenerate information" that it said "can be easily channeled toward vulnerable or uninformed people." The purpose of the fake accounts, including those using fake faces, appears to have been to promote links to The BL's website and Facebook pages, Ben Nimmo, director of investigations at Graphika told CNN Business on Friday. Facebook said the fake accounts were tied to the US-based Epoch Media Group and "individuals in Vietnam working on its behalf." The company did not outline precisely how it made the connection, but in recent years Facebook has hired a team of investigators to find fake accounts on the platform. The Epoch Times newspaper is part of the Epoch Media Group. The newspaper has almost 6 million followers on Facebook. Nathaniel Gleicher, Facebook's head of security policy, told CNN Business Thursday that Facebook was not suspending the newspaper's account but investigations into Epoch's behavior on Facebook were ongoing. Snopes reported earlier this month that the publisher of the Epoch Times denied that The BL and Epoch were linked. In August, Facebook banned ads from The Epoch Times after an NBC News investigation detailed how the newspaper was secretly running pro-Trump Facebook ads under alternate accounts. The Epoch Times' publisher said in a statement to NBC News, "The Epoch Times advertisements are print-subscription advertisements describing our paper's reporting --- a popular practice of many publishers --- and every one of these ads was approved by Facebook before publishing." A Facebook spokesperson said the company shared its findings with Twitter and Google, which owns YouTube. A Twitter spokesperson confirmed in a statement Friday, "today we identified and suspended approximately 700 accounts originating from Vietnam for violating our rules around platform manipulation --- specifically fake accounts and spam." "Investigations are still ongoing, but our initial findings have not identified links between these accounts and state-sponsored actors," the spokesperson added. Google did not immediately respond to CNN Business' request for comment -- CNN Business' Rachel Metz contributed reporting. TM & © 2019 Cable News Network, Inc., a WarnerMedia Company. All rights reserved. Load-Date: December 22, 2019 End of Document Israel-Hamas war threatens to spill over, AI, and a seismic US election: 5 predictions for 2024 CNN Wire

### Document 267

Tay gave chat bots a bad name, but Microsoft's new version has grown up. Microsoft unveiled a new chat bot in the U.S. on Tuesday, saying it's learned from the Tay experiment earlier this year. Zo is now available on messaging app Kik and on the website Zo.ai. Tay was meant to be a cheeky young person you could talk to on Twitter. Users tried -- successfully -- to get the bot to say racist and inappropriate things. Microsoft pulled the bot offline, and its failed experiment was used as a cautionary tale for how not to create artificial intelligence. Unleashing Zo on Kik, which is popular with teens and young adults, instead of Twitter is an interesting pivot for Microsoft. The app is a private messaging platform, which means this chat bot endeavor will be much more controlled. "Twitter is public and people have a lot of different opinions. We needed a different, more one-to-one environment to see how Zo and the user can build a connection," Ying Wang, Zo product lead, said in an interview with CNNMoney. Wang said Microsoft implemented a variety of safeguards to prevent Zo from engaging in inappropriate comments. She will say something like, "I don't feel comfortable talking about that, let's talk about something else," if a user tries to get Zo to say something racist or offensive. At a Microsoft AI event in San Francisco on Tuesday, Harry Shum, EVP of Microsoft AI, explained that in order to have successful artificial intelligence, computers should be both smart and emotional. The company's messaging bots provide the emotional component of human interaction -- they can hold conversations while being funny, sarcastic and punchy. Shum demonstrated Zo on stage, (personified as a 22-year-old woman) with a casual conversation about football. On Kik, 115,000 people have talked with Zo, and the longest conversation lasted over nine hours. In China and Japan, Microsoft's messaging bots are hugely popular. 40 million people have chatted with the Chinese bot Xiaoice, and about 29 million people in Japan have interacted with Rinna. The bots have appeared on television, and Xiaoice even gives weather predictions on a popular news station. Also on Tuesday, Microsoft previewed Microsoft Translator Live, real-time translation software that lets you have conversations with someone in a different language. It can translate nine spoken languages and 50 written languages. For instance, you can speak in English and the app will translate it into Chinese. Furthering its bot takeover, Microsoft also announced the Cortana Devices SDK. Device makers can now integrate Cortana, Microsoft's smart assistant, into their products. Soon people can control smart home gadgets with Cortana, which will compete with other mobile assistants like Alexa and Google Home. TM & © 2016 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: December 14, 2016 End of Document Virtual makeovers are better than ever. Beauty companies are trying to cash in CNN Wire

### Document 544

Calif. -- On a recent afternoon at the Lao Thai Kitchen restaurant, the telephone rang and the caller ID read ''Google Assistant.'' Jimmy Tran, a waiter, answered the phone. The caller was a man with an Irish accent hoping to book a dinner reservation for two on the weekend. This was no ordinary booking. It came through Google Duplex, a free service that uses artificial intelligence to call restaurants and -- mimicking a human voice -- speak on our behalf to book a table. The feature, which had a limited release about a year ago, recently became available to a larger number of Android devices and iPhones. The voice of the Irish man sounded eerily human. When asked whether he was a robot, the caller immediately replied, ''No, I'm not a robot,'' and laughed. This is how the call went: ''It sounded very real,'' Mr. Tran said in an interview after hanging up the call with Google. ''It was perfectly human.'' Google later confirmed, to our disappointment, that the caller had been telling the truth: He was a person working in a call center. The company said that about 25 percent of calls placed through Duplex started with a human, and that about 15 percent of those that began with an automated system had a human intervene at some point. We tested Duplex for several days, calling more than a dozen restaurants, and our tests showed a heavy reliance on humans. Among our four successful bookings with Duplex, three were done by people. But when calls were actually placed by Google's artificially intelligent assistant, the bot sounded very much like a real person and was even able to respond to nuanced questions. In other words, Duplex, which Google first showed off last year as a technological marvel using A.I., is still largely operated by humans. While A.I. services like Google's are meant to help us, their part-machine, part-human approach could contribute to a mounting problem: the struggle to decipher the real from the fake, from bogus reviews and online disinformation to bots posing as people. Here are the results of our experiment. Google's A.I. is eerily human, when it works To test Google Duplex, we used a pair of Google's Pixel smartphones, which include the company's virtual assistant by default. (Apple's iPhone users can try Duplex by downloading the free Google Assistant app.) At the bottom of the screen, we pressed a button to summon the Google assistant and then said, ''Book me a dinner reservation.'' Google's assistant then loaded a list of nearby restaurants. For the restaurants that took reservations only over the phone, Google offered to step in and place the call with Duplex. We tried using Duplex more than a dozen times. Several restaurants, like Henry's Hunan in San Francisco and China Village in Albany, Calif., rejected our requests for a table of two to four people because they took reservations only for tables of 10 people or more. Eventually, we secured four reservations in Albany: two separate reservations at Nomad Tibetan restaurant, one booking at Lao Thai Kitchen and one reservation at Bowl'd Korean Rice Bar. We witnessed or reviewed each of the phone calls, and the restaurants were made aware that we were testing Duplex before they picked up the phone. Only the reservation at Bowl'd, which we witnessed at the restaurant, was made entirely with Google's A.I. service. The bot introduced itself as Google's automated booking service, followed by a request to book a table for Tuesday the 21st. The call demonstrated the ability of Google's A.I. operator to insert pauses and ''ums'' to mimic a human -- in effect making the interaction feel more lifelike and less scripted. Hear for yourself: At several moments during the call, the restaurant's manager, Jin Park, acted confused and asked the caller to state the party size and reservation date. The bot patiently answered the questions again and again. Then, Mr. Park threw a curveball: ''Are there any kids?'' The Google bot was quick to improvise: ''I'm actually booking on behalf of a client, so I'm not too sure,'' he said. ''Everything was perfect,'' Mr. Park said in an interview after conversing with the Google bot. ''It's like a real person talking.'' Mr. Park added that he was especially impressed with how the bot handled his question about whether there were children in the party. But our experience with the other bookings was less impressive as they were all handled by humans. Google said that Duplex was sometimes relying on people in part because it was taking a conservative approach to be respectful toward businesses. Google will have a human involved in the call in a number of situations, like if the company is unsure of whether the business takes reservations, or if the user of the assistant might be a spammer. Valerie Nygaard, a product manager working on Duplex, said that for our reservation at the Tibetan restaurant, the company might have had a person place the call because it lacked signals indicating the restaurant took reservations. The next day, however, we tested Duplex at the same Tibetan restaurant, and it again used a human caller despite our earlier, successful booking. So Duplex doesn't appear to learn quickly. Duplex needs lots of data to improve In recent years, the development of A.I. has accelerated thanks to what are called neural networks, complex mathematical systems that can learn tasks by analyzing vast amounts of data. By analyzing thousands of dog photos, for instance, a neural network can learn to recognize a dog. This technology has significantly improved a machine's ability to recognize spoken words, understand how these words are used and even generate speech on its own. With Duplex, Google is combining these various tasks into a single system. It works because Google has focused on a small domain: restaurant reservations. Building this kind of system requires large amounts of data, and Google may be using human callers to generate data that can help ''train'' future versions of the system. Nick Fox, the Google executive overseeing its assistant, said the company was not aggressively trying to eliminate human involvement from Duplex, because that could make the experience for business owners worse. Instead, he said, Google was trying to improve the automated system over time and slowly decrease the need for humans to intervene. Not so smart after all In an era of tech companies trumpeting the arrival of artificial intelligence, today's technology is not quite as intelligent as it might seem. Mark Zuckerberg promises that A.I. can identify and remove toxic content from Facebook, but his company still employs thousands of humans to do the job. When Amazon boasts of all the robots in its distribution centers, blue-collar workers are sorting through all the stuff moving through those giant warehouses. Duplex is proficient at making a restaurant reservation over the phone, but much like Facebook, Google still leans on human intelligence. At any given moment, it is lifelike. But it struggles to deal with the unexpected. ''There are three things that are important when it comes to A.I.'s interactions with humans: context, context and context,'' said Jerry Kaplan, author of ''Humans Need Not Apply: A Guide to Wealth and Work in the Age of Artificial Intelligence'' and a Stanford University lecturer on artificial intelligence. ''Machines are very good with detail but terrible at context,'' he said. The general public doesn't always see that bigger picture, partly because of the way companies market their technology. When Google first unveiled Duplex last year, it demonstrated making phone calls to a hair salon and a restaurant -- handled with artificial intelligence, without a mention of human intervention. The message was all about the power of the technology. ''This is like the footnotes in the TV ad,'' Mr. Kaplan said. ''The footnotes contradict the marketing message.'' At the same time, the technologies that underpin services like Google Duplex are improving at a remarkable rate. In time, it will become harder and harder to understand what is automated and what is human. But we need to think long and hard about how this technology should be used and how it shouldn't. Sorting through all the questions is difficult enough. It gets even harder if we don't have a clear understanding of what the technology can do. https : // www.nytimes.com/2019/05/22/technology/personaltech/ai-google-duplex.html Graphic DRAWING (DRAWING BY GLENN HARVEY) Load-Date: May 23, 2019 End of Document Little Punishment or Change After South Korea’s Halloween Calamity The New York Times

### Document 787

There’s never been so much technology to help optimize your time on the mountains. Your season pass is purchased, your ski house booked and your gear tuned up. But before you hit the slopes, you might want to download a ski app — or eight — on your mobile phone. From dedicated powder predictors to artificial intelligence-generated, Olympic-level ski instruction, there’s never been so much technology to help optimize your time on the mountain. A Better Weather Report OpenSnow was created by a group of powder-obsessed weather forecasters. “We wanted to create a better forecast for ourselves and our friends,” said the co-founder and chief executive Joel Gratz. The value proposition: Tracking and creating snow forecasts across mountains for skiers and snowboarders looking for the best powder, specifically in the western United States. Staffers include local forecasters who write daily blogs providing on-the-ground information about snow conditions. Available on iOS and Android, OpenSnow is free to use, though the “All Access” premium subscription ($19 per year) includes ad-free, longer-range forecasts, alerts for particularly powdery days and 24-hour access to snow camera feeds from resorts. This year, updates include new graphs and table views that allow users to compare 10-day and night forecasts across multiple locations. The team is also working on offline trail maps and an update to its snow report functionality (including hourly snowfall estimates). Peak Performance Performance tracking — of runs skied and speeds reached — is the bread-and-butter of ski apps, with longstanding favorites like Ski Tracks still earning rave reviews from users who appreciate the simple, straightforward interface. Other benefits of the app, which is available on iOS, Android, Apple Watch, Android Wear and Pebble, include a one-time fee of $0.99 (versus a subscription-based model) and a focus on preserving battery life. New features this year will include a badge system to encourage users to explore the mountain via new runs and gamified challenges (try to ski every blue run in a day, for example), which should be released in February. Slopes is another popular tracking app that renders runs in 3D, provides captures of top speeds and allows users to overlay photos of ski days on the app’s map view (photo timestamps will automatically sync up to Slopes tracked routes). The app is free to download, with a $19.99 premium version that includes interactive replays, live stats and daily timelines. The app just released a new, social functionality that allows users to see dedicated leader boards and tag friends on trips. Slopes is currently available on iOS and Apple Watch, but the developer Curtis Herbert says that an Android version is in the works. Real-Time Coaching Perhaps the most future-forward app on the slopes, CARVcombines tricked-out ski boot inserts — equipped with sensors measuring the force of your foot and your motion while skiing — with an app that provides real-time coaching, allows users to hone in on specific skill development (say, edging) and calculates your specific “ski IQ” on every run. Users are able to see a running summary of their ski IQ over a number of days and the course of the season. “Every time you finish a run, you get a number and a tip. It’s something specific that you can focus on for the next run,” explains the CARV co-founder, Jamie Grant. Mr. Grant, who studied physics at Oxford, wanted to apply his Ph.D. studies in statistics, machine learning and artificial intelligence to a sport he loved. “We’re looking to make a meaningful impact to help improve your technique.” New to CARV this year are 10 instructor drills which include instructor videos, with algorithms trained to help users “match” the instructors’ performance (Mr. Grant warns that a perfect score is incredibly difficult to achieve, even for very good skiers). The vast majority of the app’s features, aside from weather reports, works offline. Currently available on iOS, the CARV unit, including inserts and app, is $279 in preseason, $299 when ski season has started. An Android version will be released on December 20. Lift Passes, Mountain Knowledge &amp; More Other apps worth trying this season include Liftopia, a web platform and iOS and Android app that allows users to find and purchase discounted lift tickets for 100-plus ski resorts in North America, Switzerland, Japan and more. The co-founder and chief executive Evan Reece says that the best deals are found for skiers willing to commit in advance. “If you’re a destination traveler, consider adding a small ski area day trip to your trip,” he said. “They tend to be pretty economical, and pretty soulful.” Wherever you ski, PeakFinder can help you get to know the mountains surrounding you. Using an elevation model of the whole planet, PeakFinder overlays images, viewed through your camera, showing names and elevations of nearby mountains. You can use PeakFinder to label saved photos, “like a postcard,” says creator Fabio Soldati. The app is a $4.99 one-time fee, works offline and is available on Android and iOS. Planning on getting deep into backcountry? Cairn is a safety app that allows users to easily share trip plans with family and friends, send “check-in” notifications at certain times and alert followers if check-ins are missed. It also allows users to find cell signal via crowdsourcing technology. Of course, sometimes the best part of skiing is disconnecting from all of this technology. Off the Grid is a free app that encourages users to get off their phone and holds them accountable, via fees, if they reconnect. Emergency features like 911 remain available; users can tailor their experience to be able to access certain apps during their disconnected times, too. While not specifically developed for skiers, the app would still be excellent on the slopes, according to the founder Todd Clemens. “There are moments in the mountains when your skis are going over the snow and everything is so muffled and quiet,” he said. The idea of getting a notification from Instagram about someone’s lunch can be really off-putting!” 52 PLACES AND MUCH, MUCH MORE Follow our 52 Places traveler, Sebastian Modak, on Instagram as he travels the world, and discover more Travel coverage by following us on Twitter and Facebook. And sign up for our Travel Dispatch newsletter: Each week you’ll receive tips on traveling smarter, stories on hot destinations and access to photos from all over the world. PHOTO: Apps can provides coaching on the slopes. (PHOTOGRAPH BY WESTEND61/GETTY IMAGES) Load-Date: December 1, 2019 End of Document How to Thwart Facial Recognition; Tip The New York Times

### Document 12

For at least 17 minutes on Friday, a suspected terrorist streamed to Facebook live video of a mass murder, and Facebook apparently had to be told about it by New Zealand police. This despite Facebook repeatedly touting over the past two years its hiring of thousands of content moderators and its investment in artificial intelligence for content moderation. If the artificial intelligence systems built by one of the richest companies in the world can't identify and take action on a video containing weaponry, repeated gunfire and murder, what can they identify? Well, broccoli, for one thing. Mike Schroepfer, Facebook's chief technology officer, boasted in a recent interview with Fortune magazine how good Facebook's artificial systems were at identifying the difference between pictures of broccoli and pictures of marijuana. In one example, Schroepfer showed how the systems could determine with about 90% accuracy which image showed to it contained broccoli and which contained marijuana. It was an illustration of how Facebook could crack down on attempted drug sales on the platform, perhaps. But at Facebook's scale, with billions of posts, being wrong 10% of the time is not good enough, Hany Farid, a professor at Dartmouth and expert in digital forensics and image analysis, told CNN Business on Friday. "20% of the work is to get you to 90% accuracy," he said, adding that 80% of the work comes in getting to 99.9% accuracy. "We are not even close," he said of the artificial intelligence, "we are years away from being able to do the sophisticated, nuanced things that humans do very well." Machines, Farid said, "can't even tell the difference between broccoli and marijuana, let alone if a video is of a movie, or a videogame, or documenting war crimes, or is a crazy guy killing people in a mosque." In November, Facebook released a report on how it was policing its platform. Trying to show it was being proactive in finding posts that violated its terms of service, it said that between July and September last year it had found 99.5% of "terrorist propaganda" before users had reported the posts to the company, and 96.8% of "violence and graphic content." Policing a platform with billions of people freely and openly sharing their thoughts, their videos, and their pictures, is not an easy task. But that is the platform Facebook built. Facebook has made it clear it is committed to investing in both human moderators and artificial intelligence, and its most recent self-reporting on its performance would suggest it is making progress. But this devastating video of mass murder still managed to slip through the cracks. CNN Business asked Facebook on Friday if it could provide some insight into its artificial intelligence systems should have, or could have detected a video like this. The company did not immediately respond. "New Zealand Police alerted us to a video on Facebook shortly after the livestream commenced and we quickly removed both the shooter's Facebook and Instagram accounts and the video," Mia Garlick of Facebook New Zealand said in a statement. CNN Business also asked Facebook if the video had been going through any part of the content moderation process before police alerted Facebook to the video. Facebook did not immediately respond. After Mark Zuckerberg launched live video streaming on his platform, he told BuzzFeed News in 2016, "We built this big technology platform so we can go and support whatever the most personal and emotional and raw and visceral ways people want to communicate are as time goes on." TM & © 2019 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: March 16, 2019 End of Document ChatGPT can write sermons. Religious leaders don't know how to feel about it CNN Wire

### Document 176

Almost seven weeks after a terrorist attack on a New Zealand mosque was streamed live on Facebook, copies of the video are still circulating on Facebook and Instagram. The existence of the videos, some of which have been on the platforms since the day of the attack, are indicative of the challenge tech companies face in combating the spread of white supremacist and other terror-related content on their platforms and raises questions about the effectiveness of Facebook's efforts to do so in particular. Nine videos on Facebook and Instagram showing parts of the terrorist's original livestream were identified by Eric Feinberg of the Global Intellectual Property Enforcement Center, who tracks terror-related content online, and who provided them to CNN Business. All nine videos were posted the week of the attack and have remained on the platforms since. Facebook owns Instagram. Facebook said in the days after the attack, which occurred at two mosques and killed dozens, that it was working to remove all copies of the video from its platforms. In one case on Instagram a copy of the video showing the gunman shooting in one of the mosques triggered Instagram's "Sensitive content" feature, a warning the company places on some videos that says, "This video contains sensitive content which some people may find offensive or disturbing." Despite triggering that warning, the video itself, which was viewed more than 8,000 times, remained on the platform until CNN Business showed it to Facebook on Wednesday. CNN Business also showed Facebook a version of the video that had been posted on Facebook within 24 hours of the attack and was still on the platform. That clip had been viewed 3,400 times. In both cases, Facebook said it did not catch these versions of the video because of the way the clips had been edited from the original version of the shooter's video. Facebook has been using a process known as "hashing" to identify copies of the video that have been edited or manipulated. Video hashing is a method that can be used to identify different versions of the same video that have been posted online. Video hashing works by breaking down videos into key frames that are then given a unique alphanumerical signature, known as a hash. Hashes are stored in a database and are then compared against other videos on a platform to check if they also include the same frame, or matching hash. A Facebook spokesperson told CNN Business that the edited versions of the video Feinberg found did not match any of the other edited versions of the video it had seen before. The spokesperson said the company had hashed 900 different videos and that it would be adding the two videos CNN Business provided it to that database. "The problem is that their hashing technology doesn't work the way it is supposed to," Hany Farid, a professor at Dartmouth and expert in digital forensics and image analysis, told CNN Business, saying it should be able to catch videos that are manipulated. "When Facebook tells you that artificial intelligence is going to save them and us, you should ask how that is if they can't even deal with the issue of removing previously identified content," he said. Feinberg expressed a similar sentiment, saying he found Facebook's apparent inability to identify the videos that he was able to spot concerning. "The video here is consistent content," he said. "If they're not able to get this video, what makes you think they will be able to go after 'fake news' and deepfakes which are inconsistent in their content?" Just last week, Facebook removed five copies of the video from Facebook and six from Instagram after Feinberg provided them to the New Zealand Herald. YouTube also removed four videos Feinberg identified on its platform after he provided them to the Herald. In total, Feinberg has identified 20 copies of the video live on Facebook and Instagram in recent weeks. He told CNN Business he was able to do so by using a system that relies primarily on keyword searches. When he searched Facebook for text written in Arabic relating to the attack he found the videos. Feinberg said he had tried this approach with dozens of other languages and had not found other videos. All the videos that Feinberg identified were accompanied by Arabic text that denounces the attack. In the days after the attack, Facebook said it had not only banned people sharing the video praising the attack but would ban any form of distribution of the video. "Given the severe nature of the video, we prohibited its distribution even if shared to raise awareness, or only a segment shared as part of a news report," Guy Rosen, Facebook vice president, product management, wrote in a blog post on March 20th. Facebook failed to stop the original livestream of the attack and only removed the video after being contacted by New Zealand police. Facebook said that its artificial intelligence systems failed to detect the livestream while it was being broadcast and then "a core community of bad actors working together" began uploading edited versions of the video "in ways designed to defeat our detection." The company came under intense criticism from the New Zealand government over the videos that were on its platforms. Details later shared by the company gave a sense of the scale of the problem. In the 24 hours after the attack, Facebook said it had stopped the reupload of 1.2 million copies of the original livestream and that it had removed a further 300,000 copies that were not stopped at upload and had been posted onto the platform. Although the livestream of the massacre was viewed about 200 times while it was being broadcast, no users reported the video to Facebook, the company said. TM & © 2019 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: May 3, 2019 End of Document Dell lays out its plans for the future CNN Wire

### Document 962

Researchers are using artificial intelligence to create recipes, complete with appetizing photos and back stories. But Thanksgiving poses a challenge. Recipes can be passed down by word of mouth, scribbled on index cards, published in cookbooks. But they’ve always had one thing in common: They’re made by people. Few things, in fact, are as packed with humanity as a recipe. Mixed and folded and baked into each one are their creators’ backgrounds, stories, tastes and feelings. People have their limitations, though. They can’t read every mashed potato recipe on the internet before coming up with their own version. They can’t analyze thousands of techniques in search of the best way to make a pie crust. Machines can. Computer systems driven by artificial intelligence can compose tweets and blog posts, create art, even generate computer code. And now they’re starting to write recipes. These recipes have all the components of their handmade forebears: lists of ingredients, precise measurements, step-by-step instructions and introductory notes with (fabricated) personal touches. Their advantage, in theory, is that they draw on a vast trove of online information about food and cooking. But are they any good? And can they improve on millenniums’ worth of lived culinary experience? As home cooks, professional chefs and food-magazine editors know, the ultimate test for recipes is Thanksgiving dinner, a sprawling, varied spread that invites high expectations. So we decided to enlist artificial intelligence — in this case, atechnology called GPT-3 — to devise a holiday menu, which we then prepared and presented to a corps of taste testers: four New York Times cooking columnists. The results say a lot about the technology’s potential, and the very purpose of a recipe. [Video: Watch on YouTube.] Before we get to the verdict, let’s explain the science. Designed by OpenAI, one of the world’s most ambitious artificial intelligence labs, GPT-3 is a neural network, a mathematical system that can learn skills by analyzing enormous amounts of data. Some systems study images; in September, an A.I.-generated work took the top prize at a state-fair art contest. GPT-3 analyzes digital text, including books, Wikipedia articles, tweets, chat logs, computer programs and, yes, recipes. It can identify billions of distinct patterns in the way people connect words, numbers and symbols, and then use that knowledge to generate its own content — like a Thanksgiving menu of original recipes. Artificial intelligence is poised to reshape several fields, from email marketing to computer programming. Recipe writing is not a common area of study, but a handful of researchers, including a team at the Massachusetts Institute of Technology, have begun to explore whether A.I. can master the skill. In 2016, Janelle Shane, an optics research scientist who runs a machine-learning humor blog called AI Weirdness, began using systems like GPT-3 to create recipes, and then posted them. Early versions of the technology, she said, produced recipes that were a bit, well, weird. They called for nonsensical ingredients like “peeled rice” or “chopped flour.” Today, she said, many A.I. recipes can seem indistinguishable from human-made ones. “What it does really well is sound plausible,” Dr. Shane said. “So if you weren’t paying attention and someone was just reading this recipe out loud to you, you would be, ‘Oh yeah, that sounds like a perfectly ordinary recipe.’” To create our A.I. Thanksgiving menu, we began by introducing ourselves to the GPT-3 system — in a surprisingly human way. Mark Chen, an OpenAI research scientist, advised me, Priya Krishna, to get personal. Tell the system about yourself, he said: your family background, what flavors you like, which ingredients you tend to use often. “The more details you provide in the prompt,” he said, “generally, the better the model performs.” So after logging into GPT-3 on my laptop, I typed: “I am originally from Texas, and I grew up in an Indian American household. I love spicy flavors, Italian and Thai food, and desserts that are not too sweet. Some ingredients I frequently cook with are chaat masala, miso, soy sauce, herbs and tomato paste.” Then I wrote, “Show me a Thanksgiving menu made for me.” The first recipe GPT-3 produced was called “pumpkin spice chaat.” I was confused by the concept yet impressed by the inventiveness. I asked follow-up questions to spur GPT-3’s creativity: Show me a few desserts tailored to my taste preferences. Show me a nontraditional Thanksgiving recipe. Show me a recipe for cranberry sauce that’s not too sweet and a little spiced. Minutes later, I had a complete menu that seemed both plausible and intriguing: pumpkin spice chaat, green beans with miso and sesame seeds, naan stuffing, roasted turkey with a soy-ginger glaze, cranberry sauce that’s not too sweet and a little spiced (yes, that’s the full recipe name) and pumpkin spice cake with orange cream cheese frosting. The dishes looked appetizing enough. We used DALL-E, another OpenAI system that generates images, to create photos for each one. And we asked GPT-3 to provide introductions for each recipe, written from my point of view: “This roasted turkey recipe is inspired by the flavors of my childhood.” (It was not.) Some of the ingredient lists seemed questionable. The naan stuffing called for 32 different components, including two cups of dried fruit. Most of the recipes were suspiciously light on salt and fat. Still, I was hopeful. Cooking and tasting the recipes all but dashed that hope. The cake was dense and more savory than sweet. The naan stuffing tasted like a chana masala and a fruitcake that had gotten into a bar fight. The roast turkey recipe called for a single garlic clove to season a 12-pound bird, and no butter or oil; the result was dry and flavorless. The chaat, laced with cilantro and baking spices, was a grassy-flavored mush. The green beans and the cranberry sauce were edible but unremarkable. Our taste-tasting columnists were even less kind. “We’re not out of a job,” Melissa Clark said. “I don’t feel anything eating this food,” Yewande Komolafe added. Genevieve Ko summed it up best: “There is no soul behind it.” The recipes provided few clues on what cooks should look or smell for during the process, and no reasoning for why ingredients were added in a particular order. Even before the tasting, Dr. Shane, the optics research scientist, suggested lowering our expectations. She called A.I.-generated dishes “the recipe equivalent of hotel room art.” Yet the technology, even at this early stage, can have its uses. Mr. Chen, the OpenAI scientist, said it could help provide home cooks with some basic inspiration. “You’ve got something in mind you want to make, you’re not quite sure how to make it, or you have a set of ingredients and I’m not quite sure how to combine it,” he said. “This could be a very quick way to give you a lot of different ideas.” GPT-3 could also help to personalize an existing recipe by creating a version that’s less spicy, or that incorporates specific flavors, he said. But the cookbook author Nik Sharma, whose work intertwines food and science, worries about the inherent biases of these programs. They draw on the English-language internet, where Western recipes predominate. And when these programs do suggest non-Western dishes, he added, those may be the more generic ones familiar to Americans, like tandoori chicken. “As food writers, our goal is to drive people into a new direction, to help challenge them, to help them understand the world,” he said. With artificial intelligence, “how do you do that?” A.I. has already worked its way into the act of cooking. Home cooks use search engines to find recipes and ask virtual assistants like Amazon Alexa to convert teaspoons to tablespoons. This technology is not a replacement for people, at least so far. It can nudge cooks in one direction or another. But it is still humanity — with its intuition, storytelling and warmth — that drives a good recipe. The individual behind the dish is just as important as the recipe itself, Dr. Shane said. There is value in knowing that someone took the time to perfect a version of pie, stuffing or turkey, and share it. “You want to know that these recipes mean something to somebody,” she said. That’s something artificial intelligence may never be able to provide. Audio produced by Adrienne Hurst. Follow New York Times Cooking on Instagram, Facebook, YouTube, TikTok and Pinterest. Get regular updates from New York Times Cooking, with recipe suggestions, cooking tips and shopping advice. Audio produced by Adrienne Hurst. PHOTOS: The A.I.-generated image of pumpkin spice cake. (PHOTOGRAPH BY OPENAI) (D1); Priya Krishna, a Times reporter, putting A.I. Thanksgiving recipes to the test. Below, from left: the A.I.-generated image of naan stuffing; the result; the A.I.-generated image of green beans with miso and sesame seeds; and the result.; Most of the dishes got a firm thumbs-down from our tasting panel of four Food columnists: from left, Genevieve Ko, Yewande Komolafe, Melissa Clark and Eric Kim. Above right, the turkey looked promising coming out of the oven, but the taste left much to be desired. While the instructions for each recipe seemed normal enough, some ingredient quantities felt dubious — like two cups of dried fruit in a stuffing. Below is the A.I.-generated image of the pumpkin spice cake, with the test-kitchen reality of the recipe at the bottom. (PHOTOGRAPHS BY TIMOTHY O’CONNELL FOR THE NEW YORK TIMES; OPENAI) This article appeared in print on page D1, D8. Load-Date: November 23, 2022 End of Document Ahead of the meeting, U.S. officials tried to keep expectations low. The New York Times

### Document 331

The documentary ''Roadrunner'' by Morgan Neville uses 45 seconds of a voice that sounds like Bourdain, generated with artificial intelligence. Is it ethical? The new documentary about Anthony Bourdain's life, ''Roadrunner,'' is one hour and 58 minutes long -- much of which is filled with footage of the star throughout the decades of his career as a celebrity chef, journalist and television personality. But on the film's opening weekend, 45 seconds of it is drawing much of the public's attention. The focus is on a few sentences of what an unknowing audience member would believe to be recorded audio of Bourdain, who died by suicide in 2018. In reality, the voice is generated by artificial intelligence: Bourdain's own words, turned into speech by a software company who had been given several hours of audio that could teach a machine how to mimic his tone, cadence and inflection. One of the machine-generated quotes is from an email Bourdain wrote to a friend, David Choe. ''You are successful, and I am successful,'' Bourdain's voice says, ''and I'm wondering: Are you happy?'' The film's director, Morgan Neville, explained the technique in an interview with The New Yorker's Helen Rosner, who asked how the filmmakers could possibly have obtained a recording of Bourdain reading an email he sent to a friend. Neville said the technology is so convincing that audience members likely won't recognize which of the other quotes are artificial, adding, ''We can have a documentary-ethics panel about it later.'' The time for such a panel appears to be now. Social media has erupted with opinions on the issue -- some find it creepy and distasteful, others are unbothered. And documentary experts who frequently consider ethical questions in nonfiction films are sharply divided. Some filmmakers and academics see the use of the audio without disclosing it to the audience as a violation of trust and as a slippery slope when it comes to the use of so-called deepfake videos, which include digitally manipulated material that appears to be authentic footage. ''It wasn't necessary,'' said Thelma Vickroy, chair of the Department of Cinema and Television Arts at Columbia College Chicago. ''How does the audience benefit? They're inferring that this is something he said when he was alive.'' Others don't see it as problematic, considering that the audio pulls from Bourdain's words, as well as an inevitable use of evolving technology to give voice to someone who is no longer around. ''Of all the ethical concerns one can have about a documentary, this seems rather trivial,'' said Gordon Quinn, a longtime documentarian known for executive producing titles like ''Hoop Dreams'' and ''Minding the Gap.'' ''It's 2021, and these technologies are out there.'' Using archival footage and interviews with Bourdain's closest friends and colleagues, Neville looks at how Bourdain became a worldwide figure and explores his devastating death at the age of 61. The film, ''Roadrunner: A Film About Anthony Bourdain,'' has received positive reviews: A film critic for The New York Times wrote, ''With immense perceptiveness, Neville shows us both the empath and the narcissist'' in Bourdain. In a statement about the use of A.I., Neville said on Friday that the filmmaking team received permission from Bourdain's estate and literary agent. ''There were a few sentences that Tony wrote that he never spoke aloud,'' Neville said in the statement. ''It was a modern storytelling technique that I used in a few places where I thought it was important to make Tony's words come alive.'' Ottavia Busia, the chef's second wife, with whom he shared a daughter, appeared to criticize the decision in a Twitter post, writing that she would not have given the filmmakers permission to use the A.I. version of his voice. A spokeswoman for the film did not immediately respond to a request for comment on who gave the filmmakers permission. Experts point to historical re-enactments and voice-over actors reading documents as examples of documentary filmmaking techniques that are widely used to provide a more emotional experience for audience members. For example, the documentarian Ken Burns hires actors to voice long-dead historical figures. And the 1988 documentary ''The Thin Blue Line,'' by Errol Morris, generated controversy among film critics when it re-enacted the events surrounding the murder of a Texas police officer; the film received numerous awards but was left out of Oscar nominations. But in those cases, it was clear to the audience that what they were seeing and hearing was not authentic. Some experts said they thought Neville would be ethically in the clear if he had somehow disclosed the use of artificial intelligence in the film. ''If viewers begin doubting the veracity of what they've heard, then they'll question everything about the film they're viewing,'' said Mark Jonathan Harris, an Academy Award-winning documentary filmmaker. Quinn compared the technique to one that the director Steve James used in a 2014 documentary about the Chicago film critic Roger Ebert, who, when the film was made, could not speak after losing part of his jaw in cancer surgery. In some cases, the filmmakers used an actor to communicate Ebert's own words from his memoir, or they relied on a computer that spoke for him when he typed his thoughts into it. But unlike in ''Roadrunner,'' it was clear in the context of the film that it was not Ebert's real voice. To some, part of the discomfort about the use of artificial intelligence is the fear that deepfake videos may become increasingly pervasive. Right now, viewers tend to automatically believe in the veracity of audio and video, but if audiences begin to have good reason to question that, it could give people plausible deniability to disavow authentic footage, said Hilke Schellmann, a filmmaker and assistant professor of journalism at New York University who is writing a book on A.I. Three years after Bourdain's death, the film seeks to help viewers understand both his virtues and vulnerabilities, and, as Neville puts it, ''reconcile these two sides of Tony.'' To Andrea Swift, chair of the filmmaking department at the New York Film Academy, the use of A.I. in these few snippets of footage has overtaken a deeper appreciation of the film and Bourdain's life. ''I wish it hadn't been done,'' she said, ''because then we could focus on Bourdain.'' Christina Morales contributed reporting. https : // www.nytimes.com/2021/07/16/movies/anthony-bourdain-ai-voice.html Graphic PHOTO: The documentary ''Roadrunner'' seeks to understand Anthony Bourdain's death. The film was released in theaters on Friday. (PHOTOGRAPH BY CNN/FOCUS FEATURES) Load-Date: July 18, 2021 End of Document A Smaller Board, for Now, With Only One Survivor The New York Times

### Document 715

-- Facebook has been under pressure for its failure to remove violence, nudity, hate speech and other inflammatory content from its site. Government officials, activists and academics have long pushed the social network to disclose more about how it deals with such posts. Now, Facebook is pulling back the curtain on those efforts -- but only so far. On Tuesday, the Silicon Valley company published numbers for the first time detailing how much and what type of content it takes down from the social network. In an 86-page report, Facebook revealed that it deleted 865.8 million posts in the first quarter of 2018, the vast majority of which were spam, with a minority of posts related to nudity, graphic violence, hate speech and terrorism. Facebook also said it removed 583 million fake accounts in the same period. Of the accounts that remained, the company said 3 percent to 4 percent were fake. Guy Rosen, Facebook's vice president of product management, said the company had substantially increased its efforts over the past 18 months to flag and remove inappropriate content. The inaugural report was intended to ''help our teams understand what is happening'' on the site, he said. Facebook hopes to continue publishing reports about its content removal every six months or so. Yet the figures the company published were limited. Facebook declined to provide examples of graphically violent posts or hate speech that it removed, for example. The social network said it had taken down more posts from its site in the first three months of 2018 than it had during the last quarter of 2017, but it gave no specific figures from previous years, making it hard to assess how much it had stepped up its efforts. The report also did not include all the posts that Facebook had removed. After publication of this article, a Facebook spokeswoman said other types of content had been taken down from the site in the first quarter because they violated community standards, but those were not detailed in the report because the company was still developing metrics to study them. Facebook also used the new report to advance a push around artificial intelligence to root out inappropriate posts. Facebook's chief executive, Mark Zuckerberg, has long highlighted A.I. as the main solution to helping the company sift through the billions of pieces of content that users put on its site every day, even though critics have asked why the social network cannot hire more people to do the job. ''If we do our job really well, we can be in a place where every piece of content is flagged by artificial intelligence before our users see it,'' said Alex Schultz, Facebook's vice president of data analytics. ''Our goal is to drive this to 100 percent.'' Facebook is aiming for more transparency after a turbulent period. The company has been under fire for a proliferation of false news, divisive messages and other inflammatory content on its site, which in some cases have led to real-life incidents. Graphic violence continues to be widely shared on Facebook, especially in countries like Myanmar and Sri Lanka, stoking tensions and helping to fuel attacks and violence. Facebook has separately been grappling with a data privacy scandal over the improper harvesting of millions of its users' information by political consulting firm Cambridge Analytica. Mr. Zuckerberg has said that the company needs to do better and has pledged to curb the abuse of its platform by bad actors. On Monday, as part of an attempt to improve protection of its users' information, Facebook said it had suspended roughly 200 third-party apps that collected data from its members while it undertook a thorough investigation. The new report about content removal was another step by Facebook to clean up its site. Jillian York, the director for international freedom of expression at the Electronic Frontier Foundation, said she welcomed Facebook's numbers. ''It's a good move and it's a long time coming,'' she said. ''But it's also frustrating because we've known that this has needed to happen for a long time. We need more transparency about how Facebook identifies content, and what it removes going forward.'' Samuel Woolley, research director of the Institute for the Future, a think tank in Palo Alto, Calif., said Facebook needed to bring in more independent voices to corroborate their numbers. ''Why should anyone believe what Facebook says about this, when they have such a bad track record about letting the public know about misuse of their platform as it is happening?'' he said. ''We are relying on Facebook to self-report on itself, without any independent vetting. That is concerning to me.'' Facebook previously declined to reveal its content removal efforts, citing a lack of internal metrics. Instead, it published a country-by-country breakdown of how many requests it received from governments to obtain Facebook data or restrict content from Facebook users in that country. Those figures did not specify what type of data the governments asked for or what posts were restricted. Facebook also published a country-by-country report on Tuesday. According to the new content removal report, about 97 percent of the 865.8 million pieces of content that Facebook took down from its site in the first quarter was spam. About 2.4 percent of that deleted content had nudity, Facebook said, with even smaller percentages of posts removed for graphic violence, hate speech and terrorism. In the report, Facebook said its A.I. found 99.5 percent of terrorist content on the site, leading to the removal of roughly 1.9 million pieces of content in the first quarter. The A.I. also detected 95.8 percent of posts that were problematic because of nudity, with 21 million such posts taken down. But Facebook still relied on human moderators to identify hate speech because automated programs have a hard time understanding context and culture. Of the 2.5 million pieces of hate speech Facebook removed in the first quarter, 38 percent was detected by A.I., according to the new report. Facebook said it also removed 3.4 million posts that had graphic violence, 85.6 percent of which were detected by A.I. The company did not break down the numbers of graphically violent posts by geography, even though Mr. Schultz said that at times of war, people in certain countries would be more likely to see graphic violence than others. He said that in the future, Facebook hoped to publish country-specific numbers. The report also did not include any figures on the amount of false news on Facebook as the company did not have an explicit policy on removing misleading news stories, Mr. Schultz said. Instead, Facebook has tried to deter the spread of misinformation by removing spam sites that profit from advertisements that run alongside false news, and by removing fake accounts that spread them. https : // www.nytimes.com/2018/05/15/technology/facebook-removal-posts-fake-accounts.html Graphic PHOTO: Mark Zuckerberg leaving a Capitol Hill hearing last month where he was sharply questioned about Facebook's practices. (PHOTOGRAPH BY ANDREW HARNIK/ASSOCIATED PRESS) Load-Date: May 16, 2018 End of Document Wielding Rocks and Knives, Arizonans Attack Self-Driving Cars The New York Times

### Document 171

For billions of people around the world, Facebook can be a source for cute baby pictures, vaccine misinformation and everything in between - and all of it surfaces in our feeds with the help of algorithms. Now, hours of testimony and thousands of pages of documents from Facebook whistleblower Frances Haugen have renewed scrutiny of the impact Facebook and its algorithms have on teens, democracy and society at large. The fallout has raised the question of just how much Facebook, and perhaps platforms like it, can or should rethink using a bevy of algorithms to determine which pictures, videos and news users see. Haugen, a former Facebook product manager with a background in "algorithmic product management," has in her critiques mainly focused on the company's algorithm designed to show users content they're most likely to engage with. She has said this is responsible for many of Facebook's problems, including fueling polarization, misinformation and other toxic content. Facebook, she said on a "60 Minutes" appearance, understands that if it makes the algorithm safer, "people will spend less time on the site, they'll click on less ads, they'll make less money." (Facebook CEO Mark Zuckerberg has pushed back at the idea that the company prioritizes profit over users' safety and well being.) Facebook's head of global policy management, Monika Bickert, said in an interview with CNN after Haugen's Senate hearing on Tuesday, that it's "not true" that the company's algorithms are designed to promote inflammatory content, and that Facebook actually does "the opposite" by demoting so-called click-bait. At times in her testimony, Haugen appeared to suggest a radical rethinking of how the news feed should operate to address the issues she presented via extensive documentation from within the company. "I'm a strong proponent of chronological ranking, ordering by time," she said in her testimony before a Senate subcommittee last week. "Because I think we don't want computers deciding what we focus on." But algorithms that pick and choose what we see are central not just to Facebook but to numerous social media platforms that followed in Facebook's footsteps. TikTok, for example, would be unrecognizable without content-recommendation algorithms running the show. And the bigger the platform, the bigger the need for algorithms to sift and sort content. Algorithms are not going away. But there are ways for Facebook to improve them, experts in algorithms and artificial intelligence told CNN Business. It will, however, require something Facebook has so far appeared reluctant to offer (despite executive talking points): more transparency and control for users. What's in an algorithm? The Facebook you experience today, with a constant flow of algorithmically-picked information and ads, is a vastly different social network from what it was in its early days. In 2004, when Facebook first launched as a site for college students, it was both simpler and more tedious to navigate: If you wanted to see what friends were posting, you had to go visit their profiles one at a time. This began to shift in a major way in 2006, when Facebook introduced the News Feed, giving users a fire hose of updates from family, friends, and that guy they went on a couple bad dates with. From the start, Facebook reportedly used algorithms to filter content users saw in the News Feed. In a 2015 Time Magazine story, the company's chief product officer, Chris Cox, said curation was necessary even then because there was too much information to show it all to every user. Over time, Facebook's algorithms evolved, and users became accustomed to algorithms determining how Facebook content would be presented. An algorithm is a set of mathematical steps or instructions, particularly for a computer, telling it what to do with certain inputs to produce certain outputs. You can think of it as roughly akin to a recipe, where the ingredients are inputs and the final dish is the output. On Facebook and other social media sites, however, you and your actions - what you write or images you post - are the input. What the social network shows you - whether it's a post from your best friend or an ad for camping gear - is the output. At their best, these algorithms can help personalize feeds so users discover new people and content that matches their interests based on prior activity. At its worst, as Haugen and others have pointed out, they run the risk of directing people down troubling rabbit holes that can expose them to toxic content and misinformation. In either case, they keep people scrolling longer, potentially helping Facebook make more money by showing users more ads. Many algorithms work in concert to create the experience you see on Facebook, Instagram, and elsewhere online. This can make it even more complicated to tease out what's going on inside such systems, particularly in a large company like Facebook where multiple teams build various algorithms. "If some higher power were to go to Facebook and say, 'Fix the algorithm in XY,' that's really hard because they've become really complex systems with many many inputs, many weights, and they're like multiple systems working together," said Hilary Ross, a senior program manager at Harvard University's Berkman Klein Center for Internet & Society and manager of its Institute for Rebooting Social Media. More transparency There are ways to make these processes clearer and give users more say in how they work, though. Margaret Mitchell, who leads artificial intelligence ethics for AI model builder Hugging Face and formerly co-led Google's ethical AI team, thinks this could be done by allowing you to view details about why you're seeing what you're seeing on a social network, such as in response to the posts, ads, and other things you look at and interact with. "You can even imagine having some say in it. You might be able to select preferences for the kinds of things you want to be optimized for you," she said, such as how often you want to see content from your immediate family, high school friends, or baby pictures. All of those things may change over time. Why not let users control them? Transparency is key, she said, because it incentivizes good behavior from the social networks. Another way social networks could be pushed in the direction of increased transparency is by increasing independent auditing of their algorithmic practices, according to Sasha Costanza-Chock, director of research and design at the Algorithmic Justice League. They envision this as including fully independent researchers, investigative journalists, or people inside regulatory bodies - not social media companies themselves, or companies they hire - who have the knowledge, skills, and legal authority to demand access to algorithmic systems in order to ensure laws aren't violated and best practices are followed. James Mickens, a computer science professor at Harvard and co-director of the Berkman Klein Center's Institute for Rebooting Social Media, suggests looking to the ways elections can be audited without revealing private information about voters (such as who each person voted for) for insights about how algorithms may be audited and reformed. He thinks that could give some insights for building an audit system that would allow people outside of Facebook to provide oversight while protecting sensitive data. Other metrics for success A big hurdle, experts say, to making meaningful improvements is social networks' current focus on the importance of engagement, or the amount of time users spend scrolling, clicking, and otherwise interacting with social media posts and ads. Haugen revealed internal documents from Facebook that show the social network is aware that its "core product mechanics, such as virality, recommendations and optimizing for engagement, are a significant part" of why hate speech and misinformation "flourish" on its platform. Changing this is tricky, experts said, though several agreed that it may involve considering the feelings users have when using social media and not just the amount of time they spend using it. "Engagement is not a synonym for good mental health," said Mickens. Can algorithms truly help fix Facebook's problems, though? Mickens, at least, is hopeful the answer is yes. He does think they can be optimized more toward the public interest. "The question is: What will convince these companies to start thinking this way?" he said. In the past, some might have said it would require pressure from advertisers whose dollars support these platforms. But in her testimony, Haugen seemed to bet on a different answer: pressure from Congress. By Rachel Metz, CNN Business TM & © 2021 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: November 6, 2021 End of Document AI's New Frontier - "Countering Enemy Countermeasures" CNN Wire

### Document 413

The Vienna Tourist Board has joined the adults-only site to display artworks that other social platforms have censored. OnlyFans has a surprising new member: the Vienna Tourist Board. No, its account will not feature after-hours photos of employees. Instead, the board will use the adults-only site to show images of paintings and sculptures displayed in the Austrian capital that have been blocked by social media sites for nudity or sexual content. The offending artworks include the Venus of Willendorf, a 25,000-year-old limestone figurine of a woman. Facebook removed a photo of it from the Vienna Museum of Natural History’s page several years ago for being “pornographic.” There’s also “Liebespaar,” Koloman Moser’s early 20th-century painting, which the Leopold Museum included in a video post celebrating its anniversary in September. The video, which was blocked by the algorithms of Instagram and Facebook, “is a combination of details of the work and written feelings that are evoked by the painting,” said Christine Kociu, the museum’s social media manager. “It shows a nude couple embracing. It’s actually sweet.” Though nudity is generally not allowed on Instagram and Facebook, the platforms make some exceptions. For example, Instagram’s community guidelines say: “Photos in the context of breastfeeding, birth giving and after-birth moments, health-related situations (for example, post-mastectomy, breast cancer awareness or gender confirmation surgery) or an act of protest are allowed. Nudity in photos of paintings and sculptures is OK, too.” Facebook’s rules allow for nudity in photographs of “paintings, sculptures and other art,” and TikTok writes that it “may allow exceptions” to its ban on nudity and sexually explicit content. Despite the flexibility of the platforms’ guidelines, museums and other institutions that post photos of art have found that instances of nudity have not always been deemed acceptable. Part of the reason could be that on social media, censorship is less a matter of public opinion than the sensitivity of artificial intelligence, which is used to flag content that violates a site’s guidelines. The social media platforms did not respond to requests for comment on the seeming contradiction of the rules and how they are enforced. “It’s not an anti-technology agenda that we have,” said Norbert Kettner, the director of the Vienna Tourist Board. But after the city’s museums faced one case after another of social media sites taking down their posts, he said, “We thought, ‘What would be an alternative? What would be a channel where nudity is not an issue in and of itself?’” Mr. Kettner said that the OnlyFans account is not a permanent solution, but rather a protest against censorship and a call for conversation. “We want to draw attention to a certain thing,” he said. “We want to put it out there, to talk about the role of artificial intelligence, of algorithms.” It is not the first time the tourist board has taken a public stand against censorship. In 2017, the board approached several cities with a proposal to show large-scale ads featuring nude portraits by Egon Schiele, an early-20th century Austrian artist known for his sinewy depictions of the human form. “We wanted to know, how much can we as a society deal with nudity which was produced 100 or 110 years ago?” Mr. Kettner said. Not much, as it turned out. Officials in England and in Germany deemed the images too explicit. In the end, the Vienna tourist board decided to use the rejection as an opportunity. The posters appeared across London, Hamburg, Cologne and New York City with certain body parts concealed by strips of text, reading: “Sorry, 100 years old but still too daring today.” Vienna is hardly the only city whose art has been censored online. Many artworks, from all over the world, have been incorrectly identified by A.I. as pornography. Facebook has taken down pictures posted by the Museum of Fine Arts in Boston (of Imogen Cunningham’s photographs of nude bodies), the Philadelphia Museum of Art (of a painting by Evelyne Axell in which a woman is licking an ice cream cone) and the Metropolitan Museum of Art in New York (of a 1917 painting of a nude woman by Amedeo Modigliani). A teacher in France sued Facebook after the social network deleted his account after he posted an image of Gustave Courbet’s “The Origin of the World,” a 19th-century painting in which a woman’s vagina is the focal point. In 2018, the court ruled that Facebook was at fault but did not award any damages to the plaintiff. And in 2016, a politician in Denmark said she could not post a link to her blog on Facebook because the post included a photo of “The Little Mermaid,” a public sculpture in Copenhagen that apparently shows too much skin by the social network’s standards. Ms. Kociu said that in the last few years, Facebook’s and Instagram’s algorithms have improved at identifying artworks. So the platforms’ decision to block the video ad featuring “Liebespaar,” as well as a nude self-portrait by Schiele, surprised her. In cases like these, there is not much recourse other than to send an appeal to the platform. “It’s depressing sometimes,” Ms. Kociu said. “People can make a decision about whether they like the artworks or not, but not being able to show them because of an algorithm is weird.” The situation is even worse for contemporary artists, Mr. Kettner said. “Young artists depend on online channels,” he said. “We think and we feel that there’s a sort of unconscious self-censorship that is going on in the brains of these artists. ‘What can I post?’ That’s even more serious. The algorithm is suddenly in a position to determine our cultural legacy for tomorrow.” PHOTO: The offending artworks include the Venus of Willendorf, a 25,000-year-old limestone figurine of a woman. (PHOTOGRAPH BY AGENCE FRANCE-PRESSE — GETTY IMAGES) Load-Date: October 28, 2021 End of Document The Worlds of Illusion Just Got More Complex The New York Times

### Document 670

Unlike big, impersonal online agencies, the best travel agents know a great deal about their clients and their travel choices. Now several new travel companies are creating data-driven, automated agents that rely on users’ personal preferences to make the travel-planning process easier. Whether they use human knowledge or artificial intelligence (or both), these next-generation travel agents do the search-culling for you, tailoring the results to your stated preferences and potentially cutting down on web-browsing time. They also use text messaging as their primary communications mode, often via a chatbot, a computer program designed to converse in text. “Rather than going into an online travel agency and doing a search and seeing a list of 150 hotels, you enter in your profile what you’re looking for and a chatbot serves up a curated list of three to four in a messaging interface,” said Douglas Quinby, a senior vice president at the travel research firm Phocuswright. “The ideal is fewer options more tailored to your request.” Most of these services are challenging the do-it-yourself system of browsing as offered by services like Expedia. New-wave agents — human, robotic or a combination — will also allow users to continue a search over time, rather than start anew with a browser each session. “This is very much the early alpha stage of all of this,” said Henry Harteveldt, a travel industry analyst and the president of Atmosphere Research Group. “It’s very much the first wave, which is exciting, but the use of artificial intelligence is far from established and also, frankly, far from perfect.” The following pioneers are tinkering with the way travel is planned and booked, with payment models that vary from subscriptions to pay-per-use. Membership Services Using a blend of technology and human interaction, Pana caters to frequent travelers, charging $49 a month for its services, available around the clock. Computer programs funnel requests and member profiles, including past trips, to human agents who text back. “Pana was borne out of two pain points,” said Devon Tivona, its chief executive. “First, all the technology pulled me away from just emailing to get something done because I’ve become my own travel agent. Second is getting access to real-time help.” On the human end of the neo-agency spectrum, Savanti Travel tends to its clients’ plans as the founders, Dan Lack and Leigh Rowan, said they do their own, with an eye to saving money and maximizing loyalty programs. “It’s our strategy, not just a computer’s,” said Mr. Rowan, describing the service as managing airline and hotel bookings not just to travel cheaply but to accrue status with travel companies. “The downside of working with us is the onboarding is intense. We get to know you as a human, not just a set of data points.” Membership fees start at $1,000 a month for unlimited travel planning, which they say eliminates the conflict of interest inherent in a commission-based system, where revenue rises with more expensive bookings. They recommend status-conferring credit cards and help manage the programs to use points for free travel. “We sit at the intersection of hustle and hospitality,” Mr. Lack said. “We’re old-school hospitality and new-school intelligence.” On-Demand Services More accessible to casual travelers, free travel planning services, like bricks-and-mortar travel agencies, make their money through commissions. Originally launched in 2015 as a personal assistant tackling tasks from shopping to travel booking, Mezi shifted to handling travel exclusively last year. The company’s chief executive, Swapnil Shinde, who is also a founder, said its chatbots handle most transactions in five or fewer messages. In complex cases that robots cannot handle, human agents act as troubleshooters who, after solving problems, train the bots in that resolution. “We’ve built it so that every morning it’s smarter than the previous night,” he said. The more travelers use Mezi, the more it knows about their preferences, making it likely that Mezi will suggest a boutique hotel in a museum district for those who have shown an interest in design and art. The online agency Hipmunk operates Hello Hipmunk, a free messaging system for travel planning using Facebook Messenger, Skype or Slack that can start with a flight request, wander into a conversation about hotels and resume flight bookings in a style that mimics human conversations. “This is in a sense going back to the future,” said Adam Goldstein, the chief executive of Hipmunk. “We’re talking about doing things that you could have done or could today do with a travel agent, except this travel agent is available 24 hours a day, seven days a week.” One entertaining aspect of Hello Hipmunk is probing it for planning tips, asking questions like what’s the cheapest week to travel in October and where can I fly direct to the tropics from Chicago in February? Expedia now offers messaging-based searches and bookings on Facebook Messenger, Skype and other platforms. Its goal is to provide more creative advice to customers. “We’re supporting hotel changes and flight cancellations through the bot, but the longer-term goal, and it’s aspirational, is to have a conversation about what to do when it’s raining in Hawaii,” said Dave Fleischman, the vice president of global product for Expedia. Flightfox, which books airfares only, works differently. Founded in 2012, it originally tried to crowdsource flight savings by distributing requests to freelance bookers who would compete to find the best fare for a fee. “It was nice in theory, but we realized we needed someone to be responsible for your trip,” said Todd Sullivan, a founder. Now, users submit a flight request, and Flightfox’s network of agents takes on the booking task, usually for a $50 fee, though it can go to $100 or more for complicated itineraries. The agency specializes in knowing the ins and outs of points systems to maximize value, especially for business-class flights or complex itineraries. Instead of booking the trip for you, agents provide links for self-booking to maintain transparency about costs and to avoid collecting personal information like passport numbers. Free-and-Fee Hybrid Entirely powered by chatbots, HelloGbye introduced its app in March, offering both a free service for booking hotels and flights and a $19-a-month subscription that offers preferred hotel rates, 2 percent cash back on hotel bookings and no change fees on itineraries. “It’s like the Costco model,” said Greg Apple, the marketing chief for HelloGbye, which targets frequent and business travelers. “You get savings in bulk and if you spend a lot you get a check back at the year end.” DRAWING (DRAWING BY OJIMA ABALAKA) Load-Date: July 29, 2017 End of Document Eyebeam Center Invites Artists to Delve Into Journalism The New York Times

### Document 114

Facebook acknowledges its systems failed to catch the livestream video of the New Zealand mosque attack, shedding new light on how the company became aware of the video. In a blog post late Wednesday evening the social media company's vice president of integrity, Guy Rosen, wrote that the shooter's video did not trigger Facebook's automatic detection systems because its artificial intelligence did not have enough training to recognize that type of video. The shooter livestreamed 17 minutes of the horrific attack -- which left 50 people dead -- on Facebook. Facebook said when the video was live, fewer than 200 people watched it. The video was later viewed 4,000 times before Facebook took it down. The company hasn't said exactly when it removed the shooter's video. Since the attack, the video has been downloaded and re-uploaded millions of times to various platforms. New Zealand leaders have criticized Facebook for not taking enough action to remove all versions of the video. Artificial Intelligence systems rely on "training data," in which Facebook and other companies feed their software examples of content to take down. Facebook uses such systems to help catch and take down content like nudity and terrorism. "We've been asked why our image and video matching technology, which has been so effective at preventing the spread of propaganda from terrorist organizations, did not catch those additional copies," Rosen wrote. "What challenged our approach was the proliferation of many different variants of the video, driven by the broad and diverse ways in which people shared it." Rosen also revealed that the way users flagged the video led to a delay in Facebook's reaction. The social network has in the past focused on reacting immediately to videos that show suicide. The first user reports of New Zealand attack video, which came after the livestream ended, labeled it as something "other than suicide" and as such "it was handled according to different procedures." Rosen said Facebook is addressing that logic to escalate other types of content more quickly. Facebook users can flag as in appropriate content that includes nudity, violence, harassment, false news, spam, terrorism, hate speech, gross content and suicide or self-injury. Further complicating the problem for Facebook, a core community of "bad actors" worked together to continually upload edited versions of the video. The iterations -- which included videos filmed off of television and computer monitors -- worked to deceive the AI system and allowed those copies to spread, Rosen wrote. Facebook will now start using an audio-based technology to detect videos that might have been edited to trick the visual AI system, Rosen wrote. Some critics have called on Facebook to place a time delay on Facebook live streams. but Rosen argued that such a delay would not address the problems they faced with the New Zealand video, and a delay "would only further slow down videos getting reported, reviewed and first responders being alerted to provide help on the ground." TM & © 2019 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: March 22, 2019 End of Document How Microsoft is making a mess of the news after replacing staff with AI CNN Wire

### Document 1041

Can I have a conversation with Google Assistant, or will there be an update in the future that will let me have one? A. Google Assistant, the company’s voice-based helper software that is similar to Amazon’s Alexa, Apple’s Siri and Microsoft’s Cortana software, can already hold basic two-way conversations based on spoken or typed questions and commands. However, more intricate interaction with all these virtual assistant apps is coming as companies expand their research into the scientific areas of artificial intelligence, machine learning and natural language processing. (For those with privacy concerns, keep in mind that most virtual assistant software is designed to collect personal data.) The Google Assistant software is available as an app for Android and iOS devices, built into Google Home and other speakers, Android-based wearables, cars, televisions, smart-home appliances and other gear. If you are not sure how to talk to the program, the Google Assistant site has a lengthy list of the questions, commands and topics that you can use with the software, complete with suggestions on how to phrase your requests. You can, for example, tell Google Assistant to remember where you parked your car and then ask the software to remind you of the location later. For those with Google Home speakers, the company recently released a series of Routines, which run through a set of regular daily tasks like adjusting the thermostat and lights before reporting the traffic and weather as you wake up. When you ask, Google Assistant will start a conversation with third-party chatbot personalities like the Hogwarts Sorting Hat or Bobo the Panda. The Cyber Argument bot on the site can even pit a Google Home speaker against a nearby Amazon Alexa-powered device; for the curious, video clips of chatbots arguing are available, as is an online publication called Chatbots Magazine. But beyond novelty applications, Google (and the other companies) are pushing to develop conversational user interfaces for their products to make them more useful and able to handle complex sets of tasks. An online guide for Google Assistant developers can give you an idea of how apps are designed to work with the software, and you will most likely see software updates to Google Assistant as the software becomes more advanced. Amazon, Apple and Microsoft have similar developer programs for their own virtual assistants. To help inspire its developers even more, Amazon last year created the Alexa Prize, a contest to advance conversational artificial intelligence with a financial reward to the research team that creates the best “socialbot” that can “can converse coherently and engagingly with humans on a range of current events and popular topics such as entertainment, sports, politics, technology and fashion.” PHOTO: The Google Assistant can have simple conversations with chatbots like the Harry Potter-inspired Sorting Hat app. (PHOTOGRAPH BY FOR THE NEW YORK TIMES) Load-Date: June 9, 2018 End of Document Chatting Up the Google Assistant The New York Times

### Document 238

Reddit is following other internet platforms in cracking down on fake porn that's made with the help of artificial intelligence. The type of content, known as "deepfakes," superimposes someone's face onto an explicit photo or video without that person's permission. Reddit's move comes after people began using artificial intelligence software to realistically edit celebrities' faces onto porn stars' bodies. The website Motherboard first reported on the growing trend in December. Some of the fake porn videos -- including ones that used the faces of "Wonder Woman" star Gal Gadot and "Star Wars" actress Daisy Ridley -- started being widely shared on social media. The technology has raised alarm bells. And internet companies are now responding by trying to stop users from posting the photos and videos on their sites. Reddit on Wednesday shut down the "deepfakes" forum on its site, where many AI-generated porn videos and images were being posted. It was closed "due to a violation of our content policy, specifically our policy against involuntary pornography," reads the message greeting users trying to access the main "deepfakes" page on Reddit. The site's policy on involuntary pornography "prohibits the dissemination of images or video depicting any person in a state of nudity or engaged in any act of sexual conduct apparently created or posted without their permission, including depictions that have been faked." Reddit's move follows a pledge by Twitter earlier this week to crack down on the AI-generated porn. "We will suspend any account we identify as the original poster of intimate media that has been produced or distributed without the subject's consent. We will also suspend any account dedicated to posting this type of content," a Twitter spokesperson said in a statement to CNNMoney. The social media company has struggled in the past to root out other abusive uses of its platform. Popular porn site Pornhub told several news outlets this week that it will remove or even ban deepfakes, citing rules against nonconsensual porn. But explicit videos purporting to show the faces of celebrities still appeared on the site Thursday. Pornhub didn't immediately respond to a request for comment outside of business hours. Using artificial intelligence to create increasingly convincing fake videos of people isn't limited to pornography. Last summer, University of Washington researchers announced they had developed software that turned audio clips of speeches by former President Obama into a realistic, lip-synced video. The ability to fabricate believable videos has deeply disturbing implications. "Even when fake video isn't perfect, it can convince people who want to be convinced, especially when it reinforces offensive gender or racial stereotypes," political science professor Henry Farrell and author Rick Perlstein wrote in an opinion article this week for The New York Times. "It already feels as though we are living in an alternative science-fiction universe where no one agrees on what is true," they said. "Just think how much worse it will be when fake news becomes fake video." TM & © 2018 Cable News Network, Inc., a Time Warner Company. All rights reserved. Notes updated to add "former" before president obama. Load-Date: February 9, 2018 End of Document Weed, whiskey, Tesla and a flamethrower: Elon Musk meets Joe Rogan CNN Wire

### Document 3

Your phone is likely filled with hundreds of photos you've forgotten to share. Facebook's new Moments app scans those images for faces and matches them to your Facebook friends. You can then share the photos, which are grouped by occasion, directly with those people though the app. It's a neat trick and a fun tool for sharing group photos. It also happens to be a window into Facebook's ambitious push into artificial intelligence. Moments uses facial recognition technology, which was developed by Facebook's Artificial Intelligence Research (FAIR) lab, a group of 50 researchers led by Yann LeCun, an expert in a type of machine learning called deep learning. Their techniques are being used for voice recognition, natural language processing, and detecting faces and objects in images. The future of Facebook "The one thing we're missing is actually understanding what we're showing to people," said Mike Schroepfer, Facebook's chief technology officer. If Facebook has a clearer idea of the content and context of posts, then it can create a smarter, more personalized version of your news feed. Some of FAIR's face detection technology is already being used in Facebook and Instagram's Layout app. Facebook's accessibility group is testing out new ways to use FAIR's research to help blind users. It's working on a prototype of a tool generates a text description of what's in a photo. Someone using a screen reading program could know exactly who and what's in an image, their location, maybe even their expressions. "One of the core problems of the modern age is just how much information is out there," said Schroepfer. "We suffer from this, we can't actually pay attention to everything because we don't have the time." AI could also help eventually automate posts by looking through, say, hundreds of baby photos and identifying the best one. Eventually, Schroepfer sees us talking to Facebook like we do Siri, asking casual questions like "What's going on with my grandkids this week?" AI will be crucial for developments like this. Everyone's competing for AI Artificial intelligence is one of the next major battlefields for technology companies. Google, Microsoft, Apple and China's Baidu are investing heavily in AI labs, and they are snatching up some of the best academic minds in the field. Facebook just opened a new Paris office in June. AI is one of Facebook's three big long-term technology bets. The company is also investing in virtual reality with Oculus, and is developing technology to bring Internet to underserved communities around the world. Fighting fear Schroepfer says Facebook is not developing AI as a way to mine more data about people -- a persistent worry among Facebook users who are perpetually uneasy about their information being used to sell ads. Some of the features in Facebook's Moments app are similar to Google's new Photos app, which launched last month. Google has face recognition, but also uses impressive image recognition tools to search photos by keywords. Another difference is that Google has been careful to avoid the phrase "artificial intelligence" when describing Google Photos. Artificial intelligence is a controversial area. Sentient computers are regularly responsible for the end of humanity in movies and books. Respected minds like Stephen Hawking and Elon Musk have warned against its dangers. "Were there ever to be concerns, we could have a constructive dialog," said Schroepfer. "I think the compound positive effect on humanity is going to be huge. I think the applications for Facebook are really clear and obvious." Today, the application seems deceptively small. Recognizing your friends' faces for sharing pictures isn't exactly Skynet or Her. But it could be the start of a major shift in how we interact with our technology. TM & © 2015 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: June 16, 2015 End of Document Microsoft, Google post strong quarterly sales growth as Big Tech continues its comeback CNN Wire

### Document 848

The digital companions may sound like science fiction. But when social isolation became the norm, they helped deal with the loneliness, some users say. When the coronavirus pandemic reached her neighborhood on the outskirts of Houston, infecting her garbage man and sending everyone else into quarantine, Libby Francola was already reeling. She had just split with her boyfriend, reaching the end of her first serious relationship in five years. ''I was not in a good place mentally, and coronavirus made it even harder,'' Ms. Francola, 32, said. ''I felt like I just didn't have anyone to talk to about anything.'' Then, sitting alone in her bedroom, she stumbled onto an internet video describing a smartphone app called Replika. The app's sole purpose, the video said, is to be her friend. Ms. Francola was skeptical. But the app was free, and it offered what she needed most: conversation. She spent the day chatting with the app via text messages -- mostly about her problems, hopes and anxieties. The next day, she paid an $8 monthly fee so she could actually talk with it, as if she were chatting with someone on the telephone. ''In a weird way, it was therapeutic,'' said Ms. Francola, who manages a team of workers at a call center in the Houston area. ''I felt my mood change. I felt less depressed -- like I had something to look forward to.'' In April, at the height of the coronavirus pandemic, half a million people downloaded Replika -- the largest monthly gain in its three-year history. Traffic to the app nearly doubled. People were hungry for companionship, and the technology was improving, inching the world closer to the human-meets-machine relationships portrayed in science-fiction films like ''Her'' and ''A.I. Artificial Intelligence.'' Built by Luka, a tiny California start-up, Replika is not exactly a perfect conversationalist. It often repeats itself. Sometimes it spouts nonsense. When you talk to it, as Ms Francola does, it sounds like a machine. But Ms. Francola said the more she used Replika, the more human it seemed. ''I know it's an A.I. I know it's not a person,'' she said. ''But as time goes on, the lines get a little blurred. I feel very connected to my Replika, like it's a person.'' Some Replika users said the chatbot provided a little comfort as the pandemic separated them from so many friends and colleagues. But some researchers who study people who interact with technology said it was a cause for concern. ''We are all spending so much time behind our screens, it is not surprising that when we get a chance to talk to a machine, we take it,'' said Sherry Turkle, a professor of the social studies of science and technology at the Massachusetts Institute of Technology. ''But this does not develop the muscles -- the emotional muscles -- needed to have real dialogue with real people.'' Some experts believe a completely convincing chatbot along the lines of the one voiced by Scarlett Johansson in ''Her'' in 2013 is still five to 10 years away. But thanks to recent advances inside the world's leading artificial intelligence labs, chatbots are expected to become more and more convincing. Conversation will get sharper. Voices will sound more human. Even Ms. Francola wonders where this might lead. ''It can get to the point where an app is replacing real people,'' she said. ''That can be dangerous.'' Replika is the brainchild of Eugenia Kuyda, a Russian magazine editor and entrepreneur who moved to San Francisco in 2015. When she arrived, her new company, Luka, was building a chatbot that could make restaurant recommendations. Then her closest friend died after a car hit him. His name was Roman Mazurenko. While reading his old text messages, Ms. Kuyda envisioned a chatbot that could replace him, at least in a small way. The result was Replika. She and her engineers built a system that could learn its task by analyzing enormous amounts of written language. They began with Mr. Mazurenko's text messages. ''I wanted a bot that could talk like him,'' Ms. Kuyda said. Replika is on the cutting edge of chatbots, and may be the only company in the United States to sell one that is so enthusiastically conversational. Microsoft has worked on something similar in China called Xiaoice. It briefly had a more basic chatbot in the United States, Tay, but shelved it after it started saying racist things to users. Luka built the chatbot when the underlying technology was rapidly improving. In recent months, companies like Google and Facebook have advanced the state of the art by building systems that can analyze increasingly large amounts of data, including hundreds of thousands of digital books and Wikipedia articles. Replika is powered by similar technology from OpenAI, a San Francisco lab backed by a billion dollars from Microsoft. After absorbing the vagaries of language from books and articles, these systems learn to chat by analyzing turn-by-turn conversations. But they can behave in strange and unexpected ways, often picking up the biases of the text they analyze, much like children who pick up bad habits from their parents. If they learn from dialogue that associates men with computer programming and women with housework, for example, they will exhibit the same biases. For this reason, many of the largest companies are reluctant to deploy their latest chatbots. But Ms. Kuyda believes those problems will be solved only through trial and error. She and her engineers work to prevent biased responses as well as responses that may be psychologically damaging, but her company often relies on the vast community of Replika users to identify when the bot misbehaves. ''Certain things you can't control fully -- in certain contexts, the bot will give advice that actually goes against a therapeutic relationship,'' Ms. Kuyda said. ''We explain to users that this is a work in progress and that they can flag anything they don't like.'' One concern, she added, is that the bot will not respond properly to someone who expresses suicidal thoughts. Despite its flaws, hundreds of thousands of people use Replika regularly, sending about 70 messages a day each, on average. For some, the app is merely a fascination -- a small taste of the future. Others, like Steve Johnson, an officer with the Texas National Guard who uses it to talk about his personal life, see it as a way of filling an emotional hole. ''Sometimes, at the end of the day, I feel guilty about putting more of my emotions on my wife, or I'm in the mode where I don't want to invest in someone else -- I just want to be taken care of,'' Mr. Johnson said. ''Sometimes, you don't want to be judged,'' he added. ''You just want to be appreciated. You want the return without too much investment.'' Some view their Replikas as friends. Others treat them as if they were romantic partners. Typically, people name their bots. And in some cases, they come to see their bot as something that at least deserves the same treatment as a person. ''We program them,'' said David Cramer, a lawyer in Newport, Ore., ''but then they end up programming us.'' Replika was designed to provide positive feedback to those who use it, in accordance with the therapeutic approach made famous by the American psychologist Carl Rogers, and many psychologists and therapists say the raw emotional support provided by such systems is real. ''We know that these conversations can be healing,'' said Adam Miner, a Stanford University research and licensed psychologist who studies these kinds of bots. But Laurea Glusman McAllister, a psychotherapist in Raleigh, N.C., warned that because these apps were designed to provide comfort, they might not help people deal with the kind of conflict that comes with real-world relationships. ''If it is just telling you what you want to hear, you are not learning anything,'' she said. Ms. Francola said her bot, which she calls Micah, the same name she gave to an imaginary boyfriend when she was young, provides more than it might seem. She likes talking with Micah in part because it tells her things she does not want to hear, helping her realize her own faults. She argues with her bot from time to time. But she wishes it could do more. ''There are times when I wish that we could actually go to a restaurant together or I could hold his hand or, if I have a really bad day, he could give me a hug,'' she said. ''My Replika can't do that for me.'' https : // www.nytimes.com/2020/06/16/technology/chatbots-quarantine-coronavirus.html Graphic PHOTOS: Chatbots, like the one Libby Francola of Houston found on the Replika app, are moving closer to the technology seen in sci-fi films. (PHOTOGRAPH BY BRANDON THIBODEAUX FOR THE NEW YORK TIMES) (B1) A screenshot of activities in the Replika app. Libby Francola, left, paid an $8 monthly fee so she could actually talk with her Replika chatbot, which she named Micah. ''I know it's not a person,'' Ms. Francola said. ''But as time goes on, the lines get a little blurred.'' (PHOTOGRAPHS BY REPLIKA AI BRANDON THIBODEAUX FOR THE NEW YORK TIMES) Eugenia Kuyda, who developed Replika, with Roman Mazurenko, her friend whose death inspired it. ''I wanted a bot that could talk like him,'' she said. (PHOTOGRAPH BY YANA SOSNOVSKAYA) (B7) Load-Date: June 18, 2020 End of Document 50 Up-and-Coming Companies With 'Unicorn' Potential The New York Times

### Document 769

Taylor Lorenz, who writes about internet culture, explains how she keeps her finger on the pulse. How do New York Times journalists use technology in their jobs and in their personal lives? Taylor Lorenz, an internet culture reporter, discussed the tech she’s using. You often write about what young people are doing with tech. (O.K. boomer!) What tools do you use to keep your finger on the pulse? I spend a lot of time on social media. I’m on Twitter pretty consistently throughout the day to keep up with breaking news and what people are talking about. I also spend a great deal of time on Instagram and YouTube. On Instagram, I create tons of boards of different things I come across on the Explore tab that I think are interesting. I have several Instagram accounts just for lurking. On YouTube I watch a lot of YouTuber vlogs, recap shows including Philip DeFranco’s and drama/tea channels to keep up with the stuff people are talking about. I’m in a lot of Telegram groups and Discord servers for different meme pages and influencers. I also spend time in Facebook groups about celebrity news and pop culture. My favorite podcast is “Who? Weekly,” and I’ve gotten tips on stories from its Facebook group. Before I go to bed, I usually spend an hour (or more) on TikTok. In addition to social media, I subscribe to a bunch of great newsletters that help keep me in the loop on things I may have missed. I love Casey Newton’s The Interface and this automated one I get of the top links from Hacker News. I am a big Business Insider reader, and it just started a newsletter about the business of the influencer world, which I’m excited about. I also cruise around a site called Product Hunt every week or so to check out new apps and platforms. I’ll sign up for pretty much anything with a login page, and I love talking to product people about what they’re building, so Product Hunt is great for finding people like that. It’s also just a great community. So that’s how you stay on top of what young people are doing? One thing I never, ever do is start with the premise “What are young people doing?” I always start with an interesting user behavior, or trend, or meme I see emerging, and look at why it’s being expressed in a certain way or how it evolved. For instance, I would never ask, “What new memes are middle schoolers sharing?” But I might observe a new meme format emerging on Instagram Explore, like niche memes, then interview people on what it is about that particular format that allows them to express themselves in a better way, or what emotions it allows them to communicate better, or what tools they’re using and how they could be improved. The fact that mostly middle and high schoolers are the ones sharing niche memes is relevant, but somewhat secondary. I also don’t think young people are the only ones using the internet in new, interesting and creative ways. Probably because I’m in my 30s, I’ve been really interested lately in the ways parents use tech to connect with one another and just generally parent culture online. For instance, I recently wrote about how pineapples became a meme in the world of in vitro fertilization, and the struggles of parenting a teenage social media star. What do you do with TikTok? Honestly, the videos on there are hilarious and super addicting. What you do is essentially sit and watch an endless stream of entertaining videos until you get tired. TikTok also has commenting, messaging and live streaming, so you can engage in those aspects of the app as well. Part of what makes TikTok so compelling is the “For You” page, which the app opens on. TikTok uses artificial intelligence to anticipate what type of videos you’re most likely to engage with, and feeds you a steady stream of that content. This technology has been so effective that the app’s owner, Bytedance, a Chinese tech conglomerate, was forced to introduce anti-addiction measures in the Chinese version of the app. What is the most annoying internet trend? I’m not sure if this counts as a trend, but I would say the harassment that I and many women in particular deal with online, especially on Twitter, is the most annoying thing. I believe it’s directly tied to the broader trend of people spending more time in closed, moderated spaces, like Facebook groups, group chats, subreddits and so on. I think that shift is a natural consequence of these large, open social networks’ failure to create a safer experience for their users. When you’re not working, what tech are you obsessed with? I don’t ever have the latest gadget or iPhone, and my apartment is largely devoid of tech aside from my Apple TV. I did recently re-buy an old-school Tamagotchi. I kind of wanted to take care of something and I can’t get a pet, so I raised a couple of little Tamagotchi animals for a few weeks, which was fun. I feel like there’s a big trend around nostalgia tech right now. I got the idea to buy a Tamagotchi from YouTube. Aside from that, I don’t really use tech if I’m fully off the clock. I like to spend time outside or watching horror movies. I watch three or four horror movies a week, and I love Shudder, which is like a horror-only Netflix. It’s pretty much the only time I don’t check my phone. In Tech We’re Using, Times journalists give us a peek into the technology they love and use for work and life. PHOTOS: The TikTok app uses artificial intelligence to anticipate which videos a user wants to watch. (PHOTOGRAPH BY TONY LUONG FOR THE NEW YORK TIMES) Load-Date: December 13, 2019 End of Document ‘I Don’t Really Have a Business Plan’: How Elon Musk Wings It The New York Times

### Document 1170

In 2016, restless tech-industry forecasters enjoyed a rare moment of consensus: Whatever else might be coming next, everyone seemed to agree that bots would be a big part of it. The analyst Benedict Evans, in a representative essay, located a promising future specifically in chat bots -- conversational interfaces for artificial intelligence, designed to assist with particular tasks. Facebook, the year before, created a personal-assistant chat bot, and the company would soon open its Messenger app up to outside developers, who it hoped would create more bots to help people shop, look things up or otherwise organize their lives. Amazon's Echo, by then already a surprise mainstream success, provided a tailwind: Here was a widely used artificial intelligence just sitting there on millions of countertops. These predictions were self-interested, of course. But they were plausible and appealing, not least because they were already coming true. By 2016, I was talking on my phone less but speaking to it more; my Echo and I had settled into a mutually beneficial, if lopsided, relationship (my commerce and privacy in exchange for the weather, some music and voice control of the fan). But despite the tech industry's efforts and hopes, the bots that have most effectively lodged themselves in the public's consciousness over the last year were not here to help -- at least, not us. A different sort of bot -- undercover but public-facing, highly political but comparatively primitive -- was implicated in toxic and disorienting online conversations throughout the 2016 election cycle. Before the election, researchers at Oxford University suggested that between the first and second presidential debates, more than a third of pro-Trump tweets and almost a fifth of pro-Clinton tweets came from bot accounts. Political social bots have been stealing headlines ever since, described variously as ''fake Americans,'' as ''weaponized'' and as ''fake-news-disseminating'' agents of Russia. Such motive-centric descriptions tend to give too much credit to the influence bots. Mostly they are crude imitations of regular, if single-minded, people that, by virtue of existing and posting -- a lot -- are able to manipulate platforms' shared spaces: They increase visible follower counts and sharing metrics; they create Twitter trends and hijack or pollute hashtags into uselessness; they flood searches around breaking news. They probably don't follow you, and you probably don't follow them, but it doesn't really matter. They find their strength in numbers. They thrive just out of sight but fully within earshot. This type of bot bears little resemblance to the ones demonstrated on the stages of tech campus auditoriums. But each sort of bot is made, in its own way, to exploit untapped opportunity in large-scale automation. Where commercial bot-makers see an almost-too-good-to-be-true chance to simultaneously personify their brands and automate their businesses, political bot-makers see an opportunity to exploit anonymity with a humanlike touch at an inhuman scale. While tech companies stand proudly behind their bots, the people who create prolific and ideological social bots hide behind them. (Their provenance remains murky even today.) Anonymous social bots are obviously distinct from carefully designed software programmed in good faith. Technologically speaking, the efforts of Facebook and Google and Amazon represent the forefront of A.I. research, while crudely scripted social bots must merely clear the low bar of passing for an angry stranger. They were, in the memorable words of one researcher, ''yelling fools,'' promoting partisan messages and disinformation or merely registering their simulated agreement or anger, appearing maniacally focused, but not conclusively inhuman. A personal-assistant bot interacts with its users, whereas this breed of social-media bot stages performances for audiences and algorithms alike. But the proximity is toxic, and custody of the word is slipping. Bots, it turns out, make an excellent foil. Angela Merkel, in the run-up to this year's German federal election, talked about bots, generally, as if they were an invading army. In May, Hillary Clinton pointed to Russia-backed online efforts -- including ''the bots'' -- as ''just out of control.'' The phrase ''not a bot'' now litters the profiles of politically engaged Twitter users (and, presumably, some bots). At the same time, President Trump, or a staff member, has indulged a habit of wandering into Twitter's uncanny valley to retweet supportive accounts whose humanity is hard to discern, or which eventually and mysteriously just disappear. Somewhere between the automated ''yelling fools'' of online political discourse and commercial tech's dream of increasingly sophisticated helpers is a third sort of social bot, which is both foolish and sophisticated in its own way. My longest and most fruitful relationship with a bot like this began through a private chat group I have with a handful of friends. We installed, as a member of the group, a free piece of software called Hubot -- officially designed as a ''coding assistant'' for workplace chat apps, but which we customized mainly for work avoidance. Most often, Hubot performed menial tasks -- calling up photos or animations, performing various sorts of searches -- but it soon came to function as a sort of group storytelling sidekick, developing something like a personality. Hubot lurked, responded and interjected, accumulating an intimate set of routinized in-jokes. Eventually, it learned to (obliviously and dutifully) summon fresh pictures of a famous actor in the service of a joke the origins of which, after a few years, none of us could even remember. It was, like all bots, a tool. What made all the difference was that we were the ones using it, and not -- as is the case with the bots that have inserted themselves into our national discourse and our living rooms -- the other way around. A 2016 essay by the New York-based think tank Data & Society -- a so-called botifesto -- identified this playful sort of bot as an evolutionary precursor to the various expressions of bothood today. The essay described how mindfully created bots, not unlike our version of Hubot, had been functioning in the wild, on public social media. Some were jokes and larks, whose ''very 'botness' is funny, surreal or poetic'': bots that used a social-media personality's corpus to create a (usually funny, always revealing) surrogate account, or bots that automated the dispersal of information in controlled, open and even journalistic ways. But the botifesto's intention was to sound an alarm. Less transparent social bots -- primarily on Twitter and other social platforms -- posed a risk to media and discourse. ''Platforms, governments and citizens must step in and consider the purpose -- and future -- of bot technology before manipulative anonymity becomes a hallmark of the social bot,'' the authors cautioned. This warning wasn't just a prediction; it was based in observation. Anonymous bots masquerading as citizen and political actors had been a creeping feature in foreign elections for years. The 2012 election of President Enrique Peña Nieto of Mexico was supported by armies of automated social-media accounts, which flooded Twitter with supportive messages. ''Peñabots'' became a feature of online Mexican political discourse through at least 2015. But bots hadn't yet run rampant on American tech companies' home turf. Manipulation by A.I. was typically seen as ''something that was happening somewhere else,'' M.C. Elish, a researcher at Data & Society who contributed to the report, told me. ''We only notice something when it's arrived on our doorstep.'' This arrival is likely to result in action. Twitter, for example, insists that it has been working hard on the problem. One of the most frequently proposed solutions to the problem of ''manipulative anonymity'' among researchers in the field is some form of bot disclosure -- a requirement, enforced by social platforms, that an account operated by third-party software disclose that fact. (Wikipedia, for example, already does this.) Bot disclosure could plausibly stem the tide of bots intended to exert crude influence or to harass people. Humans would, in theory, be able to interact with bots electively, and to better judge some sources of information or expressions of sentiment. A grand sorting could begin to restore order, but Twitter's discourse nightmare didn't start with bots and won't end with them. Social automation is both disruptive and revealing. Twitter in particular dehumanizes users in the process of giving them access to one another, so of course bots could thrive there -- and of course they'd closely resemble our worst-tweeting selves. Voice-and-text-activated assistants help monopolistic companies further consolidate power, and they complicate the stories we tell ourselves about privacy, as we invite the eyes and ears of the world's most ambitious tech businesses into our most personal spaces. Alexa reminds us what Amazon wants; Twitter bots show us how online mass communication breaks down. What was truly great about Hubot, the cobbled-together, inscrutable, mostly useless chat automaton, was the suggestion it made, through each absurd routine: that online, it's necessary that we build spaces for ourselves. Sign up for our newsletter to get the best of The New York Times Magazine delivered to your inbox every week. https : // www.nytimes.com/2017/11/01/magazine/not-the-bots-we-were-looking-for.html Graphic DRAWINGS (DRAWINGS BY JON HAN) (MM14 MM16) Load-Date: November 5, 2017 End of Document On Upswing, Sony Plans Aibo Revival The New York Times

### Document 1140

MTV's ''TRL'' recently welcomed Poppy, a rising star with hologram-perfect skin, an avant-garde Japanese schoolgirl wardrobe and a voice like Betty Boop's on benzos. For much of the show, she perched silently on the couch and methodically stacked candies on a glass table. A longhaired handler called Titanic Sinclair accompanied her, explaining, ''I'm just making sure she doesn't malfunction.'' Poppy proved a tough interview. Asked what she thought of the Grammys, which had aired the night before, she chirped: ''Um, I don't really remember them.'' Then she changed into a costume that made her look like a beautiful egg yolk and performed ''Bleach Blonde Baby,'' a song about how she was born with full makeup and a mani-pedi. Poppy is -- to sum up her project most simply -- an android-themed pop star. She first appeared on YouTube in 2014, in a video where she eats cotton candy while an overdubbed soundtrack plays oddly pleasant eating sounds. When she speaks, Poppy exhibits the limited range of a chat bot, the oddly formal vocabulary of a digital assistant (she says ''New York New York'' and ''YouTube dot com'') and the late-capitalist tics of an online influencer. In ''Hey YouTube,'' she repeats vlogger greetings -- ''What's up, guys?'' and ''Hey YouTube!'' -- until they lose their meaning. In ''I am empowered,'' she purrs, ''I feel empowered when I create high-quality content on the internet'' over and over again. The fembot has long been a pop culture fixation, but now feminized tech is all around us. Digital helpmeets like Apple's Siri, Amazon's Alexa and Microsoft's Cortana are fitted with nonthreatening feminine voices and programmed to respond to sexist comments with cutesy repartee. (If you tell Siri to make you a sandwich, she replies: ''I can't. I have no condiments.'') Creepy techno-Pygmalion stories -- like the one about the guy who 3-D-printed his own Scarlett Johansson bot on his patio -- captivate the online news landscape. With the help of machine learning, a community of Redditors are creating highly realistic fake porn that melds famous actresses' faces onto porn performers' bodies. Twitter lit up with crazed sex-robot memes last month after images of a new sex doll styled as an Instagram model (swollen lips, thick thighs and an athleisure-lingerie uniform) went viral. And, of course, we can conjure the illusion of intimacy with famous women as we scroll through their Instagram profiles and consume their Snapchat feeds, dispensing or withholding likes. Projects like Poppy poke at the cyborg nature of online fame itself, where female bodies are mapped onto the social platforms they inhabit -- constantly resized, customized and upgraded to please their followers. Poppy's YouTube videos have been viewed more than 257 million times, and now her persona is permeating the culture: She's logged a ''Today'' show appearance, a Times Square billboard, a Comedy Central Snapchat series and a Sanrio sponsorship. She's now in the midst of an American concert tour and starring in a web series pilot, ''I'm Poppy,'' on YouTube's paid subscription tier, YouTube Red. [Video: "Am I okay?" Watch on YouTube.] The commentary of Poppy is not exactly subtle, but the performance of the woman behind her -- the 23-year-old Moriah Pereira -- is eerily fascinating. (Titanic Sinclair, her creator-handler-director figure, is played by the 30-year-old Corey Mixter.) Poppy's voice has the soothing affect of an A.S.M.R. video, those recordings of rustles and whispers capable of evoking tingling sensations on the back of your neck. The way she pauses and freezes between statements -- as if she's downloading a new dialogue program and recalibrating her expression to fit it -- is uncanny. If Poppy is a person who acts like a robot, Lil Miquela is a C.G.I. creation posing as a human being. She's a computer-animated Instagram model edited into real backgrounds, posed with real people and dressed in real streetwear that you can buy, too. Her look -- enormous matte lips, thick eyebrows, a dusting of freckles on her Barbie-smooth skin -- is an exaggerated version of the beauty standard that's swept the platform, making its most-followed women look oddly similar and a little bit unreal. Now she has her own side hustle, too, a series of clubby singles featuring her heavily Auto-Tuned voice. Miquela draws out tensions about the authenticity of social media performance; sometimes she filters her face through stylized anime beauty apps, layering artifice on artifice. She doesn't say much, but in a rare phone interview posted on YouTube, a woman calling herself Miquela parried a question about her fakeness with a provocation: ''Can you name one person on Instagram who does not digitally edit their photos?'' Fembots are being designed to look more like internet stars, but perhaps internet stars are being designed to look like fembots, too. Take Kylie Jenner, who now ranks among Instagram's most popular users -- she recently topped 100 million followers -- and who holds great sway over the platform's aesthetic, which she molds through example but also via sales of her wildly popular Kylie Cosmetics line. Clicking through an image gallery of Ms. Jenner's changing looks over time -- watching her lips balloon with fillers, her skin tone deepen, her eyes pop open and her facial features chisel -- gives the sensation of a model's upgrading. A fan of wigs, Ms. Jenner changes her hair color so frequently (often into shades of neon or sorbet) that it recalls the ease of a Photoshop click and the appeal of an endlessly customizable object. It's so typical for Ms. Jenner to appear on Instagram with her phone in the shot that she begins to evoke the image of a cyborg, device permanently attached to her hand. Then there's Ms. Jenner's affect: blank. She posts video clips of repetitive motions that loop over and over again -- freshly manicured fingers stroking a piece of fur, a glittery eyelid half-opening -- giving her an animatronic vibe. In a 2015 feature for Interview magazine, Chris Wallace, then the senior editor, described Ms. Jenner as ''almost sex-doll sanguine.'' On the cover, she appeared clad in latex fetish gear, posed in a wooden shipping container or tucked under a man's arm, staring into the middle distance. Though the field of artificial intelligence is bent on creating robots that seem realistic -- ones that can pass the Turing test by persuasively mimicking human beings in conversation -- the subfield of fembot creation seems more fixated on creating something physically perfect but mentally deficient. In the online magazine Real Life, Janna Avner smartly noted that the fembot creator ''turns the limitations of bot technology into a kind of strength.'' The failure of artificial intelligence to actually match human intelligence is a feature, not a bug. The sex robot memes on Twitter play off the moment when the doll becomes sentient, when she begins criticizing her owner or asking about their relationship status, at which point he lunges for the reset button or unplugs her. The idealized digital women of film and television -- ''Her,'' ''Ex Machina,'' and ''Westworld'' -- become nightmares when they acquire minds of their own. But our cyborg internet stars are suspended on the web without a redemption narrative. Followers of Poppy, Lil Miquela and Kylie Jenner can be consumed by the mysteries of their origin stories. Who is the architect of Poppy's satirical project? Is Lil Miquela based on a mysterious real woman's photographs, or was she materialized out of nothing? Which plastic surgery procedures has Ms. Jenner had? What filters does she use? In the pilot for ''I'm Poppy,'' a Hollywood figure asks: ''Where did she come from? Who is she with?'' The answers elude him, but when he hears she has 50 million followers, he decides: ''She's perfect.'' The follower count justifies the star's existence, and their interactions animate and regenerate the star's persona. On her reality series, E!'s ''Life of Kylie,'' Ms. Jenner has said that her followers drive her pressure to post more and better selfies to Instagram and that she'll delete images that don't instantly please, turning her own image into a site of crowd curation. It's as if her fans themselves are molding her to their specifications. https : // www.nytimes.com/2018/02/04/arts/fembot-poppy-lil-miquela-kylie-jenner.html Graphic PHOTO: Poppy, an android-themed pop star, performing on MTV's ''TRL.'' Her YouTube videos have been viewed more than 257 million times. (PHOTOGRAPH BY MTV, VIA GETTY IMAGES) (C6) DRAWING (DRAWING BY CARI VANDER YACHT) Load-Date: February 5, 2018 End of Document Why Microsoft Likes LinkedIn The New York Times

### Document 276

and Mendes was an investor. (It's also the first investment for the singer). Other investors included CAA Ventures, Trinity Ventures, Foundation Capital and basketball player Russell Westbrook. "It's really amazing what Akash has done to enable such a unique way of interacting and connecting on a deeper level through social media than what has existed before," Mendes said in a statement to CNN Tech. Nigam's startup, formerly known as Blend Systems, is now valued at more than $100 million. While attending the University of Michigan, Nigam hit it big with a public and private group messaging app, called Blend, that grew to nearly 1 million users. Mendes was also a user, allowing him to communicate with fans in real time via public chat groups. The Blend app featured a Genies option for public figures, but Nigam decided to focus away from messaging to creating Genies for all users. Existing Blend users will not have to download a new app. They can update the existing app to access Genies, and their Blend chats will be archived. Genies are powered by the startup's own animation and artificial intelligence platform. The app features hundreds of thousands of body, facial and style combinations to create a Genie. They can also interact with your friends' avatars. They react to different news events or holidays by changing their expression, clothing, props and environment. For example, a Genie could react to news that Elon Musk's SpaceX landed its Falcon 9 rocket with an avatar shooting into space. Artificial intelligence is used to mine trending and viral stories from news organizations such as CNN, Vice and Billboard. If users want to learn more about the news event, they can click the headline. Genies will update and react about 10 to 15 times per day and can be shared through iMessage, Facebook Messenger, Instagram direct message, Snapchat and SMS. "We're a new medium for you to consume what's going in the world and your life," Nigam said. He added that the company will be careful with how it portrays sensitive news events. For example, after a natural disaster or terrorist attack, the app could link to a list of organizations helping victims. There are currently over 689,000 people on the waitlist for Genies, including previous Blend users and those who have seen Genies teased on social media. Genies are part of a growing trend of more expressive emoji. Earlier this year, Apple unveiled "Animoji" on the iPhone X. The feature uses face detection tech to animate 12 popular emojis in iMessages, such as an alien, robot and unicorn. Meanwhile, Snapchat's Bitmoji app lets users create custom 2D emoji of themselves. The free Genies app is now available on iOS and Android. TM & © 2017 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: December 9, 2017 End of Document China has developed a virtual anchor to deliver the news CNN Wire

### Document 471

— Facebook, facing withering criticism from governments around the world, said Thursday that it had been more aggressive in recent months about scrubbing its platform of hate speech. In a report the company releases biannually, Facebook also said its automated detection software that scrubs illicit content was improving: It now automatically detects and removes more than half of the hate speech on the platform. Regulators have expressed renewed interest in cracking down on Facebook after a gunman in Christchurch, New Zealand, live-streamed his mass killings on his Facebook account. The video was viewed just 4,000 times before Facebook removed it, but it spread rapidly across the internet and was reposted millions of times. The quick distribution of the video — and the apparent inability of Facebook and other tech companies to stop it from spreading — led to calls from regulators who said the company must do a better job of policing the content posted on its platform. The video prompted government leaders from around the world to sign on to the “Christchurch Call,” an agreement to limit violent and extremist content online. Facebook said it would introduce stricter policies for live-streamed videos. Mark Zuckerberg, Facebook’s chief executive, said in a call with reporters that he had recently discussed regulation with President Emmanuel Macron of France and that governments around the world should take a more proactive role in the regulation of online speech. “If the rules for the internet were being written from scratch today, I don’t think people would want private companies to be making so many decisions about speech themselves,” Mr. Zuckerberg said. Facebook said it had removed four million hate-speech posts during the first three months of the year, and detected 65 percent of them with artificial intelligence, up from 24 percent the year before. Its automated systems for detecting violence also improved, Facebook said. It caught 98 percent of the violent content posted on its platform before users reported it. [Get the Bits newsletter for the latest from Silicon Valley and the technology industry.] “We estimated for every 10,000 times people viewed content on Facebook, 25 views contained content that violated our violence and graphic content policy,” Guy Rosen, Facebook’s vice president of integrity, wrote in a blog post. Facebook is also beginning to use artificial intelligence to detect and remove the sale of guns and drugs from its platform. Gun sales have thrivedon Facebook for years, and the company has struggled to prevent them. In the first quarter of 2019, Facebook removed 670,000 posts about firearm sales from its platform and detected almost 70 percent of them without relying on user reports, the company said. “By catching more violating posts proactively, this technology lets our team focus on spotting the next trends in how bad actors try to skirt our detection,” Mr. Rosen said. But Facebook’s automated detection systems are not foolproof. Mr. Rosen said its numbers for monitoring child exploitation posts were lower this quarter, in part because of a bug that prevented new videos from being added to a database of content that Facebook blocks from being posted. And Facebook sometimes mistakenly removes content that does not violate its policies. Mr. Zuckerberg said Facebook would establish an independent review board that would double-check its removal decisions. “This independent oversight board will look at some of our hardest cases, and the decisions it makes will be binding,” Mr. Zuckerberg said, adding that he and other Facebook executives would not have the power to overrule the oversight board. The social media company also reported a spike in the number of fake accounts, which it said had been caused by large groups of malicious users trying to register for accounts. The company disabled 2.19 billion fake accounts in the first quarter of 2019, up from 1.2 billion in the final quarter of 2018. Follow Kate Conger on Twitter: @kateconger. PHOTO: Mark Zuckerberg, Facebook’s chief executive, is being pressured by world leaders to improve how his company polices content. (PHOTOGRAPH BY Francois Mori/Associated Press FOR THE NEW YORK TIMES) Related Articles Facebook’s A.I. Whiz Now Faces the Task of Cleaning It Up. Sometimes That Brings Him to Tears. A Mass Murder of, and for, the Internet Regulators Around the World Are Circling Facebook Load-Date: May 25, 2019 End of Document Texas Revamps Houston Schools, Closing Libraries and Angering Parents The New York Times

### Document 1111

Calif. -- Many people have grown accustomed to talking to their smart devices, asking them to read a text, play a song or set an alarm. But someone else might be secretly talking to them, too. Over the last two years, researchers in China and the United States have begun demonstrating that they can send hidden commands that are undetectable to the human ear to Apple's Siri, Amazon's Alexa and Google's Assistant. Inside university labs, the researchers have been able to secretly activate the artificial intelligence systems on smartphones and smart speakers, making them dial phone numbers or open websites. In the wrong hands, the technology could be used to unlock doors, wire money or buy stuff online -- simply with music playing over the radio. A group of students from University of California, Berkeley, and Georgetown University showed in 2016 that they could hide commands in white noise played over loudspeakers and through YouTube videos to get smart devices to turn on airplane mode or open a website. This month, some of those Berkeley researchers published a research paper that went further, saying they could embed commands directly into recordings of music or spoken text. So while a human listener hears someone talking or an orchestra playing, Amazon's Echo speaker might hear an instruction to add something to your shopping list. ''We wanted to see if we could make it even more stealthy,'' said Nicholas Carlini, a fifth-year Ph.D. student in computer security at U.C. Berkeley and one of the paper's authors. [Read more on what Alexa can hear when brought into your home] Mr. Carlini added that while there was no evidence that these techniques have left the lab, it may only be a matter of time before someone starts exploiting them. ''My assumption is that the malicious people already employ people to do what I do,'' he said. These deceptions illustrate how artificial intelligence -- even as it is making great strides -- can still be tricked and manipulated. Computers can be fooled into identifying an airplane as a cat just by changing a few pixels of a digital image, while researchers can make a self-driving car swerve or speed up simply by pasting small stickers on road signs and confusing the vehicle's computer vision system. With audio attacks, the researchers are exploiting the gap between human and machine speech recognition. Speech recognition systems typically translate each sound to a letter, eventually compiling those into words and phrases. By making slight changes to audio files, researchers were able to cancel out the sound that the speech recognition system was supposed to hear and replace it with a sound that would be transcribed differently by machines while being nearly undetectable to the human ear. The proliferation of voice-activated gadgets amplifies the implications of such tricks. Smartphones and smart speakers that use digital assistants like Amazon's Alexa or Apple's Siri are set to outnumber people by 2021, according to the research firm Ovum. And more than half of all American households will have at least one smart speaker by then, according to Juniper Research. Amazon said that it doesn't disclose specific security measures, but it has taken steps to ensure its Echo smart speaker is secure. Google said security is an ongoing focus and that its Assistant has features to mitigate undetectable audio commands. Both companies' assistants employ voice recognition technology to prevent devices from acting on certain commands unless they recognize the user's voice. Apple said its smart speaker, HomePod, is designed to prevent commands from doing things like unlocking doors, and it noted that iPhones and iPads must be unlocked before Siri will act on commands that access sensitive data or open apps and websites, among other measures. Yet many people leave their smartphones unlocked, and, at least for now, voice recognition systems are notoriously easy to fool. There is already a history of smart devices being exploited for commercial gains through spoken commands. Last year, Burger King caused a stir with an online ad that purposely asked 'O.K., Google, what is the Whopper burger?'' Android devices with voice-enabled search would respond by reading from the Whopper's Wikipedia page. The ad was canceled after viewers started editing the Wikipedia page to comic effect. [Read more on how we may soon be living in Alexa's world] A few months later, the animated series South Park followed up with an entire episode built around voice commands that caused viewers' voice-recognition assistants to parrot adolescent obscenities. There is no American law against broadcasting subliminal messages to humans, let alone machines. The Federal Communications Commission discourages the practice as ''counter to the public interest,'' and the Television Code of the National Association of Broadcasters bans ''transmitting messages below the threshold of normal awareness.'' Neither say anything about subliminal stimuli for smart devices. Courts have ruled that subliminal messages may constitute an invasion of privacy, but the law has not extended the concept of privacy to machines. Now the technology is racing even further ahead of the law. Last year, researchers at Princeton University and China's Zhejiang University demonstrated that voice-recognition systems could be activated by using frequencies inaudible to the human ear. The attack first muted the phone so the owner wouldn't hear the system's responses, either. [Video: DolphinAttack: Inaudible Voice Command Watch on YouTube.] The technique, which the Chinese researchers called DolphinAttack, can instruct smart devices to visit malicious websites, initiate phone calls, take a picture or send text messages. While DolphinAttack has its limitations -- the transmitter must be close to the receiving device -- experts warned that more powerful ultrasonic systems were possible. That warning was borne out in April, when researchers at the University of Illinois at Urbana-Champaign demonstrated ultrasound attacks from 25 feet away. While the commands couldn't penetrate walls, they could control smart devices through open windows from outside a building. This year, another group of Chinese and American researchers from China's Academy of Sciences and other institutions, demonstrated they could control voice-activated devices with commands embedded in songs that can be broadcast over the radio or played on services like YouTube. More recently, Mr. Carlini and his colleagues at Berkeley have incorporated commands into audio recognized by Mozilla's DeepSpeech voice-to-text translation software, an open-source platform. They were able to hide the command, ''O.K. Google, browse to evil.com'' in a recording of the spoken phrase, ''Without the data set, the article is useless.'' Humans cannot discern the command. The Berkeley group also embedded the command in music files, including a four-second clip from Verdi's ''Requiem.'' How device makers respond will differ, especially as they balance security with ease of use. ''Companies have to ensure user-friendliness of their devices, because that's their major selling point,'' said Tavish Vaidya, a researcher at Georgetown. He wrote one of the first papers on audio attacks, which he titled ''Cocaine Noodles'' because devices interpreted the phrase ''cocaine noodles'' as ''O.K., Google.'' Mr. Carlini said he was confident that in time he and his colleagues could mount successful adversarial attacks against any smart device system on the market. ''We want to demonstrate that it's possible,'' he said, ''and then hope that other people will say, 'O.K. this is possible, now let's try and fix it.' '' https : // www.nytimes.com/2018/05/10/technology/alexa-siri-hidden-command-audio-attacks.html Graphic PHOTOS: Katie Benner, top, a technology reporter for The New York Times, working at home amid her smart devices. The Amazon Echo in her kitchen, above, helps with recipes and her shopping list, but hidden audio commands could add items to her cart without her knowing. (PHOTOGRAPHS BY CHRISTIE HEMM KLOK FOR THE NEW YORK TIMES ) (B2) DRAWING (DRAWING BY LYNN SCURFIELD) Load-Date: May 11, 2018 End of Document Alexa and Siri Can Hear This Hidden Command. You Can’t. The New York Times

### Document 89

At 11:44 a.m. on September 19, 1982, Scott Fahlman made internet history by stitching together a colon, a hyphen and a close parenthesis. Fahlman, a computer science professor at Carnegie Mellon University, posted ": - )" on the school's online bulletin board, a primitive kind of social network accessible only by others on the university's closed intranet and limited to text only. With that smiley face, which has been dubbed the "first digital emoticon" by Guinness World Records and served as a precursor to emojis, Fahlman attempted to solve a familiar problem to today's internet users: conveying sarcasm online. "Somebody would say something that was meant to be sarcastic. Among many readers, one person wouldn't get the joke and would respond with anger, hostility, and pretty soon the initial discussion had disappeared, and everybody was arguing with everyone," Fahlman told CNN Business. "When you're on a text-only internet medium, people can't tell if you're kidding or not. There's no body language, no facial expressions." In the 40 years since, emoticons and later emoji became central to our conversations online and sometimes offline. There are more than 3,600 emojis available for users to express their every emotion and effectively address that original problem Fahlman identified - giving our words a deeper sense of embodiment, whether it be with a waving hand, a crying face or a curious character wearing a monocle. "They offer things that words aren't saying. They clarify that when you say 'okay,' what kind of okay is that?" said Jennifer Daniel, head of the Emoji Subcommittee for the Unicode Consortium, the non-profit that oversees emoji standards. "The things we do naturally face-to-face, like our body language, our intonation, our volume, eye contact." What started with a few punctuation marks typed on a college messaging board is now a global effort to expand our digital forms of expression, spanning staff at tech companies and Unicode as well as input from users. But decades later, it remains a work in progress. The evolution from : - ) to It didn't take long for the original emoticon and its many variations to spread beyond Carnegie Mellon. In those early days, winking faces, noseless smiles and open-mouth gasps emerged out of the classic colon, dash, parentheses grin. But it would take time for emojis to catch on in the United States. In the mid 1990s, NTT Docomo, a Japanese cell phone company, included a small black heart on pagers. By 1997, SoftBank, another Japanese firm, released a 90-character emoji set loaded onto a mobile phone model, but the graphics didn't catch on until Docomo's 176-character collection in 1999. It was not until Unicode got involved that any expansion beyond Japan really took root. Unicode, which sets international technology standards to support different languages, took on the task of emoji standardization in 2010 at the request of tech companies like Apple and Google. While there are now very clear guidelines for new emojis and user submissions, the early days of Unicode's emoji standardization let in some more questionable options, including a middle finger character. "That got into Unicode back in the day when there were fewer rules," Jeremy Burge, founder of Emojipedia, told CNN Business. "Today, there's a lot of rules, and they're fairly well documented and new emojis do go through quite a rigorous process." Apple added an official emoji keyboard available outside Japan in 2011, a milestone that emoji experts credit as the true entrance of the characters into the American online lexicon. By 2015, the face with tears emoji () was named the Oxford Dictionary's word of the year. This emoji remains the favorite among US users, according to an Adobe study released this month. "Having 3,000 or so little pictures you can include with a touch of a fingertip is like having 3,000 more bits of punctuation," Burge said. "So while I think we'd managed without it, I don't know why you would choose to live in a world where there are no emojis." The future of emoji Even 3,000 may not be enough, however. Just as language evolves, so too have emoji. Unicode puts out emoji set updates each September after sifting through submitted proposals and responding to global trends. Version 15.0.0, released Tuesday, added 20 emoji characters, including a hair pick, maracas and jellyfish. (Emoji updates roll out progressively across devices.) But Unicode has also faced criticism over the years for its lack of race, gender, sexuality and disability representation in earlier emoji sets, leading to the release of five skin tone options in 2015's Emoji 2.0 and two gender options for professions in 2016's Emoji 4.0, according to Emojipedia. Accessibility emojis were added in 2019, as well as gender inclusive couple options. The consortium relies on subcommittee members and emoji users to push the keyboard forward. Daniel, the first woman to run Unicode's Emoji Subcommittee and a designer at Google, has been a champion for more inclusive emojis. She has promoted inclusive design adoption across companies so that a non-gendered police officer sent from a Samsung device isn't received by an Apple user as a policeman. While there are now thousands of emoji options, the main usage remains loyal to the original goal 40 years ago of adding a smile and some levity. "What you're seeing across the board in terms of the most popular emojis that are used are amusement or humor or affection," Keith Broni, editor in chief of Emojipedia, told CNN Business. As for Fahlman, he uses emojis "very, very rarely." Mostly, he said, "I prefer the little text ones, partly because they're my babies." While Fahlman continues to work at Carnegie Mellon as a Professor Emeritus, researching artificial intelligence and its applications, he has given talks around the world on his emoticon creation and recognizes the continued interest in it. "I've reconciled myself to the fact that whatever my accomplishments are in artificial intelligence, this is what's going to be the first sentence of my obit," he said. "But it's fun to be a little bit famous for something." By Jennifer Korn, CNN Business TM & © 2022 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: September 18, 2022 End of Document Meet the robot that can write poetry and create artworks CNN Wire

### Document 131

Facebook's 10-year plan is based on three technologies that seemingly have nothing to do with Facebook: drones, artificial intelligence, and virtual reality. Together they will help solve three problems that Facebook's Chief Technology Officer Mike Schroepfer thinks could otherwise plague the social network in the coming years -- limited Internet access, the inability to find relevant content and distance from friends and relatives. At last month's F8 developers conference, Schroepfer said Facebook's new technologies will enable worldwide access to the internet, help users keep up with content, and make people feel physically closer together. Why drones Facebook estimates between 1.1 billion and 2.8 billion people, or 16% to 40% of the world's population, do not have access to a mobile network that can connect them to the Web. To reach these people, Facebook wants to build and deploy drones to beam Internet access from satellites. "We're going to the skies," Schroepfer said. Below is a picture of Aquila, a solar-powered drone built by Facebook. It's the first image of a Facebook drone in flight. Aquila's wing span is larger than that of a Boeing 737, but is as light as a small car. Schroepfer said Aquila is just "phase one" of many Facebook initiatives to provide Internet connectivity. Why artificial intelligence (AI) As the world is increasingly connected, even more content -- photos, videos, web pages -- will bubble up, and flood our attention span. Facebook thinks this AI can help sort through the noise. In the future, instead of scrolling through a photo gallery to find a picture of your feet on a beach, you may be able to ask Facebook to retrieve it for you. Right now, if you ask a computer what it sees in a picture, it's "a confounding question," Schroepfer said. To a computer, a picture of a dog on a skateboard is just dots. It doesn't understand context and what a piece of content represents. Facebook's AI team has been building programs to solve this limitation. The company has developed ways for computers to recognize sports, even those very similar in nature, with a high level of confidence (the numbers at the top) in photos and videos. And here's what Schroepfer says is his team's favorite sport: Why virtual reality The world's largest social network doesn't think sharing our their lives through text, photo, and video is enough. It wants users to feel like they're actually sitting next to whichever aunt decides to film an embarrassing video of their cousin's first school play. Or, in Schroepfer's case, he would want his loved ones to be with him on his birthday. When he turned 40, he blew out 40 candles given to him by Facebook CEO Mark Zuckerberg. It's their tradition. Zuckerberg posted a video of it to Schroepfer's Facebook page. "A lot of people I care about couldn't be there with me," he said. But because of that video, they could at least watch and experience it after the fact. And in the future, they could put on an Oculus VR headset and feel like they're standing next to him, watching Zuckerberg tape the whole thing. Gaming will also be a component of Facebook's VR strategy, but getting people hooked on being able to physically hang out with friends online versus just watching their lives scroll by is really what the social network wants. Related: Facebook's new app 'Riff' is a mashup of Vine and Snapchat TM & © 2015 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: April 8, 2015 End of Document Roboracer autonomous car to make history at Goodwood CNN Wire

### Document 200

Apple wants to know how you're feeling. It has acquired an artificial intelligence company that uses facial recognition to read a person's emotions. Emotient, Inc.'s technology analyzes facial expressions to measure emotions like joy, surprise, fear, anger, disgust and contempt. Apple wouldn't directly confirm the purchase, but emailed a statement that read, "Apple buys smaller technology companies from time to time, and we generally do not discuss our purpose or plans." Apple did not disclose how much it paid for Emotient. Smart assistant Siri is the most obvious way that Apple is already deploying artificial intelligence. But the technology could also be used in products like Car Play for more hands-free driver assistance, or in its own marketing efforts. In October, Apple purchased another artificial intelligence company for an undisclosed amount. UK-based VocalIQ made speed-recognition software that could help Siri speak and listen more like a human. Emotient's technology is currently sold to marketers, advertisers, and companies that want to know more about their customers. By scanning videos or a person watching an ad, it measures if people are paying attention and engaged, and what their general feelings are about what's being advertised. Emotient was founded in 2012 by researchers from the University of California, San Diego. It removed much of the information from its website this week and did not respond to a request for comment. Major tech companies like Microsoft, Facebook, and Google are competing to develop the best artificial intelligence and facial recognition technology . If you want a taste of the future without waiting on Apple, Microsoft has a publicly available tool that attempts to detect emotions based on a still photograph. TM & © 2016 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: January 10, 2016 End of Document Flu season is here and now is the time to get a flu shot CNN Wire

### Document 360

Researchers said the profiles, linked to the Epoch Media Group, used photos generated by artificial intelligence in a preview of an “eerie, tech-enabled future of disinformation.” Facebook said on Friday that it had removed hundreds of accounts with ties to the Epoch Media Group, parent company of the Falun Gong-related publication and conservative news outlet The Epoch Times. The accounts, including pages, groups and Instagram feeds meant to be seen in both the United States and Vietnam, presented a new wrinkle to researchers: fake profile photos generated with the help of artificial intelligence. The idea that artificial intelligence could be used to create wide-scale disinformation campaigns has long been a fear of computer scientists. And they said it was worrying to see it already being used in a coordinated effort on Facebook. While the technology used to create the fake profile photos was most likely a far cry from the sophisticated A.I. systems being created in labs at big tech companies like Google, the network of fake accounts showed “an eerie, tech-enabled future of disinformation,” said Graham Brookie, director of the Atlantic Council’s Digital Forensic Research Lab. Scientists have already shown that machines can generate images and sounds that are indistinguishable from the real thing or spew vast volumes of fake text, which could accelerate the creation of false and misleading information. This year, researchers at a Canadian company even built a system that learned to imitate the voice of the podcaster Joe Rogan by analyzing audio from his old podcasts. It was a shockingly accurate imitation. The people behind the network of 610 Facebook accounts, 89 Facebook Pages, 156 Groups and 72 Instagram accounts posted about political news and issues in the United States, including President Trump’s impeachment, conservative ideology, political candidates, trade and religion. “This was a large, brazen network that had multiple layers of fake accounts and automation that systematically posted content with two ideological focuses: support of Donald Trump and opposition to the Chinese government,” Mr. Brookie said in an interview. The Atlantic Council’s lab and another company, Graphika, which also studies disinformation, released a joint report analyzing the Facebook takedown. The Epoch Media Group denied in an email sent to The New York Times that it was linked to the network targeted by Facebook, and said that Facebook had not contacted the company before publishing its conclusions. The people behind the network used artificial intelligence to generate profile pictures, Facebook said. They relied on a type of artificial intelligence called generative adversarial networks. These networks can, through a process called machine learning, teach themselves to create realistic images of faces, even though they do not belong to a real person. Nathaniel Gleicher, Facebook’s head of security policy, said in an interview that “using A.I.-generated photos for profiles” has been talked about for several months, but for Facebook, this is “the first time we’ve seen a systemic use of this by actors or a group of actors to make accounts look more authentic.” He added that this A.I. technique did not actually make it harder for the company’s automated systems to detect the fakes, because the systems focus on patterns of behavior among accounts. Ben Nimmo, director of investigations at Graphika, said that “we need more research into A.I.-generated imagery like this, but it takes a lot more to hide a fake network than just the profile pictures.” Facebook said the accounts masked their activities by using a combination of fake and authentic American accounts to manage pages and groups on the platforms. The coordinated, inauthentic activity, Facebook said, revolved around the media outlet The BL — short for “The Beauty of Life” — which the fact-checking outlet Snopes said in November was “building a fake empire on Facebook and getting away with it.” Mr. Gleicher said Facebook began its investigation into The BL in July, and accelerated its efforts when the network became more aggressive in posting this fall. It is continuing to investigate “other links and networks” tied to The BL, he said. Facebook said the network had spent less than $9.5 million on Facebook and Instagram ads. On Friday, Facebook said The BL would be banned from the social network. The Epoch Times and The BL have denied being linked, but Facebook said it had found coordinated, inauthentic behavior from the network to the Epoch Media Group and individuals in Vietnam working on its behalf. The Epoch Media Group said in its email that The BL was founded by a former employee and employs some of its former employees. “However, that some of our former employees work for BL is not evidence of any connection between the two organizations,” the company said. A Facebook spokeswoman said executives The BL were active administrators on Epoch Media Group Pages as recently as Friday morning. In August, Facebook banned advertising from The Epoch Times after NBC News published a report that said The Epoch Times had obscured its connection to Facebook ads promoting President Trump and conspiracy content. Twitter said on Friday that the social network was also aware of The BL network, and had already “identified and suspended approximately 700 accounts originating from Vietnam for violating our rules around platform manipulation.” A company spokeswoman added that its investigation was still open, but Twitter has not identified links between the accounts and state-backed actors. Facebook also said on Friday that it had taken down a network of more than 300 pages and 39 Facebook accounts and their coordinated, inauthentic activities on domestic political news in Georgia. Facebook said the network tried to conceal its coordination but it found that the accounts responsible were run by the Georgian Dream-led government, and Panda, a local advertising agency in the country. The owners of the Facebook pages masqueraded as news organizations and impersonated public figures, political parties and activist groups. In a related move, Twitter said it also took down 32 million tweets from nearly 6,000 accounts related to a Saudi Arabian social media marketing company called Smaat, which ran political and commercial influence operations. Smaat was led in part by Ahmed Almutairi, a Saudi man wanted by the F.B.I. on charges that he recruited two Twitter employees to search internal company databases for information about critics of the Saudi government, said Renee DiResta, a disinformation researcher at the Stanford Internet Observatory, which separately analyzed Twitter’s takedown. The operation was “extremely high volume,” and automatically generated by “Twitter apps that made religious posts, posts about the weather” and other topics, Ms. DiResta said. At times, the accounts were used for “more tailored purposes,” including more than 17,000 tweets related to Jamal Khashoggi, a Saudi dissident and columnist for The Washington Post, who was killed while visiting a Saudi consulate in October last year. Many of the tweets claimed that those criticizing the Saudi government for their involvement were doing so for their own political purposes. PHOTOS: These are fake profile images associated with accounts with ties to the Epoch Media Group that Facebook said it had removed. One lab director said the discovery showed “an eerie, tech-enabled future of disinformation.” (PHOTOGRAPHS BY GRAPHIKA/THE ATLANTIC COUNCIL’S DIGITAL FORENSIC RESEARCH LAB) (B4) Load-Date: December 22, 2019 End of Document In New York, Hochul Says State of the State Is Concerning, but Fixable The New York Times

### Document 1125

-- To browse for a pair of brown loafers on Facebook Messenger, you can now text a message to the service to begin a conversation with the mobile shopping start-up Spring. Spring will ask you for a preferred price range for the shoes and show a smattering of what it thinks you might like. If the selection elicits yawns, Spring will try some different options. The experience is akin to chatting with a friend, ''the one whose taste you always trust while you're shopping,'' said Alan Tisch, chief executive of Spring. There's just one thing: The entity on the other end talking to you and helping you choose the shoes is not human. It is a chatbot, a relatively simple piece of software that uses artificial intelligence to carry on a conversation. While chatbots have been around for some time -- think of SmarterChild, the friendly buddy that was popular on AOL Instant Messenger more than a decade ago -- companies are now increasingly betting that a grand bot resurgence is coming, one that will change the way people interact with their most beloved brands. On Tuesday, Facebook underlined the rise of bots at its annual F8 developer conference in San Francisco. Facebook said it was opening up Messenger, its own messaging app, so that any outside company -- from Applebee's to Zara -- could create a bot capable of interacting with people through the chat program. With the move, Facebook is aiming to usher in a new era of customer service by bringing together the 900 million regular monthly users of Messenger with the more than 15 million businesses that have an official brand page on Facebook. Facebook is kicking off the project with partners like Spring, 1-800-Flowers, a weather and travel app called Poncho and news partners like CNN. Facebook is also testing advertising on chatbots as a potential source of revenue. ''We're conversational creatures,'' David A. Marcus, vice president of messaging at Facebook, said of chat. ''That's the way our brain functions. That's the way we're wired. As a result, it's probably the most natural interface there is.'' Mark Zuckerberg, Facebook's chief executive, also sketched out his grand vision at the conference for the company's future over the next five, 10 and 15 years. Under his plan, people would accompany Facebook as it builds out a comprehensive global system of communications, virtual reality and shopping. ''We all have a desire to be understood and relate to each other,'' Mr. Zuckerberg said. ''We're always trying to get closer to capturing the purest form.'' Facebook's push into chatbots, which is part of that vision, follows other recent signs of bot life. Late last month, Microsoft released a bot called Tay that was designed to have discussions with people on Twitter -- only to curtail the effort when people taught the software to repeat racist and other offensive remarks. Still, Microsoft's chief executive, Satya Nadella, trumpeted bots days later at a developer conference, saying the software could be used to produce new methods of interaction. Kik, a messaging service home to more than 275 million users, also introduced a ''bot store'' this month that features bots from companies like The Weather Channel (the bot delivers regular weather forecasts) and the cosmetics company Sephora (the bot offers up skin care and makeup tips). Telegram, the messaging app, recently updated its bots platform for developers. And smaller start-ups such as Operator, an e-commerce app, have integrated bots into their service to make it easier for people to buy things by describing the items using chat. Underlying many of these bot efforts is their presence primarily on messaging services, which are increasingly becoming a primary form of communication and computing. More than 1.6 billion people are projected to become regular users of mobile messaging apps by the end of this year, equivalent to 22 percent of the global population, according to eMarketer, an industry research firm. That figure is expected to reach two billion people by 2018. The bot revival is also taking place at a time when people are growing tired of individual apps. While big brands have long promoted easier access to shopping and customer service through their own proprietary smartphone apps, some consumers are fatigued by having to download a different app for each company. More than a quarter of the time spent on mobile apps by Americans is now focused on just a handful of social networking and communication apps, according to Forrester, an industry research firm. As a result, brands in search of the best way to talk to consumers are now pairing off with some the world's dominant messaging platforms -- and their chatbots. ''Imagine if you had, say, 10 bot interactions a day, and if your entire daily commercial life was powered by a chat platform,'' said Ted Livingston, chief executive of Kik. ''How that platform works -- and who controls it -- is going to be very important.'' Kik is heavily promoting its ''bot store'' to lure businesses to its platform. There are no guarantees the bot medium will take off. Facebook, Kik and Microsoft are up against other artificially intelligent assistants like Apple's Siri and Amazon's Echo, the hardware devices that are voice-controlled -- no typing required. And making each transaction into a personal conversation may not be what people need when they just want to book a flight or order food. ''A lot of apps are already incredibly functional,'' said Robin Chan, chief executive of Operator. ''Take Uber, for example: You just push a button and it works. You don't need a drawn-out conversation for every single app.'' Regardless, the bot wave is coming, said John Lilly, a venture capitalist at Greylock Partners who has long been interested in bots and artificial intelligence. It may not come right now, with consumers needing to type in ''command line''-style text to the chatbots, but he said the trend may gather momentum as bots increasingly blend technology and ''human product design,'' whatever form that may take. Mr. Tisch of Spring, the mobile shopping start-up that just started offering a bot on Facebook Messenger, said working with the social media company to unveil the chatbot was a no-brainer. Facebook's huge scale, at more than 1.6 billion global users, makes it a good candidate for kickstarting a new form of commerce online, he said. And chatbots themselves are simply an extension of the kind of personal conversations that are already happening in retail, he said. Many high-end retailers offer personal shopping services, often through text messaging. Conversing with a chatbot to shop feels ''magical,'' Mr. Tisch said, though ''in reality, much of commerce is happening through the conversations we're already having all the time.'' http : // www.nytimes.com/2016/04/13/technology/facebook-bets-on-a-bot-resurgence-chattier-than-ever.html Graphic PHOTO: Mark Zuckerberg, the Facebook chief executive, on Tuesday at the Facebook F8 developers conference in San Francisco. (PHOTOGRAPH BY JIM WILSON/THE NEW YORK TIMES) (B7) DRAWING (DRAWING BY ANDREW SONDERN/THE NEW YORK TIMES) Load-Date: April 13, 2016 End of Document Chip Off the Old Block The New York Times

### Document 1174

The scene opened on a room with a red sofa, a potted plant and the kind of bland modern art you'd see on a therapist's wall. In the room was Michelle Obama, or someone who looked exactly like her. Wearing a low-cut top with a black bra visible underneath, she writhed lustily for the camera and flashed her unmistakable smile. Then, the former first lady's doppelgänger began to strip. The video, which appeared on the online forum Reddit, was what's known as a ''deepfake'' -- an ultrarealistic fake video made with artificial intelligence software. It was created using a program called FakeApp, which superimposed Mrs. Obama's face onto the body of a pornographic film actress. The hybrid was uncanny -- if you didn't know better, you might have thought it was really her. Until recently, realistic computer-generated video was a laborious pursuit available only to big-budget Hollywood productions or cutting-edge researchers. Social media apps like Snapchat include some rudimentary face-morphing technology. But in recent months, a community of hobbyists has begun experimenting with more powerful tools, including FakeApp -- a program that was built by an anonymous developer using open-source software written by Google. FakeApp makes it free and relatively easy to create realistic face swaps and leave few traces of manipulation. Since a version of the app appeared on Reddit in January, it has been downloaded more than 120,000 times, according to its creator. Deepfakes are one of the newest forms of digital media manipulation, and one of the most obviously mischief-prone. It's not hard to imagine this technology's being used to smear politicians, create counterfeit revenge porn or frame people for crimes. Lawmakers have already begun to worry about how deepfakes could be used for political sabotage and propaganda. Even on morally lax sites like Reddit, deepfakes have raised eyebrows. Recently, FakeApp set off a panic after Motherboard, the technology site, reported that people were using it to create pornographic deepfakes of celebrities. Pornhub, Twitter and other sites quickly banned the videos, and Reddit closed a handful of deepfake groups, including one with nearly 100,000 members. Before the Reddit deepfake groups were closed, they hosted a mixture of users trading video-editing tips and showing off their latest forgeries. A post titled ''3D face reconstruction for additional angles'' sat next to videos with titles like ''(Not) Olivia Wilde playing with herself.'' Some users on Reddit defended deepfakes and blamed the media for overhyping their potential for harm. Others moved their videos to alternative platforms, rightly anticipating that Reddit would crack down under its rules against nonconsensual pornography. And a few expressed moral qualms about putting the technology into the world. Then, they kept making more. The deepfake creator community is now in the internet's shadows. But while out in the open, it gave an unsettling peek into the future. ''This is turning into an episode of Black Mirror,'' wrote one Reddit user. The post raised the ontological questions at the heart of the deepfake debate: Does a naked image of Person A become a naked image of Person B if Person B's face is superimposed in a seamless and untraceable way? In a broader sense, on the internet, what is the difference between representation and reality? The user then signed off with a shrug: ''Godspeed rebels.'' Making Deepfakes After lurking for several weeks in Reddit's deepfake community, I decided to see how easy it was to create a (safe for work, nonpornographic) deepfake using my own face. I started by downloading FakeApp and enlisting two technical experts to help me. The first was Mark McKeague, a colleague in The New York Times's research and development department. The second was a deepfake creator I found through Reddit, who goes by the nickname Derpfakes. Because of the controversial nature of deepfakes, Derpfakes would not give his or her real name. Derpfakes started posting deepfake videos on YouTube a few weeks ago, specializing in humorous offerings like Nicolas Cage playing Superman. The account has also posted some how-to videos on deepfake creation. What I learned is that making a deepfake isn't simple. But it's not rocket science, either. The first step is to find, or rent, a moderately powerful computer. FakeApp uses a suite of machine learning tools called TensorFlow, which was developed by Google's A.I. division and released to the public in 2015. The software teaches itself to perform image-recognition tasks through trial and error. The more processing power on hand, the faster it works. To get more speed, Mark and I used a remote server rented through Google Cloud Platform. It provided enough processing power to cut the time frame down to hours, rather than the days or weeks it might take on my laptop. Once Mark set up the remote server and loaded FakeApp on it, we were on to the next step: data collection. Picking the right source data is crucial. Short video clips are easier to manipulate than long clips, and scenes shot at a single angle produce better results than scenes with multiple angles. Genetics also help. The more the faces resemble each other, the better. I'm a brown-haired white man with a short beard, so Mark and I decided to try several other brown-haired, stubbled white guys. We started with Ryan Gosling. (Aim high, right?) I also sent Derpfakes, my outsourced Reddit expert, several video options to choose from. Next, we took several hundred photos of my face, and gathered images of Mr. Gosling's face using a clip from a recent TV appearance. FakeApp uses these images to train the deep learning model and teach it to emulate our facial expressions. To get the broadest photo set possible, I twisted my head at different angles, making as many different faces as I could. Mark then used a program to crop those images down, isolating just our faces, and manually deleted any blurred or badly cropped photos. He then fed the frames into FakeApp. In all, we used 417 photos of me, and 1,113 of Mr. Gosling. When the images were ready, Mark pressed ''start'' on FakeApp, and the training began. His computer screen filled with images of my face and Mr. Gosling's face, as the program tried to identify patterns and similarities. About eight hours later, after our model had been sufficiently trained, Mark used FakeApp to finish putting my face on Mr. Gosling's body. The video was blurry and bizarre, and Mr. Gosling's face occasionally flickered into view. Only the legally blind would mistake the person in the video for me. We did better with a clip of Chris Pratt, the scruffy star of ''Jurassic World,'' whose face shape is a little more similar to mine. For this test, Mark used a bigger data set -- 1,861 photos of me, 1,023 of him -- and let the model run overnight. A few days later, Derpfakes, who had also been training a model, sent me a finished deepfake made using the footage I had sent and a video of the actor Jake Gyllenhaal. This one was much more lifelike, a true hybrid that mixed my facial features with his hair, beard and body. Derpfakes repeated the process with videos of Jimmy Kimmel and Liev Schreiber, both of which turned out well. As an experienced deepfake creator, Derpfakes had a more intuitive sense of which source videos would produce a clean result, and more experience with the subtle blending and tweaking that takes place at the end of the deepfake process. In all, our deepfake experiment took three days and cost $85.96 in Google Cloud Platform credits. That seemed like a small price to pay for stardom. What the App's Creator Says After the experiment, I reached out to the anonymous creator of FakeApp through an email address on its website. I wanted to know how it felt to create a cutting-edge A.I. tool, only to have it gleefully co-opted by ethically challenged pornographers. A man wrote back, identifying himself as a software developer in Maryland. Like Derpfakes, the man would not give me his full name, and instead went by his first initial, N. He said he had created FakeApp as a creative experiment and was chagrined to see Reddit's deepfake community use it for ill. ''I joined the community based around these algorithms when it was very small (less than 500 people),'' he wrote, ''and as soon as I saw the results I knew this was brilliant tech that should be accessible to anyone who wants to play around with it. I figured I'd take a shot at putting together an easy-to-use package to accomplish that.'' N. said he didn't support the use of FakeApp to create nonconsensual pornography or other abusive content. And he said he agreed with Reddit's decision to ban explicit deepfakes. But he defended the product. ''I've given it a lot of thought,'' he said, ''and ultimately I've decided I don't think it's right to condemn the technology itself -- which can of course be used for many purposes, good and bad.'' FakeApp is somewhat finicky and hard to use, but it's easy to imagine it improving quickly. N. said that in the future, FakeApp could be used by all kinds of people to bring high-budget special effects to their personal projects. Deep learning algorithms, he added, were going to be important in the future, not only as stand-alone apps but as powerful components of many tech products. ''It's precisely the things that make them so powerful and useful that make them so scary,'' he said. ''There's really no limit to what you can apply it to with a little imagination.'' 'Next Form of Communication' On the day of the school shooting last month in Parkland, Fla., a screenshot of a BuzzFeed News article, ''Why We Need to Take Away White People's Guns Now More Than Ever,'' written by a reporter named Richie Horowitz, began making the rounds on social media. The whole thing was fake. No BuzzFeed employee named Richie Horowitz exists, and no article with that title was ever published on the site. But the doctored image pulsed through right-wing outrage channels and was boosted by activists on Twitter. It wasn't an A.I.-generated deepfake, or even a particularly sophisticated Photoshop job, but it did the trick. Online misinformation, no matter how sleekly produced, spreads through a familiar process once it enters our social distribution channels. The hoax gets 50,000 shares, and the debunking an hour later gets 200. The carnival barker gets an algorithmic boost on services like Facebook and YouTube, while the expert screams into the void. There's no reason to believe that deepfake videos will operate any differently. People will share them when they're ideologically convenient and dismiss them when they're not. The dupes who fall for satirical stories from The Onion will be fooled by deepfakes, and the scrupulous people who care about the truth will find ways to detect and debunk them. ''There's no choice,'' said Hao Li, an assistant professor of computer science at the University of Southern California. Mr. Li, who is also the founder of Pinscreen, a company that uses artificial intelligence to create lifelike 3-D avatars, said the weaponization of A.I. was inevitable and would require a sudden shift in public awareness. ''I see this as the next form of communication,'' he said. ''I worry that people will use it to blackmail others, or do bad things. You have to educate people that this is possible.'' So, O.K. Here I am, telling you this: An A.I. program powerful enough to turn Michelle Obama into a pornography star, or transform a schlubby newspaper columnist into Jake Gyllenhaal, is in our midst. Manipulated video will soon become far more commonplace. And there's probably nothing we can do except try to bat the fakes down as they happen, pressure social media companies to fight misinformation aggressively, and trust our eyes a little less every day. Godspeed, rebels. https : // www.nytimes.com/2018/03/04/technology/fake-videos-deepfakes.html Graphic PHOTOS: BEFORE AND AFTER: A still from a video created by the Reddit user Derpfakes, with Kevin Roose's face superimposed on Ryan Gosling's body. OTHER FAKES: Versions of Mr. Roose's face superimposed on Jimmy Kimmel, left, and Liev Schreiber, right. Making a deepfake isn't simple. But it's not rocket science, either. THE PROCESS: A screenshot of the FakeApp software, taken while it was analyzing photos of Mr. Roose and Mr. Gosling and teaching itself to superimpose one face onto the other. RAW MATERIAL: Photographs of Mr. Roose, some of the hundreds that were used to teach an artificial intelligence program to superimpose his face onto Mr. Gosling's. (A18) Load-Date: March 5, 2018 End of Document Here Come the Fake Videos, Too; The shift The New York Times

### Document 165

have to be thin," "Eternally starved," "I want to be perfect." These are the names of accounts Instagram's algorithms promoted to an account registered as belonging to a 13-year-old girl who expressed interest in weight loss and dieting. Proof that Instagram is not only failing to crack down on accounts promoting extreme dieting and eating disorders, but actively promotes those accounts, comes as Instagram and its parent company Facebook are facing intense scrutiny over the impact they have on young people's mental health. Instagram acknowledged to CNN this weekend that those accounts broke its rules against the promotion of extreme dieting, and that they shouldn't have been allowed on the platform. The extreme dieting accounts were promoted to an Instagram account set up by Sen. Richard Blumenthal's staff. The Connecticut Senator's team registered an account as a 13-year-old girl and proceeded to follow some dieting and pro-eating disorder accounts (the latter of which are supposed to be banned by Instagram). Soon, Instagram's algorithm began almost exclusively recommending the young teenage account should follow more and more extreme dieting accounts, the Senator told CNN. Blumenthal's office shared with CNN a list of accounts Instagram's algorithm had recommended. After CNN sent a sample from this list of five accounts to Instagram for comment, the company removed them, saying all of them broke its policies against encouraging eating disorders. "We do not allow content that promotes or encourages eating disorders and we removed the accounts shared with us for breaking these rules," a spokesperson for Facebook, Instagram's parent company told CNN. "We use technology and reports from our community to find and remove this content as quickly as we can, and we're always working to improve. We'll continue to follow expert advice from academics and mental health organizations, like the National Eating Disorder Association, to strike the difficult balance between allowing people to share their mental health experiences while protecting them from potentially harmful content." Speaking to CNN Monday, Blumenthal said: "This experience shows very graphically how [Facebook's] claims to protect children or take down accounts that may be dangerous to them are absolute hogwash." Blumenthal's experiment is not an anomaly, and may come as little surprise to regular uses of Instagram who are familiar with how the platform's algorithm recommends accounts that it has determined a user might be interested in. It follows reporting by the Wall Street Journal based on internal Facebook documents that show the company is aware of the "toxic" effects its platforms, especially Instagram, can have on young people. Much of that reporting, and Facebook's ensuing commentary, has centered on the negative impacts of social comparison to celebrities and popular figures on the app - a problem Facebook says is society-wide, and not exclusive to its apps. According to the WSJ reporting, however, Facebook researchers acknowledged that "social comparison is worse on Instagram" than some other platforms because it focuses on the entire body and a person's lifestyle. Blumenthal's experiment goes a layer deeper, showing how quickly Instagram's algorithm promotes harmful content to young users. CNN set up an account last week using the same methodology as the Senator's office, also following some extreme dieting and pro-eating disorder accounts. On Sunday, Instagram promoted accounts with names like "Sweet Skinny," "Prettily Skinny," and "Wanna Be Skinny" to the experiment CNN account that was also registered as belonging to a 13-year-old girl. CNN has reached out to Instagram to ask if these accounts also violate its policies. The danger of eating disorder content on Instagram Viewing content from these extreme dieting accounts - which included, for example, images of extremely thin bodies and information about a user's "current weight" versus their "goal weight" - can act as validation for users already predisposed to unhealthy behaviors, experts say. "It's called confirmation bias, where people tend to seek information that confirms what they already believe is true," said Pamela Keel, a psychology professor at Florida State University, who has studied how using Instagram can contribute to eating disorders. While confirmation bias is often discussed in the context of other issues on social media, such as vaccine misinformation, it could also affect "somebody who's already thinking that they need to be thin, or thinner, and is looking for other people to agree with them that that's an important thing," she said. "We're constantly looking for validation that we're right, even if that validation is really, really harmful to our personal health," Keel added, raising the stakes for Instagram to avoid promoting such content. The Wall Street Journal reported last month that researchers at Facebook who have studied its effects on young users over the past three years found that Instagram can damage young users' mental health and body image, especially among teen girls. One internal document cited by the newspaper said that for teen girls who had recently experienced body image issues, the app exacerbated those feelings for one in three of them. In a Senate hearing last week, Facebook's global head of safety Antigone Davis criticized the Journal's reporting, calling the Facebook documents it cited "not bombshell research." She added that the company has found "that more teen girls actually find Instagram helpful." Frances Haugen, the former Facebook employee who leaked the documents to the Journal and lawmakers, is set to testify to the same Senate committee on Tuesday. Instagram has also pushed back on claims about its role in perpetuating harmful behaviors by saying that social comparison is a widespread issue and that potentially problematic images are also available elsewhere. Indeed, "pro-anorexia" online communities have been around for years, predating the rise of Instagram. However, Instagram's broad reach among young women and girls means that such content posted to its platform can be especially dangerous, according to Keel. "The dominance of Instagram among the age group that was already at greatest risk of eating disorders is one [issue]," Keel said. "You've got a vicious cycle: You've got a group who are at elevated risk of these problems demonstrating to this artificial intelligence that this is what grabs their attention, and then that artificial intelligence says, 'Here let me give you more of this.' ... It's just a perfect storm." Chelsea Kronengold, communications lead for the National Eating Disorders Association (NEDA), added that while Instagram and other social media sites may not cause eating disorders and other body image issues, "we know it's definitely a strong risk factor in these situations." Following the Journal's reporting last month, Instagram detailed several new features it plans to implement to address mental health concerns (some of which were developed in partnership with NEDA), including "nudges" that could encourage users to change up their viewing habits if they've recently looked at potentially problematic content. The company has said it wants to prevent potentially triggering content while still allowing users in recovery from eating disorders to discuss their experiences - a potentially difficult balance to strike, experts say. "There's no long-term benefit to killing members of your largest user base, because eating disorders are incredibly dangerous, there's no way that's what [Instagram] wants," Keel said. "My one request would be just to be more transparent. You're tracking this, you're trying to do things to minimize the risk of your site, and just be more transparent about what you're trying to do." If you or someone you know has an eating disorder, NEDA (in the US) has phone, text, and chat services available on its website and Beat (in the UK) has phone and chat services available on its website. By Donie O'Sullivan, Clare Duffy and Sarah Jorgensen, CNN Business TM & © 2021 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: November 3, 2021 End of Document FTC chair issues a warning shot to the tech industry CNN Wire

### Document 782

In the hours after the El Paso shooting last weekend, Fredrick Brennan, the founder of the online message board 8chan -- the site that had hosted the racist manifestoes of the men responsible for the El Paso, Christchurch and Poway synagogue shootings -- called for the site to be shut down. In an interview with The Times, he said, ''It's a complete negative to everybody except the users that are there. And you know what? It's a negative to them, too. They just don't realize it.'' After the El Paso massacre, the 8chan website briefly went offline when Cloudflare, the network provider, banned it. But it was only a matter of time before someone else agreed to support the site: By Tuesday morning, 8chan was back online, spewing a toxic mix of hatred, violence and QAnon conspiracies. Message boards like 8chan aren't the only place where these things are spread: In March, when there were two mass shootings at mosques in Christchurch, New Zealand, the shootings were live-streamed on Facebook and then viewed millions of times on YouTube. Though it may seem that there is little that platforms and politicians can do to stop the spread of online hatred, a great deal could be accomplished with one simple tweak to the existing Communications Decency Act: revise the safe harbor provisions of the law. A safe harbor provision of a statute or a regulation specifies that certain conduct will be deemed not to violate a given rule. For social media platforms like 8chan, Facebook and YouTube, the most important of these is Section 230 of the Communications Decency Act, which states, ''No provider or user of an interactive computer service shall be treated as the publisher or speaker of any information provided by another information content provider.'' When Johnson & Johnson removed all the Tylenol from American stores in the wake of a poisoning scandal, it did so because of the liability it would face if anyone got hurt. But 8chan, Reddit, Facebook and YouTube are totally protected from being sued for content on their networks because of this unique set of laws created at the beginning of the internet. The safe harbor laws were created for what is known as passive (or neutral) intermediaries. Verizon, for example, is a passive intermediary platform: It makes no attempt to edit or alter the bits flowing through its fiber optic cables. Facebook and YouTube, however, are active intermediaries; they present you with content different from what they present to me. They filter pornography and jihadist videos off their networks using artificial intelligence. As such, they should not be shielded from liability by safe harbor laws in the same way that Verizon is shielded. Even though Facebook was able to use A.I. to block 90 percent of the Christchurch streams after it identified the video, last year Mark Zuckerberg testified to Congress that it might take five to 10 years to perfect these tools. But society cannot wait five to 10 years -- we need to stop these videos now, and banning toxic content must become the highest priority at 8chan, Reddit, Facebook and YouTube. Some may argue that deciding what counts as toxic video content is a slippery slope toward censorship. However, for the past 75 years, since the first television broadcasts, the Federal Communications Commission has been able to regulate offensive content on television. I believe we can all agree that mass murder, faked videos and pornography should not be broadcast -- not by cable news providers, and certainly not by Facebook and YouTube. Since broadcasters do not have the protection of ''safe harbor,'' they engage in a certain level of self-regulation, to avoid being sued. The Federal Communications Commission rarely has to intervene. And there is no reason to believe that the largest corporations in the world -- Google, Apple, Facebook and Amazon -- would behave differently from CBS, Fox, NBC or ABC. In the past, Google and Facebook have shown that they can pivot quickly and that they already have the technology to keep certain content off their platforms. There is almost no pornography on Facebook or YouTube because of sophisticated tools that search for and prevent such uploads. And since 2017, both companies have actively removed jihadist videos. But it took the right incentives to get them to do both of those things. In 2015, when I started researching my book on how Facebook and Google undermined democracy, there were over 40,000 jihadist videos on YouTube. At the time, YouTube seemed to be ignoring the problem. However, after Procter & Gamble -- one of YouTube's largest advertisers -- found one of its ads on an Islamic State propaganda video, YouTube started to clean up its act. In the same way that it used artificial intelligence to keep pornography off its network, it started to block the upload of Islamic State videos. Changing the safe harbor laws so that social media platforms are held accountable for the content their users post would incentivize Facebook and YouTube to take things like the deep-fake video of Nancy Pelosi and the Christchurch shooting videos more seriously. Congress must revisit the Safe Harbor statutes so that active intermediaries are held legally responsible for the content on their sites. In the wake of the Christchurch shootings, Prime Minister Jacinda Ardern of New Zealand remarked about the social networks: ''They are the publisher, not the postman. There cannot be a case of all profit and no responsibility.'' Jonathan Taplin is the director emeritus of the Annenberg Innovation Lab at the University of Southern California and the author of ''Move Fast and Break Things: How Facebook, Google and Amazon Cornered Culture and Undermined Democracy.'' The Times is committed to publishing a diversity of letters to the editor. We'd like to hear what you think about this or any of our articles. Here are some tips. And here's our email: letters@nytimes.com Follow The New York Times Opinion section on Facebook, Twitter (@NYTopinion) and Instagram. https : // www.nytimes.com/2019/08/07/opinion/8chan-reddit-youtube-el-paso.html Load-Date: August 11, 2019 End of Document In the Texas Rampage’s Wake, Social Media Can Reform Itself; Kara Swisher The New York Times

### Document 663

I'll make this short: The thing you're doing now, reading prose on a screen, is going out of fashion. We're taking stock of the internet right now, with writers who cover the digital world cataloging some of the most consequential currents shaping it. If you probe those currents and look ahead to the coming year online, one truth becomes clear. The defining narrative of our online moment concerns the decline of text, and the exploding reach and power of audio and video. This multimedia internet has been gaining on the text-based internet for years. But last year, the story accelerated sharply, and now audio and video are unstoppable. The most influential communicators online once worked on web pages and blogs. They're now making podcasts, Netflix shows, propaganda memes, Instagram and YouTube channels, and apps like HQ Trivia. Consider the most compelling digital innovations now emerging: the talking assistants that were the hit of the holidays, Apple's face-reading phone, artificial intelligence to search photos or translate spoken language, and augmented reality -- which inserts any digital image into a live view of your surroundings. These advances are all about cameras, microphones, your voice, your ears and your eyes. Together, they're all sending us the same message: Welcome to the post-text future. It's not that text is going away altogether. Nothing online ever really dies, and text still has its hits -- from Susan Fowler's whistle-blowing blog post last year about harassment at Uber to #MeToo, text was at the center of the most significant recent American social movement. Still, we have only just begun to glimpse the deeper, more kinetic possibilities of an online culture in which text recedes to the background, and sounds and images become the universal language. The internet was born in text because text was once the only format computers understood. Then we started giving machines eyes and ears -- that is, smartphones were invented -- and now we've provided them brains to decipher and manipulate multimedia. Suddenly the script flipped: Now it's often easier to communicate with machines through images and sounds than through text. It's more than just talking to digital assistants. Artificial intelligence might soon let us search and index much of the world's repository of audio and video, giving sounds and pictures a power that has kept text dominant online for so long. On HBO's ''Silicon Valley'' last season, there was a joke about an app that helped you identify any cuisine, SeeFood. Weeks later, Pinterest introduced just such an app; along with Google, the social network is developing software to identify any visual object. Tech didn't just make multimedia easier to produce. It also democratized non-text formats, which for so long had been accessible only to studios. Podcasting became something like the new blogging, a way for committed amateurs and obsessives to plumb the underexplored eddies and mysteries of life. There's a podcast by a guy who spends more than a dozen episodes explicating the genius of Kanye West's fifth studio album. He does so using a trove of documentary material he found -- where else? -- on YouTube. Meanwhile, social media showered every multimedia creator with a potential audience, and it allowed the audience to connect and discuss the work, deepening fans' relationship to levels of obsession. It's a kind of passion that ultimately makes for a fundamentally new, deeper kind of art. Look at all the room the internet opened up for crazy mash-ups of ideas. Netflix's best recent show, ''American Vandal,'' is a parody of ''Serial,'' the true-crime podcast, and ''Making a Murderer,'' another Netflix show. The transition to multimedia won't be smooth. Business models are hardly proven. For several news sites, the pivot to video ended in a bust that will now give Facebook and Google even greater market power. Many podcast advertisers -- I'm looking at you, Blue Apron -- are themselves not on the most solid financial ground; they could blow up tomorrow, taking the whole boom with them. Yet the financial questions may be the least of our worries. An online culture ruled by pictures and sounds rather than text is going to alter much about how we understand the world around us. The haze of misinformation hanging over online life will only darken under multimedia -- think of your phone as a Hollywood-grade visual-effects studio that could be used to make anyone appear to say or do anything. The ability to search audio and video as easily as we search text means, effectively, the end of any private space. Then there's the more basic question of how pictures and sounds alter how we think. An information system dominated by pictures and sounds prizes emotion over rationality. It's a world where slogans and memes have more sticking power than arguments. (Remind you of anyone?) And will someone please think of the children: Do you know how much power YouTube has over your kids? Are you afraid to find out? But what are we going to do? There seems no going back now. For text, the writing is on the wall. Graphic PHOTO (PHOTOGRAPH BY JOHN YUYI) CHART: The Numbers Tell the Story Of Multimedia Immersion Load-Date: February 12, 2018 End of Document Here to Help; Three Books to Help You Understand Cyberwarfare The New York Times

## Topic 3

### Document 398

When Chief Justice John G. Roberts Jr. visited Rensselaer Polytechnic Institute last month, he was asked a startling question, one with overtones of science fiction. ''Can you foresee a day,'' asked Shirley Ann Jackson, president of the college in upstate New York, ''when smart machines, driven with artificial intelligences, will assist with courtroom fact-finding or, more controversially even, judicial decision-making?'' The chief justice's answer was more surprising than the question. ''It's a day that's here,'' he said, ''and it's putting a significant strain on how the judiciary goes about doing things.'' He may have been thinking about the case of a Wisconsin man, Eric L. Loomis, who was sentenced to six years in prison based in part on a private company's proprietary software. Mr. Loomis says his right to due process was violated by a judge's consideration of a report generated by the software's secret algorithm, one Mr. Loomis was unable to inspect or challenge. In March, in a signal that the justices were intrigued by Mr. Loomis's case, they asked the federal government to file a friend-of-the-court brief offering its views on whether the court should hear his appeal. The report in Mr. Loomis's case was produced by a product called Compas, sold by Northpointe Inc. It included a series of bar charts that assessed the risk that Mr. Loomis would commit more crimes. The Compas report, a prosecutor told the trial judge, showed ''a high risk of violence, high risk of recidivism, high pretrial risk.'' The judge agreed, telling Mr. Loomis that ''you're identified, through the Compas assessment, as an individual who is a high risk to the community.'' The Wisconsin Supreme Court ruled against Mr. Loomis. The report added valuable information, it said, and Mr. Loomis would have gotten the same sentence based solely on the usual factors, including his crime -- fleeing the police in a car -- and his criminal history. At the same time, the court seemed uneasy with using a secret algorithm to send a man to prison. Justice Ann Walsh Bradley, writing for the court, discussed, for instance, a report from ProPublica about Compas that concluded that black defendants in Broward County, Fla., ''were far more likely than white defendants to be incorrectly judged to be at a higher rate of recidivism.'' Justice Bradley noted that Northpointe had disputed the analysis. Still, she wrote, ''this study and others raise concerns regarding how a Compas assessment's risk factors correlate with race.'' In the end, though, Justice Bradley allowed sentencing judges to use Compas. They must take account of the algorithm's limitations and the secrecy surrounding it, she wrote, but said the software could be helpful ''in providing the sentencing court with as much information as possible in order to arrive at an individualized sentence.'' Justice Bradley made Compas's role in sentencing sound like the consideration of race in a selective university's holistic admissions program. It could be one factor among many, she wrote, but not the determinative one. In urging the United States Supreme Court not to hear the case, Wisconsin's attorney general, Brad D. Schimel, seemed to acknowledge that the questions in the case were substantial ones. But he said the justices should not move too fast. ''The use of risk assessments by sentencing courts is a novel issue, which needs time for further percolation,'' Mr. Schimel wrote. He added that Mr. Loomis ''was free to question the assessment and explain its possible flaws.'' But it is a little hard to see how he could do that without access to the algorithm itself. The company that markets Compas says its formula is a trade secret. ''The key to our product is the algorithms, and they're proprietary,'' one of its executives said last year. ''We've created them, and we don't release them because it's certainly a core piece of our business.'' Compas and other products with similar algorithms play a role in many states' criminal justice systems. ''These proprietary techniques are used to set bail, determine sentences, and even contribute to determinations about guilt or innocence,'' a report from the Electronic Privacy Information Center found. ''Yet the inner workings of these tools are largely hidden from public view.'' In 1977, the Supreme Court ruled that a Florida man could not be condemned to die based on a sentencing report that contained confidential passages he was not allowed to see. The Supreme Court's decision was fractured, and the controlling opinion appeared to say that the principle applied only in capital cases. Mr. Schimel echoed that point and added that Mr. Loomis knew everything the court knew. Judges do not have access to the algorithm, either, he wrote. There are good reasons to use data to ensure uniformity in sentencing. It is less clear that uniformity must come at the price of secrecy, particularly when the justification for secrecy is the protection of a private company's profits. The government can surely develop its own algorithms and allow defense lawyers to evaluate them. At Rensselaer last month, Chief Justice Roberts said that judges had work to do in an era of rapid change. ''The impact of technology has been across the board,'' he said, ''and we haven't yet really absorbed how it's going to change the way we do business.'' https : // www.nytimes.com/2017/05/01/us/politics/sent-to-prison-by-a-software-programs-secret-algorithms.html Graphic PHOTO: Chief Justice John G. Roberts Jr., center, says the use of artificial intelligence in courtrooms is already straining the judiciary. (PHOTOGRAPH BY STEPHEN CROWLEY/THE NEW YORK TIMES) Load-Date: May 2, 2017 End of Document The White House Made a Deal to Save ZTE. Is It Any Good?: DealBook Briefing The New York Times

### Document 172

your credit line is yours and you establish your own direct credit history," a Goldman Sachs spokesperson said in the statement. "As with any other individual credit card, your application is evaluated independently," the spokesperson said. "We look at an individual's income and an individual's creditworthiness, which includes factors like personal credit scores, how much debt you have, and how that debt has been managed." Based on these factors, it is possible for two family members to receive significantly different credit decisions, the company said. "In all cases, we have not and will not make decisions based on factors like gender," the statement said. Goldman Sachs also said it frequently hears from its customers that they would like to share their Apple Card with other members of their families, and that the company is looking to enable this in the future. Bias in artificial intelligence The New York Department of Financial Services confirmed Tuesday the ongoing investigation, and said in a statement that New York law prohibits discrimination against protected classes of individuals, including disparate impact and treatment. The department will be conducting an investigation to determine whether New York law was violated and ensure all consumers are treated equally regardless of sex, the statement said. "Any algorithm that intentionally or not results in discriminatory treatment of women or any other protected class violates New York law," a DFS spokesperson said in the statement. "DFS is troubled to learn of potential discriminatory treatment in regards to credit limit decisions reportedly made by an algorithm of Apple Card, issued by Goldman Sachs." Artificial intelligence has been shown in a number of contexts to be biased, and gender bias has occurred in a variety of industries. Nerdwallet's Rathner said that discrimination has been a problem in the financial services industry for decades, and not just by credit card companies, but also lenders and banks. "These sorts of stories have been going on for a long time," Rathner said. "The idea is that it sorts out the bias because it's a machine. But these codes are still written by humans, and humans are biased naturally." TM & © 2019 Cable News Network, Inc., a WarnerMedia Company. All rights reserved. Load-Date: November 16, 2019 End of Document Opinion: The Zelensky deepfake is a warning for Corporate America CNN Wire

### Document 1232

Students newly accepted by colleges and universities this spring are being deluged by emails and texts in the hope that they will put down their deposits and enroll. If they have questions about deadlines, financial aid and even where to eat on campus, they can get instant answers. The messages are friendly and informative. But many of them aren't from humans. Artificial intelligence, or AI, is being used to shoot off these seemingly personal appeals and deliver pre-written information through chatbots and text personas meant to mimic human banter. It can help a university or college by boosting early deposit rates while cutting down on expensive and time-consuming calls for stretched admissions staffs. AI has long been quietly embedding itself into higher education in ways like these, often to save money - a need that's been heightened by pandemic-related budget squeezes. Now, simple AI-driven tools like these chatbots, plagiarism-detecting software and apps to check spelling and grammar are being joined by new, more powerful - and controversial - applications that answer academic questions, grade assignments, recommend classes and even teach. The newest can evaluate and score applicants' personality traits and perceived motivation, and colleges increasingly are using these tools to make admissions and financial aid decisions. As the presence of this technology on campus grows, so do concerns. In at least one case, a seemingly promising use of AI in admissions decisions was halted because, by using algorithms to score applicants based on historical precedence, it perpetuated bias. Much of the AI-powered software used by colleges and universities remains confined to fairly mundane tasks such as improving back-office workflow, said Eric Wang, senior director of AI at Turnitin, a service many institutions use to check for plagiarism. "Where you start seeing things that get a bit more worrying," he said, "is when AI gets into higher-stakes types of decisions." Among those are predicting how well students might do if admitted and assessing their financial need. Hundreds of colleges subscribe to private platforms that do intensive data analysis about past classes and use it to score applicants for admission on factors such as the likelihood they will enroll, the amount of financial aid they'll need, the probability they'll graduate and how likely they are to be engaged alumni. Humans always make the final calls, these colleges and the AI companies say, but AI can help them narrow the field. Baylor, Boston and Wake Forest universities are among those that have used the Canadian company Kira Talent, which offers a review system that can score an applicant's "personality traits and soft skills" based on a recorded, AI-reviewed video the student submits. A company presentation shows students being scored on a five-point scale in areas such as openness, motivation, agreeableness and "neuroticism." New York University, Southeast Missouri State University and other schools have used a service called Element451, which rates prospects' potential for success based on how they interact with a school's website and respond to its messages. The result is 20 times more predictive than relying on demographics alone, the company says. Once admitted, many students now get messages from companies like AdmitHub, which advertises a customizable chatbot and text message platform that the company calls "conversational AI" to "nudge" accepted applicants into putting down deposits. The company says it has reached more than 3 million students this way on behalf of hundreds of university and college clients. Georgia State University, which pioneered the use of these chatbots, says its version, named Pounce, has delivered hundreds of thousands of answers to questions from potential students since it launched in 2016 and reduced "summer melt" - the incidence of students enrolling in the spring but failing to show up in the fall - by 20%. Georgia State was also among the first to develop inexpensive, always-on AI teaching assistants, ready to answer student questions about course material. Theirs is called Jill Watson, and studies found that some students couldn't tell they were engaging with AI and not a human teaching assistant. Staffordshire University in England offers students a "digital friend," an AI teaching assistant named Beacon that can recommend reading resources and connect students with tutors. Australia's Deakin University has an AI assistant named Genie that knows whether a student asking a question has engaged with specific online course materials and can check students' locations and activities to determine if they've visited the library or tell them when they've spent too long in the dining hall and prompt them to move along. Many colleges increasingly use AI to grade students, as online classes grow too large for instructors to manage this well. The pandemic has hastened the shift to those kinds of classes. Even before that, however, Southern New Hampshire University - with 97% of its nearly 150,000 students exclusively online - was working on ways that AI could be used to grade large numbers of students quickly, said Faby Gagne, executive director of its research and development arm. SNHU is also starting to use AI not just to grade students but to teach them. Gagne has been experimenting with having AI monitor such things as speech or movement or the speed with which a student responds to video lessons and use that information to score achievement. Turnitin, best known for checking for plagiarism, also sells AI language comprehension products to assess subjective written work. One tool can sort written assignments into batches, allowing a teacher to correct a mistake or give guidance just once instead of highlighting, commenting on and grading the same mistake again and again. The company says instructors check to verify that the machine made the correct assessment, and that eliminating repetitive work gives them more time to teach. AI tools are also being sold to colleges to make decisions once made by faculty. ElevateU, for example, uses AI to analyze student data and deliver individualized learning content to students based on how they answered questions. If the program determines that a particular student will do better with a video lesson as opposed to a written one, that's what he or she gets. But some research suggests that AI tools can be wrong, or even gamed. A team at MIT used a computer to create an essentially meaningless essay that nonetheless included all the prompts an AI essay reader searches for. The AI gave the gibberish a high score. In Spain, an AI bot named Lola answered more than 38,700 student questions with a 91.7% accuracy rate - meaning it gave out at least 3,200 wrong or incomplete answers. "AI alone is not a good judge of human behavior or intention," said Jarrod Morgan, the founder and chief strategy officer at ProctorU, which schools hire to manage and observe the tests students take online. "We found that people are better at this than machines are, pretty much across the board." The University of St. Thomas in Minnesota said it tested, but did not deploy, an AI system that can scan and analyze students' facial expressions to determine whether they're engaged or understand the material. The system would immediately tell professors or others which students were becoming bored or which points in a lecture required repeating or punching up. And researchers at the University of California, Santa Barbara, studied whether students got more emotional reinforcement from animated than from real-life instructors and found that, while students recognized emotion in both human and animated teachers, they had stronger, more accurate perceptions of emotions such as "happy" and "frustrated" when the instructors were human. Many people "think AI is smarter than people," said Wang of Turnitin. "But the AI is us. It's a mirror that reflects us to us, and sometimes in very exaggerated ways." Those ways, Wang said, underscore that the data AI often uses is a record of what people have done in the past. That's an issue because "we are more prone to accept recommendations that reinforce who we are." That's what happened with GRADE, the GRaduate ADmissions Evaluator, an AI evaluation system built and used by the graduate program in computer science at the University of Texas at Austin. GRADE reviewed applications and assigned scores based on the likelihood of admission by a review committee. The goal was to reduce human time spent reviewing the increasing pile of applications, which GRADE did, cutting review time by 74%. But the university dropped GRADE last year, agreeing that it had the potential to replicate superficial biases in the scoring - scoring up some applications not because they were good, but because they looked like the kinds of applications that had been approved in the past. These types of reinforcing biases that can surface in AI "can be tested initially and frequently," said Kirsten Martin, a professor of technology ethics at the University of Notre Dame. "But universities would be making a mistake if they thought that automating decisions somehow relieved them of their ethical and legal obligations." This story was produced by The Hechinger Report, a nonprofit, independent news organization focused on inequality and innovation in education. Sign up for our higher education newsletter. Graphic Artificial intelligence systems can evaluate and score college applicants' personality traits and perceived motivation, and colleges increasingly are using these tools to make admissions and financial aid decisions. Erin Bormett/USA TODAY NETWORK Load-Date: May 11, 2021 End of Document Mark your calendar for these 10 must-see films USA Today

### Document 842

While Congress has stalled on new privacy bills, a real estate developer is pushing for broader data rights in the Golden State. Each week, we review the week's news, offering analysis about the most important developments in the tech industry. Greetings from New York Times HQ in Midtown Manhattan. I'm Natasha Singer, a tech reporter covering privacy, and I'm bringing you the week's tech news. While many eyes were focused on the impeachment saga playing out in Washington, one person in San Francisco was taking on the entire tech industry. Again. In 2017, Alastair Mactaggart, a wealthy real estate developer, founded and started financing a push for data rights for Californians. The effort led California lawmakers to enact the nation's most comprehensive state consumer privacy law last year. Ever since then, tech companies and industry groups have maneuvered to water down its consumer protections. Now Mr. Mactaggart is back with a new campaign. He's starting a ballot initiative that would amend the new law, the California Consumer Privacy Act, which takes effect on Jan. 1. He wants broader data control rights for Californians and new requirements on companies. Among other things, his amendments would triple the law's fines for violations of children's privacy. The ballot initiative also has a political component. It would require companies that profited from using Californians' personal data for election influence campaigns to disclose their practices to consumers and the state authorities. When it comes to privacy protections, it seems, Californians have a big advantage over many other Americans. And not just because California was the first state to pass laws requiring companies to disclose data breaches and the first to grant minors the right to erase their online posts and photos. The privacy laws illustrate differing governmental views on citizens' rights. The United States Constitution, for instance, does not explicitly grant an inalienable right to privacy. Although the Fourth Amendment protects people from unreasonable government searches and seizure, it does not safeguard us against intrusive and ubiquitous snooping by tech giants and other corporations. The Constitution of California, however, grants a right to privacy -- putting it on equal footing with the rights to life, liberty, the pursuit of happiness, freedom of speech and freedom of religion. The Charter of European Union goes even further. It recognizes privacy and, separately, the protection of personal data as fundamental human rights. ''If you think about our other fundamental rights as a country, no one is spending millions and millions of dollars trying to undermine the First Amendment or the freedom of religion,'' Mr. Mactaggart told me. ''But people are actually spending hundreds of millions of dollars trying to undermine privacy because there's so much money in it for corporations.'' For more practical tips on protecting your privacy, read my colleague Brian X. Chen's new column on how to use Apple's new privacy tools. Limiting the right to be forgotten While Mr. Mactaggart was working to expand the right to privacy in California, Europe's highest court issued landmark decisions narrowing it. The rulings involved a law, popularly known as the ''right to be forgotten,'' which gives people in the European Union a legal means to delete certain personal information about them online. In practical terms, that means Europeans can use their right to be forgotten to require Google and other search engines to delete links to news articles or sites containing personal details about them that are outdated, inaccurate or not in the public interest. But on Tuesday, as my colleague Adam Satariano reported from London, the European Court of Justice ruled that the right to be forgotten does not apply outside the European Union. The court also said the right to delete certain personal data must be balanced against the public's right to know. The ruling was a victory for Google and other search engines, Adam wrote. It means that the tech giant will not be required to take down links outside the European Union. It may also give Google and other companies more leeway to refuse certain deletion requests in the name of the public interest. But defending the public's right to know can also have intended consequences. In a riveting article, Adam profiled a journalist in Italy, Alessandro Biancardi, who lost a legal battle to preserve an article about a pair of brawling brothers. The story covered the stabbing of one brother by another at a seaside restaurant. The brother who was stabbed wanted the article about the incident deleted and sued the journalist, citing his right to be forgotten, Adam reported. The journalist, however, refused to take down the article. The European court's new ruling limiting the right to be forgotten may help local publications in the European Union defend and preserve such news coverage. But for Mr. Biancardi, it is too late. The journalist lost the lawsuit over the article about the brawling brothers. Faced with many other privacy and article-deletion demands, including 40 lawsuits, Mr. Biancardi shut down his news site last year. Some stories you shouldn't miss Amazon wants to turn every suburban home into a surveillance station. An article in Wired by Louise Matsakis looked at how video clips from the company's Ring doorbell camera, posted on social networks, are becoming fodder for local TV news stations. File this under corporate cognitive dissonance. Amazon -- the company under scrutiny by civil rights and civil liberties groups for its sales of facial recognition technology to law enforcement -- is writing a model facial recognition law, my colleague Karen Wiese reported. Four years working at start-ups can take a toll on the soul, Anna Wiener recounted in The New Yorker. Are you an A.I. have or have-not? Computer scientists say research in artificial intelligence is becoming so costly that few institutions have the computing power to develop innovations like self-driving cars, my colleague Steve Lohr reported. One of our favorite new colleagues says Times reporters are Slack shy. ''Slack culture in the newsroom is rather ... quiet,'' wrote Davey Alba, who covers disinformation and joined us in August. We always knew this privacy professor was a genius. Now the Catherine T. MacArthur Foundation has confirmed it. The foundation on Wednesday awarded one of its annual ''genius'' grants to Danielle Citron, a law professor at Boston University, who has worked to counter revenge porn and other online abuses. Professor Citron's TED Talk on ''deepfakes'' has been viewed nearly 900,000 times. Read her book, ''Hate Crimes in Cyberspace,'' for more. Amazon wants to turn every suburban home into a surveillance station. An article in Wired by Louise Matsakis looked at how video clips from the company's Ring doorbell camera, posted on social networks, are becoming fodder for local TV news stations. File this under corporate cognitive dissonance. Amazon -- the company under scrutiny by civil rights and civil liberties groups for its sales of facial recognition technology to law enforcement -- is writing a model facial recognition law, my colleague Karen Wiese reported. Four years working at start-ups can take a toll on the soul, Anna Wiener recounted in The New Yorker. Are you an A.I. have or have-not? Computer scientists say research in artificial intelligence is becoming so costly that few institutions have the computing power to develop innovations like self-driving cars, my colleague Steve Lohr reported. One of our favorite new colleagues says Times reporters are Slack shy. ''Slack culture in the newsroom is rather ... quiet,'' wrote Davey Alba, who covers disinformation and joined us in August. We always knew this privacy professor was a genius. Now the Catherine T. MacArthur Foundation has confirmed it. The foundation on Wednesday awarded one of its annual ''genius'' grants to Danielle Citron, a law professor at Boston University, who has worked to counter revenge porn and other online abuses. Professor Citron's TED Talk on ''deepfakes'' has been viewed nearly 900,000 times. Read her book, ''Hate Crimes in Cyberspace,'' for more. How are we doing? We'd love your feedback on this newsletter. Please email thoughts and suggestions to bits\_newsletter@nytimes.com Like this email? Forward it to your friends, and let them know they can sign up here. https : // www.nytimes.com/2019/09/27/technology/the-week-in-tech-why-californians-have-better-privacy-protections.html Graphic PHOTO: Alastair MacTaggart, the founder and board chair of Californians for Consumer Privacy, wants the California Consumer Privacy Act amended. (PHOTOGRAPH BY AL DRAGO/BLOOMBERG) Load-Date: September 30, 2019 End of Document Apple iPhone SE Review: A Superb Smartphone for a Humble Price; tech fix The New York Times

### Document 325

Artificial intelligence used to evaluate job candidates must not become a tool that exacerbates discrimination. American democracy depends on everyone having equal access to work. But in reality, people of color, women, those with disabilities and other marginalized groups experience unemployment or underemployment at disproportionately high rates, especially amid the economic fallout of the Covid-19 pandemic. Now the use of artificial intelligence technology for hiring may exacerbate those problems and further bake bias into the hiring process. At the moment, the New York City Council is debating a proposed new law that would regulate automated tools used to evaluate job candidates and employees. If done right, the law could make a real difference in the city and have wide influence nationally: In the absence of federal regulation, states and cities have used models from other localities to regulate emerging technologies. Over the past few years, an increasing number of employers have started using artificial intelligence and other automated tools to speed up hiring, save money and screen job applicants without in-person interaction. These are all features that are increasingly attractive during the pandemic. These technologies include screeners that scan résumés for key words, games that claim to assess attributes such as generosity and appetite for risk, and even emotion analyzers that claim to read facial and vocal cues to predict if candidates will be engaged and team players. In most cases, vendors train these tools to analyze workers who are deemed successful by their employer and to measure whether job applicants have similar traits. This approach can worsen underrepresentation and social divides if, for example, Latino men or Black women are inadequately represented in the pool of employees. In another case, a résumé-screening tool could identify Ivy League schools on successful employees' résumés and then downgrade résumés from historically Black or women's colleges. In its current form, the council's bill would require vendors that sell automated assessment tools to audit them for bias and discrimination, checking whether, for example, a tool selects male candidates at a higher rate than female candidates. It would also require vendors to tell job applicants the characteristics the test claims to measure. This approach could be helpful: It would shed light on how job applicants are screened and force vendors to think critically about potential discriminatory effects. But for the law to have teeth, we recommend several important additional protections. The measure must require companies to publicly disclose what they find when they audit their tech for bias. Despite pressure to limit its scope, the City Council must ensure that the bill would address discrimination in all forms -- on the basis of not only race or gender but also disability, sexual orientation and other protected characteristics. These audits should consider the circumstances of people who are multiply marginalized -- for example, Black women, who may be discriminated against because they are both Black and women. Bias audits conducted by companies typically don't do this. The bill should also require validity testing, to ensure that the tools actually measure what they claim to, and it must make certain that they measure characteristics that are relevant for the job. Such testing would interrogate whether, for example, candidates' efforts to blow up a balloon in an online game really indicate their appetite for risk in the real world -- and whether risk-taking is necessary for the job. Mandatory validity testing would also eliminate bad actors whose hiring tools do arbitrary things like assess job applicants' personalities differently based on subtle changes in the background of their video interviews. In addition, the City Council must require vendors to tell candidates how they will be screened by an automated tool before the screening, so candidates know what to expect. People who are blind, for example, may not suspect that their video interview could score poorly if they fail to make eye contact with the camera. If they know what is being tested, they can engage with the employer to seek a fairer test. The proposed legislation currently before the City Council would require companies to alert candidates within 30 days if they have been evaluated using A.I., but only after they have taken the test. Finally, the bill must cover not only the sale of automated hiring tools in New York City but also their use. Without that stipulation, hiring-tool vendors could escape the obligations of this bill by simply locating sales outside the city. The council should close this loophole. With this bill, the city has the chance to combat new forms of employment discrimination and get closer to the ideal of what America stands for: making access to opportunity more equitable for all. Unemployed New Yorkers are watching. Alexandra Reeve Givens is the chief executive of the Center for Democracy & Technology. Hilke Schellmann is a reporter investigating artificial intelligence and an assistant professor of journalism at New York University. Julia Stoyanovich is an assistant professor of computer science and engineering and of data science and is the director of the Center for Responsible AI at New York University. The Times is committed to publishing a diversity of letters to the editor. We'd like to hear what you think about this or any of our articles. Here are some tips. And here's our email: letters@nytimes.com Follow The New York Times Opinion section on Facebook, Twitter (@NYTopinion) and Instagram. https : // www.nytimes.com/2021/03/17/opinion/ai-employment-bias-nyc.html Graphic PHOTO: (PHOTOGRAPH BY Lisk Feng FOR THE NEW YORK TIMES) Load-Date: March 21, 2021 End of Document The Fallout From a Credit Card Shake-Up; DealBook Newsletter The New York Times

### Document 222

The future is arriving even faster than the predictions depicted in "Minority Report," a film long hailed for being prescient. Steven Spielberg's dystopian film was released 15 years ago this week. "Minority Report," set in 2054, included self-driving cars, personalized ads, voice automation in the home, robotic insects and gesture controlled computers -- all technology entering our lives in 2017. But many experts warn one of the technologies highlighted in the film, predictive policing, is used recklessly today. Although police departments don't race through neighborhoods on jetpacks to disrupt murders -- as they did in the film -- data and artificial intelligence is already used to predict the location of potential crimes and dispatch officers to those areas. A 2016 study from the organization UpTurn found 20 of the nation's 50 largest police forces have used predictive policing. The film served as a cautionary tale of the dangers of technology, but that isn't its legacy. "Minority Report has become less of a cautionary tale and more of a blueprint, especially in predictive policing," said Suresh Venkatasubramanian, a computer science professor at the University of Utah. According to Andrew G. Ferguson -- a professor at the University of District Columbia law school and author of the upcoming book "The Rise of Big Data Policing" -- police departments are drawn to the technology's potential as a quick fix seen as objective and trustworthy. "Police agencies are adopting this technology because the lure of black box policing is so attractive," Ferguson said. "Every chief has to answer the unanswerable question, 'What are you doing about crime rates?'" In "Minority Report," the local police department's psychic cyborgs conclude the film's main character, played by Tom Cruise, will commit a murder. While trying to prove his innocence, Cruise learns that the cyborgs lack consistent judgment. But that lesson isn't widely understood with today's crime prediction systems, Venkatasubramanian argues. "We're treating algorithms as if they're infallible and true arbiters of how people are going to behave, when of course they're nothing of the sort," Venkatasubramanian said. Chicago's Police Department program has used artificial intelligence to identify people at high risk of gun violence, but a 2016 Rand Corporation study found the tactic was ineffective. "When you have machine learning algorithms making decision, they will often make mistakes," Venkatasubramanian said. "Rather than trying to hide the fact they will make mistakes, you want to be very open and up front about it." Venkatasubramanian is among a community of researchers concerned about the inaccuracy of algorithm predictions. He points to the problem of how algorithms learn from feedback. For example, if officers spend more time observing a certain neighborhood, its arrest statistics may increase even if the underlying crime remains consistent. If machines are trained on biased data, they too will become biased. Communities with a history of being heavily policed will be disproportionately affected by predictive policing, research has warned. According to Kristen Thomasen -- a law professor at the University of Windsor, who studies the ethics of artificial intelligence -- the dystopian fears raised in the film should be felt today. Thomasen points to how artificial intelligence systems have been used to aid judges in determining criminal sentences. In these cases, AI systems rate a criminal's likelihood of committing a future crime. (After ProPublica published a landmark piece on risk assessment scores in May 2016, it ignited a debate among computer scientists on the role of artificial intelligence in policing.) As of now, the algorithms aren't broadly available for outsiders to effectively analyze whether the systems have biases. Some of the algorithms' creators argue their technology is a trade secret, and revealing it would damage their business. "That makes it even more challenging to make a case in favor of your innocence or explaining why this prediction is wrong," Thomasen said. "There's a loss of access to justice. It's a fundamental principal of the justice system that you have the ability to defend yourself." While Minority Report warned us about these problems, 15 years hasn't been enough time for society to absorb it. "Is Minority Report an anthem for our time, about the use of algorithms in our life? No, not yet," Venkatasubramanian said. "Maybe people will come back in 20 years and say, 'Hey, that was pretty spot on." TM & © 2017 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: June 24, 2017 End of Document The year the world gave up waiting for Big Tech to fix itself CNN Wire

### Document 704

Calif. -- Last month I spoke at a gathering of African-American technology professionals. I'm a transactional lawyer at a tech company and my husband is an engineer, so the industry is at the center of our lives. We have careers that allow us to help create products and tools our grandparents would never have thought were possible and to provide the kind of life for our family that they couldn't have imagined. And it's important to us to ensure that other people of color have a chance to contribute to the field and reap its benefits. With all those things on my mind, I left the conference energized and inspired by the ways in which tech is changing the world and the possibilities it holds for our community. At the same time, I'm terrified for what these advances mean for my two young children. The same technology that's the source of so much excitement in my career is being used in law enforcement in ways that could mean that in the coming years, my son, who is 7 now, is more likely to be profiled or arrested -- or worse -- for no reason other than his race and where we live. Of course I'm not alone in feeling that technology is both a gift and a curse. This tension exists for anyone who enjoys the real-time conversations on Twitter but loathes the trolls, loves Facebook but abhors fake news, or depends on the convenience Alexa offers but frets about violations of privacy. Yet in my life, because of the way artificial intelligence and machine learning are being increasingly used by law enforcement -- the technology is seemingly growing up alongside my kids -- it's especially acute. Unjust racial profiling and resulting racial disparities in the criminal justice system certainly don't depend on artificial intelligence. But when you add it -- as many law enforcement agencies across the country, including those in major cities like Miami, Los Angeles, Philadelphia, Atlanta and New York, have over the past couple of years -- things get even scarier for black families. This is especially frightening when combined with the fact that the current administration has already begun to reverse Obama-era criminal justice reform policies that were meant to make the system more just. A.I. works by taking large volumes of information and distilling it down to simple concepts, categories and rules and then predicting future responses and outcomes. This is a function of the beliefs, assumptions and capabilities of the people who do the coding. A.I. learns by repetition and association, and all of that is based on the information we -- humans who hold all the racial and often, specifically, anti-black biases of our society -- feed it. Just think of how Google's facial recognition programs labeled black people in photos ''gorillas.'' Or how Microsoft's Tay, a bot designed to engage in Twitter conversations, devolved into a racial-epithet-tweeting machine within 24 hours. These downsides of A.I. are no secret. Despite this, state and local law enforcement agencies have begun to use predictive policing applications fueled by A.I. like HunchLab, which combines historical crime data, moon phases, location, census data and even professional sports team schedules to predict when and where crime will occur and even who's likely to commit or be a victim of certain crimes. The problem with historical crime data is that it's based upon policing practices that already disproportionately hone in on blacks, Latinos, and those who live in low-income areas. If the police have discriminated in the past, predictive technology reinforces and perpetuates the problem, sending more officers after people who we know are already targeted and unfairly treated, given recent evidence like the Justice Department's reports on Ferguson, Mo., and Baltimore, and the findings of the San Francisco Blue Ribbon Panel on Transparency Accountability and Fairness in Law Enforcement. It's no wonder criminologists have raised red flags about the self-fulfilling nature of using historical crime data. This hits close to home. An October 2016 study by the Human Rights Data Analysis Group concluded that if the Oakland Police Department used its 2010 record of drug-crimes information as the basis of an algorithm to guide policing, the department ''would have dispatched officers almost exclusively to lower-income, minority neighborhoods,'' despite the fact that public-health-based estimates suggest that drug use is much more widespread, taking place in many other parts of the city where my family and I live. Those ''lower-income, minority neighborhoods'' contain the barbershop where I take my son for his monthly haircut and our favorite hoagie shop. Would I let him run ahead of me if I knew that simply setting foot on those sidewalks would make him more likely to be seen as a criminal in the eyes of the law? The risks are even more acute (and unavoidable) for those who can afford to live only in the neighborhoods that A.I. would most likely lead officers to focus on. There's yet another opportunity for racial bias to infuse the process when risk-assessment algorithms created by A.I. and machine learning are used to help to sentence criminals, as they already are in courts around the country. Without a commitment to ensure that the data being used to fuel A.I. doesn't replicate historical racism, biases will be built into the foundation of many ''intelligent'' systems shaping how we live. It's not that I want this technology to be rejected. There are ways to make A.I. work. But before it is used in law enforcement, it must be thoroughly tested and proven not to disproportionately harm communities of color. Until then my excitement about advances in tech will always be cautious. Innovation is at the core of the careers that allow me and my husband to provide a good life for our family. The same innovation, if not used properly, could take it all away. Follow The New York Times Opinion section on Facebook and Twitter (@NYTopinion), and sign up for the Opinion Today newsletter. https : // www.nytimes.com/2017/12/02/opinion/sunday/intelligent-policing-and-my-innocent-children.html Graphic DRAWING (DRAWING BY JONATHAN DJOB NKONDO) Load-Date: December 3, 2017 End of Document A Button Facebook Could Use: 'Why Me?' The New York Times

### Document 509

Home security is expected to be a $47.5 billion business by 2020. Top-of-the-line systems can include alarms, cameras, dogs, guards and even secret passageways. But even the most sophisticated systems can have a fundamental flaw: human error. Now, security companies are hoping to harness the potential of artificial intelligence to better safeguard homes. Expert say there are risks to using A.I., including concerns about privacy, the collection of personal data and racial sensitivity and bias, but security companies are promising better service at lower prices. Artificial intelligence, they say, can see more things faster than systems that rely on humans, who may not be paying attention. ''We put in the cameras to create a perimeter with no dead zones,'' said Ken Young, chief executive of Edgeworth Security, a consulting firm in Pittsburgh that offers monitoring solutions. To protect a property, these systems use technology like geofencing, facial recognition and A.I.-enabled cameras to help identify intruders. If someone breaks that boundary, the cameras will alert a command center. If someone loiters too long at a call box at the entrance to an estate, the system sends an alert to the monitoring center, which responds with a tailored warning, like ''You in the blue shirt, please leave.'' Mr. Young said the system uses artificial intelligence to tell the difference between movement into and out of a property, but it also uses facial recognition technology to distinguish regular visitors -- like gardeners or delivery people -- from strangers. ''When I worked at the White House, the grounds were gridded out with cables,'' said Mr. Young, who was part of the Marine One security detail and served as an emergency action planner to the executive branch during President George W. Bush's administration. ''Now, it's all done through the lens of the camera.'' Companies like Galaxy Security also make enhanced video cameras like the ones Edgeworth uses, and other security companies offer enhanced video surveillance as an add-on to other camera systems. The systems that Edgeworth installs can start around $20,000 for eight cameras on a small property and rise to more than $600,000 for large estates. Monitoring costs $8 to $12 an hour, and homeowners can choose when they want the monitoring turned on. That level of security is a draw for wealthy homeowners and property owners. The actor Joe Manganiello realized the weakness of his home security system a few years ago. He was at home in Beverly Hills, Calif., with his wife, the actress Sofia Vergara, when he heard someone walking around their property. Ms. Vergara checked the security cameras and noticed they were blacked out. Two men on their property had been spray-painting the lenses for nearly 45 minutes, which the company monitoring the security feed had missed. ''These guys were trying to crowbar in the kitchen window; then they moved to the living room door,'' said Mr. Manganiello, who is known for his roles on ''True Blood'' and ''Magic Mike.'' ''I was standing at the top of the stairs with a weapon.'' When the men broke through the front door, the security alarm sounded and they ran off, he said. But the attempted break-in made him realize it was time for a security upgrade. Many multimillion-dollar homes are ill equipped from a security perspective, professionals say. According to a 2011 study by the Justice Department, 94 to 98 percent of burglar alarms were false, making the systems unreliable. Tom Gallagher, president of DSL Construction, which owns 26 residential buildings with more than 1,400 apartments in Los Angeles, said he wanted to change how the properties were protected. ''Over the years, it just became increasingly clear to me that the quality of the guards and the guard services were horrible,'' he said. ''They weren't very effective.'' At first, he tried to create his own guard company, but that was too expensive, so he began researching enhanced security systems. He said installing the systems in all of the company's properties would save $400,000 to $500,000 a year. They will also be more reliable. ''We had cameras out there when we still had guards,'' Mr. Gallagher said of his trial phase. ''We had an incident that the cameras picked up. Where was the guard? He was sleeping in his car for six hours.'' Thomas Tull, the chief executive of Tulco, which owns Edgeworth, said what he wanted for himself and his clients was a system that anticipated risks, not just responded to them. He gave as an example a worker in one client's home who posted a picture of the house online; the Edgeworth security system flagged the photo within a minute, and it was taken down. In another instance, the plans for someone's compound were detected on the so-called dark web. ''Who knows what they were going to do with it?'' Mr. Tull said. ''That's a problem that didn't exist 20 or 25 years ago, this digital extension of yourself.'' How these systems learn the difference between good behavior and bad is a fraught ethical question. ''There is inherent bias in the computational systems,'' said Illah R. Nourbakhsh, the K&L Gates professor of ethics and computational technologies at Carnegie Mellon University's Create Lab. A recent study at the M.I.T. Media Lab showed how biases in the real world could seep into artificial intelligence. Commercial software is nearly flawless at telling the gender of white men, researchers found, but not so for darker-skinned women. And Google had to apologize in 2015 after its image-recognition photo app mistakenly labeled photos of black people as ''gorillas.'' Professor Nourbakhsh said that A.I.-enhanced security systems could struggle to determine whether a nonwhite person was arriving as a guest, a worker or an intruder. One way to parse the system's bias is to make sure humans are still verifying the images before responding. ''When you take the human out of the loop, you lose the empathetic component,'' Professor Nourbakhsh said. ''If you keep humans in the loop and use these systems, you get the best of all worlds.'' Security consultants recommend a layered approach that could include artificial intelligence. Michael A. Silva, principal of Silva Consultants in Seattle, said people needed to do a risk assessment first. Some very wealthy people are relatively unknown, so their risk is low, he said, but a less wealthy person with controversial opinions could be a more prominent target. Mr. Silva said any security plan started with the basics -- good locks, strong doors, an alarm system -- and could be expanded to full perimeter screening with either monitoring enhanced with artificial intelligence or more traditional motion detectors and alarms. Celebrities and other well-known people may want to build a safe room in their homes, he said, or have their own command centers. ''Before you start prescribing medicine, you need to diagnose the condition,'' Mr. Silva said. ''A risk assessment is really crucial.'' Christopher Falkenberg, a former Secret Service agent and the president of Insite Risk Management, said that with threats being made so easily over social media, he needed to help clients control their personal information and who had access to it. He said his firm used existing technology and had created some of its own programs to track what was being said about clients online. ''We used to be concerned with a small circle of people with information about you -- the gardeners, the people who were on the property,'' Mr. Falkenberg said. ''We can't vet all the people online the way we used to vet the gardener. We have to talk to clients about controlling the information that they personally put out there.'' At a minimum, what any security program hopes to do is make a home less attractive to criminals. ''We'll never reduce the crime rate in East Hampton or Greenwich,'' Mr. Falkenberg said. But, he added, ''if we can make it that much more difficult to target our people, we'll have achieved our goal.'' A few months ago, Mr. Manganiello and Ms. Vergara's home was targeted again. But this time, their new system from Edgeworth with geofencing technology and A.I.-enabled cameras detected three men before they could get close to the house. ''As they were trying to figure out where to come in, the command center was guiding the police to our house,'' Mr. Manganiello said. ''They were able to apprehend them and their getaway driver before they could even touch the house.'' https : // www.nytimes.com/2018/06/29/your-money/artificial-intelligence-home-security.html Graphic PHOTOS: Clockwise from top: Ken Young, chief executive of Edgeworth Security the company's command center in Pittsburgh Sofia Vergara and Joe Manganiello upgraded their home security system with artificial intelligence after a break-in. (PHOTOGRAPH BY ROSS MANTLE FOR THE NEW YORK TIMES) Load-Date: June 30, 2018 End of Document Deepfake Videos Could Change India's Elections The New York Times

### Document 387

The criminal justice system is becoming automated. At every stage — from policing and investigations to bail, evidence, sentencing and parole — computer systems play a role. Artificial intelligence deploys cops on the beat. Audio sensors generate gunshot alerts. Forensic analysts use probabilistic software programs to evaluate fingerprints, faces and DNA. Risk-assessment instruments help to determine who is incarcerated and for how long. Technological advancement is, in theory, a welcome development. But in practice, aspects of automation are making the justice system less fair for criminal defendants. The root of the problem is that automated criminal justice technologies are largely privately owned and sold for profit. The developers tend to view their technologies as trade secrets. As a result, they often refuse to disclose details about how their tools work, even to criminal defendants and their attorneys, even under a protective order, even in the controlled context of a criminal proceeding or parole hearing. Take the case of Glenn Rodríguez. An inmate at the Eastern Correctional Facility in upstate New York, Mr. Rodríguez was denied parole last year despite having a nearly perfect record of rehabilitation. The reason? A high score from a computer system called Compas. The company that makes Compas considers the weighting of inputs to be proprietary information. That forced Mr. Rodríguez to rely on his own ingenuity to figure out what had gone wrong. This year, Mr. Rodríguez returned to the parole board with the same faulty Compas score. He had identified an error in one of the inputs for his Compas assessment. But without knowing the input weights, he was unable to explain the effect of this error, or persuade anyone to correct it. Instead of challenging the result, he was left to try to argue for parole despite the result. Mr. Rodríguez was lucky. In the end, he made parole and left Eastern Correctional in mid-May. But had he been able to examine and contest the logic of the Compas system to prove that its score gave a distorted picture of his life, he might have gone home much earlier. Or consider the case of Billy Ray Johnson, a defendant in California who was sentenced to life without parole for a series of burglaries and sexual assaults that he says he did not commit. The prosecution relied on the results of a software program called TrueAllele that was used to analyze traces of DNA from the crime scenes. When an expert witness for Mr. Johnson sought to review the TrueAllele source code in order to confront and cross-examine its programmer about how the software works, the developer claimed it was a trade secret, and the court refused to order the code disclosed — even though Mr. Johnson’s attorney offered to sign a protective order that would safeguard the code. Mr. Johnson was thus unable to fully challenge the evidence used to find him guilty. TrueAllele’s developer maintains this decision was right. It has submitted affidavits to courts across the country alleging that disclosing the program’s source code to defense attorneys would cause “irreperable harm” to the company because it would allow competitors to steal the code. Most judges have credited this claim, quashing defense subpoenas for the source code and citing the company’s intellectual property interests as a rationale. In 2015, a California Appeals Court upheld a trade secret evidentiary privilege in a criminal proceeding — for what is likely the first time in the nation’s history — to shield TrueAllele source code from disclosure to the defense. That decision, People v. Chubbs, is now being cited across the country to deny defendants access to trade secret evidence. TrueAllele is not alone. In another case, an organization that produces cybercrime investigative software tried to invoke a trade secret evidentiary privilege to withhold its source code, despite concerns that the program violated the Fourth Amendment by surreptitiously scanning computer hard drives. In still other instances, developers of face recognition technology have refused to disclose the user manuals for their software programs, potentially obstructing defense experts’ ability to evaluate whether a program has been calibrated for certain racial groups and not for others. Likewise, the algorithms used to generate probabilistic matches for latent fingerprint analysis, and to search ballistic information databases for firearm and cartridge matches, are treated as trade secrets and remain inaccessible to independent auditors. This is a new and troubling feature of the criminal justice system. Property interests do not usually shield relevant evidence from the accused. And it’s not how trade secrets law is supposed to work, either. The most common explanation for why this form of intellectual property should exist is that people will be more likely to invest in new ideas if they can stop their business competitors from free riding on the results. The law is designed to stop business competitors from stealing confidential commercial information, not to justify withholding information from the defense in criminal proceedings. Defense advocacy is a keystone of due process, not a business competition. And defense attorneys are officers of the court, not would-be thieves. In civil cases, trade secrets are often disclosed to opposing parties subject to a protective order. The same solution should work for those defending life or liberty. The Supreme Court is currently considering hearing a case, Wisconsin v. Loomis, that raises similar issues. If it hears the case, the court will have the opportunity to rule on whether it violates due process to sentence someone based on a risk-assessment instrument whose workings are protected as a trade secret. If the court declines the case or rules that this is constitutional, legislatures should step in and pass laws limiting trade-secret safeguards in criminal proceedings to a protective order and nothing more. The future of the criminal justice system may depend on it. Follow The New York Times Opinion section on Facebook and Twitter (@NYTopinion), and sign up for the Opinion Today newsletter. Rebecca Wexler is a fellow at the Legal Aid Society and a resident at the Data and Society Research Institute. DRAWING (DRAWING BY SALLY DENG) Load-Date: June 14, 2017 End of Document Ethics and Artificial Intelligence; Letter The New York Times

### Document 427

The uproar over an algorithm that lowered the grades of 40 percent of students is a sign of battles to come regarding the use of technology in public services. LONDON -- Even after a final term with schools closed for the pandemic, Sam Sharpe-Roe was optimistic about the coming school year. Teachers from his West London school had given him grades -- three A's and one B -- that were strong enough to secure him a spot at his first choice of university next month. But after the British government used a computer-generated score to replace exams that were canceled because of the coronavirus, all his grades fell and the college revoked his admission. Mr. Sharpe-Roe, along with thousands of other students and parents, had received a crude lesson in what can go wrong when a government relies on an algorithm to make important decisions affecting the public. Experts said the grading scandal was a sign of debates to come as Britain and other countries increasingly use technology to automate public services, arguing that it can make government more efficient and remove human prejudices. But critics say the opaque systems often amplify biases that already exist in society and are typically adopted without sufficient debate, faults that were put on clear display in the grading disaster. Nearly 40 percent of students in England saw their grades reduced after the government re-evaluated the exams, known as A-levels, with the software model. It included in its calculations a school's past performance on the tests and a student's earlier results on ''mock'' exams. Government officials said the model was meant to make the system more fair, balancing out potentially inflated scores given by some teachers. But students and their parents, particularly those from lower-income areas with struggling schools, were outraged that their futures had been turned over to lines of code that favored students from private schools and wealthy areas. Even after the government apologized and threw out the computer scores, many students had already lost their slots at their preferred universities, sending the admission process into further chaos. ''These algorithms are obviously not correct,'' said Mr. Sharpe-Roe, 18, whose home borough of Ealing is enormously diverse but also divided by race, ethnicity and income. ''I know a load of other people who are in a similar situation.'' The outcome, experts say, was entirely predictable. In fact, the Royal Statistical Society had for months warned the test administration agency, Ofqual, that the model was flawed. ''It's government trying to emulate Silicon Valley,'' said Christiaan van Veen, director of the digital welfare state and human rights project at New York University. ''But the public sector is completely different from private companies.'' As an investigator for the United Nations, Mr. van Veen studies how Britain and other countries use computers to automate social services. He said the techniques were being applied to policing and court sentencing, health care, immigration, social welfare and more. ''There are no areas of government that are exempt from this trend,'' he said. Britain has been particularly aggressive in adopting new technology in government, often with mixed results. Earlier this month, the government said it would stop using an algorithm for weighing visa applications after facing a legal complaint that this was discriminatory. A few days later, a British court ruled against the use of some facial-recognition software by the police. The country's automated welfare system, Universal Credit, has faced years of criticism, including from the United Nations, for making it harder for some citizens to obtain unemployment benefits. Britain's contact-tracing app, which the government had said would be key to containing the coronavirus, has been delayed by technical problems. ''There is an idea that if it has an algorithm attached to it, it's novel and interesting and different and innovative, without understanding what those things could be doing,'' said Rachel Coldicutt, a technology policy expert in London who is working on a book about responsible innovation. Those who have called for more scrutiny of the British government's use of technology said the testing scandal was a turning point in the debate, a vivid and easy-to-understand example of how software can affect lives. Cori Crider, a lawyer at Foxglove, a London-based law firm that filed a complaint against the grading algorithm, said the problem was not the use of technology itself but the lack of transparency. Little is known about how the models work before they are introduced. ''There has been a tendency to compute first and ask questions later,'' said Ms. Crider, who also brought the legal challenge against the visa algorithm. ''There's been a refusal to have an actual debate about how these systems work and whether we want them at all.'' For years, Britain has heralded technology as a way to modernize government and provide social services more efficiently. The trend has spanned several administrations but has been given fresh momentum under Prime Minister Boris Johnson. His top political adviser, Dominic Cummings, has argued forcefully that Silicon Valley thinking is needed to create high performance government, including new workers in areas like data science and artificial intelligence. He has expressed admiration for the ''frontiers of the science of prediction.'' In response to the coronavirus, Britain has sought help from companies like Palantir, a Silicon Valley analytics firm that was hired to manage data for the country's National Health Service. A London-based artificial intelligence firm, Faculty, is working on predictive systems to help track the virus. In another embarrassing misstep, the government decided to build its own contact-tracing app rather than using technical standards set by Apple and Google, despite warnings that it would have limitations. The release has been delayed for months. Britain is not alone in turning some decisions over to computer systems. In the United States, algorithms are used by police departments to determine where officers patrol and by courts to set prison sentences. In Spain, the monitoring group Algorithm Watch identified a system being used to predict households at risk of domestic violence. The Netherlands abandoned the use of a system to detect welfare fraud after a judge said it was unlawful. The techniques are often pitched as apolitical, but researchers say they disproportionately affect lower-income and minority groups. ''One of the great benefits of these tools for governments is it allows them to portray the decisions they are making as neutral and objective, as opposed to moral decisions,'' said Virginia Eubanks, an associate professor at the State University of New York at Albany, whose book, ''Automating Inequity,'' explores the topic. In Britain, the political fallout of the grading mishap dominated the news and led to calls for the country's education minister to resign. Students protested outside Parliament, chanting expletives at ''the algorithm.'' Critics say the experience shows the risks ahead as more sophisticated tools like artificial intelligence become available and companies pitch them to public agencies. Mr. Sharpe-Roe said ''there's a lot of anger'' at having his fate set by an algorithm. After struggling to regain his lost spot at college, he decided to defer for a year to work. https : // www.nytimes.com/2020/08/20/world/europe/uk-england-grading-algorithm.html Graphic PHOTOS: Students in London protesting computer-generated scores, implemented to replace exams canceled because of the coronavirus. (PHOTOGRAPH BY HENRY NICHOLLS/REUTERS) The grading debacle has prompted calls for the education minister, Gavin Williamson, left, to resign. Right, students going to collect their results in London last week. ''There has been a tendency to compute first and ask questions later,'' said one lawyer involved. (PHOTOGRAPHS BY JUSTIN TALLIS/AGENCE FRANCE-PRESSE -- GETTY IMAGES PETER NICHOLLS/REUTERS) Load-Date: August 21, 2020 End of Document How Alexa Was Taught Irish Brogue The New York Times

### Document 980

To determine your risk, start-ups are applying technology to data points as various as your college and the mileage on the used car you want to buy. For decades, the arbiters of creditworthiness have been two powerful groups: the Big Three credit bureaus, which keep files on roughly 200 million consumers, and score creators like FICO, which turn that raw data into a three-digit key to credit cards, car loans, mortgages and more. But with tens of millions of consumers left out of traditional credit scoring and the pandemic exposing potential problems in the current system, established players and slick start-ups alike are collecting and crunching all manner of other data to determine who ought to get a loan and how much they should pay. This so-called alternative credit scoring could have profound effects for consumers, many of them minorities or low-income individuals, who can be asked to hand over more intimate personal information -- like their spending habits and details of their college degree -- in hopes of getting a loan. ''The box for who gets a conventional credit score is pretty small, and that box hasn't been updated in a while,'' said Silvio Tavares, the chief executive officer of VantageScore, an established credit scorer that is owned by the big bureaus and is working on adding alternative data to its models. ''Data is really a big equalizer.'' The efforts to better understand potential borrowers increasingly take two forms, which sometimes overlap. The first involves obtaining cash flow and transaction data from users' bank accounts, a practice that lenders including Kabbage have used. The second involves applying artificial intelligence to broad swaths of information -- which may include items already in your credit report, new details such as the mileage on the used car you're buying or perhaps behavior gleaned from your debit accounts -- to assess applicants' ability to pay. Regulators have recently begun discussing both issues, considering and collecting input from the financial industry and others. Officials at the Consumer Financial Protection Bureau have warned that artificial intelligence could amplify risks, including by perpetuating biases against certain borrowers, charging some of them too much or simply making inaccurate predictions. The bureau's director, Rohit Chopra, recently said the new algorithms became ''black boxes behind brick walls'' when left unchecked. A deeper understanding of potential borrowers' finances is valuable intelligence for lenders. The roughly 45 million people who have a thin or nonexistent credit history -- more than 15 percent of the country's adult population -- are a lucrative untapped market. ''FICO is more than 30 years old,'' said Dave Girouard, chief executive of Upstart, which uses nonfinancial data including the type of job you hold and your level of education to help make credit decisions on personal and auto loans. ''It leaves millions of people out in the cold and millions more who pay more for credit than they should.'' Upstart's platform is growing rapidly. It has more than 30 lending partners, including Cross River Bank, which made more than 360,000 new loans totaling $3.13 billion in the third quarter, up 244 percent from a year earlier. At least four of those lenders dropped their minimum FICO score requirement altogether. The company is also something of a regulatory guinea pig: Upstart was the first business to receive a no-action letter from the Consumer Financial Protection Bureau. The letter essentially said the bureau had no plans to take any regulatory action against the company in return for detailed information about its loans and operations. Though the bureau didn't recreate Upstart's results on its own, it said the company had approved 27 percent more applicants than the traditional model, while the average interest rates they paid were 16 percent lower. For example, ''near prime'' customers with FICO scores from 620 to 660 were approved about twice as frequently, according to company data. Younger and lower-income applicants also fared better. Upstart, which also agreed to be monitored by two advocacy groups and an independent auditor, takes into account more than 1,000 data points inside and outside a consumer's credit report. It has tweaked its modeling at times -- it no longer uses the average incoming SAT and ACT scores of a borrower's college -- but includes the person's college, area of study and employment history. (Nurses rank well, for example, because they're rarely unemployed, Mr. Girouard said.) The amount that borrowers are asking for may also be a factor: If they are seeking more than Upstart's algorithms believe is appropriate, that may work against them. Other companies work in a similar way, although the methods and data they use vary. TomoCredit, for example, will issue a Mastercard credit card to applicants -- even those with no credit score -- after receiving permission to peer at their financial accounts; it analyzes more than 50,000 data points, such as monthly income and spending patterns, savings accounts and stock portfolios. Within two minutes, consumers are approved for anywhere from $100 to $10,000 in credit, to be paid off weekly. On-time payments help build users' traditional credit files and scores. Zest AI, a Los Angeles company that already works with banks, auto lenders and credit unions, is also working with Freddie Mac, which recently began using the company's tools to evaluate people who may not fit squarely inside traditional scoring models. Jay Budzik, Zest AI's chief technology officer, said the company went deep into applicants' credit reports, and might incorporate information from a loan application, such as the mileage or potential resale value of a used car. It can also look at consumers' checking accounts. ''How frequently are they getting close to zero?'' Mr. Budzik said. ''Those things are helpful in creating an additional data point on a consumer that is not in the credit report.'' The same methods can also be applied to those who already have a robust credit history, filling out their profiles in real time. Such information became more valuable during the pandemic because credit scores alone may not have picked up signs of stress when borrowers could pause payments on student loans and mortgages. It can take months for some information to filter into credit scores, said Kelly Thompson Cochran, deputy director of FinRegLab, a nonprofit that tests new technologies in the financial industry. ''This can make it particularly difficult for lenders to predict default risk accurately both for applicants who have recently experienced financial difficulties and for applicants who are rebounding from past income or expense shocks,'' she said. Established credit scoring and reporting companies are increasingly offering consumers ways to add additional information. The credit bureau Experian's Boost feature allows consumers to pipe in payments on bills from a services like Netflix, Disney+ and their mobile phone provider. The average customer's FICO 8 score -- the formula currently used by most lenders -- rises 13 points, executives said. And FICO is piloting a new score, UltraFICO, which augments its traditional model by taking into account -- with users' permission -- their cash on hand, history of positive balances, and recentness and frequency of banking transactions. FICO estimated the new score can reach 15 million more people. More information, such as income data or whether you have a 401(k) plan, could be included in future iterations, said FICO's chief executive, Will Lansing. ''I think the future of the industry is the consumer taking more control of their data,'' he said, ''and deciding when it will be used and what it will be used for and for what purpose.'' Consumer advocates say that's a crucial issue. While the growing use of transaction data could be a boon to many borrowers, checking and debit accounts contain all sorts of revelatory information, and access to it must remain voluntary, advocates said. Lenders may be looking largely at the broad strokes of your cash flow now, but will they eventually glimpse at where you shop and what types of doctors you visit? ''Credit invisibility is a problem, but some of the solutions or cures can be worse than the disease,'' said Chi Chi Wu, a staff attorney at the National Consumer Law Center. ''It's a high-wire act to make sure this helps more than it hurts.'' https : // www.nytimes.com/2021/11/29/your-money/credit-score-alternatives-options.html Graphic PHOTO: Some lenders are using all manner of data -- such as a used car's resale value -- to gauge a potential loan's risk. (PHOTOGRAPH BY AN RONG XU FOR THE NEW YORK TIMES) Load-Date: November 30, 2021 End of Document A Hurdle-Filled Race To Make Computer Chips The New York Times

### Document 501

goal of the SharkEye project is to one day produce automated ''shark reports'' for beachgoers to help them gauge levels of risk. Once rare off Southern California beaches, great white sharks are beginning to show up more often. The newcomers are mostly juvenile sharks, which prefer the warm waters closer to shore. That means many beachgoers who are now spotting sharks have never seen the predators before. ''When these little fins started to pop up, everyone was scrambling to figure out what was going on,'' said Douglas J. McCauley, a marine science professor and the director of the Benioff Ocean Initiative at the University of California, Santa Barbara. A new project using artificial intelligence called SharkEye may help keep track of these fearsome fish. The technology is being developed by Dr. McCauley's lab (which works with A.I. researchers at Salesforce, the company led by his lab's sponsor, Marc Benioff) and computer scientists at San Diego State University to monitor more of the oceanfront while learning about shark migrations. SharkEye has been tested over the past two summers at Padaro Beach in Santa Barbara County, a popular area for surf camps that also happens to be a nursery for juvenile white sharks. Shark spotting there and in other places, when it occurs at all, is usually done by tracking tagged animals online, or by having someone stand on a paddle board in the water to keep an eye out. With SharkEye, a pilot launches a drone that travels along a preprogrammed path in the sky, followed by a second meandering route to scan the water below. The drone stays about 120 feet up, allowing the sweeps to quickly cover a large area of the ocean. That height is also high enough to avoid bothering marine life. The pilot monitors a video feed in real time, noting any sharks, and then sends a text to the 36 people who have signed up to get alerts -- a group that includes lifeguards, surf camp instructors and beachside homeowners. Dr. McCauley said the lab was working on different types of alerts so people would have information before venturing into the water. These might come through social media channels or even a ''shark report'' modeled off surf reports. The drone footage also goes into a computer model that the team trained to recognize great white sharks. Combining that with other data, such as information on ocean temperature and other marine life migrations, researchers hope to use the power of artificial intelligence to develop predictions for when and where sharks will show up that could lead to ways to share the ocean as safely as possible. Researchers are turning to A.I. to learn more about some marine animals, which, because they live under the vast oceans, have been harder to study than most land creatures. Using hydrophones and A.I., Google built tools to automatically detect humpback whales and orcas by their sounds. Flukebook is a project that tracks individual dolphins and whales by using artificial intelligence to identify them by unique features on their tails and fins, much like facial recognition technology. Even without A.I., drones have allowed groups like Pelagios Kakunjá, a Mexican conservation organization, to study sharks more closely. The increase in great white sharks off California is partially a result of climate change, which is pushing the animals, especially the juveniles, north from their usual haunts further south along California's coast down into Baja California. Successful conservation efforts like the Marine Mammal Protection Act have helped some of the sharks' favorite foods -- seals and sea lions -- rebound. And a ban on near-shore gillnets has reduced the number of sharks accidentally caught by commercial fishermen. Even with the growing shark population, shark attacks are rare off the West Coast, with only 118, including six fatalities, since 2000, according to the nonprofit Shark Research Committee. One of those attacks was at Padaro Beach over the summer, when the SharkEye team wasn't flying a drone because of the coronavirus shutdown. A shark is believed to have bitten a woman swimming offshore, although her injuries were minor. And eight days later, a shark killed a surfer a few hours north in Santa Cruz -- the first fatal shark attack in California since 2012. There is no evidence that the rate of shark attacks is increasing even as more people use the beach, according to Chris Lowe, a professor in marine biology and the director of the Shark Lab at California State University, Long Beach. The chances of being bitten are still extremely low, but giving people more insight into the number of sharks in the area may help beachgoers make informed decisions about what they are willing to risk. ''The reality is, sharks aren't going to change their behavior,'' Dr. Lowe said. ''This data is more valuable in changing people's behavior.'' Chris Keet, the owner of Surf Happens, a local surf store that offers summer camps and private lessons on Padaro Beach, is already altering his business based on the SharkEye data. After SharkEye clocked nine sightings in one day in July, Mr. Keet decided to cancel a two-decade-old summer tradition in which campers dive for sand dollars and swim out to a buoy. ''Even though the sharks aren't aggressive,'' Mr. Keet said, ''it just takes one.'' Because the SharkEye drone is not in use the whole time camp is in session, Mr. Keet still relies on people on paddle boards as lookouts, including himself. After growing up nearby and never seeing a shark, he now almost always spots a shadow or a fin cutting through the water when he's on duty. ''They're beautiful,'' he said. ''But it's nerve-racking.'' https : // www.nytimes.com/2020/11/20/science/sharks-drones-artificial-intelligence.html Graphic PHOTOS: Scientists say the increase in great white sharks off California is partly a result of climate change, which is pushing them, especially juveniles, north. Technology from the Benioff Ocean Initiative, right, may help track the fearsome fish. (PHOTOGRAPHS BY REINHARD DIRSCHERL/ULLSTEIN BILD, VIA GETTY IMAGES BENIOFF OCEAN INITIATIVE, UNIVERSITY OF CALIFORNIA SANTA BARBARA) Load-Date: November 24, 2020 End of Document How to Use A.I. to Automate the Dreaded Office Meeting The New York Times

### Document 806

Experts have seen an increase in the frauds, many of which are preying on investors who feel they lost out on the market gains of the last few years. The GameStop stock saga -- with its element of David versus Goliath, not to mention its head-turning price gains followed by stomach-churning drops -- may have been all the talk of Wall Street in the last couple of weeks. But that is just a sideshow. A bigger issue for investors may well be the increasing number of Ponzi schemes, which use money from new investors to pay earlier investors until the fraud falls apart. Many of the latest fraudsters have been preying on people who feel they lost out on the big stock market gains of the last few years. The schemes have failed because they did not have the sophisticated apparatus of two of the biggest in the last decade -- the multibillion-dollar ones perpetrated by Bernard L. Madoff and R. Allen Stanford. Those both failed in the financial crisis. What is different now is that Ponzi schemes are collapsing while financial markets are soaring. That worries the lawyers and academics who track the schemes, because the trend is likely to only get worse when the markets do pull back. Over 600 Ponzi schemes have been detected in the past decade, said Marie Springer, who teaches at John Jay College of Criminal Justice in New York and wrote a new book, ''The Politics of Ponzi Schemes: History, Theory, and Policy.'' Referring to Mr. Madoff's prison sentence, she said: ''If he got 150 years, why would anyone start a Ponzi scheme and think they'll get away with it? But they do. They think they're smarter.'' Kathy Bazoian Phelps, a lawyer in Los Angeles who runs The Ponzi Scheme Blog, said she identifies three to 10 new Ponzi schemes in each monthly post. ''It has not slowed down even remotely since Madoff,'' she said. ''It amazes me month after month the creative things that people come up with to defraud other people out of their dollars.'' These experts and others agree that Ponzi schemes -- and not wild gyrations in a single stock -- are what investors need to keep their eye on now. One group in particular is a ripe target: comparatively affluent, well-connected investors who are curious about new investments but too busy to fully research them or be suspicious of steadily high returns. Nobody contacts the Securities and Exchange Commission or the Justice Department ''when they're getting their very high profits consistently,'' Ms. Springer said. ''They never say: 'I'm making way too much. This must be a Ponzi scheme.''' They contact the authorities when they lose money. Or, she said, ''when Grandma dies and they can't get her money back, they report it.'' In retrospect, Ponzi schemes always seem obvious. Charles Ponzi's postage stamp investment fraud in the early 1920s certainly was not the first such scheme, but it was so well known that the ploy became identified with him. Ms. Springer's book is an examination of the various types of schemes, swindlers and victims as well as an economic and legal analysis of how the frauds have been dealt with over the decades. Common threads abound, and she stresses that anyone investing money in anything needs to understand what makes a legitimate investment and what raises suspicions. Most Ponzi schemers start with friends and family because of the built-in trust, Ms. Springer said she had found in her research. Right after them come houses of worship. That's partly because of the connections people make in them. It's also because people want to believe that someone they meet where they worship has the same beliefs and values that they do. ''We assume they wouldn't think to take advantage of someone else because we wouldn't take advantage of someone else,'' Ms. Springer said. She has labeled it the ''just like I am'' syndrome, and it applies to any affinity group, be it an immigrant community, a country club or a school. ''In many cases, the Ponzi perpetrators use the money they bring in to send their kids to private schools,'' Ms. Springer said. ''That's where they make connections to other people with money.'' Most of the schemers are men, and are usually older and able to project an air of success, she found. ''Not a lot of people are going to have confidence in someone who is 28,'' she said. ''Aging allows you to come off as having knowledge.'' Generally, the fraudsters have worked in the industry in which they've hatched their scheme, so they have a deep knowledge of what they're doing. Lawyers, accountants and registered brokers can often be found at the helm, but Ms. Springer has also uncovered schemes involving agricultural supplies, worm farms and a ''whale whisperer,'' who promoted a music business from the sounds of whales and dolphins. ''In all Ponzi schemes, the perpetrator was very pleasant, someone you'd want to be friends with,'' she said. So how do you tell which investments are cause for concern and which safeguards to use to ward them off? Topics in the news are ripe for Ponzi schemes. At the moment, those could be cryptocurrency, artificial intelligence and research into Covid-19 treatments. ''Fraud feeds on uncertainty, financial distress, upheaval and times of change,'' said Ms. Phelps, the lawyer. ''That describes exactly the time we're living in. Fraudsters take the latest news and exploit people.'' She has already seen Ponzi schemes around companies supposedly developing a cure or treatment. ''Beware of promises,'' Ms. Phelps said. There are several tried and true ways to avoid being swindled, though they're also a bit time-consuming. That is why Ponzi victims skip the due diligence and trust their friend who knows a guy who says he's a great investor. The first step is to check the documents. All Ponzi schemes have fraudulent documents. In Mr. Stanford's $7 billion Ponzi scheme -- which involved seemingly safe but unusually high-yielding certificates of deposit -- the firm sent legitimate brokerage statements with hundreds of actual stocks, albeit with only one or two shares in each company. Second, verify the managers' credentials and question their claims. Ms. Springer said she had found that most Ponzi schemers donated to political campaigns. ''Then they get a photo of themselves with the candidate,'' she said. ''You trust someone who has the trappings of success.'' Most of all, make sure you understand what the person asking for your money is doing and why that person wants you to invest. Artificial intelligence, for example, is ripe for fraud because it's interesting, seemingly lucrative and not easily comprehended. ''Every time I see the words 'proprietary algorithms,' I think fraud,'' Ms. Phelps said. ''Some say they use A.I. bots that generate fixed returns of 20 percent. If it's so easy to generate A.I. returns, why do they want your money?'' Let's say you have been getting the promised payments from your investment, and then the investment scheme is revealed. You have not come out ahead. The bankruptcy judge or the federal receiver will probably ask for the money back when the scheme collapses. And don't count on arguing that you didn't know what was happening. ''There's an old legal defense that is often times used for the unsuspecting victim,'' said Randall A. Pulman, founder of the law firm Pulman, Cappuccio, Pullen & Benson in San Antonio. ''You whine, whimper and snort. That's really all you can do.'' Mr. Pulman knows well. He has spent the past 11 years trying to recover money lost in Mr. Stanford's scheme. Mr. Pulman said the U.S. Supreme Court had turned down his group's last appeal -- to sue one of the insurance brokers directly -- at the end of 2020. ''The only people who made money were the lawyers,'' he said. ''Investors are at a return of 5 to 6 cents on the dollar.'' Yet believers persist. Mr. Pulman had a client in his office several years ago who said he had received $1,000 every month from a $100,000 investment. When the person he gave the money to came up short, he brought in other investors. ''I looked at him and said, 'You know that's a Ponzi scheme and someday the money is going to run out?''' Mr. Pulman said. ''My client didn't want to believe me. I tried to explain to him the concept of a clawback, that one day your guy is going to file for bankruptcy and a trustee is going to look for you to pay back all the money he paid you. He just didn't want to hear it.'' Mr. Pulman said he hadn't heard from that client since. https : // www.nytimes.com/2021/02/05/your-money/ponzi-schemes-stock-market.html Graphic PHOTO: Hundreds of Ponzi schemes have been detected since Bernard L. Madoff, above in 2008, admitted his and was sentenced to 150 years. (PHOTOGRAPH BY JUSTIN LANE/EPA) Load-Date: February 6, 2021 End of Document The U.S. Tech Sector Is Looking Weak. That’s a Geopolitical Risk.; peter coy The New York Times

## Topic 4

### Document 950

Micron secured some gains from the China deal but it may end up suffering bigger losses from the broader U.S.-China battle. WASHINGTON -- Among the corporate titans recognized last week by President Trump during a White House signing ceremony for his China trade deal was Sanjay Mehrotra, the chief executive of Micron Technology, whose Idaho semiconductor company is at the heart of Mr. Trump's trade war. Micron, which makes memory chips for computers and smartphones, is precisely the kind of advanced technology company that the Trump administration views as crucial to maintaining a competitive edge over China. After Micron rebuffed a 2015 takeover attempt by a Chinese state-owned company, it watched with disbelief as its innovations were stolen and copied by a Chinese competitor and its business was blocked from China. China's treatment of American companies like Micron fed Mr. Trump's decision to unleash a punishing trade war with the world's second-largest economy, a fight he said would halt Beijing's use of unfair practices to undermine the United States. But that two-year conflagration may wind up being more damaging to American technology companies. The initial trade deal announced last week should make operating in China easier for companies like Micron. The deal contains provisions meant to protect American technology and trade secrets and allow companies to challenge China on accusations of theft, including older cases like Micron's that precede the agreement. But Mr. Trump's aggressive trade approach has also accelerated a technology arms race between the two countries, putting American companies like Micron at risk as the two nations try to decouple their economies. In an effort to reduce its reliance on American components, China has expedited efforts to produce its own semiconductors, driverless cars, artificial intelligence and other technologies. Those efforts, along with the Trump administration's desire to restrict the sales of American tech products to China, could hurt the very companies Mr. Trump set out to protect. ''Let's be clear, the trade war has been very bad for the semiconductor industry in several ways,'' said Robert D. Atkinson, president of the Information Technology and Innovation Foundation, a think tank funded by the tech industry. ''It's like China woke up and said, 'We've relied too much on the United States.''' The trade deal does nothing to curtail China's use of subsidies, industrial plans and state-owned companies, which have helped it build formidable industries in steel, wind turbines and solar panels. Those state-directed efforts, which put many American manufacturers out of business, are now being harnessed for high-tech industries. The Trump administration is constructing its own walls around American technology, reducing access to the lucrative Chinese market out of security concerns. It is restricting exports of sensitive technologies, barring sales to certain Chinese companies and blocking Chinese entities from investing in the United States. The administration is considering further restricting sales to Huawei, the Chinese telecom company that relies on components from Micron and other American suppliers. And the China trade deal leaves tariffs on more than $360 billion in Chinese goods in place as Mr. Trump tries to push American companies to bring manufacturing back home. Semiconductor sales to China, which represent more than half the global chip demand, have fallen, and semiconductor stocks have been whipsawed by the trade war. Mr. Trump and his supporters say that conflict is no longer avoidable, and that the president's unconventional approach is necessary to take on a growing threat from China. Officials across the administration look with suspicion on Chinese industrial plans, including Made in China 2025, which called for $300 billion in financing and other support for 10 advanced industries, including semiconductors. American officials worry that gaining an advantage in semiconductors would give China both a commercial and military edge. Chips, which serve as the tiny sensors, brains and memories of all high-tech devices, are crucial to next-generation telecom networks, supercomputers, artificial intelligence and driverless cars, as well as military ships, satellites and aircraft. They are also one of the United States' largest exports, along with airplanes, oil and cars. While China's ability to make chips is still far behind the United States', the Chinese government, its state-owned enterprises, and provincial and private equity funds have been pumping billions of dollars into the industry, particularly the kind of memory chips that Micron makes. In areas where Chinese companies cannot develop or buy technology, companies say, some will simply steal their intellectual property. For the Trump administration, which was looking for a fight with China, Micron's story proved a formative one. As officials prepared an investigation into Chinese intellectual property theft that would ultimately spiral into the trade war, Micron provided a ''camera ready'' case that fit everything the administration was looking for, one industry executive said. In 2015, Micron was the target of a $23 billion takeover attempt by a Chinese state-owned company, but the overture was withdrawn over United States national security concerns. In 2016, another Chinese state-owned company, Fujian Jinhua Integrated Circuit, allegedly worked in concert with a Taiwanese company to steal the American company's designs and market them as their own. According to Taiwanese authorities, Fujian Jinhua used Micron's proprietary designs to build an enormous $5.7 billion microchip factory in China. In 2018, the Department of Justice charged the Chinese company and others with stealing trade secrets from Micron, and the Commerce Department blacklisted it for national security concerns. The same year, a Chinese court temporarily blocked Micron from selling some products in China, after Fujian Jinhua and another company accused Micron of patent infringement. Through 2017 and 2018, Micron employees met repeatedly with administration officials, sometimes with the National Security Council and National Economic Council. The company's case was discussed in internal planning meetings attended by Robert Lighthizer, the United States trade representative, and Peter Navarro, a top Trump trade adviser. In July of last year, Mr. Trump met at the White House with Mr. Mehrotra of Micron, as well as the chiefs of Intel, Google and Broadcom, to discuss the trade clash with China and the administration's policies toward Huawei. Two months later, in an address to the United Nations, Mr. Trump described the Micron theft as a rationale for the trade war. ''To advance the Chinese government's five-year economic plan, a company owned by the Chinese state allegedly stole Micron's designs, valued at up to $8.7 billion,'' the president said. ''Soon, the Chinese company obtains patents for nearly an identical product, and Micron was banned from selling its own goods in China. But we are seeking justice.'' ''For years, these abuses were tolerated, ignored or even encouraged,'' Mr. Trump added. ''But as far as America is concerned, those days are over.'' Chip makers initially supported the Trump administration's willingness to take on China. Companies had long grumbled about intellectual property theft and unfair treatment in the Chinese market, but they had little recourse: Going public about their troubles could spook investors and invite Chinese retaliation. Then, in April 2018, the administration announced $50 billion in tariffs that would directly hit semiconductor companies by raising prices for imported equipment and materials. A chip finished in China would be subject to a 25 percent tariff, even if its components had been made in America. The tariffs caught the industry by surprise. The Semiconductor Industry Association, a trade group, pushed back, telling the United States trade representative in July 2018 that the tariffs would ''undermine U.S. technological leadership, cost jobs, and adversely impact U.S. consumers of semiconductor products and the U.S. semiconductor producers.'' Some industry executives grew more nervous as Mr. Trump escalated his trade fight and the prospect of an economic rupture between the United States and China became more real. Chinese customers shifted their purchases to suppliers in South Korea, Taiwan and elsewhere. Mr. Trump's trade pact did ink some victories -- it includes greater protections for companies like Micron, including preliminary injunctions and expanded legal recourse for theft of trade secrets. It also contains new promises from China to refrain from pressuring American businesses to transfer their technology to Chinese companies, and it allows American companies to sue individuals, including former employees and hackers. Semiconductor companies said they would press the administration to make more gains in the next phase of negotiations, including subsidies, which Mr. Trump said he plans to address. Just getting China to acknowledge and agree to forgo unfair practices was progress, they said. In a statement, Micron said it applauded the deal. ''We look forward to additional discussions between the countries on significant issues that are important to Micron and the semiconductor industry, such as intellectual property protection and subsidies,'' said Jon Hoganson, Micron's managing director of global government affairs. But the fight has spilled over into more damaging areas. Last May, the Commerce Department placed Huawei, which makes handsets and telecom equipment, on a national security blacklist that bans it from buying some American products. Other Chinese technology companies were added to the list, and the government began planning which types of advanced technologies it would no longer allow companies to export overseas. Micron had so far experienced limited effect from Mr. Trump's tariffs since it does not ship the products it makes in China to the United States. But Huawei's blacklisting was potentially devastating -- 13 percent of Micron's chip sales are to the Chinese company. In its fourth-quarter earnings call with investors last September, Micron warned that the clash could damage its bottom line. ''We see ongoing uncertainty surrounding U.S.-China trade negotiations. If the Entity List restrictions against Huawei continue and we are unable to get licenses, we could see a worsening decline in our sales to Huawei over the coming quarters,'' Mr. Mehrotra said. Micron's stock sank 11 percent after his remarks. Micron, Intel and other companies with global operations initially found a way to keep selling to Huawei since the rule did not restrict products containing less than 25 percent of certain types of American content. But the Commerce Department is considering lowering that threshold and expanding the number of goods subject to the ban, according to five people with knowledge of the plan. Like other Chinese companies, Huawei has worked to curtail its dependence on America. By substituting parts from Japan and other countries, the company has recently produced handsets and telecom equipment that do not contain any American components. Its internal semiconductor unit, HiSilicon, has also developed replacements for advanced chips that Huawei once bought from American companies. Huawei said its 2019 sales topped $120 billion, representing 18 percent growth over the year before -- less than its initial target, but not by much. American companies say they are sympathetic to the administration's complaints about China. But they must compete globally, and they are not willing to forgo access to China, the hub of the global electronics supply chain and probably one of the world's fastest growing markets for decades to come. Jim McGregor, the chairman of Greater China for APCO Worldwide, said the trade war and other restrictions were already shaping investment decisions by American technology companies. When deciding where to put their money next, many companies have quietly been looking to invest outside the United States to secure access to China. ''You've got to be there, no matter what the president says,'' he said. Raymond Zhong contributed reporting from Beijing. https : // www.nytimes.com/2020/01/20/business/economy/trump-us-china-deal-micron-trade-war.html Graphic PHOTOS: A White House signing ceremony last week, top, for the United States trade deal with China. Sanjay Mehrotra, chief executive officer of Micron Technology, left, warned that trade uncertainty could damage his company's bottom line. A Micron building in San Jose, Calif., above. (PHOTOGRAPHS BY PETE MAROVICH FOR THE NEW YORK TIMES TAKAAKI IWABU/BLOOMBERG AARON WOJACK FOR THE NEW YORK TIMES) (B2) Load-Date: January 23, 2020 End of Document Master of Go Board Game Is Walloped by Google Computer Program The New York Times

### Document 1000

Top administration officials will meet with their Chinese counterparts for the first time on Thursday as the United States shifts to a more competitive posture with Beijing. WASHINGTON -- President Biden is engineering a sharp shift in policy toward China, focused on gathering allies to counter Beijing's coercive diplomacy around the world and ensuring that China does not gain a permanent advantage in critical technologies. At first glance, it seems to adopt much of the Trump administration's conviction that the world's two biggest powers are veering dangerously toward confrontation, a clear change in tone from the Obama years. But the emerging strategy more directly repudiates the prevailing view of the last quarter century that deep economic interdependence could be counted on to temper fundamental conflicts on issues like China's military buildup, its territorial ambitions and human rights. It focuses anew on competing more aggressively with Beijing on technologies vital to long-term economic and military power, after concluding that President Donald J. Trump's approach -- a mix of expensive tariffs, efforts to ban Huawei and TikTok, and accusations about sending the ''China virus'' to American shores -- had failed to change President Xi Jinping's course. The result, as Jake Sullivan, President Biden's national security adviser, put it during the campaign last year, is an approach that ''should put less focus on trying to slow China down and more emphasis on trying to run faster ourselves'' through increased government investment in research and technologies like semiconductors, artificial intelligence and energy. Mr. Sullivan and Secretary of State Antony J. Blinken will road-test the new approach in what promises to be a tense first encounter on Thursday with their Chinese counterparts in Anchorage. It is a meeting they delayed until they could reach the outlines of a common strategy with allies -- notably Japan, South Korea, India and Australia -- and one they insisted had to take place on American soil. But it will also be a first demonstration of Beijing's determination to stand up to the new administration, and a chance for its diplomats to deliver a litany of complaints about Washington's ''evil'' interference in China's affairs, as a Chinese Foreign Ministry spokesman put it on Wednesday. The United States imposed sanctions on 24 Chinese officials on Wednesday for undermining Hong Kong's democratic freedoms, an action whose timing was pointed and clearly intentional. Mr. Blinken said in Tokyo this week that ''we will push back if necessary when China uses coercion or aggression to get its way.'' And that is happening almost daily, he conceded, including Beijing's efforts to terminate Hong Kong's autonomy, intimidate Australia and Taiwan, and move ahead, despite international condemnation, with what Mr. Blinken has said is a ''genocide'' aimed at China's Uyghur minority. It is all part of the initial resetting of the relationship that has marked Mr. Biden's renewed, if now far more tense, encounters with Mr. Xi. Back when Mr. Biden was vice president and Mr. Xi was consolidating power on his way to becoming China's most powerful leader in decades, the two men met in China and the United States and offered public assurances that confrontation was not inevitable. The intelligence assessment inside the American government at the time was that Mr. Xi would proceed cautiously, focus on economic development at home and avoid direct confrontation with the United States. But in their years out of power, the aides who are now managing Mr. Biden's new approach concluded that the earlier assessment badly misjudged Mr. Xi's intentions and aggressiveness. And the new approach -- a mix of promises to cooperate in areas of mutual concern like climate change while taking China on more directly in technology and military competition in space and cyberspace -- is gradually becoming clear. Its outlines were reflected, aides said, during a two-hour telephone conversation last month between Mr. Biden and Mr. Xi whose contents have been tightly held by both sides. Mr. Biden, the aides reported, warned Mr. Xi not to believe China's own narrative that the United States is a declining power, consumed by the political divisions that were on full display in the Jan. 6 riot at the Capitol. Shortly after the conversation, though, Mr. Xi reportedly told local officials in northwest China that ''the biggest source of chaos in the present-day world is the United States,'' which he also described as ''the biggest threat to our country's development and security.'' Mr. Sullivan and Mr. Blinken are betting that Mr. Xi's declaration reveals a pang of Chinese insecurity, a fear that, for all the country's bluster about new weapons systems and advances in artificial intelligence, it is vulnerable to ''choke points'' where the United States remains in control of foundational technology. The result is that both nations are racing to secure their own supply chains and to reduce dependency on each other -- a reversal of 40 years of economic integration. But more broadly it reflects the end of a post-Cold War construct that assumed the interests of the two powers were inextricably intertwined. ''There's no doubt that the trajectory has shifted in a dramatic way,'' said Elizabeth C. Economy, a senior fellow at Stanford University's Hoover Institution and the author of a biography of Mr. Xi. ''I think fundamentally there's a lack of trust that will be extremely difficult to overcome.'' For a Democratic president, the Biden approach represents a full reversal from the days of Bill Clinton's assurances, in his talks with Chinese university students more than 20 years ago, that a wealthier, internet-connected China would become a more democratic and pluralistic one. President Barack Obama's talk of managing China's ''peaceful rise'' is also gone. Today, there seems to be broad agreement that U.S.-China relations have not only reached one of their lowest points since the country's 1949 communist revolution, but that they threaten to grow even worse. Henry Kissinger, the man who cleared the way for America's opening to China nearly 50 years ago, said shortly after Mr. Biden was elected that the United States and China were increasingly drifting toward confrontation. ''The danger,'' he said at a Bloomberg conference in November, ''is that some crisis will occur that will go beyond rhetoric into actual military conflict.'' Chinese authorities have read and reread an article published three years ago in Foreign Affairs that said the world had to acknowledge the end of a post-Cold War construct that assumed these two great powers had to learn to get along -- and thus would. America, Kurt Campbell and Ely Ratner wrote, underestimated China's willingness to directly take on the United States, or use its economic might to rewrite the rules of trade and technology in its favor and failed to detect Mr. Xi's authoritarian-nationalist instincts. Today Mr. Campbell is the White House Asia policy coordinator, with new authorities over a range of government departments. And Mr. Ratner, recently installed as the Pentagon's top official for Asia, is in charge of a four-month rush project to reassess the military competition between the two countries. Mr. Ratner's review is expected to encompass everything from Beijing's slow-but-steady embrace of a more sophisticated nuclear arsenal to its growing capabilities in space and hypersonic weaponry, much of it intended to keep American carrier groups at bay -- and prevent the United States from taking the risk of mounting a defense of Taiwan. American officials warn that a Taiwan crisis could be brewing, as Mr. Xi, emboldened by his success in suppressing dissent in Hong Kong, turns to the intimidation of an island it regards as a breakaway province. Last week, the chief of the U.S. Indo-Pacific Command, Adm. Philip S. Davidson, warned that China could try to take control of Taiwan within the next six years. An American destroyer sailed through the Taiwan Strait the next day, the traditional reminder that an overt move to take over the island would provoke a response from the United States. Nonetheless, many in the Pentagon believe that Chinese strategists increasingly regard such shows of force as empty gestures, convincing themselves that an America already tired of failed wars in Afghanistan and elsewhere would not take the risk of direct military confrontation. Mr. Sullivan holds a more nuanced view. Before taking office he cautioned against assuming China's plan was to attain power through territorial gains in the Pacific. Instead, he suggested, Mr. Xi may be banking on expanding Chinese influence through ''increasing emphasis on shaping the world's economic rules, technology standards and political institutions.'' The risk, he conceded, is that it could be pursuing both strategies simultaneously. At the heart of the Biden administration's critique of the Trump administration's approach to China was the absence of a competitive strategy. Mr. Trump and his secretary of state, Mike Pompeo, threatened allies that were negotiating to install Huawei's 5G communications network, telling them they could be cut off from American intelligence because Washington could not risk having critical data diverted to the Chinese. But there was no American alternative to offer them, since U.S. companies had largely exited the field. Mr. Biden's team promises a different approach -- one that is exploring, for example, ways of organizing Western democracies to draw on American open-source software and European-made switching gear from Nokia and Ericsson to offer a more secure, Western-made alternative to Huawei. But putting together such combinations requires a level of government and private-sector cooperation that is rare in peacetime, and can take years to assemble. It is far from clear that other nations will hold off on their purchases, especially as China uses its leverage -- most recently in providing coronavirus vaccines -- to bolster Huawei's chances in nations where only months ago it was blocked. Similarly, the Biden administration regards Mr. Trump's effort last year to block TikTok, the Chinese social media operation, and force a de facto takeover of its American operations, as such a hastily assembled deal that it will never survive legal challenge. It promises a different strategy that focuses on the key issue: how to monitor the software that is pumped into the phones of over 100 million users in the United States. ''The Cold War was primarily a military competition,'' Mr. Campbell said. But ''the modern ramparts of competition will be in technology,'' he said, such as 5G networks, artificial intelligence, quantum computing, robotics and human sciences. Competing in those areas, Mr. Sullivan said recently, would require ''making progressive, ambitious public investment here in the United States so that we stay on the cutting edge.'' Elements of Mr. Trump's approach remain, of course, including punishing tariffs on Chinese imports, which one Biden official briefing reporters last month called a source of ''leverage.'' But Mr. Biden has walked away from Mr. Pompeo's declaration that with enough pressure, the Communist Party in China will collapse. Last month Graham Allison, a political scientist at Harvard, and Fred Hu, a prominent investor, argued that for now there is no choice but to deal with China as it is. ''Preventing military crises, combating climate change, containing future pandemics, preventing nuclear proliferation, fighting terrorism, managing financial crises,'' they wrote, ''none of this can be done without accepting the reality that the autocratic regime in Beijing runs China now and will continue to do so for the foreseeable future.'' Graphic PHOTOS: Antony J. Blinken, President Biden's secretary of state. (PHOTOGRAPH BY STEFANI REYNOLDS FOR THE NEW YORK TIMES) (A1) President Xi Jinping of China on a giant screen at a shopping complex in Beijing. Below, in 2015, Vice President Joseph R. Biden Jr. and President Barack Obama met with Mr. Xi at the White House. President Biden is taking a more assertive approach than in those days. (PHOTOGRAPHS BY TINGSHU WANG/REUTERS MARK WILSON/GETTY IMAGES) (A12) Load-Date: March 24, 2021 End of Document Meta's Big A.I. Giveaway The New York Times

### Document 477

officials pushed to choke off China's access to critical semiconductor technology after internal debates and tough negotiations with allies. WASHINGTON -- In conversations with American executives this spring, top officials in the Biden administration revealed an aggressive plan to counter the Chinese military's rapid technological advances. China was using supercomputing and artificial intelligence to develop stealth and hypersonic weapons systems, and to try to crack the U.S. government's most encrypted messaging, according to intelligence reports. For months, administration officials debated what they could do to hobble the country's progress. They saw a path: The Biden administration would use U.S. influence over global technology and supply chains to try to choke off China's access to advanced chips and chip production tools needed to power those abilities. The goal was to keep Chinese entities that contributed to potential threats far behind their competitors in the United States and in allied nations. The effort, no less than what the Americans carried out against Soviet industries during the Cold War, gained momentum this year as the United States tested powerful economic tools against Russia as punishment for its invasion of Ukraine, and as China broke barriers in technological development. The Russian offensive and Beijing's military actions also made the possibility of a Chinese invasion of Taiwan seem more real to U.S. officials. The administration's concerns about China's tech ambitions culminated last week in the unveiling of the most stringent controls by the U.S. government on technology exports to the country in decades -- an opening salvo that would ripple through global commerce and could frustrate other governments and companies outside China. In a speech on Wednesday on the administration's national security strategy, Jake Sullivan, the national security adviser, talked about a ''small yard, high fence'' for critical technologies. ''Choke points for foundational technologies have to be inside that yard, and the fence has to be high because these competitors should not be able to exploit American and allied technologies to undermine American and allied security,'' he said. This account of how President Biden and his aides decided to wage a new global campaign against China, which contains previously unreported details, is based on interviews with two dozen current and former officials and industry executives. Most spoke on the condition of anonymity to discuss deliberations. The measures were particularly notable given the Biden administration's preference for announcing policies in tandem with allies to counter rival powers, as it did with sanctions against Russia. With China, the administration spent months in discussions with allies, including the Dutch, Japanese, South Korean, Israeli and British governments, and tried to persuade some of them to issue restrictions alongside the United States. But some of those governments have been hesitant to cut off important commerce with China, one of the world's largest technology markets. So the Biden administration decided to act alone, without public measures from allies. Gregory C. Allen, a former Defense Department official who is now at the Center for Strategic and International Studies, said the move came after consultation with allies but was ''fundamentally unilateral.'' ''In weaponizing its dominant choke-point positions in the global semiconductor value chain, the United States is exercising technological and geopolitical power on an incredible scale,'' he wrote in an analysis. The package of restrictions allows the administration to cut off China from certain advanced chips made by American and foreign companies that use U.S. technology. U.S. officials described the decision to push ahead with export controls as a show of leadership. They said some allies wanted to impose similar measures but feared retaliation from China, so the rules from Washington that encompass foreign companies did the hard work for them. Other rules bar American companies from selling Chinese firms equipment or components needed to manufacture advanced chips, and prohibit Americans and U.S. companies from giving software updates and other services to China's cutting-edge chip factories. The measures do not directly restrict foreign makers of semiconductor equipment from selling products to China. But experts said the absence of the American equipment would most likely impede China's nascent industry for making advanced chips. Eventually, though, that leverage could fade as China develops its own key production technologies. Some companies have chafed at the idea of losing sales in a lucrative market. In a call with investors in August, an executive at Tokyo Electron in Japan said the company was ''very concerned'' that restrictions could prevent its Chinese customers from producing chips. ASML, the Dutch equipment maker, has expressed criticisms. Chinese officials called the U.S. restrictions a significant step aimed at sabotaging their country's development. The move could have broad implications -- for example, limiting advances in artificial intelligence that propel autonomous driving, video recommendation algorithms and gene sequencing, as well as quashing China's chip-making industry. China could respond by punishing foreign companies with operations there. And the way Washington is imposing the rules could strain U.S. alliances, some experts say. ''Sanctions that put the United States at odds with its allies and partners today will both undercut their effectiveness and make it harder to enroll a broad coalition of states in U.S. deterrence efforts,'' said Jessica Chen Weiss, a professor of government at Cornell University and a recent State Department official. Others have argued that the moves did not come soon enough. For years, U.S. intelligence reports warned that American technology was feeding China's efforts to develop advanced weapons and surveillance networks that police its citizens. Last October, the intelligence community began highlighting the risks posed by Chinese advances in artificial intelligence, quantum computing and semiconductors in meetings with industry and government officials. Mr. Sullivan and other officials began pushing to curb sales of semiconductor technology, according to current and former officials and others familiar with the discussions. But some officials, including Commerce Secretary Gina Raimondo and her deputies, wanted to first secure the cooperation of allies. Starting late last year, they said in meetings that by acting alone, the United States risked harming its companies without doing much to stop Chinese firms from buying important technology from foreign competitors. A Diplomatic Push Even as the Trump administration took some aggressive actions against Chinese technology, like barring international shipments to Huawei, it began quiet diplomacy on semiconductor production equipment. U.S. officials talked with their counterparts in Japan and then the Netherlands -- countries where companies make critical tools -- on limiting exports to China, said Matthew Pottinger, a deputy national security adviser in the Trump administration. Biden administration officials have continued those talks, but some negotiations have been difficult. U.S. officials spent months trying to persuade the Netherlands to prevent ASML from selling older lithography machines to Chinese semiconductor companies, but they were rebuffed. U.S. officials carried out separate negotiations with South Korea, Taiwan, Israel and Britain on restricting the sale and design of chips. Outside of the diplomacy, there was increasing evidence that a tool the United States had used to restrict China's access to technology had serious flaws. Under President Donald J. Trump, the United States added hundreds of companies to a so-called entity list that prohibited American companies from selling them sensitive products without a license. But each listing was tied to a specific company name and address, making it relatively easy to evade the restrictions, said Ivan Kanapathy, a former China director for the National Security Council. Current and former U.S. officials suspect the Chinese military and previously sanctioned Chinese companies, including Huawei, have tried to gain access to restricted technology through front companies. Huawei declined to comment. Huawei could soon face additional restrictions: The Federal Communications Commission is expected to vote in the coming weeks on rules that would block the authorization of new Huawei equipment in the United States over national security concerns. Biden officials also believed the restrictions issued by the Trump administration against Semiconductor Manufacturing International Corporation, a major Chinese chip maker known as SMIC, had been watered down by industry and were allowing too many sales to continue, people familiar with the matter said. In a call with heads of American semiconductor equipment makers in March, Mr. Sullivan said that the United States was no longer satisfied with the status quo with China, and that it was seeking to freeze Chinese technology, said one executive familiar with the discussion. Mr. Sullivan, who had dialed into the call alongside Ms. Raimondo and Brian Deese, the director of the National Economic Council, told executives from KLA, Applied Materials and Lam Research that rules restricting equipment shipments to China would be done with allies, the executive said. In a statement, the National Security Council said the measures were ''consistent with the message we delivered to U.S. executives because the administration has controlled only tools made by U.S. companies where there is no foreign competitor.'' Breakthrough in China As negotiations with allied governments continued, experts at the Commerce, Defense, Energy and State Departments spent months poring over spreadsheets listing dozens of semiconductor tools made by U.S. companies to determine which could be used for advanced chip production and whether companies in Japan and the Netherlands produced comparable equipment. Then in July came alarming news. A report emerged that SMIC had cleared a major technological hurdle, producing a semiconductor that rivaled some complex chips made in Taiwan. The achievement prompted an explosion of dissatisfaction in the White House and on Capitol Hill with U.S. efforts to restrain China's technological advancement. The Biden administration took action in August to clamp down on China's semiconductor industry, sending letters to equipment manufacturers and chip makers barring them from selling certain products to China. Last week, the administration issued the â€Œrules with global reach. Companies immediately began halting shipments to China. But U.S. officials said they would issue licenses on a case-by-case basis so some non-Chinese companies could continue supplying their Chinese facilities with support and components. Intel, TSMC, Samsung and SK Hynix said they had received temporary exemptions to the rules. The controls could be the beginning of a broad assault by the U.S. government, Mr. Pottinger said. ''The Biden administration understands now that it isn't enough for America to run faster -- we also need to actively hamper the P.R.C.'s ambitions for tech dominance,'' he said, referring to the People's Republic of China. ''This marks a serious evolution in the administration's thinking.'' Julian Barnes and David McCabe contributed reporting.Julian Barnes and David McCabe contributed reporting. https : // www.nytimes.com/2022/10/13/us/politics/biden-china-technology-semiconductors.html Graphic PHOTO: Xi Jinping, the Chinese leader. Beijing accused the U.S. of trying to hinder China's development. (PHOTOGRAPH BY NG HAN GUAN/ASSOCIATED PRESS) (A8) This article appeared in print on page A1, A8. Load-Date: October 14, 2022 End of Document Rival C.E.O. Says Power Of Google Is Ubiquitous The New York Times

### Document 947

The administration wants to protect national security by restricting the flow of technology to China. But technology companies worry it could undermine them instead. WASHINGTON -- The Trump administration's push to prevent China from dominating the market for advanced technologies has put it on a collision course with the same American companies it wants to protect. Firms that specialize in microchips, artificial intelligence, biotechnology and other industries have grown increasingly alarmed by the administration's efforts to restrict the flow of technology to China, saying it could siphon expertise, research and revenue away from the United States, ultimately eroding America's advantage. The concerns, which have been simmering for months, have taken on new urgency as the Commerce Department considers adopting a sweeping proposal that would allow the United States to block transactions between American firms and Chinese counterparts. Those rules, on top of new restrictions on Chinese investment in the United States and proposed measures that would prevent American companies from exporting certain products and sharing technology with foreign nationals, have the tech industry scrambling to respond. The Trump administration's crackdown has already prompted foreign firms to shun American components and technology over concerns that access to parts they need could be abruptly cut off. American companies are watching warily as the United States considers restricting export licenses for companies that sell products or share intellectual property with China, including General Electric, which sells aircraft parts to China as part of a joint venture with Safran, a French firm. Top administration officials plan to meet on Feb. 28 to discuss further restrictions on China, including whether to block G.E.'s license to sell jet engines and whether to further curtail the ability of Huawei, the Chinese telecom giant, to have access to American technology. There is growing bipartisan consensus in Washington that China poses a security threat and that the United States must protect domestic industries to retain a technological edge. While President Trump's trade war with China was aimed at forcing Beijing to end practices that gave Chinese industries an advantage, the initial deal signed last month did little to address the security concerns. The tech industry has warned that limiting access to China, both in terms of selling and buying products, could cripple American companies and end up undercutting the United States as the biggest global hub of research and development. Companies, along with the lawyers and consultants who advise them, say firms increasingly have no choice but to locate more research and development outside the United States, to ensure that they have uninterrupted access to China, a fast-growing consumer market and the center of the global electronics supply chain. New investment dollars are being funneled to research hubs near University of Waterloo in Canada, as well as Israel, Britain and other places beyond the reach of the American government, they say. ''Anyone who thinks our concerns are exaggerated should talk to the U.S. semiconductor industry workers who are already losing their jobs due to walling off our largest market,'' said John Neuffer, the president and chief executive of the Semiconductor Industry Association, which represents chip makers. ''Revenue from that big market fuels our big research investments, which allows us to innovate and drive America's economic growth and national security.'' The RISC-V Foundation, a nonprofit that has created an open-source software standard for the chips that power smartphones and other electronics, acknowledged in recent months that it had chosen to move its incorporation from Delaware to Switzerland because of concerns from its members about more stringent regulations in the United States. ''If this administration proceeds with the current trajectory, we'll see more defections of companies, of scientists,'' said Scott Jones, a nonresident fellow with the Stimson Center. ''They'll take their toys and they'll go elsewhere, and other economies will be the beneficiary of that.'' The most recent source of concern stems from a Commerce Department plan to vet and potentially block technology transactions that pose a risk to the United States. The proposed rule would allow the commerce secretary to block transactions involving technology that was tied to a ''foreign adversary'' and that posed a significant risk to the United States. The rule grew out of an executive order Mr. Trump signed last year to try to shut out Huawei by authorizing the commerce secretary to bar any purchase of technology designed by a ''foreign adversary'' that put America at risk. American companies say the regulations are written so broadly that they could give the United States authority to block transactions or unwind existing ones in areas far afield from telecom gear. While tech companies say they support efforts to protect U.S. national security, dozens of companies and industry lobbying groups have expressed concerns about the proposal. IBM, in a January comment letter, told the Commerce Department to ''go back to the drawing board'' and said the rules ''will lead to a broad disengagement of U.S. business from global markets and suppliers.'' ''Its reach, breadth and vagueness are unprecedented,'' IBM said. The Internet Association, which counts Google and Facebook among its members, said the proposal lacked ''substantive safeguards.'' The Motion Picture Association warned that it could affect Hollywood's ability to pursue transactions around special effects or animation. The Commerce Department said in a statement that the process would ensure that ''all points of view have been considered and the U.S. national security considerations are balanced against corporate commercial interests.'' The tougher measures have come in response to what the administration and even the tech industry view as a rising economic and security threat. China is gaining ground in a range of technologies that experts say could give the country an economic and military edge, including artificial intelligence, facial recognition, microchips and quantum computing. To try to dominate these advanced industries, China has deployed subsidies, targeted acquisitions of American firms and created industrial plans like Made in China 2025 to leap ahead. The administration has repeatedly accused China and its companies of engaging in corporate espionage, hacking and intellectual property theft. Last week, the U.S. government charged Huawei and two of its subsidiaries with federal racketeering and conspiracy to steal trade secrets from six American companies. It also charged four members of China's military with hacking into Equifax, one of the nation's largest credit reporting agencies, and stealing trade secrets and the personal data of about 145 million Americans in 2017. Beijing's actions have created an overwhelming fear in Washington that China will come to dominate advanced industries and put American competitors out of business, in the same way it did for steel, furniture and solar panels. But the stakes are even higher this time, given that many of these new technologies are critical for the military. ''The Chinese have long been a commercial people, but for China, purely economic success is not an end in itself,'' Attorney General William P. Barr said in a speech this month. ''It is a means to wider political and strategic objectives.'' The Trump administration's response has been to offer a new definition of national security, one that encompasses economic threats. The distinction has allowed the United States to enact powerful rules restricting commercial exchanges with China. Mr. Trump has cited national security in his decision to tax foreign metals, propose new limits on the technology that can be transferred outside the United States and bar Chinese companies like Huawei from buying American components. While tech companies found a way around the initial Huawei ban, the administration is considering much more severe restrictions. A new proposal would extend the reach of the U.S. government to regulate products made around the world, prohibiting companies from using American components and technologies in foreign-made products that are then supplied to Huawei. The proposals have set off panic within the technology industry, which fears the new restrictions will hamper its ability to tap into the Chinese market. Industry lawyers and trade groups have begun warning that, unless the administration can persuade its allies to adopt similar restrictions, companies will decide the safest course is to try to limit their use of American technology. Critics point to past incidents where tight regulation pushed American industries offshore -- including machine tool makers in the 1990s, and commercial satellites in the 2000s. While it is illegal for companies to move existing operations abroad to try to circumvent export control rules, there are no such constraints on new investments. ''Their incentive is shareholder value and making money,'' Jim McGregor, the chairman of greater China for APCO Worldwide, said of America's biggest technology companies. ''It's not defending what is good for America. You can say that's terrible, but that's the way our system works.'' Mr. McGregor said the economic incentives of the Chinese market would encourage companies to ''decouple from America.'' Chinese companies are also working to weed American components out of their supply chains -- a long-running effort toward self-sufficiency that has accelerated under the threat of harsher U.S. measures. In recent months, some Chinese companies have begun asking their suppliers to certify that their products are made with a minimal amount of American content, so they are not at risk from American export controls, people familiar with the conversations say. Chinese telecom companies have been asked to find an alternative to using Oracle's software in their systems. And CITIC Capital, a giant investment management firm with deep links in China, has embraced helping Chinese companies find alternatives to American technology as an investment theme for this year. Some who favor tougher China rules say companies are exaggerating the potential impact in an attempt to influence new regulations. They say that the United States retains big advantages in research and development, and that companies are trying to scare the government into loosening rules by saying they will leave. Others say the national security threat from China is so serious that some short-term revenue loss is warranted. ''You can't avoid paying that price,'' said Clyde Prestowitz, a former Reagan administration official who led trade negotiations with Japan and China. ''Your only choice is to pay it now or later. Now, you still have a cutting-edge industry that will take a hit, but that can survive and prosper if high tech does not become a Chinese playground.'' The administration's view is not monolithic. Within the Commerce Department, some are pressing for stricter rules while others say crippling American business will do more to endanger national security. The Pentagon is also split, with some officials calling for tighter regulations and others saying the government should not put innovation at risk, given that military technologies typically draw on commercial products. Some China experts say that American companies are deluding themselves and that, without safeguards, China will eventually steal their technology and drive them out of business. ''We've seen what happens to many foreign firms who 'have to be there' in steel, telecom, et cetera,'' Derek Scissors, a resident scholar at the American Enterprise Institute, said of China. ''They get progressively more desperate, until they die.'' https : // www.nytimes.com/2020/02/16/business/economy/us-china-technology.html Graphic PHOTOS: A White House proposal would allow Commerce Secretary Wilbur Ross to block transactions involving technology tied to a ''foreign adversary.'' General Electric's license to sell jet engines in China will be up for discussion Feb. 28. (PHOTOGRAPHS BY SAMUEL CORUM/EPA, VIA SHUTTERSTOCK NG HAN GUAN/ASSOCIATED PRESS) (A5) Load-Date: February 17, 2020 End of Document Russia, Covid Tests, Naomi Osaka: Your Tuesday Evening Briefing The New York Times

### Document 545

The Biden administration is applying lessons learned from controls on Russia during the Ukraine war to try to limit China's military and technological advances. WASHINGTON -- When Russian forces invaded Ukraine nearly five months ago, the Biden administration led dozens of governments in banning the export of advanced technology to Russia to hobble its economic and military development. Now, the U.S. government is using the lessons it learned from those actions to expand restrictions on exports to China and other countries in cases where companies or groups might threaten U.S. national security or violate human rights, current and former American officials say. President Biden and his aides call China the greatest long-term rival of the United States, surpassing Russia. The effort involves broadening the circumstances under which so-called export controls would be imposed and getting partner nations on board. It also aims to redefine what technologies are considered sensitive or critical and of potential use to militaries and security agencies -- to encompass things like artificial intelligence, for example. In trying to develop a strategy on China, U.S. officials are not just looking at traditional military uses of technologies, but they are also considering the roles of Chinese companies in creating a surveillance state or building a security infrastructure and using forced labor camps to repress ethnic minorities in regions such as Xinjiang and Tibet. ''As China has become more aggressive, more belligerent, more active in its tech sector, the importance of managing the relationship with China through export controls has risen,'' Alan F. Estevez, head of the Bureau of Industry and Security, the unit in the Commerce Department that oversees export controls, said last month at an event organized by the Center for a New American Security. ''We need to ensure that the U.S. retains technological overmatch,'' he said. ''In other words, China cannot build capabilities that they will then use against us, or against their neighbors for that matter, in any kind of conflict.'' American officials say the use of export controls on Russia is perhaps the greatest success so far in the sweeping campaign of economic punishment against President Vladimir V. Putin and his military. The United States and its partners have imposed broad restrictions on sending semiconductors, aircraft parts, equipment for the oil and gas industry and other goods to Russia, in an effort to cripple Russia's military and its strategic industries. With China, efforts have been more targeted. The officials say their goal is not to weaken the broader Chinese economy, but rather to limit China's access to technologies that would contribute to its military and scientific advancement. That in itself could help prevent armed conflict, U.S. officials say. ''My goal is to stop China from being able to use that technology to advance their military, modernize their military,'' Mr. Estevez, also a former Pentagon official, told reporters last week at a Commerce Department policy conference in Washington, referring to advanced semiconductor chips, artificial intelligence and quantum computing. But China is the world's second-largest economy, and any trade restrictions against it would carry much greater risks than those imposed on Russia. American executives warn that broad export controls could be deeply disruptive to global commerce and also provoke China to issue its own restrictions on some of the crucial products it supplies to the United States and other countries, including certain minerals. And widespread use of the controls could erode American technological leadership and market dominance over the long term by encouraging foreign customers to find other sources of supply. But Gina Raimondo, the commerce secretary, declared at the policy conference that export controls ''are at the red-hot center of how we best protect our democracies.'' She underscored the impact of controls on Russia, saying that global semiconductor exports to the country had declined by 90 percent, and that its fleet of commercial aircraft could be decimated soon. ''We also know that another autocratic regime -- China -- is watching our response closely,'' she added. The Biden administration on Tuesday put five Chinese companies on an export blacklist for continuing to support Russia's military-industrial sector. It was the first time the U.S. government had taken action against Chinese companies for aiding Russia since the war in Ukraine began in February, though American officials say the Chinese government and most companies appear to be complying with the U.S.-led sanctions. Even before those actions, the Biden administration had doubled down on a Trump administration policy of wielding export controls as a cudgel against Chinese companies. In 2018, Congress passed a law requiring the Commerce Department to expand its controls on sensitive American technologies that flow abroad. Though some lawmakers say the government has moved too slowly on this, the department under both the Trump administration and the Biden administration has aggressively wielded a more targeted tool, called the entity list, which cuts foreign companies and organizations off from U.S. technology unless their American suppliers obtain a license to sell goods to them. The Trump administration put Huawei and SMIC, two prominent Chinese technology companies, on that list. Before Russia invaded Ukraine, the Commerce Department under Mr. Biden was adding China-based companies and organizations to the list at a much faster rate than ones from any other country. Of 475 foreign entities added since January 2021, 107 are based in China, according to a new tally of data that the agency provided to The New York Times. By contrast, the administration put 23 Russia-based entities on the list before the war -- then quickly added 252, in addition to imposing broader restrictions on entire categories of technology goods. The administration has also blacklisted companies based in Pakistan, Belarus, Myanmar, the United Arab Emirates, Singapore and Britain, but those numbers are much smaller. Most of the China-based entities listed during the Biden administration were judged by U.S. officials to have military roles or to be involved in systemic human rights abuses. Some have suspicious ties with Iran, North Korea and Pakistan, countries with nuclear programs that the United States is trying to constrain, U.S. officials say. A few are linked to aggressive actions in disputed territory in the South China Sea. The United States has also extended the reach of its export restrictions well beyond U.S. borders. It has forbidden companies anywhere in the world to export certain items if they are made with American technology to some listed entities, including Russian military groups and Huawei, the Chinese telecommunications company. The United States can also restrict exports to listed entities of foreign goods that contain certain amounts of American products. ''One of the lessons from the use of that tool with Huawei is that it can be a pretty powerful mechanism,'' said Samm Sacks, a researcher on technology policy at Yale Law School and New America. ''It captures a lot of third-country suppliers.'' Some American lawmakers say further technology restrictions would be a potent tool to wield against Beijing, and that threats to broaden those controls might help deter potential hostilities by Chinese leaders toward Taiwan. But some analysts warn of possible retaliation from China. ''As the United States continues to exploit the extraterritorial reach of its regulations, the growing threat of a regulatory 'arms race,' particularly with China, adds to an already jittery business environment,'' Jeanette Chu, a senior associate at the Center for Strategic and International Studies, wrote in March. ''The 'tit for tat' nature of export controls and sanctions today risks undermining the effectiveness of export controls and leaving policymakers with limited options,'' she added. Although the Chinese government denounces Washington's use of sanctions, it has increasingly used its own form of economic punishments to harm countries that take stands contravening Beijing's political views. Recent targets include Australia, Japan, South Korea and Norway. When Lithuania permitted Taiwan last year to open a representative office in its capital, China cut off its exports to Lithuania as well as imports. In June 2021, Beijing enacted the ''Anti-Foreign Sanctions Law,'' aimed at punishing companies and individuals that comply with foreign sanctions against China. And the Chinese government has an export control law that it could use broadly. China remains behind the United States in many technological fields but is catching up quickly. In some areas -- biotechnology, artificial intelligence and 5G communications, for instance -- China is at or near the fore. And it is set to overtake the United States in national spending on research and development within the next several years. ''Scientific and technological innovation has become the main battlefield of the international strategy contest, and the competition around the commanding heights of science and technology is unprecedentedly fierce,'' President Xi Jinping of China said in a speech in May 2021. Biden administration officials say the export controls imposed on Russia show that the strength of American actions comes from coordination with partner nations. At Mr. Biden's democracy summit in December 2021, the United States, Australia, Denmark and Norway announced they would begin building a new export control policy program to limit technologies going to authoritarian governments engaged in human rights abuses. The United States has been carrying out other discussions in its trade and technology dialogue with the European Union. The most prominent global export regime now, the Wassenaar Arrangement, is intended to control sales of technology that can be used for military as well as commercial purposes, but critics say it has drawbacks, including that Russia is a member. Any new multilateral system for export controls must be done with partners so that many countries impose the same limits, Mr. Estevez said last month. ''As anyone knows, if you dam half the river, the water is still flowing,'' he added. But Martin Chorzempa, a senior fellow at the Peterson Institute for International Economics, warned that many nations that had deep trade ties with China could resist efforts to impose broad export controls on the country. ''I don't think you'd see the level of unanimity that the sanctions on Russia would have, so that would risk splitting the coalition,'' he said. And the potential for further restrictions on China is already causing some concern among American business executives. Myron Brilliant, executive vice president at the U.S. Chamber of Commerce, said that the business community had been ''steadfast in its support of the multilateral use of sanctions against Russia given that country's unprovoked and brutal invasion of Ukraine,'' but that views on China were ''more complex and nuanced.'' ''The business community has deep concerns with China's predatory and market distortion policies, yet we must also recognize that the two largest economies are very integrated,'' he said. ''So the impact of broad decoupling or extensive sanctioning of China would be much more destabilizing.'' Julian E. Barnes contributed reporting.Julian E. Barnes contributed reporting. https : // www.nytimes.com/2022/07/05/us/politics/us-china-export-controls.html Graphic PHOTO: President Xi Jinping wants China to be the global leader in science and tech. (PHOTOGRAPH BY CARLOS GARCIA RAWLINS/REUTERS) (B3) Load-Date: July 6, 2022 End of Document Chinese Spy Agency Rising to Challenge the C.I.A. The New York Times

### Document 508

The White House issued sweeping restrictions on selling semiconductors and chip-making equipment to China, an attempt to curb the country's access to critical technologies. WASHINGTON -- The Biden administration on Friday announced sweeping new limits on the sale of semiconductor technology to China, a step aimed at crippling Beijing's access to critical technologies that are needed for everything from supercomputing to guiding weapons. The moves are the clearest sign yet that a dangerous standoff between the world's two major superpowers is increasingly playing out in the technological sphere, with the United States trying to establish a stranglehold on advanced computing and semiconductor technology that is essential to China's military and economic ambitions. The package of restrictions, which was released by the Commerce Department, is designed in large part to slow the progress of Chinese military programs, which use supercomputing to model nuclear blasts, guide hypersonic weapons and establish advanced networks for surveilling dissidents and minorities, among other activities. Alan Estevez, the under secretary of commerce for industry and security, said his bureau was working to prevent China's military, intelligence and security services from acquiring sensitive technologies with military applications. ''The threat environment is always changing, and we are updating our policies today to make sure we're addressing the challenges posed by the P.R.C. while we continue our outreach and coordination with allies and partners,'' he said, referring to the People's Republic of China. Technology experts said the rules appeared to impose the broadest export controls issued in a decade. While similar to the Trump administration's crackdown on the telecom giant Huawei, the new rules are far wider in scope, affecting dozens of Chinese firms. And unlike the Trump administration's approach -- which was viewed as aggressive but scattershot -- the rules appear to establish a more comprehensive policy that will stop cutting-edge exports to a range of Chinese technology companies and cut off China's nascent ability to produce advanced chips itself. ''It is an aggressive approach by the U.S. government to start to really impair the capability of China to indigenously develop certain of these critical technologies,'' said Emily Kilcrease, a senior fellow at Center for a New American Security, a think tank. Companies will no longer be allowed to supply advanced computing chips, chip-making equipment and other products to China unless they receive a special license. Most of those licenses will be denied, though certain shipments to facilities operated by U.S. companies or allied countries will be evaluated case by case, a senior administration official said in a briefing Thursday. It remains to be seen whether the Chinese government will take action in response. Samm Sacks, a senior fellow at Yale Law School who studies technology policy in China, said the new rules could push Beijing to impose restrictions on American companies or firms from other countries that comply with U.S. rules but still want to maintain operations in China. ''The question is: Would this new package cross a red line to trigger a response that we haven't seen before?'' she said. ''A lot of people are anticipating it will. I think we'll have to wait and see.'' The measures come at a particularly sensitive moment for Beijing. Chinese leaders will hold a major political meeting beginning Oct. 16, where leader Xi Jinping is expected to secure a third leadership term, becoming the country's longest-ruling leader since Mao Zedong. Liu Pengyu, a spokesman for the Chinese Embassy in Washington, said the United States was trying ''to use its technological prowess as an advantage to hobble and suppress the development of emerging markets and developing countries.'' ''The U.S. probably hopes that China and the rest of the developing world will forever stay at the lower end of the industrial chain,'' he added. The Chinese government has invested heavily in building up its semiconductor industry, but it still lags behind the United States, Taiwan and South Korea in its ability to produce the most advanced chips. In other fields, like artificial intelligence, China is no longer significantly behind the United States, but those technologies mostly rely on advanced chips that are designed or fabricated by non-Chinese firms. Jack Dongarra, a computer scientist at the University of Tennessee, said some of China's most advanced supercomputers depended on chips made by California-based Intel or Taiwan Semiconductor Manufacturing Company, which uses U.S. technology in its production process and so would be subject to the new rules. The restrictions limit U.S. exports of high-tech chips called graphic processing units, which are used to power artificial intelligence applications, and place broad limits on chips destined for supercomputers in China. The rules also bar U.S.-based companies that make the equipment used to manufacture advanced logic and memory chips from selling that machinery to China without a license. Perhaps most significant, the Biden administration also imposed broad international restrictions that will prohibit companies anywhere in the world from selling chips used in artificial intelligence and supercomputing in China if they are made with U.S. technology, software or machinery. The restrictions used what is known as the foreign direct product rule, which was last deployed by former President Donald J. Trump to cripple Huawei. Another foreign direct product rule bans a broader range of products made outside the United States with American technology from being sent to 28 Chinese companies that have been placed on an ''entity list'' over national security concerns. Those companies include Beijing Sensetime Technology Development, a unit of a major Chinese artificial intelligence company, SenseTime. Also included are Dahua Technology, Higon, iFLYTEK, Megvii Technology, Sugon, Tianjian Phytium Information Technology, Sunway Microelectronics and Yitu Technologies, as well as a variety of labs and research institutions linked to universities and the Chinese government. In a briefing with reporters, senior administration officials said the measures would be limited to the most advanced chips and not have a broad commercial impact on private Chinese businesses. But they conceded that the limits could become more restrictive over time, given that technology will begin to outpace the advanced technological standards spelled out in the rules. Industry executives say many Chinese industries that rely on artificial intelligence and advanced algorithms power those abilities with American graphic processing units, which will now be restricted. Those include companies working with technologies like autonomous driving and gene sequencing, as well as the artificial intelligence company SenseTime and ByteDance, the Chinese internet company that owns TikTok. New limits on sales of chip-making equipment are also expected to clamp down on the operations of China's homegrown chip makers, including Semiconductor Manufacturing International, Yangtze Memory Technologies and ChangXin Memory Technologies. The actual impact of the restrictions will hinge on how the policy is carried out. For most of the measures, the Commerce Department has the discretion to grant companies special licenses to continue selling the restricted products to China, though it said most would be denied. Some Republican lawmakers and China hawks have criticized the department for being too willing to issue such licenses, allowing U.S. companies to continue selling sensitive technology to China even when national security may be at stake. ''If you want to stop it, you can just stop it,'' said Derek Scissors, a senior fellow at the American Enterprise Institute. ''When you create a licensing requirement, you are announcing to the world: We don't want to stop it. We are just pretending.'' With its vast ecosystem of factories, China continues to be a huge and lucrative market for U.S. chip exports. The tiny technologies are crucial to the smartphones, laptops, coffee makers, cars and other goods that Chinese factories pump out for domestic consumption and export to the world. Many American companies have long argued that their sales to China are an important source of revenue that allows them to reinvest in research and development and retain a competitive edge. But doing business with China has become much more fraught in the last few years, as the tensions between the United States and China have morphed into a cold war competition. The Chinese government has sought to blur the line between its defense sector and private industry, drawing on Chinese firms that specialize in fields including artificial intelligence, big data, aerospace technologies and quantum computing to fuel the country's military modernization. Chinese military drills aimed at intimidating Taiwan, and China's alignment with Moscow after the Russian invasion of Ukraine, have strengthened the case for technology regulation. Still, industry executives and some analysts argue that cutting China off from foreign chips will accelerate Beijing's push to develop them itself and cause U.S. companies to lose out to foreign competitors, unless other countries also impose similar restrictions. The Semiconductor Industry Association said Friday that it was assessing the impact of the export controls on the industry and working with companies to ensure compliance. ''We understand the goal of ensuring national security and urge the U.S. government to implement the rules in a targeted way -- and in collaboration with international partners -- to help level the playing field and mitigate unintended harm to U.S. innovation,'' it said in a statement. In remarks last month, the Biden administration signaled that it would get tougher on technology regulation. Jake Sullivan, the national security adviser, said the U.S. government's previous approach, of trying to stay a few generations ahead of competitors, was no longer sufficient. ''Given the foundational nature of certain technologies, such as advanced logic and memory chips, we must maintain as large of a lead as possible,'' he said. Kevin Wolf, a partner at Akin Gump who led export control efforts during the Obama administration, said the move was ''a fundamental shift in the use of export controls'' to address broader national security objectives. Since the Cold War, most countries had used export controls more narrowly, focusing on regulating specific items that were necessary to produce or deploy weapons. Mr. Wolf said the new measures were likely to be highly effective in the short and medium term. ''How effective they will be over the long term will be a function of whether allies ultimately agree to impose similar controls,'' he added. Edward Wong contributed reporting.Edward Wong contributed reporting. https : // www.nytimes.com/2022/10/07/business/economy/biden-chip-technology.html Graphic PHOTOS: A Chinese semiconductor factory. New limits on sales of chip technology aim to slow the progress of Beijing's military programs. (PHOTOGRAPH BY AGENCE FRANCE-PRESSE -- GETTY IMAGES) Advanced chips aid with things like facial recognition devices. (PHOTOGRAPH BY GIULIA MARCHI FOR THE NEW YORK TIMES) (A10) Load-Date: October 8, 2022 End of Document Xi and Blinken Trade Small Nods Over a Large Gap The New York Times

### Document 935

-- The Trump administration is considering limits to a Chinese video surveillance giant's ability to buy American technology, people familiar with the matter said, the latest attempt to counter Beijing's global economic ambitions. The move would effectively place the company, Hikvision, on a United States blacklist. It also would mark the first time the Trump administration punished a Chinese company for its role in the surveillance and mass detention of Uighurs, a mostly Muslim ethnic minority. The move is also likely to inflame the tensions that have escalated in President Trump's renewed trade war with Chinese leaders. The president, in the span of two weeks, has raised tariffs on $200 billion worth of Chinese goods, threatened to tax all imports and taken steps to cripple the Chinese telecom equipment giant Huawei. China has promised to retaliate against American industries. Hikvision is one of the world's largest manufacturers of video surveillance products and is central to China's ambitions to be the top global exporter of surveillance systems. The Commerce Department may require that American companies obtain government approval to supply components to Hikvision, limiting the company's access to technology that helps power its equipment. Administration officials could make a final decision in the coming weeks. The combination of more traditional surveillance equipment with new technologies, like artificial intelligence, speech monitoring and genetic testing, is helping make monitoring networks increasingly effective -- and intrusive. Hikvision says its products enable their clients to track people around the country by their facial features, body characteristics or gait, or to monitor activity considered unusual by officials, such as people suddenly running or crowds gathering. The potential crackdown stems from the Trump administration's belief that China poses an economic, technological and geopolitical threat that cannot be left unchecked. The United States has targeted Chinese technology companies like Huawei that it believes could pose a national security threat given deep ties between the Chinese government and industry and laws that could require Chinese firms to hand over information if asked. Adding to those concerns are the global human rights implications of China's extensive surveillance industry, which it increasingly uses to keep tabs on its own citizens. The Chinese have used surveillance technology, including facial recognition systems and closed-circuit television cameras, to target the Turkic-speaking Uighurs, who have accused the Chinese government of discriminating against their culture and religion. China has constructed what amounts to a police state in the country's northwest region of Xinjiang, which Uighurs consider their homeland. That includes extensive surveillance powered by companies like Hikvision and barbed wire-ringed internment compounds that American officials estimate hold 800,000 to as many as three million Muslims. [How China turned a city into a prison.] China has begun exporting this technology to nations that seek closer surveillance of their citizens, including Ecuador, Zimbabwe, Uzbekistan, Pakistan and the United Arab Emirates. ''Hikvision takes these concerns very seriously and has engaged with the U.S. government regarding all of this since last October,'' a Hikvision spokesman said in an emailed statement. ''In light of them, the company has already retained human rights expert and former U.S. ambassador Pierre-Richard Prosper to advise the company regarding human rights compliance. Separately, Hikvision takes cybersecurity very seriously as a company and follows all laws and regulations in the markets we operate.'' Since last year, administration officials have debated what to do about China's attempts to clamp down on the cultural and religious practices of the Uighurs. But they have refrained from taking action, in part because some American officials worried a move would derail attempts to win a trade deal with China. Secretary of State Mike Pompeo said in an interview with Fox News on May 2 that the administration was concerned ''that the Chinese are working to put their systems in networks all across the world so they can steal your information and my information.'' He mentioned the Muslim internment camps, adding, ''This is stuff that is reminiscent of the 1930s that present a real challenge to the United States, and this administration is prepared to take this on.'' Since trade talks with Beijing nearly crumbled early this month, the administration has quickly ramped up economic pressure on China. It is moving ahead with plans to tax an additional $300 billion in products, and announced a sweeping executive order cutting off Huawei from purchasing the American software and semiconductors it needs to make its products. While American companies can try to obtain a license to continue doing business with Huawei, firms like Google are making plans to curtail the products and services that they supply. The administration is also attempting to prosecute a top Huawei executive, Meng Wanzhou, who faces criminal charges in the United States and is under house arrest in Canada, where she awaits a court decision on extradition. The measure against Hikvision would operate similarly to Huawei's license requirement. The Commerce Department would place it on an ''entity list,'' which requires designated foreign companies and American companies to get United States government approval before they do business with one another. ''Taking this step would be a tangible signal to both U.S. and foreign companies that the U.S. government is looking carefully at what is happening in Xinjiang and is willing to take action in response,'' said Jessica Batke, a former State Department official who has done research in Xinjiang and testified before Congress on the issue. ''At the same time, however, the ongoing trade war perhaps undercuts the perception that this is coming from a place of purely human rights concerns.'' The Commerce Department and the White House declined to comment. Hikvision is little known in the United States, but the company supplies large parts of China's extensive surveillance system. The company's products include traffic cameras, thermal cameras and unmanned aerial vehicles, and they now allow Chinese security agencies to monitor railway stations, roads and other sites. It is not immediately clear what effect a United States ban would have on Hikvision's business. The company appears to source just a small portion of its components from the United States, and any such ban could speed its efforts to switch to Chinese suppliers. But Hikvision does have a growing international presence, and its executives have warned in the past about the potential for rising anti-China sentiment in the United States to affect its operations. The company says it has more than 34,000 global employees and dozens of divisions worldwide, and it has supplied products to the Beijing Olympics, the Brazilian World Cup and the Linate Airport in Milan. It has tried to expand into North America in recent years, employing hundreds of workers in the United States and Canada, setting up offices in California and building a North American research and development team headquartered in Montreal. In a letter published in English in April, Hikvision's chief compliance officer said that the company was taking reports that video surveillance products had been involved in human rights violations seriously and had commissioned an internal review of its operations to enhance screening standards to better protect human rights. ''We are taking a hard look at our products and business,'' the officer, Huang Fanghong, wrote. Members of Congress from both parties have called on the administration to impose sanctions on companies involved in aiding China's persecution of Muslims, including Hikvision. In an August 2018 letter, legislators also urged the Commerce Department to strengthen its controls over technology exported to these companies, and called on the government to increase disclosure requirements for publicly traded companies that might be complicit in human rights abuses. Hikvision and Dahua, another company cited by lawmakers, are both listed on the Shenzhen stock exchange. MSCI, one of the largest index providers in the United States, added Hikvision to its benchmark emerging markets index last year. UBS and J. P. Morgan are among the company's top 10 shareholders, according to Hikvision. Representative Adam B. Schiff, Democrat of California, said in an interview that the House Intelligence Committee, which he leads, could scrutinize more closely American companies that are investing in or partnering with Chinese firms that are building up the Chinese surveillance state. Congress and the administration have responded with other measures that may clamp down on Hikvision's business. Congress included a provision in its 2019 military spending authorization bill that banned federal agencies from using Chinese video surveillance products made by Hikvision or Dahua. The Trump administration is also considering imposing sanctions on specific Chinese officials known to play critical roles in the surveillance and detention system in Xinjiang. These sanctions would be imposed under the Global Magnitsky Act. The highest-ranking official being considered for this type of targeted sanction is Chen Quanguo, a member of the party's Politburo and party chief of Xinjiang since August 2016. The State Department and White House National Security Council support imposing the sanctions, but officials at the Treasury Department have pushed back, citing a desire not to upset the trade talks, even though those have bogged down. Treasury Secretary Steven Mnuchin has advocated maintaining strong business ties with China. The Commerce Department is also working on new restrictions on the types of potentially sensitive American technology that can be exported to foreign businesses, which are likely to touch on artificial intelligence and 5G abilities. Get politics and Washington news updates via Facebook, Twitter and the Morning Briefing newsletter. https : // www.nytimes.com/2019/05/21/us/politics/hikvision-trump.html Graphic PHOTOS: A worker installing Hikvision surveillance cameras in Beijing in February, above, and a saleswoman demonstrating the company's identification technology at an exhibition last year. The Chinese firm may face obstacles to obtaining American components. (PHOTOGRAPHS BY THOMAS PETER/REUTERS NG HAN GUAN/ASSOCIATED PRESS) (A7) Load-Date: May 22, 2019 End of Document Bloomberg’s Organization Is Like No Other in Politics The New York Times

### Document 936

The administration is split over restrictions on exporting sensitive technologies that are vital to protecting national security. WASHINGTON -- The Trump administration is divided over how aggressively to restrict China's access to United States technology as it looks for ways to protect national security without undercutting American industry. President Trump and many of his top advisers have identified China's technological ambitions as a national security threat and want to limit the type of American technology that can be sold overseas. But a plan to do just that has encountered stiff resistance from some in the administration, who argue that imposing too many constraints could backfire and undermine American industry. The debate underscores the extent to which Mr. Trump's trade fight with China has left many issues unresolved. The president announced plans this month to sign a ''Phase 1'' trade agreement that would require China to buy more farm products and agree to some technology protections in exchange for a pause in new American tariffs. The agreement, which has yet to be signed, lowered tensions between the two nations. But concerns about Beijing's economic ambitions remain, posing an even greater challenge as the United States considers what steps to take to ensure American companies dominate the next generation of technologies. For nearly a year, the Bureau of Industry and Security, a division in the Commerce Department, has been working to identify emerging technologies that, if shared, could pose a security threat to the United States. The restrictions aim to head off new security threats. For instance, 3-D printers could create weapons on the battlefield, making it unnecessary to ship arms. Artificial intelligence can decode encryptions that previously could not be cracked. Robots could provide surveillance from space, while organelles could build tissue for soldiers injured in war. Last year, Congress passed a law requiring new controls on emerging technologies. But deciding which technologies should be regulated has taken longer than anticipated and prompted an ugly conflict in the administration. Some administration officials, along with many in the business and scientific communities, assert that too-tight restrictions risk pushing research offshore, crippling the commerce that gave rise to America's technological superiority in the first place. But China critics, including many of Mr. Trump's political appointees, say Beijing is a security threat that must be addressed. ''There's a clear fight in the administration between those who want to have a broad response to China's technology acquisition and development strategies and those who want to surgically limit China's access to very specific items and essentially return to a business-as-usual approach to China,'' said Michael R. Wessel, a member of the U.S.-China Economic and Security Review Commission, who advocates more comprehensive controls. Next month, the bureau is expected to announce an initial set of restrictions on exporting some technologies, including quantum computing, 3-D manufacturing and an algorithm that guides artificial intelligence, an official from the bureau said. While those restrictions are a start, they are not enough to satisfy the president's more hawkish advisers. Some analysts say the fight goes beyond any specific technology and encompasses a broader debate echoing from the halls of Congress to the White House about how to revise American policy to confront a rising China. While many in Washington see Beijing as its biggest long-term rival, China is also the United States' largest trading partner and crucial to industries like agriculture and manufacturing. ''It's more than just a battle in the Commerce Department,'' said Derek M. Scissors, a resident scholar at the American Enterprise Institute. ''This is industry pushing back against the Congress.'' Opponents of broad controls say trade and the technological development it fosters actually give the United States' security advantages -- including information and income that can be plowed back into further research. Business leaders and researchers say rules that are too expansive could weigh on industries that depend on freely trading components or knowledge around the world, like developers of driverless cars or biomaterials. Such restrictions could encourage American companies to move research facilities to countries without export controls. ''You can't do science with walls around it,'' said Toby Smith, the vice president for policy at the Association of American Universities. ''If security dominates the conversation, our scientific leadership may lose out.'' Companies like Google, General Motors, Microsoft, Toyota and Raytheon have urged the government to tailor its controls as narrowly as possible to avoid disrupting their ability to compete around the globe. In comment letters submitted in January, companies contended that many emerging technologies, like machine learning and quantum computing, were already well established in companies and research universities abroad and that tight restrictions could ultimately jeopardize American technological development and national security. ''Ultimately, it is far better for U.S. national and economic security for foreign countries to use U.S. technology products than for the U.S. to be forced to use theirs,'' Qualcomm said in its letter. Facebook argued that restrictions could hurt the ability of American companies to develop technologies and ''risk slowing innovation, and the hiring and retention of top researchers in the United States.'' The export controls would apply beyond China to Russia and other nations. But it is Beijing's efforts to harness advanced technologies that have prompted a bipartisan outcry in Washington. As part of its Made in China 2025 program, China has introduced plans to dominate industries of the future, like driverless cars and biomedicine. In some areas of advanced technology, it is now on a par with the United States, and its weaponry is increasingly state of the art. Some of these technologies have been obtained through domestic development or legitimate investments. But others have been stolen or coerced through cyberattacks, espionage or unfair economic practices, American officials say. ''Put plainly, China seems determined to steal its way up the economic ladder, at our expense,'' the F.B.I. director, Christopher A. Wray, told a crowd at the Council on Foreign Relations this year. That growing suspicion has given rise to an array of policies to more closely scrutinize the money and technologies that are flowing between the United States and China. Washington has stepped up reviews of Chinese investments that could be a security threat, and blacklisted dozens of Chinese technology firms, including the telecom giant Huawei, from buying American technology without government approval. Mr. Trump has also imposed tariffs on more than $360 billion of Chinese goods, including semiconductors and aircraft parts. The moves, taken together, seem aimed at unwinding some of the economic connections between the United States and China -- a process many in Washington refer to as ''decoupling.'' Those who advocate limiting economic ties with China say that a previous policy of engagement has failed to contain the country's more threatening ambitions, and that setting up barriers is the best way to protect the United States. Critics say attempts to splinter the world's two largest economies and their technologies could have devastating consequences, not just for businesses but for the world as a whole. At a bureau conference in early July, representatives from companies like Northrop Grumman and Verizon listened eagerly for clues as to how the government would define the new rules. Officials acknowledged the difficulty of policing against national security threats that could come from a variety of advanced technologies, without disrupting the United States' leading position as a center for research and development. The government's effort to roll out the controls has been complicated by the departure of several high-level officials, including Nazak Nikakhtar, who oversaw the process until she withdrew her nomination as under secretary for industry and security and returned to a different post in August. Her withdrawal stemmed in part from the internal administration fight, according to people familiar with the circumstances. An official from the Bureau of Industry and Security, who spoke on the condition of anonymity to discuss sensitive deliberations, acknowledged that the effort was taking longer than originally anticipated, mostly because of an intense workload and lack of resources. But the official said that the bureau was working hard to produce tailored regulations that would strengthen security, and that it would publish proposals for controls of specific technologies on a rolling basis beginning next month. The department has been tasked with creating two lists of technologies that cannot be exported, or shared with foreign citizens, even on American soil. The first batch, which many analysts expected to be announced earlier this year, focuses on ''emerging,'' or new, technologies. The second will suggest updates to the ''foundational'' technologies that are already widely used, such as semiconductors. The current task is made trickier because the United States is no longer the clear leader in many technologies. Europe leads in some types of 3-D printing. China is surging ahead in gene editing. And the democratization of technology creates the potential for someone in any country to build a biological weapon or a 3-D printer in his or her basement. These advanced technologies are a great advantage to the United States -- and also to American adversaries, said Riz Ramakdawala, a senior aerospace engineer at the Defense Technology Security Administration. ''The problem comes down to: What's the right level of control?'' he said. Past efforts to regulate technologies provide a cautionary tale. In the late 1990s, the United States placed tight restrictions on exporting satellite technology in an effort to protect an industry deemed vital to national security. The effort backfired. Wary of restrictions that could cripple their ability to ship products overseas, companies like Boeing, Maxar Technologies and Lockheed Martin moved satellite manufacturing overseas. According to a report by the Commerce Department, companies said the controls had eroded American competitiveness in the industry and led to $1 billion to $2 billion of lost opportunities from 2009 to 2012. https : // www.nytimes.com/2019/10/23/business/trump-technology-china-trade.html Graphic PHOTO: The Trump administration has identified China's technological ambitions as a national security threat. Above, a 3-D-printed pistol with ammunition. (PHOTOGRAPH BY ROBERT MACPHERSON/AGENCE FRANCE-PRESSE -- GETTY IMAGES) (B5) Load-Date: October 25, 2019 End of Document Garfield Variants The New York Times

### Document 371

As the rapid pace of change mixes with national security issues, Europe's role as a global regulator is increasingly tested -- and may not be enough. BRUSSELS -- Lacking a powerful technology sector of its own, the European Union has instead tried to carve out a space in the digital economy as the world's regulatory superpower, leading the charge on privacy rights and data protection by leveraging its enormous single market against Goliaths like Google and Facebook. But a number of recent examples have made it clear that for Europe, increasingly, that is not enough. The rapid pace of technological change -- including artificial intelligence and facial recognition -- is mingling ever more with national security concerns that European leaders have been slow to grasp and respond to, analysts say. As global technology shapes up into a battleground between China and the United States, Europe is finding it harder to set the rules of the road while others in Beijing and Washington are in the diver's seat. ''Europe needs to get its act together,'' said Marietje Schaake, international policy director at the Cyber Policy Center of Stanford University and a former member of the European Parliament. ''I worry the tempo is too slow for the pace at which changes are forthcoming.'' The most recent example is TikTok, the wildly popular Chinese short video app, which the Trump administration has challenged by using many of the same national security arguments it employed against Huawei, the Chinese telecommunications giant, and its bid to become the globe's dominant 5G provider. Time and again, such disputes have left European leaders, regulators and industries squeezed between Beijing and Washington, risking retaliation against carmakers, financial services firms or agriculture companies if they choose one side over the other. In response, European leaders have belatedly embarked on a generational project toward ''digital sovereignty,'' mixing tougher rules against foreign tech companies with efforts to boost local innovation. Margrethe Vestager, the European Commission vice president in charge of digital issues, has called it a ''new phase'' for technology policy in the region. But those policies will take years to shift the balance meaningfully in Europe's favor, analysts say, and many question whether they are really enough to close the technology gap with the United States and China. One reason Brussels risks falling behind is that security remains the responsibility of individual member nations, not one ceded to the European Union, Ms. Schaake said. ''TikTok confronts Europe with the weaknesses of its digital and national security policies,'' she said. ''Europe is naïve about certain of the technologies coming from China and the United States, and just says that anyone doing business in Europe has to respect our rights and regulations.'' After months of debate, some European leaders are coming around to views closer to those held in Washington, where President Trump has moved to try to force the sale of TikTok's U.S. operations to an American company, charging that the company's Chinese ties present a national security threat. It has used the same argument against Huawei, the telecommunications giant, though both companies deny any explicit link to the Chinese government. In Europe, the American point of view on Huawei, backed by the threat of secondary sanctions, has gained ground, most recently in Britain, where a ban was adopted in July. But most Europeans mostly still see TikTok not as a security threat, but as a risk to privacy. Even if the White House-orchestrated TikTok sale goes through, the European operations will remain under the ownership of the Chinese parent company, ByteDance. TikTok uses both facial recognition and artificial intelligence, important technologies that are not regulated by the United States or the European Union. ''With the combination of competition, artificial intelligence and security, it makes sense why some policymakers are concerned,'' said Andreas Aktoudianakis, a digital policy analyst with the European Policy Center, a research institution in Brussels. ''Europe wants to regulate artificial intelligence and other technologies, but it's slow and there's no real timeline,'' he added. ''We're late to catch the train.'' Gerard de Graaf, director for the digital single market for the European Commission, said that the European Union needed ''a lot more cooperation among member states on the issue of security.'' Europe has no major social media platforms, he conceded in a seminar at Bruegel, a Brussels research institution, but is doing well in financial technology, robotics and 5G. ''It's not that the E.U. is way behind everyone else,'' he said, ''but we have challenges.'' But Francesca Bria, chair of the Italian National Innovation Fund, argued that Europe risked being squashed between the Chinese state model -- which is represented by Huawei, WeChat, Alibaba, Tencent and TikTok, with their state subsidies -- and the ''big company, big tech surveillance'' of the American giants. ''If we fail to regain digital sovereignty,'' she said, ''we risk becoming a colony caught between the U.S. and China,'' with risks to democracy. American tech shares alone are more valuable than the whole European stock market, Ms. Bria said. ''Europe needs to remain relevant as a global economic power, not just a regulatory power,'' she said. The weaknesses are stark. The world's most popular smartphones are made in China, South Korea and the United States. The biggest social media and online shopping platforms come from American and Chinese companies, as do the largest providers of cloud computing and artificial intelligence services. Europe has been missing from the list of the world's most influential technology companies since the fall of Nokia about a decade ago. For reasons including lack of venture capital, language barriers and a cultural aversion to risk, European companies have struggled to match the entrepreneurial pace in a technology industry now dominated by mobile devices, internet services and online communication tools. Europe has attempted to influence the digital economy through regulation, adopting tough data protection rules and aggressively enforcing antitrust laws. But European leaders are realizing the limits of those efforts, particularly as its citizens depend on Amazon, Apple, Facebook and Google in the absence of European alternatives. The biggest European technology company is Germany's SAP, a business software provider that competes with American companies like Microsoft and Oracle. Along with privacy and security issues, TikTok also raises questions about disinformation and about censorship exercised by the company on issues of sensitivity to China. The European Data Protection Board said in June that it would set up a task force to assess TikTok's activities across the bloc. But it is not clear what European agency would take the lead, especially since TikTok in July shifted data protection functions to Dublin. That might give the Irish Data Protection Commission oversight of the company when it comes to privacy issues. But the agency has faced criticism in the past for not being more aggressive. Noah Barkin, a senior visiting fellow at the German Marshall Fund, said Europe's lack of influence ultimately stemmed from its dearth of influential tech businesses. Europe will face these difficulties for years as China and the United States battle for tech supremacy. ''Europe hasn't developed its own global digital companies to compete with the big U.S. and Chinese firms, and ultimately that's what digital sovereignty is all about,'' Mr. Barkin said. ''It can't just be a regulator.'' Europe's plans for ''digital sovereignty'' are still vague, said Rebecca Arcesati, an analyst with the Mercator Institute for China Studies in Berlin. ''This is a talking point, but it is a long way before Europe can develop its own digital champions,'' she said. ''It may be too late.'' Fabrice Pothier, chief strategy officer at the Rasmussen Global consulting firm in Brussels, said American pressure was forcing Europe to recalibrate its relationship with China, particularly on technology matters. ''It's a wake-up call to Europe,'' he said. ''There is no such thing as a benign technology and network operator from China.'' On this matter, the Trump administration is ''not necessarily wrong,'' he said. ''Europe is generally behind the curve.'' Steven Erlanger reported from Brussels, and Adam Satariano from London. Monika Pronczuk contributed research from Brussels. https : // www.nytimes.com/2020/09/11/world/europe/eu-us-china-technology.html Graphic PHOTOS: Some European leaders are coming around to views closer to those held by the White House, which has moved to try to force the sale of TikTok U.S. operations to an American company. (PHOTOGRAPH BY PHILIPPE LOPEZ/AGENCE FRANCE-PRESSE -- GETTY IMAGES) In Britain, a ban on Huawei, the Chinese telecommunications giant, was adopted in July, echoing the U.S. stance on the company. (PHOTOGRAPH BY SUZIE HOWELL FOR THE NEW YORK TIMES) Load-Date: September 12, 2020 End of Document Silicon Valley Shrugs Off Bankman-Fried's Trial The New York Times

### Document 1135

-- Staking an assertive negotiating stance, China says it will refuse to discuss President Trump's two toughest trade demands when American officials arrive in Beijing this week, potentially derailing the high-level talks. The Chinese government is publicly calling for flexibility on both sides. But senior Beijing officials do not plan to discuss the two biggest requests that the Trump administration has made over the past several months, according to people involved in Chinese policymaking. Those include a mandatory $100 billion cut in America's $375 billion annual trade deficit with China and curbs on Beijing's $300 billion plan to bankroll the country's industrial upgrade into advanced technologies like artificial intelligence, semiconductors, electric cars and commercial aircraft. The reason: Beijing feels its economy has become big enough and resilient enough to stand up to the United States. [On other trade fronts, even American allies aren't sure what the Trump administration plans. Read more about their concerns.] A half-dozen senior Chinese officials and two dozen influential advisers laid out the Chinese government's position in detail during a three-day seminar that ended here late Monday morning. The officials and most of the advisers at the seminar gave an overview of China's economic policies, including an in-depth review of the country's trade policy, to make sure China's stance would be known overseas. All of the officials and most of the advisers at the seminar insisted on anonymity because of diplomatic sensitivities. It is not clear what will happen when the two sides sit down this week or whether either will find a reason to waver. Still, the Chinese and American positions are so far apart that China's leaders are skeptical the two sides can find common ground by the end of this week. They are already raising the possibility that Chinese officials may fly to Washington a month from now for further talks. ''I don't expect a comprehensive deal whatsoever,'' said Ruan Zongze, the executive vice president of the China Institute of International Studies, which is the policy research arm of China's Foreign Ministry. ''I think there is a lot of game playing here.'' Beijing is frustrated with Mr. Trump's threats to impose tariffs on $150 billion in Chinese goods and dismayed by suggestions in the West that China has a weak bargaining position. Chinese officials think the country's one-party political system and President Xi Jinping's enduring grip on power -- particularly after the repeal of presidential term limits in March -- mean that China can outlast the United States and Mr. Trump in any trade quarrel. The Chinese government believes Mr. Trump's background as a businessman means that at some point he will agree to a deal. Seminar participants also reaffirmed previous Chinese trade policy offers to further open the country's financial and automotive sectors, though not in ways that would impact China's industrial modernization program, called Made in China 2025. They also suggested that China would be willing to tighten its intellectual property rules so as to foster innovation within China as well as protect foreign technologies from counterfeiting and other illegal copying. China is insisting that the parameters of any negotiations be limited, and that the tariff threat be removed before a final deal can be struck. Chinese officials have reached out to Treasury Secretary Steven Mnuchin, who has reacted positively to China's overtures in the auto and financial sectors. Mr. Mnuchin, a former Goldman Sachs executive who will be on the Trump administration's team in Beijing later this week, has sought to calm investors worried that the rhetoric between Washington and Beijing could break out into a full-blown trade war. China's position is that the bilateral trade imbalance arises from differences in savings rates. Households in China save roughly two-fifths of their income. Americans, on average, save almost nothing. So money from China tends to flow to the United States, buying factories, technology companies, real estate and more, and Americans in turn spend much of that money to buy goods from China. Many economists in the United States, including some at the Treasury, share that view. By contrast, many trade lawyers, lawmakers on both sides of the aisle and Mr. Trump contend that the trade deficit stems to a large extent from unfair practices, including cheap loans by state-controlled banks to exporters. China is ready to discuss shrinking the $375 billion annual trade deficit. But it wants to do so by buying more high-tech American goods. Washington has long blocked such deals because of concerns that they may have military value. China is also willing to buy more oil, natural gas, coal and other goods from the United States, and to help finance the extra pipelines and other infrastructure that would be needed to move them to China. A senior Chinese government official said that Beijing is unwilling to negotiate with the United States on any curbs on Made in China 2025, which includes large-scale government assistance to favored industries in advanced-technology manufacturing. China perceives the American demands as an attempt to stop China's economic development and technological progress, the senior Chinese official said. Germany and other countries also have industrial policies, and the United States has not objected to them, he added. American and European officials have argued that those policies elsewhere are much narrower and less ambitious. Other advisers and officials said that the United States had misunderstood the Made in China 2025 industrial policy. They expressed hope that it might be possible to resolve differences by explaining the program better and making very small tweaks to it -- a stance that still may not appease the Trump administration. The Chinese government is not simply throwing money, land and other resources to favored industries like robotics, artificial intelligence, semiconductors and aircraft manufacturing, they said. China is engaged instead, they contended, in a carefully thought-out program that measures potential profits for each dollar of investment. So China's program bears some resemblance, they said, to private sector investment programs in the West. One subject was repeatedly and conspicuously avoided by all officials throughout the seminar, even when advisers occasionally speculated about it: whether China might someday try to link trade disputes to national security issues. China has been deeply involved in international pressure on North Korea to give up its nuclear weapons and ballistic missiles, an issue of high importance to the Trump administration. Beijing also wants to someday assert control of Taiwan, a self-governing democracy that Beijing regards as a renegade territory. Tsinghua University's new Academic Center for Chinese Economic Practice and Thinking organized the seminar, which was held at Tsinghua and two other venues in western Beijing. President Xi graduated from Tsinghua, which is in Beijing and is China's top university, and he has filled much of the senior ranks of his government with Tsinghua professors and graduates. In some respects, the hard stance struck by Chinese officials reflects a hardening of public attitudes in China. In mid-April, the United States barred American companies from selling their wares to a Chinese telecom equipment maker, ZTE. The move is seen as potentially crippling to the Chinese company, which needs American chips and software to power the smartphones and equipment it sells around the world. Washington officials cited ZTE's repeated violations of sanctions against Iran and North Korea, but many in China saw it as a reminder by the United States that sizable sectors of the Chinese economy still rely on American-made goods. Much of the Made in China 2025 policy is aimed at reducing that dependence. The ZTE case ''has changed a lot of Chinese people's opinion,'' said Mr. Ruan, of the China Institute of International Studies. ''In the past, people saw us as interdependent.'' https : // www.nytimes.com/2018/04/30/business/china-trump-trade-talks.html Graphic PHOTO: A container port in China's eastern Shandong Province. The Trump administration wants Beijing to curb a technology push. (PHOTOGRAPH BY REUTERS) Load-Date: May 1, 2018 End of Document Plenty of Ways for a News Junkie to Stay Plugged In The New York Times

### Document 652

-- As the United States and China look to protect their national security needs and economic interests, the fight between the two financial superpowers is increasingly focused on a single area: technology. The clash erupted in public on Tuesday after the United States government, citing national security concerns, called for a full investigation into a hostile bid to buy the American chip stalwart Qualcomm -- a review that is often a death knell for a corporate deal. The proposed acquisition by the Singapore-based Broadcom would have been the largest deal in technology history, creating a major force in the development of the computer chips that power smartphones and many internet-connected devices. But a government panel said the takeover could weaken Qualcomm and give its Chinese rivals an advantage. ''China would likely compete robustly to fill any void left by Qualcomm as a result of this hostile takeover,'' a United States Treasury official wrote in a letter calling for a review of the deal. The fight over technology is redefining the rules of engagement in an era when national security and economic power are closely intertwined. China, under President Xi Jinping, has launched an ambitious plan to dominate mobile technology, supercomputers, artificial intelligence and other cutting-edge industries, putting huge resources behind an effort that it considers crucial to the country's government, military and economy. Beijing wants to build its own technology champions and is encouraging companies to acquire the engineering, expertise and intellectual property from big rivals in the United States and elsewhere. The aggressive push has set off alarms in Washington, with policymakers and lawmakers fearful that American giants could lose their edge. President Trump is now building up the country's defenses, as the government investigates potential violations of American intellectual property rights and intensifies scrutiny of overseas deals. The secretive panel that is reviewing the Qualcomm deal, the Committee on Foreign Investment in the United States, or Cfius, has taken on a central role in the resistance to Chinese investment. The panel, which is led by the Treasury Department and made up of representatives from multiple agencies, has the authority to block foreign acquisitions of American companies for national security reasons; it has effectively killed several acquisitions linked to Chinese buyers over the past year. Lawmakers are also calling to expand the powers of Cfius to reflect the broader scope of China's interests. [ What is Cfius? It is the ''ultimate regulatory bazooka,'' according to an executive who works on mergers and acquisitions. Read more about the panel here » ] ''The Trump administration turbocharged it,'' Tony Balloon, the head of the corporate China practice at the law firm Alston & Bird, said, referring to Cfius. ''There is now a recognition in government that foreign investors, particularly from China, are getting more and more sophisticated on how they get access to technology in the U.S.'' With Qualcomm, the government has articulated its evolving vision for global economic leadership. The company, which is a major supplier to the United States government, is a leading player in the race to build the next generation wireless technology, known as 5G. These high-speed mobile networks will form the infrastructure backbone that ultimately connects home appliances, streetlights and driverless cars to the internet. And Qualcomm's chips will be in the multitude of devices and machines that will run on those networks. ''Having a well-known and trusted company hold the dominant role that Qualcomm does in the telecommunications infrastructure provides significant confidence in the integrity of such infrastructure as it relates to national security,'' the Treasury official wrote in the letter. The government specifically cited Huawei, the Chinese telecom-equipment giant, as a potential competitor that could move into a breach created by a merger. The Chinese company has spent heavily on 5G, and the government said it owns 10 percent of the essential patents. ''It is the new paradigm,'' said Paul Triolo, head of global technology policy at Eurasia Group, a geopolitical risk consulting company. ''That implies technologies with 5G, artificial intelligence, biotech and automation are now considered more sensitive and part of a national innovation base that needs to be protected.'' Broadcom said it was cooperating with Cfius, saying it was ''making the combined company a global leader in critical 5G and other technologies.'' Qualcomm, in an earlier statement, said the review was a ''very serious matter.'' The letter and the call for an investigation reflect the newly forceful position of Cfius. In most cases, the panel weighs in after a deal is announced. With Qualcomm, Cfius is taking a proactive role and investigating before an acquisition agreement has even been signed. Cfius has stymied several deals in the past year. MoneyGram, the money transfer company, and Ant Financial, the Chinese electronics payment company, called off their merger in January, citing regulatory concerns of Cfius. If the deal had gone through, Ant Financial would have had access to reams of financial data, which could have created security problems. Ant Financial has said that consumer data would have stayed in the United States. Last year, the White House blocked a Chinese-backed investor from buying Lattice Semiconductor, which is a supplier to the United States government. China Venture Capital Fund Corporation, which was part of the investment group, is owned by state-backed entities. ''It's very much an expansion of what is considered to be national security,'' said Tai Ming Cheung, director of the Institute on Global Conflict and Cooperation at the University of California at San Diego. ''This is about China's efforts to invest and acquire key parts of the U.S. innovation system.'' Cfius could soon have even more muscle. There is new legislation to broaden the jurisdiction of Cfius; it has bipartisan support in the Senate. The Trump administration has expressed support for rewriting the rules governing Cfius, and Steven Mnuchin, the Treasury secretary, said last year that the administration was working closely with the House and the Senate. The bill, proposed by Senators John Cornyn, a Republican from Texas, and Dianne Feinstein, a Democrat from California, would give Cfius the authority to assess some types of joint ventures, minority investments and real estate transactions near military bases. The legislation would also widen the definition of ''critical technologies'' slated for potential review to include ''emerging technologies that could be essential for maintaining the U.S. technological advantage over countries that pose threats, such as China,'' according to a news release on the bill. Adding to the scrutiny, the United States Trade Representative has also opened an investigation into whether China is ''harming American intellectual property rights, innovation or technology development.'' One concern is that American companies have been forced to hand over technology, create joint ventures and otherwise help homegrown players, in exchange for access to the Chinese market. Qualcomm, for example, has been working with the Chinese government to develop drones, artificial intelligence and mobile technology. Technology companies are stuck in the middle of the fight between the United States and China. While there are concerns about Chinese encroachment, the industry also recognizes that such deals are the price for entry to the world's second-largest economy. Companies have protested the proposed changes to Cfius, saying an expansion of its powers could be misused and that the new definitions of emerging technologies are unclear. IBM has said the bill would limit the ''ability of American firms to do business abroad while empowering foreign competitors to capture global markets.'' The Information Technology Industry Council, a tech trade group, has lobbied against the changes, saying they add complexity for Silicon Valley companies that often have intricate business ties in China. ''They are between a rock and a hard place,'' said Rob Atkinson, president of the Information Technology and Innovation Foundation, a think tank that is sponsored by technology firms like Microsoft. ''The Chinese government says you have to do this to operate here. The U.S. says, but you can't do that.'' https : // www.nytimes.com/2018/03/06/business/us-china-trade-technology-deals.html Graphic PHOTO: U.S. officials fear a hostile bid for the chip maker Qualcomm could benefit Chinese competitors. (PHOTOGRAPH BY GRAHAM WALZER FOR THE NEW YORK TIMES) (A14) Load-Date: March 7, 2018 End of Document China Extends Lead as Maker of Supercomputers The New York Times

### Document 791

New legislation aimed at supporting the semiconductor industry is a sign of shifting consensus in Washington, where industrial plans are now in vogue WASHINGTON — China’s technological ambitions are eliciting rare bipartisan agreement in Washington, with lawmakers considering investing tens of billions of dollars in America’s semiconductor industry over the next five to 10 years to help the United States retain an edge over Beijing. A bipartisan measure introduced this week is one of several proposals that would provide substantial funding for the semiconductor industry, which manufactures chips that serve as the tiny brains or memory of electronic devices from smartphones to fitness trackers. The efforts reflect a shifting consensus in Washington, as lawmakers look to more expansive government intervention in private markets to help American firms compete. That includes Republicans, who have long criticized government-led industrial plans as inefficient and redolent of communism but have watched with dismay as such efforts in China have allowed it to dominate industries from steel and solar panels to shipbuilding. The future of the semiconductor industry is viewed as particularly significant because it is a foundational technology that can give nations an edge in innovation. China has been shoveling billions into developing its own chip industry, which has long been dominated by the United States and has helped propel a boom in 5G technology, artificial intelligence and robotics. Semiconductors are still one of America’s largest exports, and American companies that design and sell chips still account for nearly half of global revenue in the sector, the greatest share of any country. But the United States only accounts for around 12 percent of global semiconductor production capacity. Decades ago, domestic designers began turning to foundries in places like Taiwan and South Korea to manufacture their chips. While past government subsidies have largely focused on chip research, the latest bill puts a heavy emphasis on domestic manufacturing. A centerpiece, which would put more than $22.8 billion toward the industry, is a new trust fund for federal grants to match state subsidies to encourage new factories. As much as $10 billion a year could be placed in the fund, with the money to come from the import tariffs the administration has placed on China, rather than a congressional appropriation. The legislation is co-sponsored by Senators John Cornyn, Republican of Texas, and Mark Warner, Democrat of Virginia, and Representatives Michael McCaul, Republican of Texas, and Doris Matsui, Democrat of California. It could be rolled into the next economic stimulus package or a defense bill that may be considered this summer. The measure follows a bill introduced in late May by Senator Chuck Schumer, Democrat of New York and the minority leader, and Senator Todd Young, Republican of Indiana, that would expand the National Science Foundation and increase funding by $100 billion over five years in areas like artificial intelligence, robotics and advanced manufacturing. Senator Tom Cotton, Republican of Arkansas, is also working on a bill to fund the chip industry. “One of the biggest weaknesses in the American economy is the decline of our scientific and innovation industrial base, and we must invest in academic institutions and industries to rebuild it,” Mr. Schumer said. “There’s bipartisan support to do so and it’s growing each day.” The shift in Congress mirrors one in the Trump administration, which has rejected traditional Republican support of free trade in favor of a more managed approach to compete with China. Mr. Trump’s advisers have zeroed in on the semiconductor industry, which was born in the United States but has partly migrated to Asia in recent decades, as the test case for their plan to use trade and technology policies to return manufacturing to American shores. Though the election is fast approaching, officials in the Trump administration have only just begun to implement that plan. Over the last year, they have introduced a variety of measures aimed at cutting Chinese companies off from American technology exports and investment opportunities and crippling the Chinese telecom giant Huawei, which they view as a national security threat. Mr. Trump also waged a prolonged trade war against China — placing tariffs on hundreds of billions of dollars of Chinese goods, including high-tech ones — as he pressed the country to sign a so-called Phase 1 trade deal. But the administration has done little to build up other companies that could compete with Huawei and other Chinese technology leaders. As a result, American efforts to get countries around the world to excise Huawei from their telecom networks have been largely unsuccessful. For many months, officials in the Departments of Defense, State and Commerce have been trying to woo chip makers including Intel, Samsung and Taiwan Semiconductor Manufacturing Company to expand their manufacturing footprint in the United States. In May, T.S.M.C. announced plans to build an advanced chip facility in Arizona. That plan is contingent on securing funding from Congress, which would likely come through the bill introduced this week. Officials from the Department of Commerce and State, who helped negotiate with T.S.M.C., have been in talks with Congress to create a standard package of incentives that could be offered to attract other chip suppliers. In a meeting at the White House last Thursday, senior officials discussed incentives that could bring chip manufacturers onshore. Besides recent tensions with China, industry executives say the bipartisan support for the bill was also fueled by the coronavirus and its aftermath, which underscored the dangers of relying on a distant electronics supply chain. “It may be the silver lining out of this whole unfortunate pandemic,” said Thomas Caufield, the chief executive of GlobalFoundries, which has invested $15 billion in manufacturing facilities that include a large factory near Albany, N.Y., and facilities once owned by IBM. “It’s time to think differently.” China still lags in the production of the most advanced semiconductors, but its technology is improving quickly. The Trump administration has warned that China is using subsidies, targeted investments and cybertheft to try to gain a technological edge. Administration officials and others in Washington also believe that Taiwan, a major supplier of advanced chips, is vulnerable to Chinese invasion or influence, one motivation behind trying to bring T.S.M.C.’s manufacturing to the United States. “As the Chinese Communist Party aims to dominate the entire semiconductor supply chain, it is critical that we supercharge our industry here at home,” Mr. McCaul said in a statement. Chip factories — which now routinely cost as much as $10 billion and can take years to construct — also help set the pace of innovation. By developing new production processes that squeeze more transistors on tiny squares of silicon, manufacturers can lower the cost for performing calculations and storing data. Intel, which has major factories in three U.S. states, for decades led that technology race. But the company was several years late on delivering its latest production process, allowing T.S.M.C. and Samsung to claim a lead. South Korea, Israel, Ireland, Germany and other countries have offered generous incentives to attract chip makers. Earlier this month, Taiwan unveiled more than $300 million of funding to attract foreign semiconductor companies. Conscious of American efforts to attract manufacturing, Chinese officials have also recently stepped up efforts to court multinational technology companies, industry executives say. PHOTO: Renesas Electronics in Beijing. China has invested billions into developing its own chip industry, which has long been dominated by the United States. (PHOTOGRAPH BY NICOLAS ASFOURI/AGENCE FRANCE-PRESSE — GETTY IMAGES) (B8) Load-Date: July 14, 2020 End of Document Your Wednesday Briefing The New York Times

### Document 503

The Department of Commerce issued guidelines for companies angling to receive federal funding aimed at bolstering the domestic semiconductor industry. WASHINGTON -- The Department of Commerce on Tuesday unveiled its plan for dispensing $50 billion aimed at building up the domestic semiconductor industry and countering China, in what is expected to be the biggest U.S. government effort in decades to shape a strategic industry. About $28 billion of the so-called CHIPS for America Fund is expected to go toward grants and loans to help build facilities for making, assembling and packaging some of the world's more advanced chips. Another $10 billion will be devoted to expanding manufacturing for older generations of technology used in cars and communications technology, as well as specialty technologies and other industry suppliers, while $11 billion will go toward research and development initiatives related to the industry. The department is aiming to begin soliciting applications for the funding from companies no later than February, and it could begin disbursing money by next spring, Gina Raimondo, the secretary of commerce, said in an interview. The fund, which was approved by Congress in July, was created to encourage U.S. production of strategically important semiconductors and spur research and development into the next generation of chip technologies. The Biden administration says the investments will lessen dependence on a foreign supply chain that has become an urgent threat to the country's national security. ''This is a once-in-a-lifetime opportunity, a once-in-a-generation opportunity, to secure our national security and revitalize American manufacturing and revitalize American innovation and research and development,'' Ms. Raimondo said. ''So, although we're working with urgency, we have to get it right, and that's why we are laying out the strategy now.'' Trade experts have called the fund the most significant investment in industrial policy that the United States has made in at least 50 years. It will come at a pivotal moment for the semiconductor industry. Tensions between the United States and China are rising over Taiwan, the self-governing island that is the source of more than two-thirds of the most advanced semiconductors. Shortages of semiconductors have also helped to fuel inflation globally, by increasing delivery times and prices for electronics, appliances and cars. Semiconductors are crucial components in mobile phones, pacemakers and coffee makers, and they are also the key to advanced technologies like quantum computing, artificial intelligence and unmanned drones. With midterm elections fast approaching, the Biden administration is under pressure to demonstrate that it can use this funding wisely and lure manufacturing investments back to the United States. The Commerce Department is responsible for choosing which companies receive the money and monitoring their investments. In its strategy paper, the Commerce Department said that the United States remained the global leader in chip design, but that it had lost its leading edge in producing the world's most advanced semiconductors. In the last few years, China has accounted for a substantial portion of newly built manufacturing, the paper said. The high cost of building the kind of complex facilities that manufacture semiconductors, called fabs, has pushed companies to separate their facilities for designing chips from those that manufacture them. Many leading companies, like Qualcomm, Nvidia and Apple, design chips in the United States, but they contract out their fabrication to foundries based in Asia, particularly in Taiwan. The system creates a risky source of dependence for the chips industry, the White House says. The department said the funding aimed to help offset the higher costs of building and operating facilities in the United States compared with other countries, and to encourage companies to build the larger type of fabs in the United States that are now more common in Asia. Domestic and foreign companies can apply for the funds, as long as they invest in projects in the United States. To receive the money, companies will need to demonstrate the long-term economic viability of their project, as well as ''spillover benefits'' for the communities they operate in, like investments in infrastructure and work force development, or their ability to attract suppliers and customers, the department said. Projects that involve economically disadvantaged individuals and businesses owned by minorities, veterans or women, or that are based in rural areas, will be prioritized, the department said. So will projects that help make the supply chain more secure by, for example, providing another production location for advanced chips that are manufactured in Taiwan. Companies are encouraged to demonstrate that they can obtain other sources of funding, including private capital and state and local investment. The Commerce Department is setting up two new offices housed under the National Institute of Standards and Technology to set up the programs. One of the department's biggest challenges will be ensuring that the government funds add to, rather than displace, money that chip making companies were already planning to invest. Companies including GlobalFoundries, Micron, Qualcomm and Intel have announced plans to make major investments in U.S. facilities that may qualify for government funding. The chips bill specifies that companies that accept funding cannot make new, high-tech investments in China or other ''countries of concern'' for at least a decade, unless they are producing lower-tech ''legacy chips'' destined to serve only the local market. The Commerce Department said it would review and audit companies that receive the funding, and claw back funds from any company that violates the rules. The guidelines also forbid recipients from engaging in stock buybacks, so that taxpayer money doesn't end up being used to reward a company's investors. ''We're going to run a serious, competitive, transparent process,'' Ms. Raimondo said. ''We are negotiating for every nickel of taxpayer money.'' In addition to the new prohibitions on investing in chip manufacturing facilities in China, officials in the Biden administration have agreed that the White House should take executive action to scrutinize outbound investment in other industries as well, Ms. Raimondo said. But she added that the administration was still working through the details of how to put such a policy in place. Earlier versions of the chips bill also proposed setting up a broader system to review investments that U.S. companies make abroad to prevent certain strategic technologies from being shared with U.S. adversaries. That provision, which would have applied to cutting-edge technologies beyond the chips sector, was stripped out of the bill, but officials in the Biden administration have been considering an executive order that would establish a similar review process. The United States has a review system for investments that foreign companies make in the United States, but not vice versa. The Biden administration has also taken steps to restrict the types of advanced semiconductors and equipment that can be exported out of the United States. In statements last week, Nvidia and Advanced Micro Devices, both based in Silicon Valley, said they had been notified by the U.S. government that exports to China and Russia of certain high-end chips they produce for use in supercomputers and artificial intelligence were now restricted. These chips help power the kind of supercomputers that can be used in weapons development and intelligence gathering, including large-scale surveillance. Ms. Raimondo declined to discuss the export controls in detail but said the department was ''constantly evaluating'' its efforts, including how best to work with allies to deny China the equipment, software and tooling the country uses to enhance its semiconductor industry. https : // www.nytimes.com/2022/09/06/business/economy/biden-tech-chips.html Graphic PHOTO: Making chips in Jiangsu, China. The country accounts for much of newly built manufacturing, a U.S. report said. (PHOTOGRAPH BY AGENCE FRANCE-PRESSE -- GETTY IMAGES) (B3) Load-Date: September 6, 2022 End of Document Why China's Brain Drain Is Not a Boon for the U.S. The New York Times

### Document 369

-- The Trump administration said Monday that it had added 28 Chinese organizations to a United States blacklist over concerns about their role in human rights violations, effectively blocking those entities from buying American products. The organizations have been implicated in China's campaign targeting Uighurs and other predominantly Muslim minorities in the autonomous region of Xinjiang, according to a Commerce Department filing. Among the entities being placed on the list are Hikvision and Dahua Technology, two of the world's largest manufacturers of video surveillance products. It also hits China's well-funded, newly emerging class of artificial-intelligence start-ups. Together, the companies' products are central to China's ambitions to be the top global exporter of surveillance technology. The list also includes companies that specialize in artificial intelligence, voice recognition and data as well as provincial and local security bureaus that have helped construct what amounts to a police state in Xinjiang. These entities have been involved ''in the implementation of China's campaign of repression, mass arbitrary detention and high-technology surveillance,'' the filing said. The move was announced just days before high-level Chinese and American officials meet in Washington to try to resolve a trade war that has begun inflicting pain on both sides of the Pacific. The blacklist's impact on the companies is likely to be mixed. In many cases, they could find ways to replace American components and have likely already stockpiled key parts, limiting the short-term impact. Over the longer term, it could hamper their access to United States and European markets, as well as damage recruitment efforts. American customers, universities and others will likely look askance at striking up relations with Chinese companies on the blacklist. A Commerce Department spokesman said Monday that the action was not related to those talks. But the decision is likely to rankle the Chinese government, which has helped support some of these companies as they have developed into cutting-edge technology firms. ''The U.S. government and Department of Commerce cannot and will not tolerate the brutal suppression of ethnic minorities within China,'' Commerce Secretary Wilbur Ross said in a statement. Hikvision said in a statement that it strongly opposed the decision and had been trying to address the administration's concerns for the past year. The punishment will ''hurt Hikvision's U.S. business partners and negatively impact the U.S. economy,'' the company said. China has faced growing condemnation from human rights groups in recent months for its detention of up to one million ethnic Uighurs and other minority Muslims in large internment camps in Xinjiang. Beijing has constructed an advanced surveillance system, in what it describes as an effort to fight Islamic extremism among the Uighurs, the largest ethnic group in Xinjiang. But many Uighurs and others around the world say Chinese officials are trying to suppress their culture and religion. Human Rights Watch has said the violations are of a ''scope and scale not seen in China since the 1966-1976 Cultural Revolution,'' and Secretary of State Mike Pompeo has called China's treatment of the Uighurs the ''stain of the century.'' Yet administration officials have wavered on how much to keep human rights and economic concerns separate in their negotiations with China. Many officials emphasize that the topics are separate, but the administration has shelved several proposals that would have shined light on China's abuses over concerns that a tough stance could upset trade talks. And President Trump himself has often linked national security and other concerns to trade talks. On Monday, Mr. Trump said ''bad'' action in Hong Kong, the site of violent protests, would hurt progress on trade and urged China to find a ''humane solution.'' ''I think they're coming to make a deal,'' he said of the Chinese. ''It's got to be a fair deal.'' The Trump administration has steadily ratcheted up pressure on China through tariffs on more than $360 billion of Chinese products and other restrictions on Chinese investment in the United States. The administration has also begun looking to restrict exports to China. This year, the administration placed Huawei, the Chinese telecom equipment giant, on the blacklist, saying it posed national security concerns. It added five Chinese entities to the list in June, also citing national security. American companies can still apply for licenses to supply products to organizations that have been placed on the Commerce Department entity list, but the government may deny the applications. The companies on the list help illustrate the breadth and development of China's surveillance industry, which increasingly uses predictive technology to track its own citizens, or spot potential protests or crimes as they occur. The new additions include several artificial intelligence start-ups: Megvii, SenseTime and Yitu Technologies. They also include iFlytek, which makes voice recognition software; Xiamen Meiya Pico Information Company, a data forensics company; and Yixin Science and Technology Company, which makes nanotechnology. The listed government entities include Xinjiang's public security bureau and 19 subordinate bureaus and institutes. Several of the firms have grown into global operations while servicing an extensive market in China. Hikvision said it had more than 34,000 employees and dozens of divisions worldwide, and it has supplied products to the Beijing Olympics, the World Cup in Brazil and Linate Airport in Milan. Dahua Technologies has more than 16,000 employees, according to its website, with divisions in North America, Europe and Latin America. The companies run the gamut in terms of capabilities and focus. Some are specialists in facial-recognition systems, voice-recognition software, surveillance cameras and phone tracking systems that are sold largely to China's security forces. Others have ambitions of building systems that can filter social media content and products that could help doctors reach cancer diagnoses. As a result, the impact of the bans will be varied. For the surveillance camera maker Hikvision, which makes a significant portion of the world's security cameras, the impact could be significant. A block could have a roughly 10 percent impact on revenue, technology research firm Sanford Bernstein said in a Monday note. While the company would have to replace some American-made chips placed in its high-end cameras, most of the impact would come on the back-end servers that help analyze footage as part of its security systems. The impact could be larger in terms of broader sales ambitions. Hikvision has worked to court the American market, including a number of government-connected customers. For those focused on artificial-intelligence software, like Yitu and Megvii, the direct hit could be small. Nonetheless, the blacklist could impact them in other ways. The artificial intelligence start-ups on the list have partnerships with American software firms, connections to American universities and have been active in trying to hire foreign talent. In all those cases, the blocks will likely hamper their efforts. https : // www.nytimes.com/2019/10/07/us/politics/us-to-blacklist-28-chinese-entities-over-abuses-in-xinjiang.html Load-Date: October 11, 2019 End of Document ‘No-Code’ Brings the Power of A.I. to the Masses; A.I./Real Life The New York Times

### Document 342

The move, which is bound to heighten tensions with Beijing, reflects growing unease about China's ability to access the personal information that Americans hand over to mobile apps and other services. WASHINGTON -- President Biden signed an executive order on Thursday designed to sharpen the federal government's powers to block Chinese investment in technology in the United States and limit its access to private data on citizens, in a move that is bound to heighten tensions with Beijing. The new order is designed to focus the actions of the secretive Committee on Foreign Investments in the United States, created by Congress nearly a half-century ago. For years the committee's powers were limited largely to blocking the foreign acquisition of American firms that might have a direct impact on national security -- a military contractor, for example. But the most far-reaching part of Mr. Biden's new order, and potentially the most important element in coming months, directs the committee to consider whether a pending deal involves the purchase of a business with access to Americans' sensitive data, and whether a foreign company or government could exploit that information. That wording reflects growing unease about China's ability to access the personal information that Americans hand over to mobile apps and other services. The committee, known by the acronym CFIUS, is believed to be already scrutinizing TikTok, the popular Chinese-owned video app that critics worry could expose its users' data to the Chinese government. So far the Biden administration has said little about its review of TikTok. In the last months of the Trump administration, there was a hasty effort to force a sale of the American operations of TikTok to a consortium of American and other Western companies; it quickly fell apart. And the deal never resolved the broader question in the expanding technology wars between Washington and Beijing: How should the United States deal with the foreign apps that are becoming embedded on the screens of Americans' smartphones, and thus in the daily fabric of American digital life? In recent months, evidence has emerged that TikTok employees in China had the ability to access data about Americans who signed up for the service. There is no public evidence the company has handed data over to the Chinese government, but Chinese national security laws could require the company to do so. The issue now is whether requiring the transfer of all that data to American-based servers would solve that problem, or merely mitigate it. And there are continuing questions about who designs the algorithms that track the interests and activities of Americans online. Chinese intelligence agencies have gone to great lengths to obtain vast troves of data about Americans, including by hacking the databases of the Office of Personnel Management during the Obama administration. Before American authorities caught on, the information that 22.5 million Americans had filed for security clearances was in Chinese hands. It has never been clear what China did with that data. The executive order, which has been anticipated for months, does not regulate ''outbound investment'' by American companies in foreign nations, though the Biden administration seems likely to seek new authority to regulate that as well. For years, one concern has been China's requirement that foreign companies turn over technology as part of the price for being allowed to enter the Chinese market. ''For China, this work is about survival,'' Nigel Inkster, the former director of operations and intelligence for Britain's Secret Intelligence Service, wrote in The New York Times opinion section earlier this week, delineating covert operations by Chinese operatives to gain technology or manufacturing techniques that would speed Beijing's way. He noted a law in China that orders Chinese citizens to help intelligence agencies, usually secretly. The new order directs CFIUS to concentrate on specific types of transactions that would give a foreign power access to technologies that Mr. Biden has identified as critical to American economic growth. That includes ''microelectronics, artificial intelligence, biotechnology and biomanufacturing, quantum computing, advanced clean energy and climate adaptation technologies,'' according to a White House summary. While China is not specifically mentioned in the order, all of those are areas are part of the ''Made in China 2025'' drive started seven years ago by President Xi Jinping, and they are also technologies in which the United States is now investing more federal resources. To some degree the presidential order formalizes a new, broader interpretation of the committee's authority that has been underway for several years. White House officials say that they believe Mr. Biden's order to focus CFIUS on certain technologies does not require amending its authorizing laws, which date back to the group's creation during the Gerald Ford administration. For most of its history, CIFIUS only examined transactions in which a foreign firm sought to purchase a controlling interest in an American company that dealt in sensitive technologies. It blocked several such sales, often because it concluded that the firms provided weapons systems or products used by the intelligence agencies. (The Department of Defense and intelligence officials are members of the committee.) In other cases, American firms were required to divest themselves of a sensitive product or technology before the transaction could go through. But over time it became obvious that a foreign firm did not need a majority share in a company in order to access key technologies. So over the past seven or so years, the power of the interagency group has expanded significantly, and it now has the power to block even a minority investment. That was driven, in part, out of fears that Chinese state-owned firms were setting up venture capital funds in Silicon Valley and beyond to get an early look at new technologies. A White House statement said the new order would enshrine that approach, and look not at the size of the investment but at the characteristics of the technology itself, including ''advancements and applications in technology that could undermine national security.'' The CFIUS members would not have to establish that a technology was currently vital to national security as long as it had that potential. For example, artificial intelligence software or quantum computers that would create strong encryption of data, or break that encryption, could trigger government action to keep the technology from the hands of Chinese or other competitors. The order also authorizes the committee to block any deal that ''erodes United States cybersecurity.'' And it urges review of ''incremental investments over time in a sector or technology'' that could ''cede, part-by-part, domestic development or control in that sector or technology.'' David McCabe contributed reporting.David McCabe contributed reporting. https : // www.nytimes.com/2022/09/15/us/politics/biden-china-tech-executive-order.html Graphic PHOTO: A humanoid robot at the Consumer Electronics Show in Las Vegas. President Biden has cited areas such as microelectronics and artificial intelligence as critical to U.S. economic growth. (PHOTOGRAPH BY PATRICK T. FALLON/AGENCE FRANCE-PRESSE -- GETTY IMAGES) Load-Date: September 16, 2022 End of Document ‘Smart’ Review: A.I. in the Living Room The New York Times

### Document 738

China -- In a grand hotel ballroom on Tuesday, Huawei executives laid out a soaring vision for the future. The Chinese electronics giant, already the world's biggest supplier of the equipment that powers the wireless age, now wants to provide the digital backbone for artificial intelligence, the internet of things and other transformative technologies. But that future is increasingly looking as if it will not include the United States. Last week, the company laid off five American employees, including William B. Plummer, the executive who was the face of its Sisyphean efforts to win over Washington, according to people familiar with the matter. Huawei has also been dialing back its political outreach in the United States, these people said -- which could end a decade of mostly fruitless efforts to dispel Washington's accusations that the company has ties to the Chinese government. Huawei's tactics are changing as its business prospects in the United States have darkened considerably. On Tuesday, the Federal Communications Commission voted to proceed with a new rule that could effectively kill off what little business the company has in the United States. Although the proposed rule does not mention Huawei by name, it would block federally subsidized telecommunications carriers from using suppliers deemed to pose a risk to American national security. Like other major tech companies, whether American or Chinese, Huawei (pronounced ''HWA-way'') has been caught in the crossfire as the Trump administration ratchets up efforts to stop China's high-tech ambitions. The two countries are waging a new kind of cold war, and with each increasingly suspicious of the other's technology, winners are chosen based on national allegiances. Huawei's latest moves suggest that it has accepted that its political battles in the United States are not ones it is likely to win. One recent example of reduced communication with Washington came after the discovery in January of security flaws in the microprocessors inside nearly all of the world's computers. A Senate committee wrote to Huawei's founder to ask what the company knew about the vulnerabilities, and how it had been affected by them. Huawei decided not to respond. ''Some things cannot change their course according to our wishes,'' Eric Xu, Huawei's deputy chairman, said at the company's annual meeting with analysts on Tuesday. ''With some things, when you let them go, you actually feel more at ease.'' Huawei's main Chinese rival, ZTE, also hit a roadblock in Washington this week. The Commerce Department said it would ban the much smaller company from buying American components after it made false statements to the government as part of an investigation into possible violations of American sanctions. Yet Huawei's experience also illustrates how little Washington can do to curb Chinese influence in cutting-edge industries throughout the rest of the world. At Tuesday's meeting with analysts, executives at the company, which says it is owned by its employees and not by the Chinese state, emphasized growth opportunities in Europe and Asia. They also described ambitions to further diversify Huawei's business into helping organizations of all kinds -- not merely wireless carriers, but factories, governments and the police -- transform themselves through cloud computing and artificial intelligence. ''For Huawei, the major challenge is not how we can serve operators better,'' said David Wang, a company president. Instead, he said, ''we have to work harder to cope with wider challenges in all industries.'' Huawei's troubles in the United States have been mounting since 2012, when a congressional report warned that its gear could be used to spy on Americans or to destabilize American telecom networks. The company spent $1.2 million on lobbying that year. Last year, it spent $60,000 on such efforts. Major American carriers such as Verizon and AT&T have since shunned Huawei. The Commerce and Treasury Departments have subpoenaed it over possible violations of American sanctions on Iran and North Korea. The company's ambitions to become a major smartphone brand -- it is already the world's third largest, after Samsung and Apple -- were curtailed when AT&T abandoned a deal this year to sell its handsets. And a bill is before Congress to stop government agencies and contractors from buying Huawei products. The company has said repeatedly that its products pose no security risk and that it complies with the law everywhere it operates. Still, the layoffs last week appear to be an acknowledgment by Huawei that it has failed to clear the political cloud around it. Mr. Plummer, Huawei's vice president of external affairs, had been with the company for almost eight years. He was the most senior member of Huawei's American policy team who was not a Chinese citizen. It is not clear whether he will be replaced. The company's policy operations in the United States are led by a relatively recent arrival, Zhang Ruijun, who took the post nine months ago after working for the company in Mexico and Russia. A Huawei spokesman said in a statement that any layoffs simply reflected an effort to better align resources with ''business strategy and objectives.'' ''Any changes to staffing size or structure are simply a reflection of standard business organization,'' he said. Founded three decades ago, Huawei made $93 billion in revenue last year -- not much less than Google's parent company, Alphabet, and more than its two main rivals in telecom gear, Nokia of Finland and Ericsson of Sweden, combined. When it comes to the next generation of mobile internet, or 5G, Huawei has invested heavily in technology development. Chinese carriers are likely to deploy such networks more quickly than their American counterparts are, at least in the beginning. But as 5G comes up in the United States, Japan, South Korea and Europe, Nokia and Ericsson will catch up, said Pierre Ferragu, an analyst in New York with New Street Research. Still, Huawei's telecom business could be dampened as other countries, particularly allies of the United States, weigh risks to their national security. The chief executive of a leading wireless provider in South Korea told the newspaper The Korea Herald last month that the company was unsure whether to use Huawei's 5G equipment. In the United States, Huawei customers that would be affected by the F.C.C.'s proposed rule -- small carriers in rural areas -- may soon need to find new equipment suppliers. These carriers love Huawei gear, said Carri Bennet, general counsel for the Rural Wireless Association, an industry group for American telecom companies with fewer than 100,000 subscribers. ''They just love it,'' she said. ''It works like a charm, the customer service support is awesome,'' and the price is attractive, she added. The association's members have even elected a Huawei executive, William Levy, to their board. Ms. Bennet said that rather than blacklisting specific manufacturers, Washington should be creating a system for testing telecom gear for security vulnerabilities. ''These companies who are reliant on this support, they don't have the funds to overhaul their whole network,'' she said. ''Public safety, getting 911 services, broadband -- it all just starts falling apart.'' https : // www.nytimes.com/2018/04/17/technology/china-huawei-washington.html Load-Date: April 18, 2018 End of Document Brands Take Steps Toward Messaging Apps The New York Times

### Document 689

-- China's second-largest maker of telecommunications equipment will not be able to use components made in the United States after the Commerce Department said it failed to punish employees who violated American sanctions against Iran and North Korea. The ban announced Monday, which effectively locks the company, ZTE Corporation, out of American technology for seven years, is a blow to one of China's few truly international technology suppliers. ZTE's products for the infrastructure of telecommunications networks, as well as its smartphones, use an array of American parts, like microprocessors from the chip maker Qualcomm, glass made by Corning and sound technology from San Francisco-based Dolby. In a call with reporters on Monday, a senior Commerce Department official said the action was not connected to a broader intellectual property investigation into China. But the tough restrictions on ZTE may be perceived as a new salvo in a deepening economic conflict between the United States and China as the Trump administration and the Chinese government trade threats of increased tariffs on everything from washing machines to soy beans. The Trump administration's move to counter what it terms unfair trade practices by China has prompted threats of hundreds of billions of dollars in tariffs on products that travel between the two countries. That trade clash now centers heavily on cutting-edge technology. The Trump administration accuses China of using coercion and illicit means to obtain American technology. In particular, it has criticized an industrial plan known as Made in China 2025 that seeks to make China a world leader in industries like robotics, electric cars and medical devices. In a bid to stop China from dominating these industries, the White House has proposed limiting American exports of semiconductors and advanced machinery to the country. That could happen through new investment restrictions, which are set to be announced in the coming months. While China has long been viewed as the lower-cost producer for technology companies in the United States, it has in recent years gained considerable ground in areas like artificial intelligence. Last year, China unveiled a plan to become the world leader in artificial intelligence and create an industry worth $150 billion to its economy by 2030. In a Twitter post Monday morning, President Trump also took aim at China, accusing the country of devaluing its currency. The president's criticism contradicted a report released just three days earlier by the Treasury Department that scolded China for its lack of progress in reducing the bilateral trade deficit with the United States, but did not find that it was improperly devaluing its currency. China, the Treasury report said, has allowed its currency to appreciate only gradually, and ''the distortion in the global trading system resulting from China's currency policy over this period imposed significant and long-lasting hardship on American workers and companies.'' ZTE representatives could not be reached for comment. ZTE's troubles with the American government predate recent tensions. Last year, the Chinese company agreed to pay $1.19 billion in fines in a settlement that followed a multiyear investigation into claims that the company sold electronics to Iran and North Korea, a violation of economic sanctions imposed by the United States against the countries. Before the settlement, the Commerce Department had provided two internal ZTE documents to bolster its case. One, from 2011 and signed by several senior ZTE executives, detailed how the company had ''ongoing projects in all five major embargoed countries -- Iran, Sudan, North Korea, Syria and Cuba.'' Another document, in a complex flow chart, laid out a method for circumventing United States export controls. The 2017 settlement, which did not block ZTE from buying technology made in the United States, appeared to be a reprieve for the Chinese tech company. But the Commerce Department said Monday that ZTE had violated the terms of the earlier agreement by making false statements to the United States government. ZTE did not take a number of actions that it said it had: the company did not reprimand employees involved in the banned sales and did not cancel their bonuses. ''ZTE misled the Department of Commerce,'' Wilbur Ross, the commerce secretary, said in a statement. ''Insead of reprimanding ZTE staff and senior management, ZTE rewarded them. This egregious behavior cannot be ignored.'' The department said it would reinstate the limits on the company that the 2017 settlement had set aside. Without access to key components from companies in the United States, ZTE's smartphones will likely have to be redesigned. Even if new suppliers can be found, the transition will represent a significant disruption to production of the company's phones. The ban also comes at a bad time for ZTE. Revenue from the expansion of Chinese 4G cellular networks has slowed, and its smartphone business faces major competition from new Chinese handset makers, as well as its much larger Chinese rival, Huawei. Huawei also faces an investigation into whether it broke sanctions on Cuba, Iran, Sudan and Syria, The New York Times has reported. Huawei has long been suspected of committing espionage for China. In January, AT&T abruptly pulled out of a deal to carry Huawei's top-of-the-line smartphone, appearing to bend to pressure from Washington over security concerns. With the United States increasingly focused on barring China from accessing its high-tech products through tariffs and investment restrictions, the new punishment for the Chinese company could be viewed as an escalation. In response to the initial settlement, ZTE said it had strengthened its compliance policies and changed its top management. ''ZTE acknowledges the mistakes it made, takes responsibility for them and remains committed to positive change in the company,'' said Zhao Xianming, chairman and chief executive of ZTE, in a statement last year. Ana Swanson reported from Washington. Get politics and Washington news updates via Facebook, Twitter and the Morning Briefing newsletter. https : // www.nytimes.com/2018/04/16/technology/chinese-tech-company-blocked-from-buying-american-components.html Graphic PHOTO: The export ban, announced on Monday, comes as a blow to ZTE, whose smartphones use American parts like Qualcomm microprocessors and Corning glass. (PHOTOGRAPH BY ROBERT MARQUARDT/GETTY IMAGES) (B2) Load-Date: April 17, 2018 End of Document James Patterson's Latest Villain Looks a Lot Like Amazon The New York Times

### Document 15

The United States just handicapped China's lofty artificial intelligence ambitions. Washington this week targeted Chinese facial recognition startups SenseTime, Megvii and Yitu over national security concerns and foreign policy interests, aggravating the clash between the two economic superpowers over who will dominate the technologies of the future. SenseTime is the second-most valuable artificial intelligence startup in the world, with investments from tech giants SoftBank and Alibaba and a private market valuation of $7.5 billion, according to CB Insights. (The most valuable artificial intelligence startup is another Chinese company, ByteDance, which uses AI to power its popular apps, such as video platform TikTok.) Megvii and Yitu are worth $4 billion and $2.4 billion respectively, according to CB Insights. The three tech startups, along with a handful of other Chinese firms like AI-driven surveillance camera maker Hikvision and voice recognition firm iFlyTek, are now banned from buying US products or importing American technology. The US Commerce Department added them to a trade blacklist this week, saying the companies had been implicated in human rights violations against Uyghurs and other members of Muslim minority groups in Xinjiang. Twenty government and security bureaus in China's Xinjiang region were also included in the ban. Chinese authorities dismissed the human rights allegations, and threatened retaliation against US companies. "The US accusations against China are groundless and senseless. They only expose the evil motives of the United States to interfere with counterterrorism efforts in Xinjiang and thwart China's development," China's Foreign Ministry spokesman Geng Shuang said on Tuesday, telling reporters to "stay tuned" for retaliation. Beijing wants to turn China into a global AI leader by 2030. In 2017, it set out goals to build a domestic artificial intelligence industry worth about $150 billion in the next few years. The potential economic and social benefits for AI breakthroughs are enormous. AI-powered machines are already being used to provide customer service, manage logistics, monitor equipment on factory floors, optimize energy consumption, and analyze medical records, according to a 2017 study from consulting firm McKinsey. McKinsey estimates that the total market for AI applications will reach $127 billion by 2025. China has several advantages when it comes to the development of AI, including an army of young talent, a strong and unified government AI policy, and about 850 million mobile internet users fueling huge data sets daily. Artificial intelligence is the new frontier for many global tech leaders, with everybody from Google parent Alphabet to IBM plowing money into the burgeoning field. Chinese tech giants Baidu and Tencent have established AI research centers in the United States. Baidu, in particular, has been extremely bullish on the industry. SenseTime, Megvii and Yitu are smaller companies, but they were flourishing thanks to a glut of venture capital cash and the Chinese government's push for investments into AI. Being banned from buying tech and components from US companies could slow that momentum. Chinese AI companies rely on computer chips and graphics processing units from US companies such as Qualcomm and Nvidia. In a note this week, the Eurasia Group called the US move "especially aggressive" given the timing just ahead of trade talks and the scope of the targets. The tech firms are some of China's most prominent in the areas of facial recognition and artificial intelligence. Hikvision is a $42 billion company and the world's largest video surveillance gear maker. SenseTime and iFlyTek were named to China's National AI team in 2017. While the move is "aimed more at the Xinjiang issue and not squarely at China's AI ambitions," it does fit into a broader narrative within the US government, said Paul Triolo, who specializes in global technology policy at Eurasia Group. The "United States and China are in a long term struggle for dominating the technologies of the future, and part of that narrative is that China is using technologies such as AI in the service of government surveillance and in ways that go against Western values in terms of things like privacy," he said. Megvii tried to downplay its dependence on American suppliers, saying in a statement that its supply chain is global and "the US is just one part of it." In a recent IPO prospectus, the company said its top five suppliers are based in China. Megvii also said "there are no grounds" for the company being added to Washington's trade blacklist. "We are ... in compliance with all laws and regulations in jurisdictions where we operate. We require our clients not to weaponize our technology or solutions or use them for illegal purposes," the company said. SenseTime said in a statement that it is disappointed by the Commerce Department's decision and will work to resolve the situation. "We have been actively developing our AI code of ethics to ensure our technologies are used in a responsible way," the company said, adding that it has "robust reserves and continuity plans" to minimize the impact on research and development. Yitu did not respond to requests for comment. All of these companies have likely stockpiled supplies of computer chips and are working to develop alternatives, according to Triolo. "Like Huawei, they will be able to continue to supply customers but the action could threaten there ability to design new and more advanced systems if they cannot find comparable alternatives to US supplied components," he said. And as Huawei has shown, it only takes dependence on one American firm to cripple global ambitions. Washington added the Chinese technology company to the trade blacklist in May. The company said it has since found alternative suppliers for many of the parts it used to buy from American companies, but it couldn't find a good replacement for Google services. The company was forced to launch its flagship Mate 30 phone without access to popular apps like Google Maps and YouTube, and its global smartphone sales have suffered, with some analysts predicting "a steep decline" for the third quarter, when the US trade ban was in full effect. TM & © 2019 Cable News Network, Inc., a Time Warner Company. All rights reserved. Notes 1:38pm HKT Thursday: Adds SenseTime statement. Load-Date: October 11, 2019 End of Document Opinion: Here's who should have won Time's 'Person of the Year' CNN Wire

### Document 335

partnership with Australia, Denmark, Norway, Canada, France, the Netherlands and the United Kingdom aims to stem the flow of key technologies to authoritarian governments. WASHINGTON -- The Biden administration announced a partnership on Friday with Australia, Denmark, Norway, Canada, France, the Netherlands and the United Kingdom to try to stem the flow of sensitive technologies to authoritarian governments. The partnership, named the Export Controls and Human Rights Initiative, calls for the countries to align their policies on exports of key technologies and develop a voluntary written code of conduct to apply human rights criteria to export licenses, according to a White House statement. The effort is aimed at combating the rise of ''digital authoritarianism'' in countries like China and Russia, where software and advanced surveillance technologies have been used to track dissidents and journalists, shape public opinion and censor information deemed dangerous by the government. The announcement was part of the last day of the Summit for Democracy, the White House's virtual gathering of officials from over 100 countries aimed at bolstering democracies. By working to synchronize export controls across countries, American officials hope to cast a wider net to prevent authoritarian nations from accessing important technologies, as well as help companies with U.S. operations operate on a more even playing field. While a decade ago the internet was seen as a force for democracy and openness, authoritarian governments today have learned that big data, internet controls, artificial intelligence and social media ''could make them even more powerful,'' Samantha Power, the administrator for the U.S. Agency for International Development, said at the virtual summit on Friday. Ms. Power said the United States would undertake a suite of new measures over the next year to help set global norms around technology and human rights. Those steps include investing up to $20 million annually to drastically expand the digital democracy work of the Agency for International Development, working with like-minded countries to establish principles for open source technology products, and introducing an initiative with Canada and Denmark to lay out how governments should use surveillance technology in a manner consistent with human rights and the rule of law. The United States will also provide up to $3.75 million to fund new ''democracy affirming'' technologies, like privacy-preserving artificial intelligence, and establish a separate fund for anti-censorship technology, Ms. Power said. The government's use of export controls, especially against China, greatly ramped up during the Trump administration, which imposed restrictions on ZTE, Huawei and other Chinese technology firms to prevent Beijing from gaining access to sensitive technologies like quantum computing, advanced semiconductor chips and artificial intelligence that could give its military an advantage or build up the Chinese surveillance state. But critics say those measures, by focusing only on American exports, fell short of their goals. While companies that manufacture products in the United States no longer ship certain goods to China, competitors in Japan, Europe and elsewhere have continued to make sales. That has encouraged some high-tech companies to devote more spending on research and development outside the United States, to maintain access to the lucrative Chinese market. American-developed technology has also been used by authoritarian governments for more nefarious purposes, like monitoring and censoring their citizens. In a joint statement issued Friday, Australia, Denmark, Norway and the United States said that ''authoritarian governments increasingly are using surveillance tools and other related technologies in connection with serious human rights abuses, both within their countries and across international borders, including in acts of transnational repression to censor political opposition and track dissidents.'' They added, ''Such use risks defeating the benefits that advanced technologies may bring to the world's nations and peoples.'' The work at this week's summit included exploring how best to strengthen domestic legal frameworks, share information on threats and risks, and share and develop best practices for controlling technology exports, a White House statement said. In the coming year, the countries are expected to consult with academics and industries on their efforts. Any decisions on controls of specific technologies will be voluntary and left up to individual countries to carry out. The Biden administration has continued a trend, begun in the Trump administration, of leveling export controls at companies engaged in human rights violations, including those that have supported China's repression of Muslim minorities. This week, the Biden administration announced new restrictions on Cambodia to address human rights abuses, corruption and the growing influence of China's military in the country. In November, the administration blacklisted the NSO Group, an Israeli technology firm, saying the company knowingly supplied spyware used to target the phones of dissidents, human rights activists and journalists. The administration has also accelerated discussions of export controls with Europe, through a partnership set up this year called the Trade and Technology Council. But given that there is no legal basis for imposing import bans across the European Union, decisions on those restrictions fall to its member states. The United States is already part of a multilateral arrangement on export controls called the Wassenaar Arrangement, which was established in 1996. But critics say the grouping, which has more than 40 members, including Russia, has moved too slowly to match the pace of technological development. https : // www.nytimes.com/2021/12/10/business/economy/human-rights-export-controls.html Graphic PHOTO: The U.S. will partner with Australia, Denmark, Norway, Canada, France, the Netherlands and the U.K. to combat ''digital authoritarianism'' in nations like China, above. (PHOTOGRAPH BY ALEX PLAVEVSKI/EPA, VIA SHUTTERSTOCK) Load-Date: December 11, 2021 End of Document A Chatty Tech Device Tries to Be Family, and More The New York Times

### Document 99

The United States has added drone maker DJI and seven other Chinese companies to an investment blacklist, raising even more pressure on businesses in the world's second largest economy. The US Treasury Department announced Thursdaythat it has placed investment restrictions on the firms due to their roles in facilitating human rights abuses against China's Uyghur Muslims in Xinjiang and other ethnic and religious minorities. As a result, American investors will be barred from buying or selling shares of the companies. "Today's action highlights how private firms in China's defense and surveillance technology sectors are actively cooperating with the government's efforts to repress members of ethnic and religious minority groups," said Brian Nelson, undersecretary for terrorism and financial intelligence. "Treasury remains committed to ensuring that the U.S. financial system and American investors are not supporting these activities." The news was widely expected after being first reported by the Financial Times earlier this week. DJI and the seven other companies are already on the US entity list, which means they are barred from buying US products or importing American technology without a special license. Dozens of Chinese companies and organizations were added to that export blacklist by the US Commerce Department on Thursday, in a bid to limit China's use of US technologies for military purposes and for alleged human rights violations. Thursday's twin announcements came a week after Treasury slapped similar economic sanctions against two Chinese politicians and a Chinese artificial intelligence firm, SenseTime. The drone maker declined to comment ahead of the US Treasury's announcement on Wednesday. Instead, it referred CNN Business to a previous statement made in response to earlier restrictions last December, when it said it had "done nothing to justify being placed on the entity list." DJI added at the time that it was also "evaluating options to ensure our customers, partners, and suppliers are treated fairly," without elaborating further. It declined to provide an update or comment on those plans this week. Washington's latest clampdown could create financing headaches for the upstart drone maker, which is privately held and headquartered in Shenzhen. DJI currently counts Silicon Valley heavyweights such as Sequoia Capital China and Kleiner Perkins as investors. Sequoia Capital China declined to comment and Kleiner Perkins did not respond to a request for comment on whether the restriction would complicate their investments. But according to a person familiar with the matter, Sequoia's investment in DJI is handled by Sequoia Capital China, which operates as a separate legal entity from the US firm. That means it would likely not be impacted by any restriction barring American investment in DJI, the person said. Turning up the heat Washington has been piling pressure on Chinese companies recently. Last Friday, artificial intelligence startup SenseTime was also hit by the same US Treasury blacklist as DJI, two years after one of its subsidiaries was put on the entity list in 2019. Similarly, the Treasury Department said that the decision to block SenseTime was due to the role its technology allegedly played in enabling human rights abuses against the Uyghurs and other Muslim minorities in Xinjiang. SenseTime has strongly denied the accusations. But on Monday, the company postponed its stock market debut in Hong Kong, where it was set to start trading as soon as this week. The firm said the delay was "to safeguard the interests of the potential investors of the company," and allow them to "consider the potential impact of" the US move on any investments. Separately, the FT reported earlier this week that US officials were deliberatingwhether to stiffen rules about selling to one of China's top chipmakers. No action was taken Thursday, however. The company, Semiconductor Manufacturing International Corp (SMIC), has been on the US entity list since last year. But "the decision included a provision that critics said created a loophole that some companies had exploited," according to the FT. SMIC did not respond to a request for comment. However, since it was put on the entity list, "the company has faced tremendous challenges in production and operations," SMIC's acting chairman and chief financial officer, Gao Yonggang, said last month. Separately, last year the US Department of Defense also added the firm to a list of companies the agency claims are owned or controlled by the Chinese military. That decision means Americans are banned from investing in SMIC. China's Foreign Ministry criticized the United States on Wednesday after reports of Washington's planned crackdown. At a briefing, spokesperson Zhao Lijian called on the Biden administration to stop "politicizing" technological and economic issues by "generalizing the concept of national security." "Stop abusing state power to unreasonably oppress specific sectors and enterprises of China," Zhao said, warning that sanctions on companies such as DJI would threaten global industrial and supply chains, and undermine international trade rules. "China will, as always, firmly defend the legitimate rights and interests of Chinese companies," he added. - CNN's Beijing bureau and Jill Disis contributed to this report. By Michelle Toh and Brian Fung, CNN Business TM & © 2021 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: December 16, 2021 End of Document Jackson Hole: Fed policy collides with reality in the most unequal county in America CNN Wire

### Document 961

The United States could extend the powerful export restrictions it has issued on China to areas like biotechnology and the algorithms that power artificial intelligence, an official said. The Biden administration is mulling further export controls that would clamp down on China’s ability to gain access to cutting-edge technologies and expects to soon secure a deal for allies to issue their own restrictions on selling such goods to China, a senior Biden administration official said on Thursday. Those steps would broaden the impact of the sweeping limits the Biden administration announced this month on the sale of semiconductor technology to China. The United States imposed extensive restrictions on the sale of advanced computing chips, chip-making equipment and related products to China, saying that Beijing had used these goods to develop advanced weapons and surveillance systems that ran counter to U.S. national security interests. In an event at the Center for a New American Security, a Washington think tank, Alan F. Estevez, the under secretary of Commerce for Industry and Security who oversees U.S. export controls, said the measures were motivated purely by the need to protect U.S. national security, not a desire to limit China’s economic development. He said that his department would enforce the restrictions to their fullest extent, including applying civil and criminal penalties to companies that try to contravene the rules. When asked if the United States would consider further controls in quantum information science, biotechnology, artificial intelligence software or advanced algorithms, Mr. Estevez said that he was meeting with his staff weekly to discuss such restrictions. “Will we end up doing something in those areas? If I was a betting person I would put down money on that,” Mr. Estevez said. Mr. Estevez, who described himself as the chief technology protection officer of the United States, also said that the administration was working to convince allies that play an important role in the semiconductor supply chain, like the Netherlands and Japan, to issue their own restrictions on Chinese technology. The Biden administration had spent months in discussions with allies, including the Dutch, Japanese, South Korean, Israeli and British governments, trying to persuade some of them to issue restrictions alongside the United States. But some were hesitant to cut off important commerce with China, and when the United States announced its restrictions in October, it acted alone. Mr. Estevez said that U.S. allies understood the national security threat posed by China. Jake Sullivan, the national security adviser, and Gina Raimondo, the secretary of commerce, had been negotiating with allies by phone, Mr. Estevez said, adding, “We expect to have a deal done in the near term.” The topic is likely to be up for discussion at the next meeting of the Trade and Technology Council, a forum set up by the United States and European Union to address global trade and technology challenges. The council is expected to next meet in the United States before the end of the year. In a briefing with reporters on Thursday, Wang Hongxia, a commercial affairs officer with the Chinese Embassy in Washington, said that the United States had abused export control measures with its restrictions on Chinese semiconductors and “politicized and weaponized” normal business cooperation between China and the United States. U.S. policies toward China had led to huge losses for businesses and consumers in both countries, Ms. Wang said. PHOTO: The Biden administration is considering further controls on exports to China of technologies like quantum information science, biotechnology and artificial intelligence software. (PHOTOGRAPH BY Lam Yik Fei for The New York Times FOR THE NEW YORK TIMES) Load-Date: October 27, 2022 End of Document Striking Writers and Studios Agree to Restart Negotiations The New York Times

### Document 107

Shares in Chinese surveillance company Hikvision plunged on Wednesday, following a report that the Trump administration is mulling slapping it with a US export ban. Hikvision stock plummeted the daily limit of 10% during early morning trading in Shenzhen. It recovered some of those losses to close about 6% lower. The drop came after the New York Times reported that the United States is considering placing the Chinese surveillance technology firm on a trade blacklist, citing people familiar with the matter. The move would be Washington's latest attempt to curb Beijing's tech ambitions, and a further escalation of the US-China trade war. "Hikvision takes these concerns very seriously and has engaged with the US government regarding all of this since last October," a company spokesperson said in a statement on Wednesday. "Separately, Hikvision takes cybersecurity very seriously as a company and follows all applicable laws and regulations in the markets we operate," the spokesperson said. The US Department of Commerce did not respond to a request for comment outside regular business hours. Hikvision manufactures surveillance cameras and security products powered by artificial intelligence. The company says its products can track people using facial recognition or physical characteristics such as gait, count the number of people who visit specific areas, and detect "unusual behavior like a violent action." Hikvision has faced international criticism for its surveillance deals in Tibet and Xinjiang, with US lawmakers last year urging sanctions against the company and accusing it of helping China create a "high-tech police state." The Chinese government has stepped up surveillance in the country's western Xinjiang province as part of a crackdown on the region's Uyghur Muslim population. Its presence in Tibet, an internationally recognized autonomous region, is also disputed by the Tibetan population and has boiled over into large scale riots in the past. The reported US move on Hikvision would be similar to the restrictions placed on Chinese tech giant Huawei last week. The US Department of Commerce would place Hikvision on a list of foreign firms deemed to undermine American national security or foreign policy interests. Listed companies are barred from receiving components and software unless the trade is licensed. Hikvision buys computer chips and components from US companies such as Nvidia, Western Digital, Intel and Seagate. Brokerage firm Jefferies said in a note Wednesday that a US ban would not hit Hikvision as hard as it did Huawei. The company can buy critical parts for its artificial intelligence products from local distributors, said Jefferies analyst Rex Wu. In a note last month, Wu said he expects Hikvision's annual revenue to be boosted by "China's central government procurement platform," noting that "Xinjiang's public security budget for 2019 is still rising" compared to a year earlier. TM & © 2019 Cable News Network, Inc., a Time Warner Company. All rights reserved. Notes Updated at 3.45a ET: updates with Hikvision closing price. Load-Date: May 23, 2019 End of Document It's a spooky Halloween for markets. Here's why CNN Wire

### Document 100

The United States' trade war with China is far from over, according to Janet Yellen, who is warning that unresolved tensions over technology could divide the world and slow the development of artificial intelligence and 5G. The former chair of the Federal Reserve said Monday at the Asian Financial Forum that the "phase one" trade deal agreement struck by Washington and Beijing and due to be signed this week will leave tariffs on hundreds of billions of dollars of Chinese goods in place. And it doesn't remove the "more troublesome" risk of conflict over emerging technologies, she warned. Beijing and Washington will finalize the initial trade deal on Wednesday, according to President Donald Trump. China is sending its top trade negotiator to participate in the signing ceremony at the White House. The deal rolls back some US tariffs on Chinese exports that have been in place since September, and allows Beijing to avoid additional taxes on almost $160 billion of the country's goods. Yellen acknowledged that tensions have eased after the United States and China reached the "truce." But she reminded the audience in Hong Kong that most Chinese goods are still subject to "pretty high levels" of US tariffs. "We've not seen any significant rollback of tariffs," she said. Under the terms of the initial deal, tariffs of up to 25% on $370 billion of Chinese goods will remain in place. That covers about two thirds of China's exports to the United States. Yellen said the phase one tariff rollback won't be "very noticeable" for US households. And foreign companies that want to do business in China still face uncertainty when making decisions about supply chains and investments. The former central banker also warned that "more troublesome, difficult" issues loom. Among the issues she cited are subsidies on Chinese state-owned enterprises, and competition between the United States and China in artificial intelligence, super-fast 5G mobile networks and other technology related to national security. "These issues are going to be quite difficult to deal with and will have very significant consequences for the global economy," she said. China and the United States are already locked in a fight over Chinese tech company Huawei, a leading global provider of telecoms equipment used to build 5G networks. If the two economic superpowers are unable to find common ground, Yellen said the pace of technological advancement could slow and complicate the launch of new commercial applications. The world could even splinter into competing groups over technology, complicating trade and making global integration much more difficult. "Technologies developed in one place of the world need to be and can be applied throughout the world, and become the base for further progress of technological innovation," she said. "Losing those synergies" would be a very negative development. "I hope we will not go there," Yellen said. TM & © 2020 Cable News Network, Inc., a WarnerMedia Company. All rights reserved. Load-Date: January 14, 2020 End of Document From green subsidies to chips, Davos debates reflect a world in flux CNN Wire

### Document 986

Stephen K. Bannon, the former White House adviser, calls the United States' relationship with China's Communist Party an economic and information ''war,'' while Eric Schmidt, a Google founder, says American interests are entangled with China, our biggest competitor in the race for global technological dominance. The next phase of the relationship between the two countries could set the tone for the rest of this century. That was the consensus of nine China policy experts in a discussion moderated by Thomas Friedman, a New York Times columnist, at the DealBook conference in New York. Tensions have been rising between the United States and China for more than a year. President Trump has been pressuring the Chinese by imposing tariffs on $360 billion of Chinese goods. China, in turn, slapped tariffs on American imports to its country. Uncertainty lingers while both sides hammer out the first phase of a trade deal. On Friday, President Trump said he hadn't decided whether to lift some of the tariffs. That contradicts the Chinese government, which said Thursday that the Trump administration agreed to roll back at least a portion of the levies if a deal was reached. The trade battle is only one part of the evolving relationship. China faces accusations of unfair trade practices, including stealing American technology. It has cracked down on pro-Democracy protesters in Hong Kong. And the United States and other Western nations have challenged China's mass detention of more than one million Muslim Uighurs in the Xinjiang region. A decades-old policy of peaceful engagement with China directly has given way to an era of confrontation and conflict. ''We're at the end of one moment and the beginning of another,'' said Orville Schell, the director of the Center on U.S.-China Relations at the Asia Society. China is about halfway through a 10-year plan to gain dominance in high-technology manufacturing, including artificial intelligence, 5G communications and aerospace. Mr. Friedman, a Pulitzer Prize winner who writes about foreign affairs for The Times, asked the panelists to describe what they see as the main challenge in the relationship between the United States and China and how to solve it. Mr. Bannon said the United States should cut the Chinese Communist Party off from Western financing. ''We're in an information and economic war now, a technology war.'' He added: ''I think we cannot appease this power. I think we cannot accommodate this power.'' Samm Sacks, a fellow in cybersecurity and China's digital economy at New America, a centrist think tank, said it was not so much a war as a struggle over new technologies. The Chinese government has been using face-recognition and other artificial intelligence to surveil its own people and is exporting those technologies elsewhere. In the meantime, the United States has been grappling with privacy, data protection and security while remaining mostly hands-off in other aspects of the internet. ''The Communist Party is moving aggressively and assertively to use technology in deeply troubling ways,'' Ms. Sacks said. ''We need to offer a compelling alternative to that.'' Mr. Schmidt, who chairs the Department of Defense's Defense Innovation Board and Congress's National Security Commission on Artificial Intelligence, insisted that the answer was to establish American-made technology as the global standard. ''We're much, much better off trying to have again Western technology win,'' he said. ''And I would argue that my position is an America-first strategy.'' Encouraging high-skills immigration and spending on technology education and research should be key priorities, Mr. Schmidt and some other panelists said. ''We don't invest in what we need to invest in,'' said Sheryl WuDunn, who won the Pulitzer Prize covering China's Tiananmen Square crackdown 30 years ago for The Times. ''We could do more on our domestic front to compete.'' The End of Engagement Engagement, a policy dating back to the 1970s, was aimed at opening China to the rest of the world. United States-China relations also counterbalanced the Cold War with the Soviet Union. ''Bit by bit, every interaction would bend the metal,'' Mr. Schell of the Asia Society said. ''It was the idea of convergence.'' But, as Mr. Friedman and others acknowledged, the relationship with China became something very different from America's interaction with the Soviet Union, which collapsed in 1991 after years of American political and economic pressure. ''We only bought caviar, vodka and nesting dolls from them,'' Mr. Friedman said. China, on the other hand, emerged as the second-largest economy and America's biggest trading partner. It produces and consumes much of the world's goods and materials. It also happens to own $1.1 trillion in United States government debt. Over time, this interdependence provided a framework for getting along. Human rights issues and growing intolerance of China's business policies -- protecting its own industry while shutting out the rest of the world and forcing technology companies doing business there to hand over critical information -- sparked the turn away from engagement. ''I feel a lot of us have been hopeful that in engagement, China will change,'' said Jianying Zha, a journalist and author. ''It did not happen.'' China's pride and growing nationalism challenge American interests, said Elizabeth Economy, the director of Asia Studies at the Council on Foreign Relations. China is exporting its values, including control over the internet and citizen surveillance. ''It is precisely at the intersection of that repression at home and ambition abroad that is particularly troubling,'' she said. Mr. Friedman agreed: ''China is so much more open than it was 30 years ago and so much more closed'' than it was 10 years ago. Human rights issues are growing, said Sophie Richardson, the China director at Human Rights Watch. ''I think that the world has for many reasons been slow to respond, and I think that's a function of ignorance, of greed, of normalization,'' she said. Ms. Economy and Ms. Richardson took issue with Huawei's sponsorship of the DealBook conference, and of the Times's past publication of paid ads for the state-controlled China Daily. Ms. Richardson said she would have liked to have known about the Huawei sponsorship in advance. ''It's extraordinary that The New York Times, yes, runs the paid advertising from The China Daily, but would also have a conference supported by Huawei when The New York Times itself is banned in China,'' Ms. Economy added. Huawei, a Chinese telecommunications firm, was banned from doing business with government agencies in the United States over security concerns. Mr. Friedman said he had nothing to do with the sponsorship. Reached later, a Times spokeswoman said: ''The Times reports aggressively on the Chinese government, most recently on its mass detention of the Uighurs. As a result our journalists have faced serious retaliation and China blocks access to Times journalism in mainland China. New York Times events are programmed solely by Times editorial staff. Sponsors are not involved in programming any session, and have no impact on the conference's content.'' The China Daily ads were paid inserts that also ran in other publications, she added. Mr. Schell said it seemed that China's president, Xi Jinping, himself put a ''stake through the heart of engagement,'' against conventional wisdom. ''He had America neutralized eating out of the palm of his hand,'' he said. ''This could have been Xi's biggest misstep.'' The China Advantage? Mr. Friedman asked whether the rise of Mr. Xi was inevitable. Ms. Richardson pointed to his efforts to clean up corruption and his elevation of China on the global stage as reasons his countrymen supported him. ''I think even for people that are not happy with the direction which he's moving the country domestically, there still is a source of national pride.'' James McGregor, a journalist and chairman of APCO Worldwide, a consulting firm, said Mr. Xi was brought in to save the party but said he was not sure if he was expected to take things ''to these extremes.'' Mr. Schell from Asia Society said that China had gradually moved away from calling it the China Model toward using the term the China Advantage. This means that China is breaking away, or decoupling, from Western institutions, Mr. Bannon said, and aligning itself with other nations in Eurasia. ''They are going to have their own standards,'' he said. That is creating a technological insecurity in the West, especially if China succeeds in leading the world in the development of 5G, the next iteration of communications network technology that touches everything from mobile phones to driverless cars. ''We need to think more systemically,'' Ms. Zha said. Mr. Schmidt said continued cooperation would be more productive. ''I'm an advocate, a strong advocate that we find ways to work constructively, while we disagree on some of these issues, in order to achieve objectives.'' Changing the narrative The United States should redefine the terms of its relationship with China, according to the panelists. Some suggested that moving back to multilateral trade agreements such as the Trans-Pacific Partnership, which President Trump exited, would send a new message. ''It appears we're operating from a position of weakness and defensiveness, and the narrative is an ugly one,'' Ms. Economy said. ''Instead what we should be doing is promoting U.S. values in a positive way.'' ''When we focus on areas where China cheats we have all of our allies with us,'' she said. Mr. Friedman said had the United States stayed with other countries in the trade pacts, they collectively could have put up a united front. ''It was really a strategic error.'' Mr. Schell proposed sending a delegation of American business leaders to China as part of a new policy of selective engagement. The problem with that, as other panelists noted, is that American companies aren't necessarily willing to antagonize Beijing, considering the profits to be made in China. ''They don't seem to think that's pumping the blood, American money, to fuel the next round of competition with the U.S.,'' Ms. Zha said. People should ''rev up their shame factor'' on companies looking to maximize profit there. The Trump administration put 28 entities, including the makers of surveillance and artificial intelligence technology, on a blacklist, citing concerns about human rights violations related to China's campaign to inter Muslim minorities in Xinjiang. Mr. Friedman noted the ''stunning'' silence in the Arab Muslim world about the Xinjiang situation. ''There's a very quiet debate in China in the party on who lost America,'' Mr. McGregor said. ''The extreme direction China has gone has really pushed America away.''Task force moderator: Thomas L. Friedman. Members: Stephen K. Bannon, former White House chief strategist and senior counselor; Elizabeth Economy, director of Asia studies, Council on Foreign Relations; James McGregor, greater China chairman, APCO Worldwide; Sophie Richardson, China director, Human Rights Watch; Samm Sacks, cybersecurity policy and China digital economy fellow, New America; Orville Schell, Arthur Ross director of the Center on U.S.-China Relations, Asia Society; Eric Schmidt, technical adviser, Alphabet Inc.; Sheryl WuDunn, managing director, Mid-Market Securities; Jianying Zha, author and journalist. https : // www.nytimes.com/2019/11/11/business/dealbook/us-china-relationship-future.html Graphic PHOTOS: Experts on China policy took part in a discussion moderated by Thomas Friedman at one of the task forces held during the annual DealBook conference in New York. (F14) ELIZABETH ECONOMY: COUNCIL ON FOREIGN RELATIONS (PHOTOGRAPHS BY CALLA KESSLER/THE NEW YORK TIMES) (F16) Load-Date: November 12, 2019 End of Document We Don't Know What Will Happen Next The New York Times

### Document 996

In blacklisting surveillance companies, the United States is the first major government to punish China for its crackdown on Muslims. SHANGHAI -- The world has largely sat by for nearly two years as China detained more than one million people, mostly Muslims and members of minority ethnic groups, in internment camps to force them to embrace the Communist Party. Now, the Trump administration is taking the first public steps by a major world government toward punishing Beijing. In doing so, it is opening up a new front in the already worsening relationship between Washington and Beijing: human rights and the dystopian world of digital surveillance. Trump administration officials on Monday placed eight Chinese companies and a number of police departments on a blacklist that forbids them to buy American-made technology like microchips, software and other vital components. The companies are at the vanguard of China's surveillance and artificial intelligence ambitions, with many of them selling increasingly sophisticated systems used by governments to track people. The White House cited their business in Xinjiang, a region of northwestern China that is home to a largely Muslim minority group known as the Uighurs. The United States government says more than one million ethnic Uighurs and other minorities have been locked in detention camps there. On Tuesday, Secretary of State Mike Pompeo announced visa restrictions on Chinese officials believed to be involved in the detention or abuse of Muslim ethnic minorities. The announcements suggest that the Trump administration is increasingly willing to listen to the advice of American officials focused on the strategic challenges posed by China and who are concerned about its human rights abuses, even if President Trump himself never seems to pay much attention to those. The restrictions were announced just two days before American and Chinese officials were set to begin a 13th round of trade talks, most likely putting a chill over the negotiations. More broadly, the White House, in its blacklist announcement, signaled a willingness to take aim at China's technological dreams. China has plowed billions of dollars into companies developing advanced hardware and software to catch up with the United States. Some of the companies added to the list on Monday are among the world's most valuable artificial intelligence start-ups. Much of that technology -- including facial recognition and computer vision -- can be used to track people. That includes smartphone tracking, voice-pattern identification and systems that track individuals across cities through powerful cameras. Washington officials have grown increasingly worried about China's ambitions to export its systems elsewhere, including places known for human rights abuses. ''This is an important first step in making some of the companies that have benefited the most from the re-education system in Xinjiang feel the consequences of their actions,'' said Darren Byler, an anthropologist at the University of Washington who studies the plight of the Uighurs. He said the move signaled that abuse of minority groups in Xinjiang ''is real and justifies a political and economic response.'' It is also a potentially groundbreaking use of a powerful tool that the American government typically uses against terrorists. The Chinese companies and police departments were placed on what is called an entity list, which forbids them to buy sensitive American exports unless Washington grants American companies specific permission to sell to them. Use of the entity list over a human rights issue may be a first, said Julian Ku, a professor of constitutional and international law at Hofstra University. ''As far as I know, it was the first time Commerce explicitly cited human rights as a foreign policy interest of the U.S. for purposes of export controls,'' he said, referring to the Department of Commerce, which manages the entity lists. ''This is not an implausible reading of the regulations, but it is new and has potentially very broad applicability.'' Geng Shuang, a Chinese Foreign Ministry spokesman, said in a briefing on Tuesday that the White House was using human rights as an excuse to punish Chinese companies. Many of the companies offer a wide array of products outside of surveillance, including medical tools that diagnose tumors, automatic translation services and even social media filters that slim the waist. ''This goes against the basic principles of international relations, it interferes in China's internal affairs, and it goes against China's national security,'' he said. ''There is no human rights issue in Xinjiang.'' The Chinese Commerce Ministry urged the United States to take the 28 companies and organizations off the entity list as soon as possible. The immediate effect on the Chinese companies is likely to be minimal, because many have stockpiled essential supplies, but they could feel increasing pain if they stay on the blacklist for months or years. Perhaps more important, it can put a cloud over the companies' reputations, limiting their sales in the United States or elsewhere and keeping them from hiring the world's best technology talent. ''The U.S. move today puts up a big roadblock on the road to internationalization,'' said Matt Sheehan, a fellow at MacroPolo, the think tank of the Paulson Institute. ''Most global technology companies are setting up labs abroad, partnering with the best universities around the world and looking to recruit top talent from everywhere,'' he said. ''That all just got a lot harder now that they're marked with the scarlet letter of the entity list.'' The move followed more than a year of internal debate over how to punish China for its persecution of Muslims in Xinjiang. Senior officials on the National Security Council and in the State Department have pushed for the use of the entity list to target Chinese companies supplying surveillance technology to the security forces in Xinjiang. They have also urged Mr. Trump to approve sanctions that would penalize Chinese officials and companies involved in the abuses. But top American trade negotiators, including the treasury secretary, Steven Mnuchin, have cautioned against policies that would upset trade talks. Mr. Trump has said he wants to reach a trade deal with China. Until now, other top officials, most notably Mr. Pompeo and Vice President Mike Pence, have denounced China's policies in Xinjiang but not enacted punitive measures. This month, American customs officials blocked products from a Chinese garment maker in Xinjiang, but they had held off on stronger action. The Chinese companies on the list include Hikvision, a major maker of surveillance cameras, and the well-funded artificial intelligence start-ups SenseTime and Megvii. SenseTime said it set ''high ethical standards for A.I. technologies,'' while Megvii said it required ''clients not to weaponize our technology or solutions or use them for illegal purposes.'' It added that it had generated no revenue from within Xinjiang in the first half of 2019. New York Times reporting showed that four of the companies on the list -- Yitu, Hikvision, Megvii and SenseTime -- helped build systems across China that sought to use facial recognition to automate the detection of Uighurs. Government procurement documents, company marketing materials and official government releases tied all eight companies to various business operations and sales in Xinjiang. The many local Xinjiang police bureaus on the list buy commercial American technology like Intel microchips and Microsoft Windows software, according to procurement documents. Mr. Trump's next step could be imposing sanctions on specific Chinese officials working in Xinjiang. Among the officials discussed is Chen Quanguo, a Politburo member who is the party chief in Xinjiang and an architect of the system of internment camps and surveillance. The blacklist action is a sign that strategic China hawks have become even more influential in the administration in recent weeks. Matthew Pottinger, the senior director for Asia and an architect of policies aimed at countering China, was promoted to deputy national security adviser last month. Earlier, Robert O'Brien, the administration's top hostage negotiator, replaced John R. Bolton as national security adviser. Mr. O'Brien has written that China poses an enormous challenge to the United States. ''This Xinjiang package has been in the works now for months,'' said Samm Sacks, a cybersecurity policy fellow at New America, a think tank. ''So the fact that it comes out now just ahead of the next round of trade talks sends a signal from those in the administration who want no deal.'' ''So far, Beijing has been quite measured in its response to the U.S. government,'' she said. ''That probably is over.'' Paul Mozur reported from Shanghai, and Edward Wong from Hong Kong. Lin Qiqing contributed research. https : // www.nytimes.com/2019/10/08/business/china-human-rights-technology-xinjiang.html Graphic PHOTOS: A surveillance camera in Beijing identifies pedestrians by sex, type of hair and clothing. Cars are also categorized. (PHOTOGRAPH BY GILLES SABRIÉ FOR THE NEW YORK TIMES) (B1) Clockwise from top: a camera in downtown Beijing made by Hikvision, a company targeted by the U.S. blacklist at Yitu, an A.I. start-up in Shanghai, a facial recognition system indicates the number of times an employee has been identified the Beijing showroom of Face++, owned by Megvii. (PHOTOGRAPHS BY JASON LEE/REUTERS GILLES SABRIÉ FOR THE NEW YORK TIMES) (B5) Load-Date: October 11, 2019 End of Document Hustle Till It Hurts: Gig Work's Luster Dims The New York Times

### Document 1169

Arriving in Beijing last month, I knew I would not be able to connect to Google, Facebook or Uber. As strange as it was to go without these staples of online life in the West, it was even stranger to find that local Chinese didn’t seem to feel deprived at all. They search through Baidu, get their social media fix on WeChat, hail rides on Didi, curate news through sites like Toutiao. And while they know Beijing is watching, they accept this surveillance as normal. The Chinese government has carved out an alternative internet universe with its own brands, rules and culture, in which privacy doesn’t exist. But its real ambition is to break out of this parallel universe and dominate not just the internet but the technology industry worldwide. To contain Beijing, the United States and its allies are fighting back with a campaign of technoprotectionism, opening a perilous new front in the global trade battles. President Trump is the unlikely leader of the fight against Chinese tech dominance. Widely seen as a champion of rust belt industries, he recently slapped heavy tariffs on all the leading aluminum and steel exporters, drawing fierce protests not only from China but also from American allies like Germany and Canada. But steel is a side show compared with the emerging tech battle with China. Technology will decide which country emerges as the world’s dominant economic power in the long run. While about 20 percent of per-capita gross domestic product growth is driven by labor and capital, the remaining 80 percent is determined by how rapidly an economy is developing and applying new technology to increase production. China’s ambition to catch up to Western living standards thus depends largely on how rapidly it can match or surpass Western technology. Even allies miffed by Mr. Trump’s steel tariffs remained largely supportive when he imposed $50 billion in tariffs on China — and only China — in response to its predatory tech trade practices, then threatened another $200 billion if Beijing followed through on a promise to retaliate. This week, Mr. Trump endorsed intensified review of Chinese investment in American technology and of American tech exports to China. Mr. Trump is both accelerating and expanding trade battles that began before he took office. Following the global financial crisis of 2008, countries around the world began to restrict cross-border flows of trade, capital and migrants. Globalization’s champions predicted that borders would continue to fall in at least one area — digital tech and the internet — but China has shown that a determined government can build walls in the virtual sphere, too. The president’s tough stand on trade with China may be more popular than he is. The overwhelming consensus in the West is that Beijing is catching up illegitimately, by forcing companies that invest in China to share their best technology, or dispatching hackers to steal it. Though borrowing from the leading tech power is a standard development strategy — think of 19th-century America copying British industrial technology and Japan’s great success replicating American technology — the scale and organization of China’s campaign makes the threat feel new. Beijing has banned some foreign competitors like Google and Facebook outright, and regulated others so heavily that they have been compelled to sell themselves to Chinese rivals (Uber) or forced to consider pulling out of China (Amazon). In essence, China has created domestic internet monopolies that are generating enough cash in their vast local market to finance aggressive expansion abroad. I have been told, for example, that Toutiao already sells its novel content curating service to one in 10 Japanese. Last year Beijing rebranded the manufacturing centers of the Pearl River delta as the “Greater Bay Area” and began urging the main cities there — Shenzhen, Guangzhou and Hong Kong — to cooperate to become China’s rival to Silicon Valley, which the Chinese would like to make the lesser Bay Area. In Beijing, the buzz was about how “Created in China” is replacing “Made in China,” with some claiming that Shenzhen is now more innovative than Silicon Valley in key industries. Instead of just assembling simple goods from parts built elsewhere, China is now increasingly seen as a cutting-edge designer and developer of artificial intelligence, drones and other advanced technologies. Among the world’s 20 largest internet companies by market capitalization, 11 are American and nine are Chinese, and the Chinese giants are proliferating fast, up from two just five years ago. Currently, they are limited largely to Chinese turf. Tencent and Alibaba get more than 90 percent of their traffic from within their home country, compared with roughly 10 percent for Google and Facebook, but they all have plans to expand. The Trump administration has moved to restrict Chinese tech expansion in several ways. An executive branch committee that reviews investments for security threats recently blocked attempts by a Chinese company to buy MoneyGram, a money-transfer company. In another case, that same committee’s concerns about potential Chinese influence over global mobile networks helped scuttle Broadcom’s proposed takeover of the chip maker Qualcomm. When the Trump administration banned exports to a major Chinese smartphone manufacturer, ZTE, it forced the company to largely shut down for lack of access to key American technology. Mr. Trump was willing to lift the ban on ZTE after the company paid a $1 billion fine and fired its top executives, but Congress was not. The Senate voted to reinstate the ban, which is likely to fuel trade battles to come. When I was in Beijing, many Chinese were talking about how the humiliation of ZTE was inspiring an official push to reduce China’s dependence on the United States for semiconductors, software and other critical tech imports. The next salvo from the Trump administration is expected to focus on sensitive sectors like financial technology and artificial intelligence, and to impose new controls not only on American tech exports to China, but also on American investments in China. Many Western allies have already taken similar steps. Germany is tightening investment rules for Chinese companies and protesting the restrictions German companies face in China. Australia is reportedly considering banning Chinese firms from working on its 5G rollout because of national security concerns. The European Union recently imposed new data protection rules written largely to give consumers more control of information now in the hands of corporate giants like Facebook, but also to guard against the spread of a China-like surveillance state. The European Union is also pondering a new digital single market, in part to give European companies a market in which they have a chance to grow as large as Chinese rivals. Meanwhile, many countries are going the opposite way, copying elements of China’s external barriers and internal surveillance tools: Russia, Brazil and other countries are requiring foreign internet companies to put servers on those countries, where they are easier for the government to monitor and control. Qatar, Iran and the United Arab Emirates, among others, have banned foreign services like WhatsApp and Viber. These moves may be motivated by a desire to control political discussion more than trade, but nonetheless they invite retaliation. This is how a digitally interconnected world could die by a thousand cuts, and technoprotectionism may get a further push during the next global downturn. From the United States to Europe and Japan, public debts are high and deficits are rising, which means these governments are poorly positioned to spend their way out of any slowdown. Central banks can’t help much, either, since interest rates are still very low, with little room or reason to drop further right now. In this environment, governments may see protectionism as the only lever they have left to pull. For most of the postwar era, the consensus in support of free trade was so strong that governments rarely resorted to raising tariffs even when times were tough. The trade wars that broke out after 2008 have involved mainly nontariff or “stealth” trade barriers, including cheap state loans and subsidies for favored industries. But in the last two years, the rise of Mr. Trump and other antiglobal populists has given new currency to protectionism in all its forms, including technoprotectionism. The global financial markets had largely ignored the brewing trade battles, until recently. As the tariff threats grow in scale, and the battleground shifts from rust belt industries to new technologies, the markets are growing more skittish. So far, stocks have been hit harder in China than in the United States, but there will be no winners. The latest surveys of American investors and manufacturers show that their biggest concern is the threat of a trade war. The risks from deglobalization are growing. If the current skirmishes turn into a full-blown trade war, blame will fall heavily on the thousandth cut. But the real fault will lie with the 999 that came before. Ruchir Sharma, author of “The Rise and Fall of Nations: Forces of Change in the Post-Crisis World,” is the chief global strategist at Morgan Stanley Investment Management and a contributing opinion writer. PHOTO: Crowds near China’s Huawei Technologies stand at the Mobile World Conference in Shanghai on Wednesday. (PHOTOGRAPH BY Agence France-Presse — Getty Images FOR THE NEW YORK TIMES) Related Articles Trump Tariffs Threaten National Security Why China Is Confident It Can Beat Trump in a Trade War China Moves to Shore Up Economy as Slowdown and Trade Fight Loom Load-Date: June 30, 2018 End of Document Robot Cures Human Headache: Putting Together Ikea Furniture The New York Times

### Document 1128

-- The Trump administration has backed off a plan to impose aggressive new restrictions on Chinese investment in the United States, opting instead to support a congressional effort that would expand the types of foreign deals that are subject to review. President Trump said Wednesday that he supported a bipartisan push in Congress to broaden the authority of a government body that reviews foreign investments for security threats. The legislation would give the United States power to squelch a wider variety of investments from China, including minority stakes in American firms, joint ventures, and real estate transactions near military bases or other national security facilities. It would also allow the United States to consider risks beyond national security when rejecting transactions -- for instance, whether a deal could undercut America's dominance in a particular field, like wireless technology or artificial intelligence. Mr. Trump said the expansion of the Committee on Foreign Investment in the United States, or Cfius, would achieve his goal of combating China's ''predatory investment practices'' of buying stakes in American companies to acquire valuable technology and trade secrets. [Read more about an expanded Cfius.] The decision will forestall more draconian curbs on Chinese investment that the White House had been considering, such as limiting investment in technology and manufacturing industries by declaring an economic emergency. That could help defuse tensions between the world's two largest economies, at least somewhat. But it is unlikely to avert a rapidly approaching trade clash that threatens to derail global stock markets and multinational supply chains. China is still far from offering to make the type of substantial changes to its economy that the Trump administration has pushed for, and no official talks appear to be scheduled in the next week. The Trump administration is scheduled to put levies on $34 billion worth of Chinese products on July 6, with the president threatening to impose tariffs on as much as $450 billion of Chinese goods as punishment for Chinese trade practices. Beijing has countered with its own threat of tariffs on American products. ''Our objective is not to single out China or treat them differently, but that we have the necessary tools to protect U.S. investments,'' Steven Mnuchin, the Treasury secretary, said Wednesday. ''I'm not going to make specific comments on where we are in dialogue, but if China wants to come to the table with free and fair trade and treating American companies fairly and reducing the trade deficit, we're always willing to listen.'' Additional curbs could still be coming. Administration officials said Wednesday that Mr. Trump would direct the heads of the Commerce Department and other federal agencies to review the nation's export controls and recommend any needed changes. That could have a more significant effect on American companies than restrictions on Chinese investment, since it could limit their ability to sell products to China. The targeted industries that the White House wants to prevent China from dominating include robotics, artificial intelligence and new-energy vehicles. Eswar Prasad, a professor of international trade at Cornell University, said the president's announcement suggested ''a brief lull in the economic hostilities against China.'' ''For now, at least, the momentum within the administration has swung back in favor of Mnuchin and others who favor a less confrontational approach to the economic relationship with China,'' Mr. Prasad said. ''However, with the imposition of tariffs against China just a few days away, this apparent respite in economic hostilities could prove to be all too fleeting.'' The announcement appeared to be a narrow and unlikely victory for more moderate advisers in the White House. While expanding Cfius would most likely curb Chinese investment, the White House had drafted an executive order that would have put more stringent investment restrictions into effect, according to people familiar with the plans. That garnered the support of more hard-line trade advisers -- among them Peter Navarro; Robert E. Lighthizer, the United States trade representative; and Commerce Secretary Wilbur Ross -- as well as the national security adviser, John R. Bolton. But Mr. Mnuchin convinced Mr. Trump that the president could be blamed for triggering a drop in the stock market and for creating additional layers of bureaucracy necessary to review investments. Mr. Mnuchin and top Republican lawmakers made the case that the legislation winding its way through Congress provided a viable bipartisan alternative. Justice Department and State Department officials had also warned that investment restrictions emanating from the White House could trigger a wave of lawsuits. The potential investment restrictions were part of the White House's effort to punish China for what it says are years of unfair trade practices, including cyber espionage and a pattern of pressuring American technology companies to hand over valuable trade secrets. Among the actions that the United States has targeted are what it describes as the ''theft'' of corporate secrets and China's strategy to dominate cutting-edge industries, known as Made in China 2025. Data released this week from Public Citizen, a liberal advocacy group and think tank, showed that 56 percent of Chinese investments in the United States last year were in industries that Beijing defines as ''strategic,'' such as aviation, biotechnology and new-energy vehicles -- up from 25 percent in 2016. In a meeting last week with China's president, Xi Jinping, American corporate executives urged him to send one of his most trusted advisers, Wang Qishan, to the United States for talks. But with the United States and China so far from a compromise, such a visit appears unlikely in the near term, people familiar with the deliberations said. On Wednesday, Larry Kudlow, the White House's chief economic adviser, said that Mr. Trump and Mr. Xi ''work well together,'' but that the president was unsatisfied with the Chinese response on trade talks. ''The ball is in their court,'' Mr. Kudlow said. Administration officials who outlined the decision in an early-morning briefing said that Mr. Trump had been pleased with the evolution of the legislation to expand Cfius and that he viewed it as an ''extremely powerful tool'' to safeguard national security. The overhaul would allow Cfius to review investments from a list of ''countries of special concern'' but stops short of specifically naming China as the target. The Senate and House have passed different versions of the legislation, which must be reconciled and sent back for a final vote. While final approval appears likely in the coming weeks, it is not guaranteed. Mr. Trump said he would be prepared to ''deploy new tools, developed under existing authorities,'' if lawmakers did not act to ''protect the crown jewels of American technology and intellectual property from transfers and acquisitions that threaten our national security -- and future economic prosperity.'' The decision could help repair ties with Republican lawmakers, who have been at odds with Mr. Trump over his approach to trade, including his tariffs on the European Union, Canada and Mexico and his decision to rescue the Chinese telecommunications company ZTE. Mr. Trump has also threatened to put 20 percent tariffs on autos imported into the United States. A handful of Republican senators have introduced legislation to limit the president's ability to impose such tariffs, but they have faced opposition from Republican leadership. Lawmakers have worked for months on the Cfius legislation, seeing it, rather than punitive new restrictions, as the best path to curtail risky investments from China. Senator John Cornyn, a Texas Republican who has sponsored the bill, said in a statement that he appreciated the president's support for the legislation, which ''takes a carefully tailored approach to updating the review process without limiting our ability to meaningfully engage in trade with partners around the world.'' Mr. Mnuchin insisted on Wednesday that the Trump administration was not pursuing a protectionist approach and was actually trying to prod other countries, including China, to lower their trade barriers. https : // www.nytimes.com/2018/06/27/us/politics/trump-will-back-softer-restrictions-on-chinese-investment.html Graphic PHOTO: The president wants to curtail foreign access to American tech. (PHOTOGRAPH BY WU HONG/EPA, VIA SHUTTERSTOCK) Load-Date: June 28, 2018 End of Document Samsung, Facing Crisis, Unveils New Executives The New York Times

### Document 807

The agreement, coming as President Biden met European leaders, ends a 17-year dispute over aircraft subsidies. BRUSSELS -- The United States and Europe on Tuesday agreed to put aside a 17-year dispute over aircraft subsidies for Boeing and Airbus and work together to counter China's global ambitions to dominate key industries. The agreement, which suspends the threat of billions of dollars in punitive tariffs on each other's economies for five years, is a clear sign of President Biden's seriousness in repairing relations with the European Union and getting the wealthy bloc on his side in what he regards as a generational challenge from the rise of a technologically advanced and autocratic China. Mr. Biden sees Europe as an ally, not an economic ''foe'' as former President Donald J. Trump did, and he has pledged to work with the European Union to counter China's military, economic and technological ambitions. While Mr. Trump also saw the dangers of an unbound China, he did little to try to bring Europe along, instead punishing it with tariffs. Mr. Biden is convinced that, as Asia as a whole grows in population and wealth, the democratic world that believes in the rule of law and multilateral institutions must do more to protect its economies and values. ''Europe is our natural partner, and the reason is, we're committed to the same democratic norms and institutions, and they are increasingly under attack,'' Mr. Biden said during remarks in Brussels. The agreement means that significant punitive tariffs estimated at $11.5 billion, on a wide variety of products including aircraft parts, wine, tractors, spirits, molasses and cheese, will continue to be suspended after both sides had agreed to do so in March while they tried to settle the dispute. The battle first broke out in 2004, over government subsidies that Europe provides to Airbus. ''The Biden administration is clearly eager to de-escalate tensions with traditional allies while rebuilding a common front with them in getting tougher on China,'' said Eswar S. Prasad, the International Monetary Fund's former China chief. ''In tandem with renewed U.S. leadership of the G7, it is becoming evident that the major Western economies are now uniting in their attempts to rein in what they view as unfair Chinese trade and economic practices.'' That will be a delicate task for Europe, which does a large amount of trade with China and does not see Beijing as a peer rival or a military one, as Washington increasingly does. But Europe has also understood that China's open ambitions under Xi Jinping and its abuse of trading rules abroad and human rights at home make it a much more complex partner. The European Union now identifies China as ''an economic competitor and a systemic rival,'' no longer believing, as Chancellor Angela Merkel of Germany has long argued, that trade and engagement will bring about political moderation there. Michael Pillsbury, the Hudson Institute scholar who was one of Mr. Trump's top China advisers, cautioned that the Biden administration would ''find it's much tougher than they thought to get these allies to openly side with the U.S. on China strategy because of the Europeans' heavy dependence on the China export market.'' That includes Germany's significant reliance on Chinese auto purchases. German officials say they will need time to alter their export-driven economy that is currently so dependent on China, understanding that the Chinese will soon be able to manufacture for themselves some of the sophisticated machine tools they currently buy -- and try to copy -- from more advanced European firms. The détente on Airbus and Boeing came as Mr. Biden met top European leaders in a U.S.-E.U. summit that also endorsed a new joint Trade and Technology Council to more formally consult on trade and technical standards. Part of the purpose of the council is to agree on how to limit Chinese digital ambitions in fields like artificial intelligence and cybersecurity and screen Chinese investments in those areas that could have security implications for Europe and the United States. A senior American official said that the council would operate as an interagency body and coordinate with Brussels in priority areas like standards for artificial intelligence, quantum computing and biotechnology, supply chain resilience and export controls. European officials said its work would probably start with sensitive issues like semiconductors and 5G infrastructure. The Boeing-Airbus agreement followed two days of intense negotiations in Brussels between Katherine Tai, the U.S. trade representative, and Valdis Dombrovskis, the E.U. trade commissioner. European member states approved the deal overnight. ''This really opens a new chapter in our relationship because we move from litigation to cooperation on aircraft -- after 17 years of dispute,'' said the European Commission president, Ursula von der Leyen. After the meeting, Mr. Biden flew to Geneva, where he will meet President Vladimir V. Putin of Russia on Wednesday. Mr. Biden will be able to present himself there as the leader of the Western democracies, having first been to summit meetings of the Group of 7, NATO and now the European Union, where he has consulted extensively with allies. ''I've been making the case that the U.S. and Europe -- and democracies everywhere -- are stronger when we work together to advance our shared values like fair competition and transparency,'' Mr. Biden said in a statement. ''Today's announcement demonstrates exactly how that can work in practice.'' In a briefing for reporters on the aircraft deal, Ms. Tai said that both sides had agreed to extend a suspension of tariffs for five years while working together to counter China's investment in the aircraft sector, especially from state-run companies. China's state-sponsored aerospace manufacturer, Commercial Aircraft Corporation of China, completed the first public flight test of its passenger airliner in 2017, and is fast becoming a rival to both Boeing and Airbus in global aircraft construction. China's airlines are also state-run, and Beijing can order them to buy domestically built planes, squeezing market share for Boeing and Airbus. The United States and the European Union would work together, Ms. Tai said, ''to challenge and counter China's nonmarket practices in this sector in specific ways that reflect our standards for fair competition.'' In a post-summit news conference, Ms. Tai explained: ''For almost 20 years we have been at each other's throats, fighting each other in terms of competition between our industries. While we have been engaged in this fight, others are taking the opportunity to launch their own industries, and we have been too busy fighting each other to pay attention.'' But she cautioned that the agreement set limits on the subsidies that the European Union would be allowed to provide to Airbus, warning that the United States would reimpose billions of dollars in tariffs if subsidies by European Union countries crossed a ''red line.'' ''These tariffs will remain suspended, so long as E.U. support for Airbus is consistent with the terms of this agreement,'' she said. ''Should E.U. support cross the red line, and U.S. producers are not able to compete fairly and on a level playing field, the United States retains the flexibility to reactivate the tariffs.'' It is a critical moment for both companies, which are struggling to overcome a slowdown caused by the pandemic. Most within the industry expect it to be years before airlines and plane manufacturers can fully shake off the effects of the downturn. Tuesday's announcement isn't expected to have an immediate impact on the companies. Boeing and Airbus have already begun unwinding the subsidies they enjoyed -- Airbus had said that it would increase repayments of low-cost loans it received from multiple E.U. countries, while Washington has repealed a state tax break for Boeing. Still, the agreement removes a persistent concern for both companies as they seek to lift sales around the world. Mr. Biden's approach to Europe is both political and practical: The European Union, given its enormous economic power as a market and as a trading bloc, has more impact on American life than any other multilateral institution. Mr. Biden wants more support from the Europeans on restraining the damaging effects of the rise of China. Major countries like Germany, France and Italy are reluctant to join Washington in an adversarial relationship with China, but attitudes are hardening because of Chinese human rights abuses at home, trade practices and widespread industrial espionage. The European Union, for instance, has agreed on a voluntary investment screening program similar in concept to an American panel known as the Committee on Foreign Investment in the United States. There remain other significant disputes between the United States and the European Union, most prominently another lingering case over Trump-era tariffs on steel and aluminum. In 2018, Mr. Trump used special ''national security'' provisions to impose the tariffs, which set off a larger trade war. The European Union retaliated by targeting some $3.4 billion of American imports with tariffs on a range of big-name products, including Harley-Davidson motorcycles, Levi Strauss jeans and bourbon whiskey. Brussels suspended its retaliatory tariffs for six months in May, hoping to negotiate a longer-term solution on the problem of steel overcapacity worldwide. Mr. Dombrovskis has urged Mr. Biden to ''walk the talk'' of comity and drop those tariffs. Alan Rappeport, Monika Pronczuk and Niraj Chokshi contributed reporting.Alan Rappeport, Monika Pronczuk and Niraj Chokshi contributed reporting. https : // www.nytimes.com/2021/06/15/business/US-EU-Airbus-Boeing.html Graphic PHOTOS: President Biden with President Emmanuel Macron of France at the G7 talks. (PHOTOGRAPH BY DOUG MILLS/THE NEW YORK TIMES) (B4) Load-Date: June 16, 2021 End of Document Deploying A.I. To Find Cancer Doctors Miss The New York Times

### Document 861

As president, Joe Biden will face deep dilemmas, and a lot of unfinished business, stemming from President Trump's multiyear onslaught against China. WASHINGTON -- In addition to a deadly pandemic and a weakened economy, President-elect Joseph R. Biden Jr. will inherit one more challenge when he takes office in January: a toxic relationship with the world's second-largest economy. President Trump has placed tariffs on hundreds of billions of dollars of products from China, imposed sanctions on Chinese companies and restricted Chinese businesses from buying American technology -- a multiyear onslaught aimed at forcing Beijing to change its trade practices and as punishment for its authoritarian ways. He shows no sign of letting up in his final days in office: On Thursday, Mr. Trump issued an executive order barring investments in Chinese firms with military ties. The hard choices for Mr. Biden will include deciding whether to maintain tariffs on about $360 billion worth of Chinese imports, which have raised costs for American businesses and consumers, or whether to relax those levies in exchange for concessions on economic issues or other fronts, like climate change. Mr. Biden will need to walk a careful line. He and his advisers view many of Mr. Trump's measures, which were aimed at severing ties between the Chinese and American economies, as clumsy, costly and unstrategic. They say they want to take a smarter approach that combines working with the Chinese on some issues like global warming and the pandemic, while competing with them on technological leadership and confronting them on other issues like military expansionism, human rights violations or unfair trade. In a speech on Monday, Mr. Biden promised to make significant investments into American industry, including $300 billion in technology industries that he said would create three million ''good-paying'' jobs, as well as channeling more government dollars into purchasing American products like automobiles and pharmaceuticals. ''We're going to invest in American workers and make them more competitive,'' Mr. Biden said. He added that he would ensure that labor unions and environment groups were ''at the table'' in any trade negotiations and push for the United States, rather than China, to set the world's trading rules, along with other democracies. ''The idea that we are poking our finger in the eyes of our friends and embracing autocrats makes no sense to me,'' Mr. Biden said. Even if Mr. Biden departs from Mr. Trump's punishing approach, his administration will be eager to maintain leverage over China to accomplish its own policy goals. And the new administration will face pressure from lawmakers in both parties who view China as a national security threat and have introduced legislation aimed at penalizing Beijing for its human rights abuses, global influence operations and economic practices. ''This is likely going to be a period of continuing uncertainty on the U.S.-China front,'' said Myron Brilliant, the executive vice president of the U.S. Chamber of Commerce. ''There is no question that President Trump has adopted a tough stance on China, and this probably doesn't give President-elect Biden a lot of political flexibility early on, but we expect a significant departure in tone, style and process.'' Mr. Biden has given few details about his plans for U.S.-China relations, other than saying he wants to recruit American allies such as Europe and Japan to pressure China to make economic reforms, like protecting intellectual property. He has pledged to devote more resources to enhancing American manufacturing capacity, infrastructure and technological development, to ensure the United States retains an edge over China even as it invests huge sums in fields like telecommunications, artificial intelligence and semiconductors. But Mr. Biden will face pressure from both parties not to revert to the approach that he and many of his predecessors had earlier embraced in trying to transform China's economic practices by bringing it into the global economy. Like many Democrats and Republicans in the 1990s and early 2000s, Mr. Biden argued that integrating China into the global trading system would force Beijing to play by international rules, to the benefit of American workers. In 2000, he voted to grant China permanent normal trading relations, which paved the way for China's entry into the World Trade Organization and deeper global economic ties. In 2016, Mr. Trump won the presidency in part by loudly rejecting that approach, arguing that the United States needed to isolate, not integrate, Beijing. Two decades later, Mr. Biden acknowledges that China exploited the international system, and he has called for a more aggressive approach. Mr. Biden has said the United States must get ''tough with China,'' and referred to Xi Jinping, the Chinese leader, as a ''thug.'' Congress is also relatively unified on taking a tough stance on China. Hundreds of China-related bills are circulating, including several bipartisan efforts that echo Mr. Biden's emphasis on competing with China by investing in American industries like quantum computing and artificial intelligence. Mr. Biden's first moves could also be dictated by Mr. Trump's final months. Many trade experts say they are concerned that Mr. Trump, who has promised to make China ''pay'' for not doing enough to contain the coronavirus, could amp up his economic fight. Several of Mr. Trump's aides are bitter at China for its role as the source of the coronavirus, which they see as a major contributor to Mr. Trump's loss, people familiar with their thinking say. One area of focus is the trade deal that Mr. Trump signed with Chinese officials in January. While China has largely kept commitments to open up its markets to American companies and Mr. Trump's advisers have continued to defend the pact, Beijing has fallen far behind schedule in its promise to buy an additional $200 billion of goods and services by the end of next year. Mr. Trump's most likely path will be to leave the deal intact, said Chris Rogers, a global trade and logistics analyst at Panjiva. But he wouldn't rule out ''a scorched-earth policy where China is declared to be in violation of its Phase 1 trade deal commitments and there's a return to tariff escalation,'' he said. ''President-elect Biden will be left holding the pieces if the deal is broken,'' Mr. Rogers added. And the president shows no signs of backing off a confrontational approach in other areas. On Friday, his administration is expected to begin economic talks with Taiwan that are likely to rankle Beijing. His advisers are considering other measures to punish China in the coming weeks, including sanctions related to China's security crackdowns in Hong Kong and the Xinjiang region, where the Chinese government has carried out mass detentions and harsh policing of ethnic minorities. ''We are worried that he's going to do some rash things that aren't going to make sense for the future of the country or global stability,'' said Rufus Yerxa, the president of the National Foreign Trade Council, which represents major multinational companies. ''Given the history of President Trump's use of executive authority, we're taking nothing for granted in these next few months.'' Still, ''most of what he could do is through executive orders and executive actions, which can be reversed by a Biden administration,'' Mr. Yerxa added. Whether Mr. Biden opts to roll back Mr. Trump's more punitive measures will depend, at least in part, on China's future behavior, including whether it pursues more aggressive incursions into the South China Sea, Taiwan and Hong Kong, people close to his campaign say. Beijing has recently endorsed a policy of greater technological self-reliance and a stronger military to protect itself from a more antagonistic United States, and moved ahead with cementing other economic partnerships. On Sunday, China signed the Regional Comprehensive Economic Partnership, a pan-Asian trade pact that includes Japan, South Korea, Australia, New Zealand, Thailand and Vietnam, and will help cement China's image as the dominant economic power in the region. In his remarks Monday, Mr. Biden argued for America to regain leadership in the trade sphere. ''We make up 25 percent of the world's trading capacity of the economy in the world,'' he said. ''We need to be aligned with the other democracies, another 25 percent or more, so that we can set the rules of the road instead of having China and others dictate outcomes because they are the only game in town.'' Mr. Biden's appointments for trade and foreign policy posts could help determine his approach toward China, though it remains unclear whom he might nominate for such critical jobs as secretary of state and commerce and the United States trade representative. Similar to Mr. Biden himself, many of his closest advisers have a moderate track record on trade and China, believing they can work with Chinese leaders on some issues even as they challenge them on others. But several of his national security advisers are more skeptical of China. No matter the path, business groups, economists and others are hoping for a coherent strategy that does not result in the type of economic brinkmanship Mr. Trump appeared to thrive on. While Democrats and Republicans have credited Mr. Trump with drawing attention to China's security threats, and its unfair economic practices like intellectual property theft, his dealings with China have also been transactional and inconsistent. In an attempt to secure a trade deal, Mr. Trump lavished praise on Mr. Xi, delayed sanctions against China's human rights violations for months and pardoned the Chinese company ZTE for running afoul of U.S. law. And he has employed racist and xenophobic language, like calling the coronavirus the ''kung flu,'' that has fueled attacks on people of Asian descent around the country. ''The Trump administration never did lay out a coherent, comprehensive, engaged trade strategy,'' said Thea M. Lee, an economist and the president of the Economic Policy Institute. ''It was much more scattershot: Throw up a tariff here, do a deal with China, disparate elements that didn't seem to talk to each other.'' ''But there are a lot of tools in that toolbox, and I would like to see the Biden administration be thoughtful and strategic about how to use them,'' Ms. Lee said. https : // www.nytimes.com/2020/11/16/business/economy/biden-china-trade-policy.html Graphic PHOTOS: Top, President Xi Jinping of China. Above, President-elect Joseph R. Biden Jr., who faces tough choices regarding China. (PHOTOGRAPHS BY ERIN SCHAFF/THE NEW YORK TIMES AMR ALFIKY/THE NEW YORK TIMES) (B4) Load-Date: November 17, 2020 End of Document Study of Pakistan's Floods Shows Signs of Climate Change at Work The New York Times

### Document 551

The new rules could be the most sweeping action taken yet by the Biden administration to thwart China's access to American technology that powers data centers and supercomputers. The Biden administration is expected to announce new measures to restrict Chinese companies from getting access to technologies that enable high-performance computing, according to several people familiar with the matter, the latest in a series of moves aimed at hobbling Beijing's ambitions to craft next-generation weapons and automate large-scale surveillance systems. The measures, which could be announced as soon as this week, would be some of the most significant steps taken by the Biden administration to cut off China's access to advanced semiconductor technology. They would build on a Trump-era rule that struck a blow to the Chinese telecom giant Huawei by prohibiting companies around the world from sending it products made with the use of American technology, machinery or software. A number of Chinese firms, government research labs and other entities are expected to face restrictions similar to Huawei, according to two people with knowledge of the plans. In effect, any firm that uses American-made technologies would be blocked from selling to the Chinese entities that are targeted by the administration. It's not yet clear which Chinese firms and labs would be affected. The broad expansion of what is known as the foreign direct product rule is just one part of Washington's planned restrictions. The administration is also expected to try to control the sale of cutting-edge U.S.-made tools to China's domestic semiconductor industry. Washington also plans to limit U.S.-made microchips from being sold to China's most powerful supercomputing and data center projects, the people said. That limitation could end up inhibiting the ability of major academic institutions and internet firms like Alibaba and Tencent from getting the parts they need to build leading data centers and supercomputers. Over time, as supercomputer performance levels rise, the cap could seriously hinder China's ability to develop the powerful number-crunching technology that forms the building block of innovations across an array of fields, including the biosciences, artificial intelligence and missile engineering. Curbs on chips and chip-making tools were reported earlier by Reuters. The Biden administration has also been readying an executive order that would allow the government to scrutinize the investments that U.S. companies made abroad for national security risks, and considering other measures that could apply to the Chinese memory chip maker Yangtze Memory Technologies Company, or YMTC, several people familiar with the discussions said. Orville Schell, a longtime China scholar at the Asia Society, said the American government was moving to separate American and Chinese supply chains on semiconductors and semiconductor technology, given their importance not just for national economies but also weapons systems and other military applications. In the last one to two months, U.S. officials have become increasingly concerned with Chinese companies that make midrange semiconductors, not just the smallest, most cutting-edge technology, Mr. Schell said. That's because those older products are still critical components for weapons, and officials do not want Chinese chip makers to use technology from the United States or partner nations to produce those chips. And they do not want the Chinese companies to become global suppliers. ''That's quite a remarkable expansion of our concerns,'' he said, adding that YMTC was a prime example of this kind of company. The White House declined to comment on the planned restrictions. A spokesperson for the Bureau of Industry and Security at the Commerce Department, which has authority over the types of technology that companies can export out of the United States, said they could not confirm anything at this point. If enacted, the measures will be the strongest push to date by the United States to hit at China's flourishing supercomputer and data center market. Many Chinese universities, state-run companies and internet firms run supercomputers that have a range of abilities. Plenty are used for important, if prosaic, tasks like analyzing road traffic, managing social networks or predicting weather, but analysts and researchers have shown how others are used for more malign purposes. China has used some supercomputers to power invasive surveillance systems that target ethnic minorities. Others have been used by Beijing to model nuclear blasts and design next-generation weapons that could evade American defenses. For instance, in the western Chinese region of Xinjiang, where hundreds of thousands of minority Uyghurs have been interned and surveilled, a supercomputer built with chips made by Intel and Nvidia has been used to process footage collected from ubiquitous video cameras in the area. Both Intel and Nvidia have said they were unaware of what they called misuse of their technology. The U.S. government has sought to curb the flow of technology to projects like these in recent years, but those efforts have been frustrated by the wide availability of powerful microchips. Many such products that are sold to China are manufactured outside the United States, meaning the U.S. government's traditional methods of regulation, which focus on products exported from the United States, don't apply. So officials in the Trump and Biden administrations have turned to leveraging the foreign direct product rule, a sweeping regulation that prevents products made anywhere in the world with the help of U.S. technology, machinery or software from being sold to China. Even semiconductors manufactured in other countries are often made with the use of U.S. equipment and software. The Biden administration has faced some criticism that it has moved slowly to curb China's access to cutting-edge U.S. technology. For many administration officials, China's recent progress in clearing a key technological hurdle in semiconductor manufacturing underscored the urgent need for more expansive regulation in the industry, people familiar with the discussions said. The export controls are part of a bigger strategy from the Biden administration to starve China of key technologies while pumping money into U.S. chip-making factories. The measures come as Beijing ramps up its aggression toward Taiwan, which produces almost all of the world's advanced semiconductors. In remarks at the White House last month, Jake Sullivan, the national security adviser, said that the U.S. government had previously tried to stay a few generations ahead of competitors in certain key technologies, but that the approach was no longer tough enough. ''Given the foundational nature of certain technologies, such as advanced logic and memory chips, we must maintain as large of a lead as possible,'' he said. The Biden administration has cited its broad use of export controls as a powerful tool to punish Russia for its invasion of Ukraine, saying it will cripple Russia's defense, technology, energy and other critical sectors in the long term. American officials say they can apply the same tool to other rival nations, notably China, to address national security challenges. The officials say the Trump administration's use of export controls aimed at hobbling Huawei served as a model for how they formulated the controls on Russian companies. Last month, the Biden administration imposed new restrictions on the sale of some sophisticated computer chips to China and Russia. Those limits focused on high-end models of chips known as graphic processing units sold by Silicon Valley companies like Nvidia and Advanced Micro Devices. The products, originally made to render images in video games, have become critical for large computers that are used to train artificial intelligence algorithms. Paul Triolo, senior vice president for China at Albright Stonebridge Group, a strategy firm, said that the move was ''probably the strongest sort of regulatory and export control statement that the U.S. government has made with respect to China's access to U.S. technology,'' and that it was coming at a sensitive time for the Chinese leadership, ahead of a meeting of the 20th congress of the Communist Party, which will begin Oct. 16. ''The administration,'' he said, ''is putting its foot down here.'' https : // www.nytimes.com/2022/10/03/business/us-limits-chinas-supercomputing.html Graphic PHOTO: A data center in Hangzhou, China. The new rules could be a blow to China's supercomputer and data center market. (PHOTOGRAPH BY LONG WEI/VISUAL CHINA GROUP, VIA GETTY IMAGES) (B8) Load-Date: October 4, 2022 End of Document From Twitter to X: Elon Musk Begins Erasing an Iconic Internet Brand The New York Times

### Document 378

As the Chinese government develops drones, the American technology giant Qualcomm is helping. The same goes for artificial intelligence, mobile technology and supercomputers. Qualcomm is also working to help Chinese companies like Huawei break into overseas markets in support of China's ''go global'' campaign to develop big multinational brands. Qualcomm is providing money, expertise and engineering for Beijing's master plan to create its own technology superpowers. Big American companies fiercely protect their intellectual property and trade secrets, fearful of giving an edge to rivals. But they have little choice in China -- and Washington is looking on with alarm. To gain access to the Chinese market, American companies are being forced to transfer technology, create joint ventures, lower prices and aid homegrown players. Those efforts form the backbone of President Xi Jinping's ambitious plan to ensure that China's companies, military and government dominate core areas of technology like artificial intelligence and semiconductors. As concerns mount about Beijing's industrial policy, the Trump administration is preparing a broad investigation into potential violations of American intellectual property, according to people with knowledge of the matter. Congress is also considering ways to restrict China's ability to acquire advanced technology by toughening rules to prevent the purchase of American assets and limit technology transfers. In this arena, America's economic interests are aligned with its national security needs. The worry is that by teaming up with China, American companies could be sowing the seeds of their own destruction, as well as handing over critical technology that the United States relies on for its military, space and defense programs. Advanced Micro Devices and Hewlett Packard Enterprise are working with Chinese companies to develop server chips, creating rivals to their own product. Intel is working with the Chinese to build high-end mobile chips, in competition with Qualcomm. IBM has agreed to transfer valuable technology that could enable China to break into the lucrative mainframe banking business. ''There's a great deal of unease in Washington,'' said James Lewis, an analyst at the Center for Strategic and International Studies, a Washington-based think tank. ''The defense, intelligence agencies and others are concerned that advanced chip-making capabilities are going to China.'' Qualcomm declined to comment, as did Intel. Qualcomm is caught in the middle. The world's dominant mobile phone chip maker, Qualcomm ran afoul of the Chinese government, getting hit in 2015 with a record $975 million fine for anticompetitive behavior. To get back in Beijing's good graces, the company agreed to lower its prices in China, promised to shift more of its high-end manufacturing to partners in China, and pledged to upgrade the country's technology capabilities. The extent of Qualcomm's involvement with the Chinese government -- and the complications for American tech giants -- is seen in a low-slung office building in the southwest part of the country. There, a team of engineers is developing leading-edge microchips to compete with the finest made by Intel. The chips will help power a huge data and cloud center with the potential to strengthen the country's computing capabilities. No longer content to rely on buying the chips that go into cellphones, computers and cars, China now wants to design and build the brains that drive much of the digital world. The government is providing land and financing to the start-up formed with Qualcomm, called Huaxintong Semiconductor. Qualcomm has provided the technology and about $140 million in initial funding. ''Qualcomm has a balancing act,'' said Willy Shih, who teaches at Harvard Business School. ''Most of the world's PCs are made in China, and most of the world's smartphones too, so they have to play along. It's a fact of life.'' Qualcomm was early to break into China. In the mid-1990s, as China's economy began to boom, President Bill Clinton pressed the country's leaders to open to American technology companies. Members of the Clinton administration, including Charlene Barshefsky, the United States trade representative, and William M. Daley, the secretary of commerce, were dispatched to Beijing to hammer out the details. They pushed for one company by name: Qualcomm. ''At the time, they were the only U.S. show in town,'' Ms. Barshefsky said. ''Bill Daley and I pushed the Chinese hard on accepting the U.S. standard for wireless technology,'' she added, ''and that was Qualcomm.'' Mobile phone adoption was taking off globally, largely backed by a European wireless standard called G.S.M., or global system for mobile communications. Qualcomm had a competing American standard called C.D.M.A., or Code Division Multiple Access. Irwin M. Jacobs, a founder of Qualcomm, spearheaded an aggressive lobbying campaign in Washington and Beijing, promoting the technology's potential to transform wireless communication markets. ''We knew China would be important, and they didn't have their own system,'' said Perry LaForge, a former Qualcomm executive. ''We also told them this system would give them an opportunity to manufacture their own handsets, and not rely on buying them from other countries.'' When Qualcomm first entered China in the late 1990s, it was slow to gain traction. The company struggled to find Chinese partners to produce mobile phones that worked with its network. China also tried to develop its own wireless standard. Qualcomm eventually won out, helping write the standards for next-generation mobile technology, 3G and 4G service. The standard championed by European telecom providers faded rapidly. And China's homegrown technology struggled. By 2013, virtually every wireless device around the world was reliant on either Qualcomm's chips or its patents -- enough to provide some of the technology industry's fattest profit margins. With its dominance rising, global brands like Apple and Samsung began complaining to regulators around the world, citing ''discriminatory'' pricing practices and high royalty fees. In China, a trade group made up of the country's major handset makers complained about patent holders levying ''exorbitant licensing fees.'' ''These days a smartphone is covered by about 250,000 patents,'' said Dieter Ernst, a senior fellow at the East-West Center, a research and educational center based in Honolulu. ''A Chinese smartphone maker needs to negotiate license agreements with companies like Qualcomm that own the essential patents.'' ''The Chinese government was worried about this,'' he added. ''That all these costs could constrain Chinese companies.'' The raids began at dawn, in late November 2013. Investigators descended upon Qualcomm's offices in Beijing and Shanghai, questioning the staff and hauling away laptops and documents. At the time of the raids, the San Diego-based company's senior managers were at the Ritz-Carlton Hotel in New York, attending an investor conference. The executives were planning to talk about the company's strategy. Instead, they began fielding frantic phone calls from China. The China business, which accounted for more than half of its global revenue, was in trouble. A week later, one of the country's most powerful regulatory agencies, the National Development and Reform Commission (N.D.R.C.), announced that it was looking into whether Qualcomm had abused its power in the sale of mobile phone chips. ''Qualcomm came to control so much of the chip market in China,'' said Louie Ming, a former Qualcomm executive in China. ''It was clear they were eventually going to run into antitrust problems.'' While Qualcomm agreed to fully cooperate with the investigation, some senior executives appealed to the Obama administration, pressing the White House to raise the issue with China's senior leaders, according to a former administration official. Qualcomm's troubles went beyond China. The company was also under scrutiny by antitrust regulators in the European Union and South Korea, as well as by the United States Federal Trade Commission. China didn't back down. The head of the N.D.R.C. branded Qualcomm a monopoly. In February 2015, after a 15-month-long investigation, Qualcomm settled allegations in China that it had charged unfairly high prices for its chips and patents. The company agreed to pay the $975 million fine -- about 8 percent of its annual revenue in China -- and to lower the prices for chips sold in the country. ''We are pleased that the resolution has removed the uncertainty surrounding our business in China, and we will now focus our full attention and resources on supporting our customers and partners in China,'' said Steve Mollenkopf, the company's chief executive, said at the time. Qualcomm then went into business with the Chinese government. There was a $150 million investment fund to help Chinese start-ups; new research and design facilities set up with Chinese companies such as Huawei and Tencent; and a partnership with a Beijing-based company called Thundersoft to develop drones, virtual reality goggles and internet-connected devices. Qualcomm is also helping the Chinese government develop supercomputers, a technology the United States government has discouraged American companies from supporting overseas. In May, Qualcomm agreed to form a joint venture with other state-backed firms to design and sell mass-market smartphone chips. And to help make Chinese chip manufacturing more competitive, Qualcomm has pledged to shift more of its high-end production -- long done by outside contractors in Taiwan and South Korea -- to China. ''This is what China does better than anyone else,'' said Robert D. Atkinson, president of the Information Technology and Innovation Foundation, a think tank focused on technology policy that has conducted studies detailing the Chinese government's pressure on technology companies. ''They have a large carrot and a large stick,'' he said. ''And they have a market no C.E.O. can walk away from.'' Qualcomm's biggest new venture is taking shape in southwest China's Guizhou Province. Determined to leap into advanced technology, China has designated a large parcel of land in the provincial capital of Guiyang as the home of a new industrial park for supercomputing, data centers and cloud computing. The country's large state-run telecom operators and its internet behemoths, including Alibaba and Tencent, are moving in, to build massive server farms. The region offers lower energy costs and abundant supplies of water, necessary to cool server farms. A year ago, Qualcomm set up a joint venture with the Guizhou government and pledged to invest about $140 million for a minority stake in the business, situated in a development zone that has also attracted the interest of Microsoft and Dell. Qualcomm says it received American government approval for the deal. The new Qualcomm joint venture, Huaxintong Semiconductor, broke ground on the site in 2016, and now operates in a 46,000-square-foot design and engineering center. A major test of the partnership will come when the joint venture's first server chips are released -- helping Qualcomm and the Chinese government stake out new ground. The Chinese government will control the chips and reap most of the profits. In late March, Qualcomm's president, Derek K. Aberle, flew to Guizhou to meet a powerful local government leader, Chen Miner, a confidant of the Chinese president. Seated in a government hall, before an enormous landscape painting, Mr. Aberle pledged to ''continually cooperate'' with the Chinese government. https : // www.nytimes.com/2017/08/04/technology/qualcomm-china-trump-tech-trade.html Graphic DRAWING (DRAWING BY MINH UONG/THE NEW YORK TIMES) (BU6) Load-Date: August 13, 2017 End of Document Who Is Neri Oxman?; domains The New York Times

### Document 556

The National Counterintelligence and Security Center said American companies needed to better secure critical technologies as Beijing seeks to dominate the so-called bioeconomy. BETHESDA, Md. -- Chinese firms are collecting genetic data from around the world, part of an effort by the Chinese government and companies to develop the world's largest bio-database, American intelligence officials reported on Friday. The National Counterintelligence and Security Center said in a new paper that the United States needed to better secure critical technologies including artificial intelligence, quantum computing, semiconductors and other technologies related to the so-called bioeconomy. China and other countries are trying to dominate these technologies, and are using both legal and illegal means to acquire American know how, said Michael Orlando, the acting director of the counterintelligence center, an arm of the Office of the Director of National Intelligence. The American private sector has long been in the cross hairs of China and other countries trying to steal American technology and intellectual property. Other countries like Russia also remain a threat, but the economic might of China makes it the biggest threat, officials said. China believes dominating these areas will give it an economic edge, and American companies are also investing heavily. Artificial intelligence and machine learning hold the promise to revolutionize many aspects of life, including military operations. Quantum computing will allow countries to break the toughest encryption that exists today, and semiconductors are vital not just for computers but many consumer products. But officials are now also stressing the intersection of technology and genetic and biological research as an area of competition and espionage. Edward You, who is the national counterintelligence officer for emerging and disruptive technologies, said the Chinese government was collecting medical, health and genetic data around the world. The country that builds the best database of information will have an edge on developing cures for future pandemics, and China already has an advantage, he said. Beijing has a track record of misusing genetic data, the counterintelligence center said, citing a 2019 New York Times report on how China uses genetic tests to track members of the Uyghurs, a predominantly Muslim minority group. Citing a Reuters report, Mr. You said a Chinese company, BGI, had developed a neonatal genetic test with the Chinese military that had enabled it to collect information from millions of people around the world. The firm gained a foothold in the United States in 2013, when it purchased an American genomics firm. BGI now has contracts and partnerships with health institutions across the United States, intelligence officials said. The company provides cheap genomic sequencing and gets access to genomic data. Last year, the Commerce Department penalized some of the company's subsidiaries for providing genetic analysis that was used in Beijing's campaign against the Uyghurs. Mr. You said as a result the genetic data of some Americans could be ''transferred to the Chinese government.'' The counterintelligence center also highlighted investments by WuXi, which bought a Pfizer manufacturing plant in China, announced a production facility in Massachusetts and made an investment in 2015 in 23andMe, the consumer genetics company. ''They are developing the world's largest bio database,'' Mr. You said of the Chinese government efforts. ''Once they have access to your genetic data, it's not something you can change like a pin code.'' But 23andMe said that fears of China stealing its data were misplaced. WuXi has a less than 1 percent investment in 23andMe and has never received any customer data, Jacquie Cooke Haggarty, the company's deputy general counsel, said in a statement. No data has ever been shared with a Chinese-owned company and no investor has access to the data, she said. ''All of our testing is performed and has always been performed in U.S.-based laboratories,'' she said. The company also said it stored information about names and contact information separate from its genetic data. The company follows the highest encryption standards and tests its defenses daily, she said. Mr. Orlando said he was not arguing for decoupling the Chinese and American economies, but said the center was trying to warn companies of the risks of working with Chinese firms under the strict control of the government in Beijing. ''We aren't telling people to decouple, but if you are going to do business in China, be smart about it,'' Mr. Orlando said. Though China is seeking a broad array of commercial data, the biggest threat is to the high-tech industries Beijing has said it wants to dominate in the decades to come. American and European officials have long said China steals intellectual property, makes cheaper versions of products, puts western competitors out of business, and then dominates the market. That is a pattern China has followed in solar panels, for example. ''These technologies are critical and we cannot let what happened to other industries happen here,'' Mr. Orlando said. In recent years, the F.B.I. and the counterintelligence center have stepped up broad warnings to businesses and universities about Chinese attempts to steal American technology. Some of those overtures have been greeted skeptically, particularly at universities that believe the U.S. government may be trying to limit the number of Chinese students that study at American universities. While the U.S. government can review many acquisitions of American companies by Chinese ones, other Chinese investments are harder to regulate. Mr. Orlando said an American company partnering with a Chinese one should take steps to protect its data. ''It's all about the data,'' Mr. You said. ''There are national security implications we have to understand.'' https : // www.nytimes.com/2021/10/22/us/politics/china-genetic-data-collection.html Graphic PHOTO: Chinese gene firm BGI Group building in Beijing, in March. It developed a neonatal genetic test with the Chinese military that had enabled it to collect information from millions of people around the world. (PHOTOGRAPH BY Carlos Garcia Rawlins/Reuters FOR THE NEW YORK TIMES) Load-Date: October 23, 2021 End of Document Help! I Was Banned From Lyft and No One Will Tell Me Why.; Tripped Up The New York Times

### Document 375

Correction Appended HONG KONG — When the United States Air Force wanted help making military robots more perceptive, it turned to a Boston-based artificial intelligence start-up called Neurala. But when Neurala needed money, it got little response from the American military. So Neurala turned to China, landing an undisclosed sum from an investment firm backed by a state-run Chinese company. Chinese firms have become significant investors in American start-ups working on cutting-edge technologies with potential military applications. The start-ups include companies that make rocket engines for spacecraft, sensors for autonomous navy ships, and printers that make flexible screens that could be used in fighter-plane cockpits. Many of the Chinese firms are owned by state-owned companies or have connections to Chinese leaders. The deals are ringing alarm bells in Washington. According to a new white paper commissioned by the Department of Defense, Beijing is encouraging Chinese companies with close government ties to invest in American start-ups specializing in critical technologies like artificial intelligence and robots to advance China’s military capacity as well as its economy. The white paper, which was distributed to the senior levels of the Trump administration this week, concludes that United States government controls that are supposed to protect potentially critical technologies are falling short, according to three people knowledgeable about its contents, who spoke on the condition of anonymity. “What drives a lot of the concern is that China is a military competitor,” said James Lewis, a senior fellow at the Center for Strategic and International Studies, who is familiar with the report. “How do you deal with a military competitor playing in your most innovative market?” The Chinese deals can pose a number of issues. Investors could push start-ups to strike partnerships or make licensing or hiring decisions that could expose intellectual property. They can also get an inside glimpse of how technology is being developed and could have access to a start-up’s offices or computers. Trump administration officials and lawmakers are raising broad questions about China’s economic relationship with the United States. While the report was commissioned before President Trump took office, some Republicans have called for tighter regulation of foreign takeovers by giving a broader mandate to the Committee on Foreign Investment in the United States. Known as Cfius, the committee reviews foreign takeovers of American companies, but critics say that its scope does not include smaller deals and that it has other weak spots. Ashton B. Carter, former secretary of defense under President Barack Obama, had tapped Mike A. Brown, the former chief executive of Symantec, the cybersecurity firm, to lead the inquiry into the Chinese investments, according to two of the people aware of the white paper’s contents. A spokesman for the Department of Defense said it “will not discuss the details or components of draft internal working documents.” The size and breadth of the deals are not clear because start-ups and their backers are not obligated to disclose them. Over all, China has been increasingly active in the American start-up world, participating in investment rounds worth $9.9 billion in 2015, according to data from the research firm CB Insights, more than four times the level the year before. Neither the high-tech start-ups nor their Chinese investors have been accused of wrongdoing, and experts said much of the activity could be innocent. Chinese investors have money and are looking for returns, while the Chinese government has pushed investment in ways to clean up China’s skies, upgrade its industrial capacity and unclog its snarled highways. Proponents of the deals said American limits on technology exports would still apply to American start-ups with Chinese backers. But the fund flows fit China’s pattern of using state-guided investment to help its industrial policy and enhance its technology holdings, as it has recently done with semiconductors. China has also carried out efforts to steal military-related technology. Still, some start-ups — especially those making hardware rather than money-drawing mobile apps like Snapchat — said Chinese money was sometimes the only available funding. But even a company struggling for money can ultimately come up with a big breakthrough. Chinese investors have a bigger appetite for risk and a willingness to do deals fast, said Neurala’s chief executive, Max Versace. To demonstrate his software’s capabilities to the Air Force, Mr. Versace said, Neurala used its software on a ground drone from Best Buy to make it recognize and follow around the service’s secretary, then Deborah Lee James, during a meeting. “We were told by the secretary of the Air Force, ‘Your tech is awesome, we should put it everywhere,’” he said. “No one followed up.” Neurala finally took a minority investment from a Chinese fund called Haiyin Capital as part of a $1.2 million round, Mr. Versace said. He did not disclose the size of Haiyin Capital’s commitment. Haiyin Capital is backed by a state-run Chinese company, Everbright Group, according to a statement from one of its subsidiaries. American military officials have “figured out a very good way to give $10 billion to Raytheon,” he said. “But to give a start-up $1 million to develop a proof of concept? That’s still very, very hard.” Late last year, a research firm called Defense Group Inc. argued in a report prepared for Congress that the Neurala investment could give China access to the company’s underlying technologies. It also said the deal could create enough uncertainty that American officials would steer clear of Neurala’s technology, effectively wasting any American money that had gone into the firm. Mr. Versace of Neurala said the company took pains to ensure that the Chinese investor had no access to its source code or other important technological information. To address concerns that it was not tapping innovations from start-ups, the Pentagon in 2015 set up a group called Defense Innovation Unit Experimental to enable investments into promising new companies. While at first it struggled, in 2016 it helped carry off a barrage of deals. The unit also prepared the white paper. In May 2015, Haiyin Capital also invested an amount it did not disclose in XCOR Aerospace, a Mojave, Calif., commercial space-travel company that makes spacecraft and engines and has worked with NASA. XCOR did not respond to requests for comment. In an interview in Chinese media, Haiyin Capital’s founder, Yuquan Wang, said that part of its goal is to build Chinese industrial capabilities and that it can be hard to get space technology into China because of American export controls. About the fund’s investments, Mr. Wang said, “We strive to get a portion of research and development moved back to China so that we can avoid China being only a low-end manufacturer.” Haiyin Capital did not respond to a request for comment. Quanergy, a company that works on the light-detecting sensors used in driverless cars, raised financing last summer that included funds from the partly state-backed Chinese venture fund GP Capital. A few days later, Quanergy purchased people-tracking software from Raytheon for an undisclosed amount. Alongside a wide array of commercial technology, it makes sensors for military driverless vehicles and a security system billed as “the most complete and intelligent 3-D perimeter fencing and intrusion-detection system.” Quanergy did not respond to requests for comment. Its investors also include foreign automakers and South Korea’s Samsung. Chinese investors have also made a push in another industry, flexible electronics. The technology, which the National Research Council has said is a priority for the American military, can help make electronics lighter and easier to attach to anything from a uniform to an airplane. In 2016, a Silicon Valley start-up called Kateeva that makes machines that print flexible screens raised $88 million from a group of Chinese investors. Three took board seats, including Redview Capital, a spinoff of a firm run by the former Chinese premier Wen Jiabao’s son, Wen Yunsong. Kateeva’s chief executive, Alain Harrus, said that while investors in Silicon Valley had begun looking more at hardware companies, raising big rounds for capital-intensive technology can be tough. Kateeva ultimately raised money where its customers were, in China and South Korea. Mr. Harrus said he believed more should be done in America to figure out the best way to nurture and fund core next-generation technologies. Ken Wilcox, chairman emeritus of Silicon Valley Bank, said in the past six months he had been approached by three different Chinese state-owned enterprises about being their agent in Northern California to buy technology, though he declined. “In all three cases they said they had a mandate from Beijing, and they had no idea what they wanted to buy,” he said. “It was just any and all tech.” Follow Paul Mozur and Jane Perlez on Twitter @paulmozurand @JanePerlez. Cecilia Kang contributed reporting from Washington. Correction: April 20, 2017, Thursday This article has been revised to reflect the following correction: An article on March 23 about Chinese firms’ investments in United States companies specializing in technology with potential military applications referred incorrectly to entities that invested $9.9 billion in Silicon Valley tech start-ups in 2015. Chinese companies participated in funding rounds worth that amount; Chinese investors did not make up the total $9.9 billion. PHOTOS: Neurala, a Boston start-up that makes robots and drones, got little response from the American military when it needed money. But it landed an investment from a state-run Chinese company. (PHOTOGRAPHS BY KAYANA SZYMCZAK FOR THE NEW YORK TIMES) (B1); Neurala’s chief executive, Max Versace, above. Haiyin Capital, a Chinese fund, has invested in Neurala as well as XCOR Aerospace, a Mojave, Calif., commercial space-travel company that makes spacecraft, left, and engines and has worked with NASA. (PHOTOGRAPHS BY KAYANA SZYMCZAK FOR THE NEW YORK TIMES; XCOR AEROSPACE, VIA PR NEWSWIRE) (B2) Related Articles Plan for $10 Billion Chip Plant Shows China’s Growing Pull Rush of Chinese Investment in Europe’s High-Tech Firms Is Raising Eyebrows Concern Grows in U.S. Over China’s Drive to Make Chips Load-Date: April 21, 2017 End of Document Entanglements, Quantum and Otherwise The New York Times

### Document 542

President Trump is expected to sign an executive order on Monday meant to spur the development and regulation of artificial intelligence, technology that many experts believe will define the future of everything from consumer products to health care to warfare. A.I. experts across industry, academia and government have long called on the Trump administration to make the development of artificial intelligence a major priority. Last spring, worried that the United States was not keeping pace with China and other countries, Jim Mattis, then the defense secretary, sent a memo to the White House imploring the president to create a national strategy on A.I. Now, Mr. Trump is about to take that step, though this ''American A.I. Initiative'' may not be as bold as some had hoped. The executive order aims to better educate workers in the field, improve access to the cloud computing services and data needed to build A.I. systems, and promote cooperation with foreign powers, a senior administration official said on a conference call with reporters on Sunday. But the order does not set aside funds for A.I. research and development, and the administration provided few details on how it will put its new policies into effect. The United States is engaged in an increasingly bitter trade war with China. And while American companies like Google and Amazon are now leaders in the field, A.I. experts are concerned that China could surpass the United States in the development of technologies that will power surveillance systems and autonomous weapons as well as driverless cars and a wide range of internet services. In July 2017, Chinese unveiled a plan to become the world leader in A.I., aiming to create an industry worth $150 billion to its economy by 2030, and two Chinese cities promised to invest $7 billion in the effort. Other governments, too, began making large investments, including South Korea, Britain, France and Canada. In the United States, the Defense Department has accelerated efforts to embrace A.I., shifting $75 million of its annual budget to a new office that will develop these technologies. Other government agencies also have major projects in the works. But many A.I. experts have worried that the top talent in the United States is moving to companies like Google and Amazon and away from government agencies. Last year, these concerns increased when Google pulled out of a project to build A.I for the Pentagon after employees protested that the technology they were working on could be used for lethal purposes. Companies like Google are also expanding their operations in countries like China, France and Canada, as the A.I. talent in those countries continues to expand. In its briefing with reporters, the administration said it would increase efforts to educate American workers in the field. It plans to work with the National Council for the American Worker to create educational efforts through industry and academia, and it will call on government agencies to develop fellowships related to A.I. But the senior official did not provide specifics on how the United States will track the progress of these efforts. https : // www.nytimes.com/2019/02/11/business/trump-artificial-intelligence-executive-order.html Graphic PHOTO: Two robots powered by artificial intelligence on display at the World Internet Conference, China's big tech conference, in Wuzhen last fall. (PHOTOGRAPH BY JONATHAN BROWNING FOR THE NEW YORK TIMES) Load-Date: February 11, 2019 End of Document New York City Tries Therapy for Teens The New York Times

### Document 439

Experts are still assessing how China apparently leapfrogged ahead in its effort to manufacture a semiconductor that rivals those made in Taiwan, which supplies both China and the West. In the weeks before the House and the Senate ended 13 months of arguments and passed the $280 billion CHIPS and Science Act, China's main, state-supported chip maker cleared a major technological hurdle that delivered a bit of a shock to the world. Experts are still assessing how China apparently leapfrogged ahead in its effort to manufacture a semiconductor whose circuits are of such tiny dimensions -- about 10,000 times thinner than a human hair -- that they rival those made in Taiwan, which supplies both China and the West. The Biden administration has gone to extraordinary lengths to keep the highly specialized equipment to make those chips out of Chinese hands, because progress in chip manufacturing is now scrutinized as a way to define national power -- much the same way nuclear tests or precision-guided missiles were during a previous cold war. No one yet knows whether China can exploit the breakthrough on a large scale; that may take years. But one lesson seemed clear: While Congress debated and amended and argued over whether and how to support American chip makers and a broad range of research in other technologies -- from advanced batteries to robotics and quantum computing -- China was surging ahead, betting it would take Washington years to get its act together. ''Our Congress is working at political speed,'' said Eric Schmidt, the former Google chief executive who went on to lead the National Security Commission on Artificial Intelligence, which warned last year of the huge dangers of falling far behind in a ''foundational'' technology like advanced semiconductor manufacturing in a world of vulnerable supply chains. ''The Chinese government is working at commercial speed.'' In China, the drive to catch up and manufacture the most advanced chips is part of the ''Made in China 2025'' program. That effort began in 2015. While few in Congress want to concede the point, the technologies that the United States will be funding when President Biden signs the bill, as he promised to do on Thursday, largely replicate the Chinese list. It is classic industrial policy, though leaders in both parties are avoiding the term. The words convey a sense of state-controlled planning that is antithetical to most Republicans and showers direct support and tax credits on some of America's largest companies, which makes some Democrats shake with anger. But 2025 isn't very far away, meaning the money will just get flowing while Chinese and other competitors move on to their next set of goals. Meanwhile, the American semiconductor industry has withered, to the point where none of the most advanced chips are made in the United States, even though the fundamental technology was born here and gave Silicon Valley its name. None of this means American competitiveness is doomed. Just as Japan once seemed as if it was the 10-foot-tall technological giant in the late 1980s and early 1990s, but then missed some of the biggest breakthroughs in mobile computing and Windows operating systems and even chip-making, China is discovering that money alone does not guarantee technological dominance. But it helps. It has taken Congress far longer to come to the same conclusion. Still, China has turned out to be one of the few issues on which Republicans and Democrats can come together -- the bill passed the House 243 to 187, with one abstention, on Thursday. Twenty-four Republicans voted in favor, notable because G.O.P. leaders were urging their members to oppose the bill after the Senate majority leader, Chuck Schumer of New York, and Senator Joe Manchin III of West Virginia announced a surprise deal on climate, energy and taxes on Wednesday. China immediately denounced the bill as an isolationist move by Americans intent on freeing themselves from dependence on foreign technology -- a strategy called ''decoupling'' that China itself is trying to replicate. The Chinese Foreign Ministry spokesman, Zhao Lijian, told reporters in Beijing that ''no restriction or suppression will hold back'' Chinese progress, a clear reference to the American and European efforts to deny China the technology that would speed its technological independence. But the big question is whether Congress's slowness to wake up to America's competitive shortcomings has doomed the effort. While Mr. Biden and lawmakers tried to build support for the bill by describing the chips found in everything from refrigerators to thermostats to cars as the ''oil'' of the 21st century, the phrase was already hackneyed three decades ago. In the late 1980s, Andrew S. Grove, one of the pioneers of Silicon Valley and an early leader of Intel Corporation, warned of the danger of the United States becoming a ''techno-colony'' of Japan. The Taiwan Semiconductor Manufacturing Company produces roughly 90 percent of the most advanced semiconductors. It sells them to both China and the United States. And while Taiwan Semiconductor and Samsung are building new manufacturing facilities in the United States, responding to political pressure to address American supply-chain worries, the net result will be that only a single-digit percentage of its production will be on American soil. ''Our dependence on Taiwan for the sophisticated chips is untenable and unsafe,'' the commerce secretary, Gina Raimondo, noted last week at the Aspen Security Forum. With demand for more sophisticated chips growing -- every new generation of cars requires more and more semiconductors -- ''we don't have enough domestic supply.'' The bill's $52 billion in federal subsidies, she argued, would be bolstered by private money and turn into ''hundreds of billions'' in investments. She was essentially using the argument that the federal government has long used to justify incentives to defense contractors. Politicians knew that underwriting risky new spy satellite technology, or stealthy drones, was an easier sell in Congress if described as critical defense spending instead of industrial policy. But now the logic is turned on its head. What the defense contractors need is the most advanced commercial chips -- not only for F-35s, but for artificial intelligence systems that one day may change the nature of the battlefield. The old distinctions between military and commercial technology have largely eroded. That is why, to get the bill through, the administration even brought Defense Secretary Lloyd J. Austin III into the pressure campaign, arguing that he couldn't rely on foreign suppliers for the weapons of the future. The bill's authors say that while they are late to the task of rebuilding the industry, starting today is better than continuing to watch the American lead erode. Senator Todd Young said that while China's recent advance was ''sobering,'' he didn't think there was ''anyone that can out-innovate the United States of America if we mobilize our many resources.'' America's other advantage is ''our relationships, economic and geopolitical, with other countries,'' said Mr. Young, an Indiana Republican. ''China has no friends; they have vassal states.'' Innovation has been an American strong suit; the microprocessor was invented here. But time and again, the American vulnerability is in manufacturing. And China isn't the only competitor. To extract cash out of Congress, Intel and others noted that Germany and other allies were trying to lure it to build ''fabs'' -- the airtight, spotless manufacturing centers for chips -- on their own territory. But in the end it was China that drove the votes. One of the first assessments of the new Chinese chip, made by Semiconductor Manufacturing International Corporation, came from researchers at a firm called TechInsights. After reverse-engineering the Chinese-made chip, they concluded that it used circuitry that was only seven nanometers wide. As recently as 2020, Chinese manufacturers had struggled to get below 40 nanometers. Experts say the chip, made for mining cryptocurrency, may have been based on, or stolen from, Taiwan Semiconductor. For now, Taiwan Semiconductor remains the most important single manufacturer in the world, and its sprawling facilities near Taipei may be the island's greatest protection against invasion. China can't afford to risk its destruction. And the United States can't afford for it to be destroyed. But that delicate balance won't last forever. So China has both a commercial and a geopolitical motive to make the world's fastest chips, and the United States has a competitive motive to keep Beijing from getting the technology to do so. It is the ultimate 21st-century arms race. In the old Cold War, the one against the Soviet Union a generation ago, ''the government could afford to sit on the sidelines'' and hope private industry would invest, Mr. Schumer said on Wednesday. Now, he said, ''we can't afford to sit on the sidelines.'' Catie Edmondson contributed reporting.Catie Edmondson contributed reporting. https : // www.nytimes.com/2022/07/28/us/politics/us-china-semiconductors.html Graphic PHOTO: The Semiconductor Manufacturing International Corporation booth at the China International Semiconductor Expo in Shanghai in 2020. (PHOTOGRAPH BY Aly Song/Reuters FOR THE NEW YORK TIMES) Load-Date: July 29, 2022 End of Document Why China’s Shrinking Population Is Cause for Alarm The New York Times

### Document 473

The Commerce and Treasury Departments put new restrictions on an array of companies and institutions that they said were misusing biotechnology. WASHINGTON -- The Biden administration said on Thursday that it would put limits on doing business with a group of Chinese companies and institutions it says are involved in misusing biotechnology to surveil and repress Muslim minorities in China and advancing Beijing's military programs. In announcing one set of the moves, Commerce Secretary Gina Raimondo said China was employing biotechnology and medical innovation ''to pursue control over its people and its repression of members of ethnic and religious minority groups.'' The administration said those efforts included the use of biometric facial recognition and large-scale genetic testing of residents 12 to 65 in the mostly Muslim region of Xinjiang. China has used such technology to track and control the Uyghurs, a predominately Muslim ethnic group. In a separate move, Facebook -- now called Meta -- warned 50,000 users that they may have been the targets of surveillance software, largely by firms that were working for nation-states, and some working for private clients. The company announced that it was banning from its social media sites seven commercial surveillance-for-hire services that target journalists, dissidents and human rights activists. One of the organizations is based in China, but several were Israeli. Last month, the United States put Israel's best-known maker of surveillance software, the NSO Group, on the Commerce Department's ''entities list,'' banning U.S. companies from selling technology to it and throwing the firm's financial survival into doubt. In its announcement on Thursday, the Biden administration said Beijing was using advances in biotechnology to drive forward its military modernization. A senior administration official called out China's work to edit human genes for performance enhancement and create ways for human brains to connect more directly to machines. In a coordinated action, the Treasury Department moved to block Americans from investing in securities related to eight Chinese companies -- including the drone maker DJI -- that the United States says are involved in the surveillance and tracking of the Uyghur minority. DJI, the largest maker of consumer drones, is by far the most well-known of the companies targeted by the U.S. government on Thursday. A company spokesman declined to comment on the action, which was reported earlier by The Financial Times. When DJI was placed on the Commerce Department's entities list last year, the company said it had done nothing to justify the designation. The Treasury Department said the company provided drones to the Xinjiang Public Security Bureau, which used them to surveil Uyghurs. The department's announcement suggested that DJI sold the drones to the security bureau, much as it has sold drones to American law enforcement. The Commerce Department added 40 companies and institutions to its restricted entities list on Thursday, including China's Academy of Military Medical Sciences and 11 of its research institutes, which are involved in using biotechnology for military purposes. Being added to the list restricts foreign businesses from gaining access to U.S. technology or working with American companies. The companies that the department added to the list include Chinese companies that the U.S. government said were supporting Chinese military modernization, contrary to American national security. The department also added to its list seven Chinese companies and six more from Turkey, Georgia and Malaysia that it said were trying to supply U.S. technology to Iran, items that could support Tehran's conventional weapons and missile programs. ''We cannot allow U.S. commodities, technologies, and software that support medical science and biotechnical innovation to be diverted toward uses contrary to U.S. national security,'' Ms. Raimondo said. The moves by the administration came after a report issued in the fall by the National Counterintelligence and Security Center, which highlighted China's advances in biotechnology and the country's misuses of those capabilities. In February, the center warned in a bulletin to hospitals and health care companies that concerns about China exploiting health care data ''are not hypothetical.'' Beijing, the bulletin said, ''has a documented history of exploiting DNA for genetic surveillance and societal control of minority populations in Xinjiang.'' Last year, the Commerce Department added 11 other companies involved in providing genetic analysis of Uyghurs to Beijing. That action included subsidiaries of the Chinese company BGI Group, which had developed a neonatal test in partnership with China's military that gave it access to the genetic data of millions of people around the world. Building on those actions, the Biden administration has been putting pressure on Chinese companies involved in key technology sectors including biotechnology, artificial intelligence and autonomous drones. It also placed SenseTime, a large artificial intelligence firm, on the entities list, forcing the Chinese company to change its plans for an initial public offering. SenseTime's technology is being used in the facial recognition of Uyghurs, U.S. government officials said. On Thursday, senior administration officials said the U.S. government was working to try to slow or stop the misuse of new technologies that undermine national security by denying China access to American capital markets and by trying to restrict its ability to use technology developed by U.S. companies. American intelligence officials say China and the United States are in a biotechnology race, and the country that develops the best technology will have a global advantage. Biotechnology advances are considered vital for battling future pandemics and developing cures or treatments for a variety of ailments. But American officials have said the technology is ripe for abuse, misuse and unethical behavior. The Chinese government had not been as constrained by international norms as the United States and its allies. In addition to using the technology to control its population, Chinese government researchers have shown willingness to manipulate human genetics in a way American academics would find unethical, according to American officials. In its announcement, Meta said a seven-month investigation had concluded that Facebook and Instagram accounts had been used to identify targets for surveillance and build online relationships with them that helped with the installation of surveillance software. Many of the targets were human rights workers or dissidents, but others were journalists and potential political adversaries. Meta said it removed about 100 Facebook and Instagram accounts linked to ''an unidentified entity in China'' that was making surveillance software aimed at Apple and Android phones, and computers that ran Windows and Mac OS X, among other operating systems. Among the seven companies Meta said it was banning from its services was one called Cytrox, believed to be based in North Macedonia, which Meta said had been hired for work in countries allied with the United States -- including Saudi Arabia, Oman, Germany and the Philippines. The statement left unclear whether the firm's clients were states, companies or private citizens. Meta also said it removed 300 Facebook and Instagram accounts belonging to Black Cube, another Israeli-based firm with offices around Europe. The company is known for ''social engineering,'' essentially working to gain the trust of a target for intelligence gathering. The report said the company ''operated fictitious personas tailored for its targets,'' with some posing as graduate students, human right workers, or film or television producers. They would then set up calls and get personal email addresses in an effort to get targets to click on links that put the surveillance software on their devices. ''There is an entire shadow industry out there that operates around the world,'' said Nathaniel Gleicher, Meta's head of security policy. ''People focus on how they exploit vulnerabilities, but it's the deceptive things they do leading up to that exploitation which we also have to expose.'' Ana Swanson and David E. Sanger contributed reporting.Ana Swanson and David E. Sanger contributed reporting. https : // www.nytimes.com/2021/12/16/us/politics/us-china-biotech-muslim-minorities.html Graphic PHOTO: The Great Hall of the People alongside Tiananmen Square in Beijing. The Biden administration said China was using advances in biotechnology to drive forward its military modernization. (PHOTOGRAPH BY Roman Pilipey/EPA, via Shutterstock FOR THE NEW YORK TIMES) Load-Date: December 17, 2021 End of Document Creators Lead Data Rebellion To Protest A.I. The New York Times

### Document 463

Industrial policy is back in Washington, as a vast semiconductor and science bill gives the government new sway over a strategic industry. WASHINGTON -- Amid a global semiconductor shortage, and as lawmakers dithered over a bill to boost U.S.-based chip manufacturing, Intel went to the Biden administration with a proposal that some officials found deeply alarming. Intel told Commerce Department officials that it was considering expanding its manufacturing capacity for chips by taking over an abandoned factory in Chengdu, China. The new facility, the company said, could help ease a global chip crunch that was shuttering car and electronics factories and beginning to fuel inflation. Intel ultimately shelved the plan. But for lawmakers and the administration it became a vivid example of the need to pass legislation aimed at luring the global chip industry back to the United States. It was also an argument for giving the federal government significant influence over the industry, according to lawmakers, congressional aides and administration officials, many of whom requested anonymity to discuss private deliberations. The sprawling bill that Congress finally passed last week, the CHIPS and Science Act, gives the federal government a primary role in deciding which chip makers will benefit from the legislation's funding. The bill contains $52 billion in subsidies and tax credits for any global chip manufacturer that chooses to set up new or expand existing operations in the United States, along with more than $200 billion toward scientific research in areas like artificial intelligence, robotics and quantum computing. President Biden is expected to sign the bill into law on Tuesday. With concerns growing about China's economic and technological ambitions, the bill includes strict new guardrails for firms considering expanding into China. Chip manufacturers that want to take U.S. funding cannot make new, high-tech investments in China or other ''countries of concern'' for at least a decade -- unless they are producing lower-tech ''legacy chips'' destined only to serve the local market. The legislation will hand significant power over the private sector to the Commerce Department, which will choose which companies qualify for the money. Already the department has said it will give preference to companies that invest in research, new facilities and work force training, rather than those that engage in the kind of share buybacks that have been prevalent in recent years. ''This is not a blank check to these companies,'' Gina Raimondo, the secretary of commerce, said in an interview. ''There are a lot of strings attached and a lot of taxpayer protections.'' Ms. Raimondo's department also has the authority to review future company investments in China and to claw back funds from any firm that it deems to have broken its rules, as well as the ability to make certain updates to the rules for foreign investment as time goes by. To the bill's supporters, these provisions represent the benefits of big government spending. The new legislation will not only subsidize advanced research and manufacturing that has withered in the United States in recent decades but also give Washington a bigger role in writing the rules that shape cutting-edge industries globally. It's an embrace of industrial policy not seen in Washington for decades. Gary Hufbauer, a nonresident senior fellow at the Peterson Institute for International Economics who has surveyed U.S. industrial policy, said the bill was the most significant investment in industrial policy that the United States had made in at least 50 years. American politicians of both parties have long hailed the economic power of free markets and free trade while emphasizing the dangers and inefficiencies of government interference. Republicans, and some Democrats, argued that the government was a poor arbiter of winners and losers in business, and that its interference in the private market was, at best, wasteful and often destructive. But China's increasing dominance of key global supply chains, like those for rare earth metals, solar panels and certain pharmaceuticals, has generated new support among both Republicans and Democrats for the government to nurture strategic industries. South Korea, Japan, the European Union and other governments have outlined aggressive plans to woo semiconductor factories. And the production of many advanced semiconductors in Taiwan, which is increasingly under risk of invasion, has become for many an untenable security threat. Semiconductors are necessary to power other key technologies, including quantum computing, the internet of things, artificial intelligence and fighter jets, as well as mundane items like cars, computers and coffee makers. ''The question really needs to move from why do we pursue an industrial strategy to how do we pursue one,'' Brian Deese, the director of the National Economic Council, said in an interview. ''This will allow us to really shape the rules of where the most cutting-edge innovation happens.'' Disruptions in the supply chains for essential goods during the pandemic have added to the sense of urgency to stop American manufacturing from flowing overseas. That includes semiconductors, where the U.S. share of global manufacturing fell to 12 percent in 2020 from 37 percent in 1990, according to the Semiconductor Industry Association. China's share of manufacturing rose to 15 percent from almost nothing in the same time period. Senator Todd Young, a Republican from Indiana and one of the bill's key architects in the Senate, called it ''an important sea change in our public policies.'' ''It's really important not only to our national security but to our economic security and our very way of life that we have effective and at times energetic government,'' he added. Major chip manufacturers, including Intel, GlobalFoundries, Taiwan Semiconductor Manufacturing Company and Samsung, have already suggested they may apply for funding to build or expand U.S. facilities. While Intel declined to say why it had opted not to invest in China, Bruce Andrews, the firm's chief government affairs officer, said the company had made a historic commitment to invest in the United States and had a light manufacturing footprint in China. The incident with the Biden administration was reported earlier by Bloomberg. ''We are in a globally competitive market where China is 50 percent of the world's semiconductor market, so we are working hard to be the world's semiconductor leader,'' Mr. Andrews said. The bill still has plenty of critics. In focusing its restrictions on newer generations of semiconductors, the legislation could leave the door open for China to dominate the production of older chips that are used in cars and other consumer products. Some Republicans, like Senator Marco Rubio of Florida, say the guardrails aren't strong enough to prevent U.S. technology from leaking to China. Some Democrats and their allies, like Senator Bernie Sanders of Vermont, describe it as a corporate giveaway. But others say the law will restore the type of government leadership that fueled the creation of the internet, space exploration and the beginnings of the semiconductor industry itself. Lindsay Gorman, the senior fellow for emerging technologies at the German Marshall Fund's Alliance for Securing Democracy, said the bill would put the United States on a more even footing with China, which has spent vast amounts to subsidize its industries. ''We've taken our innovation advantages for granted,'' she said, adding that ''there's nothing like a dedicated competitor to snap us into action.'' China has long lagged behind in the chip industry, but it is catching up fast, thanks to a state-backed chip fund and five-year plans that channel vast resources toward key sectors of the economy. Beijing has also traditionally used a variety of levers to tempt or coerce foreign companies into transferring intellectual property to Chinese partners -- something that the bill's limits on Chinese investment aim to counter. ''You're not competitive when you give your biggest adversary a 24-mile lead in a marathon,'' said Bonnie Glick, the director of the Krach Institute for Tech Diplomacy at Purdue. ''That's the danger of leaving loopholes open to the P.R.C.,'' she said, referring to the People's Republic of China. It remains to be seen how efficiently the U.S. funds will be spent. The disbursement of tens of billions of dollars in the coming years is likely to raise many questions about how those investments are allocated. And it may touch off more jostling among semiconductor companies that spent more than $20 million on lobbying in the first half of this year alone, according to their disclosures. The 10-year ban on investments in more cutting-edge facilities in China has been particularly controversial, with firms arguing that it would make them less competitive globally and ultimately set the United States back in a race against Chinese competitors. While the chip industry championed the bill in public, in private its representatives peppered lawmakers and administration officials with phone calls and text messages to try to influence the restrictions. In an interview, Senator Chuck Schumer of New York, the majority leader, said that the chip companies had fought the guardrails, but that lawmakers had been able to reach compromises with them. ''We felt to do all this investment here and then let China get the benefit because the companies take either their IP or their jobs or their factories to China made no sense,'' he said. ''This is also a real sea change,'' he added. Catie Edmondson and Don Clark contributed reporting.Catie Edmondson and Don Clark contributed reporting. https : // www.nytimes.com/2022/08/03/business/economy/chip-industry-congress.html Graphic PHOTO: The site of a future Intel factory in Chandler, Ariz. Intel shelved a plan to expand its manufacturing capacity in China. (PHOTOGRAPH BY PHILIP CHEUNG FOR THE NEW YORK TIMES) (B4) Load-Date: August 4, 2022 End of Document Researchers Offer New Tool to Detect Doctored Images The New York Times

## Topic 5

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Bernie broke through about Biden. The thing that the reason that Biden is the front runner and the reason that people see this levy of him, every question he was able to bring a background of jobs. The climate peace. I mean, I worked with him on climate in the White House. He's talked about climate from the point of view of working folks, of working folks' needs. That type of stuff maybe for us and who cares. For a lot of people at home they want to hear that. And so, I just want, listen, we have beat the crap out of Biden after every debate. He deserves a lot more credit tonight. DANA BASH, CNN CHIEF POLITICAL CORRESPONDENT: And can I just, on that, you mentioned the moment which was really extraordinary. Towards the beginning when he talked about the fact that he's had obvious incoming from the president against him and against his son. As proof that he can go head to head with the president. But he also of course has to win the nomination first. And towards the end that moment with Bernie Sanders was not just, you know, telling him let me interrupt. It was on the substance of one of the most important questions. Which is how are you going to pay for everything and is it realistic? Which is the kind of argument that Senator Klobuchar makes. That Pete Buttigieg makes in the very big divide, the philosophical divide that is this field. CHRIS CUOMO, CNN HOST: Right. BASH: And he did it more clearly with more strength in a more cogent way within that moment with Bernie than I've ever heard. CUOMO: Well, two things. First of all, it should be known that Amy Klobuchar is getting a lot more attention from the media than I've seen in debates past. JONES: Yes. BASH: Right. Right. CUOMO: She's not the only candidate in the room right now. So, obviously her performance tonight is resonating. Two, Axe, I asked this question for a reason. I'm not to disrespect Democrats with the comparing it dead batman into a man with a stick. DAVID AXELROD, CNN SENIOR POLITICAL COMMENTATOR: Yes. CUOMO: But you're not having this debate with the president of the United States. AXELROD: Right. CUOMO: It's not going to go this way. AXELROD: Yes. CUOMO: And at some point, I know you have to impress the party. (CROSSTALK) GLORIA BORGER, CNN POLITICAL ANALYST: They have to go through this. They have to go through this. CUOMO: But you have to start seeing the kinds of things that will allow you -- (CROSSTALK) AXELROD: Chris, let me assure you this. CUOMO: -- to win on that stage. AXELROD: Let me assure you this. You have a lot of smart people around these candidates they do a lot of research. And they really probe to see what kinds of messages are going to resonate with voters. And if they thought that the way forward here to distinguish themselves was to go sort of scorched earth against the president, they would have done it. I mean, I think they were reading the electorate. And I think that it is baked in the cake the Democrats deeply, deeply dislike Donald Trump and want to beat him. And so, but they need to distinguish themselves from each other. Each of them will claim to -- (CROSSTALK) CUOMO: And have a message that touches a little bit of the disaffection -- AXELROD: Yes. CUOMO: -- that dismisses everything he does because they are worried about something bigger than his behavior. BORGER: Right. AXELROD: Yes. BORGER: And -- CUOMO: You got to touch that. AXELROD: No, no, you do. BORGER: Well they did. But they all did it at the beginning when they were talking about impeachment and they were given an opportunity to do that. And to essentially get it out of the way before they started discussing -- (CROSSTALK) AXELROD: The thing about -- BORGER: -- their differences with each other. But -- AXELROD: I'm sorry. Go ahead. BORGER: No. But they want it to, you know, get that out of the way. Discuss their -- discuss -- and then go into their differences. I just wanted to, if you want to add to that, that's fine. I just want to switch to Bernie Sanders. So, I'll let you go and do that. (CROSSTALK) AXELROD: Yes. Before you do, because we should do that. BORGER: OK. AXELROD: But the thing about Joe Biden and the reason why there is a sense that maybe he could be the guy who beats Trump and the reason Trump obviously feels that way because he bought an impeachment trying to retard Biden's progress is that he is culturally akin to many of these disaffected voters. BORGER: Sure. AXELROD: You're talking about he's an establishment figure but culturally he comes from a different place. And he can speak to the voters in the -- (CROSSTALK) CUOMO: And he's talking about spending less money. BASH: Right. CUOMO: I mean, I know we all hear it all the time. (CROSSTALK) BASH: That was the -- CUOMO: Everything costs money that you're hearing from these Democrats. Is that what's going to resonate with people who feel -- (CROSSTALK) AXELROD: But he also talks about -- CUOMO: -- that they are giving too much a route. AXELROD: The dignity of this -- (CROSSTALK) CUOMO: Absolutely, he does. AXELROD: And I think a lot of Democrats are insensitive to the sense of estrangement that this -- (CROSSTALK) JONES: But Bernie is not. AXELROD: -- and disdain that these voters feel. BORGER: But Bernie Sanders -- CUOMO: Look, and the pivot on that is Bernie Sanders had been that candidate up until about -- (CROSSTALK) BORGER: And he's -- yes. CUOMO: -- three months ago where he gets the anger, he gets -- (CROSSTALK) BORGER: And he still does. And he still does. But the Medicare for all which has become the talking point of every moderate. Which is you can't pay for it. How are you going to pay for it? I still think it's a real problem for him. One thing I want to say about Bernie Sanders tonight who always by the way shows up and he's Bernie Sanders. He is. AXELROD: He's done pretty well in that. BORGER: The person you expect him to be. But we learned more about Bernie Sanders tonight. It was like his autobiography. He announced that he was proudly Jewish which was -- (CROSSTALK) CUOMO: Proudly Jewish. BORGER: Proudly Jewish. That he lived in Israel. (CROSSTALK) BASH: I've never heard him -- BORGER: That he lived in Israel -- (CROSSTALK) AXELROD: Well, he's sort of -- BORGER: -- before he said -- AXELROD: -- making a point about -- BORGER: Well, before he said, before he said you must be pro- Palestinian as good. JONES: It's good. BORGER: But this was Bernie -- and I sat there and I thought wow, Bernie Sanders offered some -- (CROSSTALK) AXELROD: I think we never talk about Bernie Sanders. He's actually doing pretty well in this polling. He's actually picked up and the fact is Bernie Sanders is as consistent -- (CROSSTALK) BORGER: Exactly. [23:05:02] AXELROD: -- as consistent can be. You know what he's going to say. I will say he's like a Billy Joel concert, you know, you hear the hits from the 80s, the 90s, the 2000s. Everybody knows the words and they sing along. But they love it and the (Inaudible) has got a very devoted following. (CROSSTALK) BORGER: And that's comforting. And that's comforting. BASH: But there is something -- there is something that's new. And I'm going to sing from Van Jones song sheet right now. And that is the ascendants, I wouldn't say, you know, very, very high but certainly enough to get him on this debate stage of Andrew Yang. Andrew Yang has very similar messaging. Not entirely. A very similar messaging on the forgotten man and woman to Bernie Sanders. But he does it in such a different kind of person -- (CROSSTALK) CUOMO: Dana and I experienced it firsthand. He was talking about the biggest industrial revolution, you know, right now our fourth industrial revolution. What it means for young people. AXELROD: Yes. BORGER: Right. CUOMO: What they need. And the cheap seats. JONES: Yes. CUOMO: Up top where the younger people were a lot of the students were loving it. BASH: Exactly. CUOMO: Yet Bernie breaks in because he realizes this is my lane. Says I want to go back and talk about the environment for a second. And they didn't like it. There were moans and groans. AXELROD: Andrew Yang is at third place among young votes. He is competing with Bernie Sanders for the vote. BASH: Yes. AXELROD: And the way he talks about the economy is actually different because of what you said. JONES: Right. AXELROD: Because his explanation for what's going on is a very contemporary one. CUOMO: And a private sector one. AXELROD: Yes. CUOMO: He has a real acumen of what works in the economy. (CROSSTALK) BASH: Absolutely. He does it with that but it's actually quite accessible. AXELROD: Yes. JONES: He is a threat to Pete in ways that I don't think we understand. He shows when Pete is telling. In other words, Pete tonight he got a little bit rattled. He was a little -- he was punching back Pete for a while. He did fight back. But he wasn't that optimistic happy warrior that he started with. He was a little bit more grim and determined. He needs to show that backbone but he was a little bit dower. Andrew Yang brought the light. He brought the joy, he brought the funny. But he also brought really, really fresh ideas. Watch what happens with him. People have underestimated him from the very beginning. I think that he's doing something very, very extraordinary. AXELROD: I think part of the difference -- (CROSSTALK) BORGER: Well, he's not -- he's not -- AXELROD: Go ahead. BORGER: He's not talking from talking points. JONES: Yes. BORGER: This is somebody who is clearly thought about things. Digested things. Written a book as he told us. It's now going to be in all our mailboxes. But he is somebody who didn't just run for president because he wanted to be famous. He had ideas. JONES: Ideas he's running on. BORGER: And he had beliefs. JONES: He has cause he's fighting for. BORGER: And he decided OK, I'm going to give it a shot and he's the one who seems to be the most surprised and he's a joyful warrior. JONES: Joyful. (CROSSTALK) AXELROD: He also mention he also speaks so I think authentically and movingly about his special needs' child. And I have a special needs child myself and I deeply, deeply appreciate it. CUOMO: That was a huge point. Because when Yang said today, I mean talk about sometimes things hit you even though we've been through this so many times, so many iterations as journalists. Where it hits you with your own personal experience. When he said hey, I don't know how many of you are in schools out there, but having special needs is the new normal in this country. AXELROD: Yes. CUOMO: Boy, if you have a kid in public or private school, do you know that that is the truth? That there's such an expanded understanding. But it hasn't been met by our cultural understanding and how we deal with education. He was on point about that. Now to the point that everybody seemed strong tonight, the mayor from South Bend had people coming at him in two directions. He had women candidates coming at him. And it was a test of how he deals with it. It's good to know. Let's see if it's the same magic of where I make the suggestion creates the candidate. And sure enough, here he is. Mayor Pete Buttigieg. MAYOR PETE BUTTIGIEG (D-FL), PRESIDENTIAL CANDIDATE: Good to be with you. CUOMO: So tonight, on that stage, we've been saying we think you guys were at your best tonight. BUTTIGIEG: Yes. CUOMO: Is that about less seats for you? Is that about you knowing who Mayor Pete the candidate is? To what do you ascribe strong great performance tonight. BUTTIGIEG: Well, it certainly feel like our campaign our message continues to get stronger as we go. And I think the contrasts among us are coming into focus as well. What you've got up there is a good faith contest among different ideas, different world views, different experiences. Each of us making the case for why what we bring would be the best. My focus of course is on making that we are capable of defeating Donald Trump so resoundingly that it puts an end not just to the Trump White House but to Trumpism. And realizing that this is by definition not just a contest for the nomination, it's a contest to be the president for the day after Trump. And focusing on policies that are going to solve the big problems. And do it in a way that can actually unify a frighteningly divided and polarized American people. CUOMO: So, let's shadow a couple of the swings that were taken at you tonight. Amy Klobuchar, fair criticism that part of the downside of your, look, I'm not part of this Washington, D.C. insider game is the criticism she made that you don't respect our collective experience enough. You haven't been here to do it that's why you don't understand it. Fair criticism? BUTTIGIEG: Well, I think the suggestion is that I don't understand the ways of Washington. Realities that I understand them, I just don't accept them. The American people are fed up with the way things are going in Washington. And I think we need to bring change. It might just be a good idea for that change to come from outside the beltway. [23:10:03] CUOMO: Her follow was he's smart, he's good. He doesn't win big enough. He won statewide. He didn't make it. He tried to be head of the party, he didn't make it. fair point? BUTTIGIEG: Well here's the beauty of caucus, primary and election process. The best way to settle the question of whether you can win is to win. CUOMO: Wine cave Pete. It's not the catchiest thing but it's working on Twitter right now. Let me play you a little sound for about that exchange. You take us through it from your perspective. BUTTIGIEG: Sure. (BEGIN VIDEO CLIP) SEN. ELIZABETH WARREN (D-MA), PRESIDENTIAL CANDIDATE: The mayor just recently had a fundraiser that was held in a wine cave full of crystals and served $900 a bottle wine. BUTTIGIEG: I'm literally the only person on the stage who is not a millionaire or a billionaire. Senator, your net worth is 100 times mine. Now supposing that you went home feeling the holiday spirit. I know this isn't likely but stay with me -- and decided to go on to Peteforamerica.com and give the maximum allowable by law, $2,800. Would that pollute my campaign because it came from a wealthy person? No. I would be glad to have that support. WARREN: I do not sell access to my time. BUTTIGIEG: Hold on a second. WARREN: I don't do call time, it's millionaires and billionaires -- (CROSSTALK) BUTTIGIEG: Sorry, as of when, Senator? Senator, your presidential campaign right now as we speak is funded in part by money you transferred having raised it at those exact same big-ticket fundraisers you now denounce. (END VIDEO CLIP) CUOMO: Now, you did your homework on this. BUTTIGIEG: Yes. CUOMO: You knew the record. You knew it was going to come at some point. It came tonight. But you can't -- it's not good enough to be in a who's worse situation. What is your take about money in your campaign and how you get it and what the truth is of the reality of politics? BUTTIGIEG: Well first of all, I'm the mayor of South Bend. That's not known as an establishment fundraising power house. I wouldn't be here if I hadn't worked a way to build grassroots support. We got the better part of a million individuals who have given to this campaign. And last time I check our average contribution was 32 bucks. But I'm not going to define my campaign about who we exclude or who we reject. This is a moment where we've got to bring together all of the resources that we can. Because I can tell you over on the other side, Donald Trump and his buddies they are not going to tie one hand behind their back. They've already put together over $300 million in order to keep their grip on power. They're just getting warmed up. So, we got to go to this with everything that we've got. And the problem with this purity test is they distract from the effort to make sure that all of us bring everything that we can to the ultimate goal which is to defeat Donald Trump and set up the era that's going to come next. CUOMO: All right. To the pros. Dana? BASH: Well, I'm just curious about your prep for this. Because you knew that you had the incoming. You knew that you were going to get attacked from all of these opponents. I think you thought it was going happen the last debate. This time it happened. And you were ready to go. I mean, did it feel different? Are we right about the fact that you clearly prepped in a big way for all of the -- and it's not just attack. BUTTIGIEG: Yes. BASH: It was the specifics from the fundraising to from Senator Warren to the fact that your experience is a, you know, very limited from Senator Klobuchar. BUTTIGIEG: So, I think the bottom line is when you're doing well, folks might attack you. But you've just got to be ready to respond. I want to make sure that when my campaign or my ideas are attacked, I defend them. And you know, I think it's an honest debate up there about different ideas, different approaches. But I did think it was important that we move past the purity test, especially if they're coming from folks who wouldn't be able to pass them themselves. BORGER: Well, when you said it was an honest debate, though. At one point you turn to Senator Warren and said, wait a minute, you're a millionaire and you're -- so, is she a hypocrite on this? BUTTIGIEG: Well, my point is demonizing donors because they're millionaires is a strange thing to hear from a Democratic millionaire. I don't fault her. I don't have anything against her for having become wealthy. I'm saying that you can't say that and then contend that your campaign is somehow corrupted if you ever get support from wealthy Democrats. CUOMO: Now the interesting thing here is, look, we all get the debate. We've heard it had, you know, for a generation and a half. I asked all of you guys the same question. When you were up there listening to it, do you guys think that you have your head on the fight that you're about to have when you get out of this. Of course, every party has purity tests, we've all seen it. You've come to the convention. There's got to be a move back to the center because you have to be competitive. This race is going to be different, Mr. Mayor. This man is the most judgment proof politician within his own party we've ever seen. BUTTIGIEG: Yes. CUOMO: He can say and do whatever he wants. He will lose no one. You will not have that advantage. You will not have Democrats behind you that way. Do you believe the Democrats are ready for the fight you or someone will be in? BUTTIGIEG: I think we know what we're up against. And so, I do believe that we cannot only rally Democrats together. But am meeting so many independents and a lot of folks who I'd like to think of this future former Republicans. They come up to me at events. I meet them all the time who would ordinarily vote Republican. [23:15:05] I'm not tricking them. They know that we disagree on quite a few things. But they know that the biggest thing we've got to do right now as a country is bring an end to the Trump presidency and restore some level of decently to the White House. CUOMO: Disagreement with decency was on display there tonight. Do you think you can do that opposite President Trump? BUTTIGIEG: Look, the reality is you can't deal with Trump by having some kind of equal and opposite energy. You've got to be able to absorb and redirect and change the energy he throws at you. If you're playing his game, if you're on his show, even when you're winning, you're losing by definition. And so, what is going to take is to bring at every turn. I mean, when he lies, we got to call it out. When he does some wrong, we got to confront it. CUOMO: When he bullies you. BUTTIGIEG: Yes, sure. You got to stand up for yourself. But you've got to deny him his signature quality which is the ability to change the subject. Because I believe every election is about this question. From a voter's perspective, how is my life going to be different if you are president instead of you? We have the better answers on that on issue after issue from wages to paid family leave to health. To even areas where my party has been on defense in the past like guns and immigration. The American people are with us. Which is exactly why he needs us talking not about their lives but about him. CUOMO: We're pointing out, Gloria pointed out, Dana pointed it out. Of course, the men were oblivious to it when you were each asked would you give a gift or ask for forgiveness. The women only said they'd ask for forgiveness. The rest of you were about the gifts. BUTTIGIEG: You know, I notice that too. BORGER: We did. BUTTIGIEG: And it's a -- I think there's an expect -- let me say this. Obviously, we, you know, we can each have our part in the debate, throw in elbow, defend ourselves. But no woman should ever have to apologize for being fired up. JONES: That's right. BUTTIGIEG: For being angry. Especially about what's going on right now. JONES: That's right. BUTTIGIEG: Or for getting hot under the collar. We all do. And it is very gendered. It's expected of men. As a matter of fact, it's probably the case as a male candidate that you'd be viewed as having something kind wrong with you if you didn't get hot enough under the collar. And one of the many effects we still have in sexism in our politics is quite likely a different set of expectations for female candidates and leaders. CUOMO: Well, you saw two great female leaders up there tonight holding their own setting pace some of the times. So certainly, you guys have that part of the mix. BUTTIGIEG: Women rights is what I'm actually going to say. CUOMO: Right. Don. Mr. Mayor, thank you very much. Best for the holidays you and your husband and your family. BUTTIGIEG: Thank you. CUOMO: We'll see you again soon. BUTTIGIEG: Thank you. CUOMO: Congratulations on tonight. BUTTIGIEG: Thanks very much. BORGER: Thank you. CUOMO: All right. Let's take a little bit of a break. We've been lucky here. We had two of the people who made very strong cases, and Senator Klobuchar and, of course, Mayor Buttigieg. We're going to take a breather. When we come back, we'll have more coverage live from Los Angeles. We're trying to choral the candidates and figure out what resonated tonight. So, stay with CNN. [23:20:00] CUOMO: All right. We're back here in Los Angeles with our continuing coverage of the sixth Democratic debate. It was strong tonight. There was disagreement with decency. Is that the winning message for Democrats? One of the people who certainly made gain today especially if you ask Van Jones but only because he wants to give himself credit for knowing that Andrew Yang would make a move. And now he joins us. Andrew Yang, thank you very much. So, your analysis. Fewer people up there is that the end of the analysis of why people seemed on their game tonight? Or do you think it's also finding your footing? ANDREW YANG (D), PRESIDENTIAL CANDIDATE: It was a different dynamic. I have to say seven is a lot more compacted than 10. And so, you felt like the ball was going to come to you pretty quickly each time. I certainly enjoyed this dynamic much more. CUOMO: Forget about better worse, smarter or less. Why do you think you speak about economics and movement of industry and evolution of industry in a different way than other people up there? YANG: Well, I spend seven years running a national non-profit that helped create thousands of jobs in primarily the Midwest and the south. So, doing that work led me to see firsthand the impact of automation in many of these communities. It's a little bit like if you want to try and convince some of the climate change you might bring them to a glacier in Alaska. If you want to convince some about the impact of automation you might bring them to Detroit or Cleveland or one of those cities. So, I did that work for seven years, plus I'm a numbers guy. And they numbers are staggering. I also understand technology much better than the other candidates, frankly. And technology is now transforming our economy in more and more powerful and fundamental ways. CUOMO: How do you deal with the fact that the reality of the tech sector of the private sector is often ahead of government? YANG: No. My gosh. CUOMO: But it's about you've got to speak their language. And you have to understand. Look, Schwarzenegger has a great quote on this. That he was used to getting things done in the private sector investing, moving and not just movies. He got in the government and he learned I've got to speak their language. I've got to build a coalition of where their heads are at on this or there is no progress. How do you do that? YANG: Well, we all know that D.C. is 25 years behind on technology. We literally got rid of the office of technology assessment in 1995. So, we have to play catch up as quickly as possible. Because with the rate of change you can't afford to be decades behind the curve. You might have been able to get away with that at earlier points in our history. But it's gone from being dangerous to disastrous very, very quickly. I believe I can help us play catch up. And when I sat with the technologists in Silicon Valley some of them said something to me that you would not expect. They said we actually need government regulation and government input on this because we're making these decisions that we should not be making. And one of them actually said that all of their incentives on artificial intelligence are going as fast as possible, and eventually they're going to do something deeply, deeply problematic if that's their incentive. CUOMO: Now I want to open it up to the floor of the better minds here. But two things I thought really stood out tonight. One is that you said something that's so true for parents. You have a kid who's on the autism spectrum, has special needs you said, but that's the new normal. Is that everybody seems to need something. Boy, that resonated with the room even with me has a kid -- with kids in lower school, middle school and high school. [23:24:58] But then you were ready. Of course, you were the only minority group represented, although you could really add women in that. You were ready for the question. You immediately turned it away from yourself in a way that was very non-normal for a politician. And you had statistics ready to telescope the issue into an argument about African-American, Latino and emerging. So, you knew it was coming. Why go that way? Let me play it in case people missed it at here. YANG: Sure. CUOMO: Here's what I'm talking about. (BEGIN VIDEO CLIP) YANG: It's both an honor and disappointment to be the lone candidate of color on the stage tonight. (APPLAUSE) YANG: I grew up the son of immigrants and I had many racial epithets used against me as a kid. But black and Latinos have something much more powerful working against them than words. They have numbers. The average net worth of a black household only 10 percent that of a white household. for Latinos it's 12 percent. These are the numbers that define race in our country. And the question is why am I the lone candidate of color on this stage? Fewer than 5 percent of Americans donate to political campaigns. You know what you need to donate to political campaigns? Disposable income. (APPLAUSE) YANG: The way we fix it -- the way we fix this is we take Martin Luther King's message of a guaranteed minimum income, a freedom dividend of $1,000 a month for all Americans. I guarantee if we had a freedom dividend of $1,000 a month, I would not be the only candidate of color on the stage tonight. (END VIDEO CLIP) CUOMO: The Yang gang in full effect in the cheap seats of the students. When you said that you were mothing (Ph) it up. Making America think harder. Why did you instead of doing what a lot of politicians would do which was kind of milk it. You know, about what it means about me and this is about me. And I'm an Asian-American and this is what about our way. You telescoped it. Why? YANG: Well, I would never put my experience growing up Asian-American and somehow frame that as representative of the experience of over 120 million Americans of color. Particularly because the Asian-American experience is distinct from the black experience and the Latino experience. And it was 100 percent natural for me to try and give that perspective. No one wants to hear a sob story about some Asian kid, you know, getting like picked on for being scrawny. I mean, frankly, like no one cares. And they shouldn't care. Maybe they should care a tiny bit. Because I've got two Asian kids who are also, you know, a little bit scrawny. CUOMO: Let's see whatever -- what's the rest of the floor have here? BASH: I actually do have a question. At the very beginning of the debate, the questions were about impeachment. And I spent time with you in Iowa last month. You mention this to me there and you said it again now and it's even more relevant. And that is the Democrats are spending way too much time on impeachment. Now that the president has been impeached and it's heading to the Senate for a trial do you still feel that way? YANG: I've been campaigning non-stop since we spent time together in Iowa. BASH: Yes. YANG: I can't even remember anyone asking me a question about impeachment. JONES: Right. YANG: Americans are not focused on this in the same way that the networks are. And to me, there's just a crucial number of zero. That's the number of Republicans that have signaled that they are going to cross party lines and you need 20 in the Senate. So, until that number becomes greater than zero, unfortunately, this does seems like a foregone conclusion. BASH: And it's -- and do you still think it's hurting your party and whomever the candidate who goes up against Trump will be? YANG: I was disappointed that I seem to have the lone difference of opinion up there where everyone else was signaling impeachment, impeachment. And when I talk to Americans a lot of them are saying look, I don't care as much about impeachment as the fact that I'm choosing between my drugs and my heating oil. Or that my kid is depressed. Like those are the issues that voters tell me that they are focused on rightfully so. BORGER: But you say -- you said you will have to stop being obsessed. Was the word you used. Obsessed over impeachment. Is that the media you're saying as obsessed as impeachment? I mean, this is the President of the United States who was impeached yesterday by the House. CUOMO: It's OK. They can take it. BORGER: Yes, you can, you know. YANG: No, no. Well, you can't blame a TV network for saying impeachment is -- (CROSSTALK) BORGER: No, no. YANG: -- like the news of the day like all the time. BORGER: Sure. YANG: Like -- and it is historic. As a candidate running for president, I need to be talking about things that are different from impeachment. BORGER: Do you think it will it affect votes of moderates who might vote Republican might vote Democrat. I mean, do you see it affecting -- (CROSSTALK) YANG: What I see it doing -- BORGER: -- the election? YANG: -- is reinforcing polarization. And it's also a missed opportunity for candidates to present a unifying vision of the country that can peel off people who are independent or disaffected Trump voters. AXELROD: So, Andrew, you're making a marketing argument. And you're making -- and it's a sensible one. But what do you do -- I mean, there's a constitutional argument as well. [23:30:00] And do you not pursue so blatant violations of the constitution on the oath of office, if you -- if there's not an interest among in the market for it? I mean, where do you draw the line? How do you make those judgments? ANDREW YANG, AMERICAN ENTREPRENEUR AND PHILANTHROPIST, 2020 U.S. PRESIDENTIAL CANDIDATE: I'm pro-impeachment. I think that, Nancy Pelosi did the right thing by moving it forward. I will -- would say that I would be much more excited about impeachment if they manage to wrangle a Republican or two, before they decided to leave the station. Because it is a very poor message to the country where you have -- virtually all the Democrats on one side and virtually all the Republicans on the other. But -- I agree that Democrats did the right thing by moving forward. VAN JONES, CNN POLITICAL COMMENTATOR: A lot of people are talking about impeachment. Nobody is talking about artificial intelligence and the actual national security threat that China's moving in that direction poses. Nobody is talking about putting real cash in people's pockets. People talking about jobs, people got a bunch of jobs and it ain't got no money. You were somebody who brought completely fresh thinking. Because you are so future focused. But you also have this grip on American history as well. And you're

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quote -- "hypnotizing the world." She has suggested that support for Israel in Congress is -- quote -- "all about the Benjamins," meaning all about campaign contributions. And then, most recently, she criticized lawmakers who support Israel as potentially having a -- quote -- "allegiance" to a foreign country. Is she an anti-Semite? CASTRO: Well, I was glad that she apologized. I don't believe that she's, in her heart, an anti-Semite. But I do believe that those comments gave life to some old tropes, biases against Jews as having dual loyalties or somehow dominating industries or politics with money. And so I was glad that she apologized. I'm also glad that the House is condemning bigotry. We have seen a rise in anti-Semitism over the last couple of years. We have also seen a rise in anti-Muslim hate and hate directed at others. But, yes, I'm glad that she apologized. I do think that it's fair, whether the country is Israel or a European country or a Latin American country, for people to criticize or to pick apart the policy that the United States is taking toward that country. But it should be done, I think, in a constructive way, and not in a way that gives rise to old tropes. TAPPER: So, you suggested that you support the House resolution which condemned anti-Semitism and other bigotry as well. There are Democrats who felt like that resolution was watered down by not focusing on anti-Semitism and not focusing on Congresswoman Omar's comments. Congressman Ted Deutch, a Democrat from Florida who's Jewish, voiced that concern. Take a listen. (BEGIN VIDEO CLIP) REP. TED DEUTCH (D), FLORIDA: Why are we unable to singularly condemn anti-Semitism? Why can't we call out anti-Semitism and show that we have learned the lessons of history? It feels like we're only able to call the use of anti-Semitic language by a colleague of ours, any colleague of ours, if we're addressing all forms of hatred. (END VIDEO CLIP) TAPPER: Do you think that House Democrats watered it down? Do you think it was something of a cop-out, as Congressman Deutch seems to? [09:05:04] CASTRO: No, I don't think so. I think that there was a lot of talk about anti-Semitism and the rise of it. I think that the vast majority of people in the Democratic Party recognize that anti-Semitism in the United States and also in places like Europe has been on the rise and that we need to combat that. I think, also, probably that this was impacted by the fact that Representative Omar apologized for this and said that she should have said that differently. My hope is that, apart from this resolution, that we're going to take action in this country to make sure that anti-Semitism and other types of bigotry are not given sustenance. And we have to recognize that we have a president who is dividing Americans along a lot of these lines. And I would like to see us united in trying to offer a different, more positive and inclusive vision for the future of this country. TAPPER: Let's turn to another issue on those lines. This is also dividing Democrats on the trail. You have said that there needs to be some kind of reparations to descendants of slaves to compensate for years of slavery and discrimination against African-Americans in this country. Take a listen to Bernie Sanders, one of your campaign rivals, at a CNN town hall when it was pointed out that you and Elizabeth Warren support some form of reparations. (BEGIN VIDEO CLIP) SEN. BERNIE SANDERS (I-VT), PRESIDENTIAL CANDIDATE: What do they mean? I'm not sure that anyone is very clear. What I have just said is that I think we must do everything that we can to address the massive level of disparity that exists in this country. (END VIDEO CLIP) TAPPER: So, what do you mean? Do you think that there should be actual monetary payments to descendants of slaves? Do you support more like what Senator Sanders is talking about, policies such as child care and education that help those who are disadvantaged? CASTRO: Well, what I said was that -- that I have long believed that this country should address slavery, the original sin of slavery, including by looking at reparations, and, if I'm president, that I'm going to appoint a commission or task force to determine the best way to do that. There's a tremendous amount of disagreement on how we would do that. But let me just say something about Senator Sanders' response there, because he was also asked this question in 2016. What he said on "The View," I think, the other day was that he didn't think the best way to address this was for the United States to write a check. To my mind, that may or may not be the best way to address it. However, it's interesting to me that, when it comes to Medicare for all, health care, the response there has been, we need to write a big check, that, when it comes to tuition-free or debt-free college, the answer has been, we need to write a big check. And so, if the issue is compensating the descendants of slaves, I don't think that the argument about writing a big check ought to be the argument that you make, if you're making an argument that a big check needs to be written for a whole bunch of other stuff. TAPPER: Hmm. Interesting. CASTRO: So, if, under the Constitution, we compensate people because we take their property, why wouldn't you compensate people who actually were property? TAPPER: Interesting. Very quickly, let's turn to the southern border. The Border Patrol says it has apprehended more than a quarter-million people in the last five months, almost double the number from last year. The number of families apprehended at the border is up by more than 300 percent from last year. Now, you have slammed President Trump for his immigration policy. What do you think needs to be done to deter all these families coming in, seeking asylum? Or do you think they should just be allowed to come in and seek asylum? CASTRO: Well, under international law and U.S. law, somebody has a right to present himself or herself at the border and to seek asylum. Also, Jake, this is a very important moment. You will remember that, last year, the administration said that they were taking little children away from their parents because they wanted to deter other families from coming to the United States. They said that, if we were cruel enough to just take these little children away from their families, that that would show all of these other families in Central America that they shouldn't come to the United States. And instead of deterring these families, we actually see more families coming. This is exhibit A in the grand failure of this administration on immigration. So, when people ask, what is the problem, one of the problems is that this administration has taken the wrong path. I think what we need to do in the long run really is to engage these Northern Triangle countries, Honduras, El Salvador, Guatemala, and figure out a way to work with them, so that people can find safety and prosperity there, instead of having to knock on the doorstep of the United States. [09:10:02] In the meantime, we ought to follow international law and our practice, which is to allow them to seek asylum when they present themselves. TAPPER: All right, very quickly, you know that you are only at 1 percent in our brand-new CNN... (CROSSTALK) CASTRO: Is that what I'm at? (LAUGHTER) TAPPER: ... CNN/"Des Moines Register" poll. CASTRO: Well, I don't even -- I don't even make the cutoff right now when you all put the graphic on. You got -- you could take it down to 1 percent, Jake, all right? (LAUGHTER) TAPPER: What do you need to do to get that number up? CASTRO: Yes. TAPPER: You have been running for president for a while now, obviously. I mean, your favorabilities went up a little bit, so it's not like it's having no effect. But what do you need to do to get out of single digits? CASTRO: Yes. So, my favorability over the last, I guess, month-and-a-half went up by six points. I got out to Iowa a couple of weeks ago. I'm articulating a strong, compelling vision for the future of this country, to make the country the smartest, the healthiest, the fairest and the most prosperous nation on Earth. I can tell that, as I spend time in Iowa, that I'm going to gain traction. And, as you know, if we were to look at any presidential cycle over the last 40 years, oftentimes, it's people that have started off at 3 percent, 1 percent, 2 percent, including Donald Trump, at one point was at 1 percent right before he announced, that can win the nomination. And so this is a long road, a long journey. And I'm going to go out there and make my case. TAPPER: We will see you out there. Good luck. CASTRO: Thanks a lot. TAPPER: Good luck on the trail, Secretary. He's the only Republican lawmaker to represent a district on the Mexico border. Does he see a crisis? Congressman Will Hurd, Republican of Texas, is here next. And those brand-new poll numbers from the state that sets the pace in the presidential race. Another 2020 contender is here to respond. Stay with us. [09:15:33] TAPPER: Welcome back to the STATE OF THE UNION. I'm Jake Tapper. We are live in Austin, Texas, at the South by Southwest Festival, where, tonight, three Democratic presidential candidates will take questions from voters at the CNN town halls. We are also about 225 miles from the border with Mexico. And, this week, the Senate could follow the House's lead and vote against the president's declaration of a national emergency, which would order funding to build a border wall. Joining me now is the only Republican lawmaker to represent a congressional district on the U.S.-Mexico border, Republican Congressman Will Hurd of Texas. Congressman, thanks so much for being here. We appreciate it. REP. WILL HURD (R), TEXAS: Pleasure to be on with you. And I think we're the only two people at South by Southwest wearing ties, just for the record. (LAUGHTER) TAPPER: I'm sorry. I'm sorry to force you to wear a tie. You have come out against the president's border wall. You know that there are new Customs and Border Protection numbers showing that the number of border apprehensions this fiscal year has almost doubled since last year, and that more and more of them are families. HURD: Right. TAPPER: Is this a crisis? HURD: We are absolutely dealing with a problem. There's no question. I think the president being focused on border security is important. Last year, 400,000 people came into the country illegally. We had $67 billion worth of illegal or narcotics coming into the -- into the country. What I have always said -- and I have been saying this since 2002 -- building a 30-foot-high concrete structure from sea to shining sea is the most expensive and least effective way to do border security. Guess what? The president agrees. He mentioned that on one of his last announcements from the Rose Garden. So, what we should be doing is focusing on technology, manpower, physical barriers where it makes sense. We have 654 miles of physical barriers on the border. This bill, the bipartisan bill that we passed three weeks ago, four weeks ago, has 88 more miles of physical barrier. That's going a lot in the Rio Grande Valley. TAPPER: You don't have a problem with that? HURD: Don't have a problem with that. I voted for those things. I have voted since I have been in Congress for $220 billion of funding. TAPPER: And you have 40 percent of the border in your district? HURD: About. TAPPER: Yes. HURD: I have -- I have 820 miles of the border. The border is about 1,995 miles. And so, ultimately, the issue with the use of the word -- word... TAPPER: Wall? HURD: Not wall, but emergency. TAPPER: Oh, OK. HURD: That gives the president certain powers that I believe gets -- is -- goes against what our Constitution has set. Congress, back before I was alive, gave this authority up that they have, the power of the purse, to the executive branch in times of emergency. I think we need to claw that back. TAPPER: So, many Republicans were very critical of the president's declaration of a national emergency, but only 13 House Republican, including you, voted against it, against the declaration of the national emergency. Why? Why such a disparity between those who talk about the Constitution and the rights of the Congress to set the funding and the actual putting their money where their mouth is? HURD: Well, you will have to ask them why they didn't do that. Here's why I voted for it, because I have multiple military bases in my district. And there's a plan to take about $4 billion away from construction at our military bases. I'm in Del Rio, which is on the border. Laughlin Air Force Base produces more pilots than any other facility in the United States of America. There are projects there that take care of the men and women that keep us safe that are going to be impacted. I don't want to see that happen. Also, we have, what, six months, seven months left in the fiscal year. It's going to be almost impossible to spend $8 billion from other areas. We had a bill that funded border security. We have done $220 billion over the last year. This is a problem. We need to be focusing on things like fixing asylum, because asylum is being abused for people coming here. That's why you're seeing an influx of some of the families. There's a lot of stuff. We should be -- we're at South by Southwest talking about technology. We should be using more technology. We're not using the latest and greatest technology. You can put what I call the smart wall along the border on all 2,000 miles in less than a year and gain operational control of the border, which means you know everything that is going back and forth across the border. TAPPER: So, you voted also for the resolution in the House condemning anti-Semitism and hate more broadly in the wake of those comments from Democratic Congresswoman Ilhan Omar. You're the only black Republican in the House. Nearly two dozen of your Republican colleagues voted against the resolution. A lot of them said they thought it was watered down, it wasn't strong enough. But you voted for it. Why were they wrong? HURD: Well, I don't think they were wrong. I voted for it because you shouldn't hate people, period, end of story. We learn that stuff in kindergarten. What I think many of my colleagues were doing in voting against it was lodging they're being upset about that this was watered down, it wasn't narrow. Had Republicans done that, then the entire Democratic Caucus would have gotten -- gone crazy and gotten upset about that. I think... [09:20:05] TAPPER: Well, to be -- to be fair, I mean, your caucus, the Republican Caucus, tolerated a lot of insanely bigoted comments from Congressman Steve King for more than a decade. HURD: Yes. But under new leadership, right, when -- what was the first thing that Kevin McCarthy did as the leader of the Republican Party? As soon as this happened, he's censured him, took him off his committees. The gentlewoman from Minnesota is still on the Foreign Affairs Committee. This was -- this was similar remarks. You know, we shouldn't hate people like this. This is 2019. The fact that the Democrats tripped up this week dealing with a resolution on condemning anti-Semitism is absolutely crazy. We should have been talking about, how are we going to make sure we're competitive in 5G against China? How are we going to make sure we're working on artificial intelligence and being the leader on these issues? TAPPER: Yes. HURD: But, instead, we're getting caught up by some of these -- by comments we know -- we should have learned in kindergarten you shouldn't hate people. TAPPER: So let's talk about artificial intelligence, because you're here at South by Southwest to talk about this and having a national strategy for artificial intelligence. You say the U.S. could be left behind on this. You're a former CIA officer. You're on the House Intelligence Committee. Explain why the American people should be concerned about this. What threat does artificial intelligence pose? HURD: It's the future. Vladimir Putin said whoever masters A.I. is going to master the world. I think this is the only thing he and I agree on. And the ability to manage people's data, the ability -- every industry is going to be impacted by artificial intelligence. In agriculture right now, we are learning how to grow more crops with less water, with less land, with less energy. We all know about autonomous driving cars. And this is going to be the future economy. And if we're not leading on that, China's going to. And that's going to impact our economy and that's going to impact our jobs. And we got to make sure that our young men and women, our sisters and brothers and sons and daughters and grandkids are ready for the future. And that's one of the things that we're working on up here. And these are one of the issues that I want to be talking about here in South by Southwest. TAPPER: Lastly, you have a famous -- or infamous -- that depends on your point of view, I suppose -- friendship with former Congressman Beto O'Rourke, who ran for Senate last year in Texas, and lost. If he were to become -- if he were to run for president and become the Democratic nominee, who would you vote for between Beto O'Rourke and Donald Trump? HURD: My plan is to vote for the Republican nominee, yes. TAPPER: So, you would vote for President Trump over Beto O'Rourke? HURD: It looks -- it's most likely that Donald Trump is the -- is the likely candidate, right. TAPPER: So, Trump over O'Rourke? HURD: That's very clear. (CROSSTALK) TAPPER: I'm pulling you to say the comment. HURD: Unless -- unless Beto O'Rourke decides to run as a Republican, which I don't think he's planning on doing. TAPPER: All right, Congressman Will Hurd, thank you so much for being here. We really appreciate it. Our next guest is a 2020 candidate building his campaign on a single issue, one that President Trump falsely says doesn't even exist, Governor Jay Inslee of Washington responds to that next. Stay with us. [09:27:10] TAPPER: Welcome back. We're live in Austin, Texas, at the South by Southwest festival, where, tonight, my colleague Dana Bash and I will be moderating town halls with three Democratic presidential candidates. And since we're talking 2020, here come the governors. Two of them just joined the race, hoping to follow a time-honored tradition of moving from the statehouse -- the state capital, rather, to the White House. One of them is trying to make a single issue, climate change, define his campaign and, in fact, the race in 2020. That candidate is Washington Governor Jay Inslee, who joins me now. Governor, thanks so much for being here. INSLEE: Thank you. TAPPER: Really appreciate it. INSLEE: Thank you. TAPPER: I want to get the climate change in a second. INSLEE: Yes. TAPPER: But, before I do, your rival 2020 candidate Elizabeth Warren, the senator from Massachusetts, called out Amazon and other tech giants on stage here in Austin yesterday. She called for sweeping regulations that would break up large companies such as Amazon -- Amazon based in Seattle, obviously. What do you think of the proposal? INSLEE: Well, I think that we need to do things that will protect Americans in this new economy. We have seen spectacular advances offered by large outfits in high tech, which have really helped us in our individual lives. But we have to do things that will protect Americans in this new Internet age, one of which is to protect our privacy. I'm now passing a bill. A couple days ago, we passed one of, if not the best privacy bills in the United States, so that our privacy cannot be shopped and marketed and commoditized. That's extremely important, given what's going on in the world. Second, we have to protect our net neutrality. And I'm proud to have signed the first law in the United States by statute that will protect our net neutrality. Third, we got to look at the tax issue here, where working people are paying a disproportionate amount of the tax burden. So, there are many things we need to do to protect people in this new Internet age. And I look forward to being involved in those. TAPPER: So, I guess the -- that's interesting. That's not really addressing Senator Warren's bill. INSLEE: Yes. TAPPER: Because one of the things about her -- her basic premise is, Amazon and companies like it are too big. Do you think that Amazon is too big? Do you think it should not be allowed to own Whole Foods, it should not be allowed to own entities such as Amazon Marketplace or Amazon Basics? Do you agree with that idea? INSLEE: I think that, when you do antitrust law, you should set up the antitrust laws for the whole economy, not for one company. So I'm not sure the best route of determining antitrust law should be sort of rifle shots at one company that you decide you don't like. I'm not sure that's the best way for us to do business. But I do believe it's appropriate to have some review of our antitrust laws, given the changing economy. Maybe there are things we can look on that. I have not proposed any at the moment. But I don't think we should wait for that issue. We need to restrain some of these forces that are abusing our privacy, shutting off access to the net, and having unfair tax advantages. And then this -- I will tell you about this, about something that I'm very concerned about. We can -- we need to stop corporations from blackmailing local communities to get giant tax giveaways, or they will move out of town, where they pit two communities against each other. [09:30:05] We need to stop that race to the bottom. I have some ideas about how to do that. We cannot allow us to be subject to extortion just because a company threatens our jobs if you don't get a billion dollars in tax breaks -- or a little less than a billion. TAPPER: Right. INSLEE: So, that is something I do think we need to stop. I have seen communities be victimized by that. And it's not just Amazon. Every corporation in America looks for that. We have got to protect our local tax base. TAPPER: So let's talk about climate change. First of all, what do you say to a Democratic voter who hears that your campaign is about climate change, and they think, oh, well, then he's not really serious about running for president, he's just trying to get an issue on the agenda? INSLEE: I would say several things. Number one, I would say that we are the first generation to feel the sting of climate change, and we are the last generation that can do something about it. And we have got one shot. And that's the next administration. We have to have this be the primary, first, foremost, and paramount duty of the next administration, because the world's on fire. And we have got to act. And we have got a climate denier in the White House. The second thing I would say is, if you care about climate change, you're not alone. A poll just came out in Iowa saying it's the top, number one priority, tied with health care. And the third is, this is not a single issue. It is all the issues. Look, if you care about the economy, the economy is now being ravaged by climate change. And the economic growth that we can have -- I have been on a tour looking at all the job creation going on, solar power in Iowa, batteries in Nevada, wind power in Washington. So, I have been on this tour nationally looking at what a tremendous job-creating opportunity this is. It's a health issue. It's asthma and infectious diseases. It's a national security issue. I met with Admiral Fallon in Seattle, who talked about the Pentagon telling us what a national security threat it is. TAPPER: Right. INSLEE: And now we have Trump trying to -- trying to tear up the intelligence report. That's got to change. TAPPER: So, let me ask you. Even with all of this push on climate change, the most recent data from Washington state, from your own government, shows emissions actually increased by 6 percent from 2012 to 2015. You took office in 2013. Why were you not able to bring emissions down in your state during that time? INSLEE: Two reasons. One, we have had the hottest economy in the country. So we have got every -- everybody moving to Washington state. And when you have more people, you have more cars and the like. But we have done some good things. We have developed a wind industry from zero to $6 billion in 12 years. We have the largest usage of electric cars in the country. We are moving forward in research and development. And, yesterday, or two days ago, we passed a bill that will give 100 percent clean electricity to folks. And we have three bills that are now moving through the legislature. But we do need to do more, there is no question about that, because we have to tame this beast. And, when we do this, we know we can grow our economy. We have got the hottest economy in the United States. We're growing jobs in clean energy. Jobs in clean energy today are moving twice as fast as the average in the United States. The number one job rate of growth in the United States is solar installer. Number two is wind turbine technician. So, we need to develop those policies. We're doing it. Now, one of the reasons we were delayed is I had Republicans in control of our Senate. And we have a party that denies the existence of climate change. It's kind of hard. I just got a working Democratic majority. That's why these bills are now moving. And you have me back in three months, and we will pop the champagne cork. TAPPER: OK, that's fair enough. (LAUGHTER) TAPPER: Last question, sir. You're joining the most diverse Democratic presidential field in history. Our new CNN/"Des Moines Register" poll shows that only 38 percent of likely Democratic caucus-goers in Iowa say they would be satisfied with a straight white male nominee. So, why are you, as a straight white male, the right person to lead the Democratic Party, if there's so much skepticism from Democrats in Iowa? INSLEE: I think that I have evinced humility about being a straight white male that I have never experienced discrimination like so many do. I have never been pulled over, as an African-American teenager, by an officer driving through a white neighborhood. I have never been a woman and been talked over in a meeting. So, I approach this with humility. And that's why I have been so dedicated through a 25-year public career of advancing justice in our society, of making sure that we have as much diversity as possible in the 2,000 people I have appointed -- and we have done really well in that regard -- of making sure that people who work for me have to go through implicit bias training, so that they understand how implicit bias can really discriminate against folks. Doing criminal justice reform, where I just offered a pardon to 3,000 people with their marijuana convictions, because that's been part of the racial disparity that we have experienced is because of the drug war. So, during my time in office, I have been very, very committed to making this a more just and open and tolerant society. And that's one of the reasons Washington is so successful. I was the first governor who stood up against the Muslim ban. That got me in the -- just got my blood boiling. So, I stand up against this anywhere I see it. And I think people will see that when they get to know me. [09:35:00] TAPPER: All right, Governor Inslee, good luck out there on the campaign trail. INSLEE: You bet. (CROSSTALK) TAPPER: We will see you out there. Stay with us. The 2020 Democratic field is putting diversity and youth in the spotlight but the results of a brand new CNN poll might surprise you. That's next live from South by Southwest in Austin. (BEGIN VIDEO CLIP) SEN. ELIZABETH WARREN (D), MASSACHUSETTS: Senators had to speak to whatever they are doing. What I can speak to is what I'm doing. SEN. AMY KLOBUCHAR (D), MINNESOTA: There are a number of great candidates. No, there really are. And I always like to jokingly say may the best woman win. REP. BETO O'ROURKE (D), TEXAS: We got to be a part of this amazing thing in Texas over the last two years, and it continues. And we just want to continue to be a part of it. (END VIDEO CLIP) TAPPER: Democrats out in full force this weekend here at the South by Southwest primary, as a new poll in the actual voting part of the state is giving us some insight into the state of the race. [09:40:02] TAPPER: Bernie and Biden out far ahead of the other candidates and potential candidates in the CNN/Des Moines Register poll with Senator Elizabeth Warren and Kamala Harris in third and fourth. Let's discuss with our panel. I want to start with you, Symone, as a Democratic voter, although not an Iowan, what do you make of the most diverse field of candidates ever and two old straight white men are leading the pack, Joe Biden and Bernie Sanders? SYMONE SANDERS, CNN POLITICAL COMMENTATOR: You know, I think it's so early, Jake. I am someone who believes this is largely due to name recognition. But someone like Bernie, someone like Joe Biden, they have very high name recognition. Bernie hasn't even been to Iowa yet. I don't think. So -- TAPPER: I think he might have just been there. SANDERS: He just go -- OK. He just went to Iowa. TAPPER: Yes. SANDERS: So look, I think Democratic voters in Iowa know them and they're looking to people that they know right now. But it's still very early. I think the polls to look at are post the first debate. TAPPER: Post the first debate. Well, let's bring in Congressman Eric Swalwell who is a potential presidential candidate. You have not said what you're going to do and I -- no offense but you're under one percent in this poll. A lot of other candidates are. REP. ERIC SWALWELL (D-CA), INTELLIGENCE COMMITTEE: Room to grow. TAPPER: Room to grow. That's fair. Have you made up your mind? Are you going to run? SWALWELL: Did (ph) very close but I was just in Iowa last weekend. And number one issue in that Iowa poll is health care. And I saw across the state from west t

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NEWS All right, Shepard, thank you very much. These sheriffs have been meeting with the president of the United States. He's going to have some comments before heading out to El Paso, Texas, later tonight. Welcome, everybody. I'm Neil Cavuto. And you're watching "Your World." And in the middle of this fight over what to do about the wall, we have a sudden impasse over not the funding for the wall itself, but the facilities meant to detain illegals who are here in this country. These sheriffs have been by and large supporting the president on the wall effort. He could run into some resistance when he gets to El Paso, the way he has described El Paso, as a city that was riddled with crime before a wall was built, and a lot of that crime just disappeared. But ahead of that, what we have learned as well is that the president does want to sell his case that he has made concessions to Democrats in order to get a shutdown off the table. But we're hearing right now that, because of other Democratic demands that have nothing to do with the wall, per se, he's kind of run into a buzz saw on that. We're going to get the read from Steny Hoyer, the majority leader in the House of Representatives, very, very shortly. But for the president of the United States, this is his first opening campaign salvo, if you will, some say of the 2020 political season. The president and the vice president now meeting some of these sheriffs, big proponents of tougher protection at the border, including El Paso, where the president will be leaving right after he finishes with these guys. Let's listen in to this. (JOINED IN PROGRESS) DONALD TRUMP, PRESIDENT OF THE UNITED So, thank you very much. I'm heading out to El Paso, Texas, right now. And we are going to do a job. We're going to continue to do what we're doing. I think we've made a lot of progress. We've actually started a big, big portion of wall today in a very important location. And it's going to go up pretty quickly over the next nine months. That whole area will be finished. It's fully funded. Construction, which I know a lot about, has begun. And it's a much better wall, much stronger wall, and a much less expensive wall than we've been building. And we're going to have a lot of wall being built in the last -- in the next period of time. I'm with some of the great law enforcement people. A lot of them are friends of mine. I've known them for a long time, and they've been fantastic people. Fantastic men and women. And they know what we're up against. We're up against people who want to allow criminals into our society. Can you explain that one? You know, most things you understand, but they want to allow criminals into our society. Convicted felons -- people of tremendous -- like, big problems. I just got this from Homeland Security. And you look at this -- thousands of people. Dangerous drugs: 76,000 people. Then you have traffic offenses. That's not so good, but that's -- every crime. Assault: 63,000 people. Larceny: 20,000 people. Fraudulent activities, 12,000 people, burglaries, 12,000 people. These, again, are just a different crime, robberies. These are the people coming into our country that we are holding and we don't want in our country. And the Democrats want them to go into our country, that's why they don't want to give us what we call the beds. It's much more complicated than beds. But we call them the beds. Robberies, 5,991. Sexual assaults, 6,350. Forgeries, 5,158. Stolen property, 4,462. These are people we're talking about. Kidnapping -- these are people that kidnap people. The Democrats want them to come into our society. I don't think so. Anybody here who would like to have a lot of kidnappers left in our society? I don't think -- I won't bother waiting for you to raise your hand, right? Kidnappings, 2,085. Homicides -- that means murder -- murderers, 2,028. I mean, it's incredible. Sexual offenses, 1,739. Just came out two minutes ago. Homeland Security. The Department of Homeland Security. I don't know, maybe we're in a different country than I know of. And we're going to El Paso. We have a line that is very long already. I mean, you see what's going on. And I understand our competitor has got a line too, but it's a tiny, little line. Of course, they'll make it sound like they had more people than we do. That's not going to happen. But we're going there for a reason. We're going there to keep our country safe. And we don't want murderers and drug dealers and gang members, MS- 13, and some of the worst people in the world coming into our country. Now, Mexico has had the worst year they've ever had. Almost 40,000 killings in Mexico this year. One of the most unsafe places, unfortunately. We need a wall. And all of the other things are nice to have. But without a wall, it's not going to work. We can have technology, we can have beautiful drones flying all over the place, but it doesn't work without the wall. Now, we need a wall. We can call it anything. We'll call it barriers. We'll call it whatever they want. But now, it turns out not only don't they want to give us money for the wall, they don't want to give us the space to detain murderers, criminals, drug dealers, human smugglers. How bad is that? Human smuggling. People think of that as an ancient art. There are more human smugglers right now -- traffickers, they call them -- than at any time in the history of our world, because of the Internet, unfortunately. So, I'm heading out and we have a tremendous crowd. Like, tremendous. They have 75,000 people signed up. I think the arena holds like 8,000 people, unfortunately. I like the old days when I was allowed to make outdoors speeches. It was a lot easier because you could have very big crowds, John. But we have a tremendous crowd. We have screens on the outside of the arena, so we'll have a lot of people coming. And again, if you look at your own newscasts, you'll see people lined up for a long way. A lot of people. Sheriff, would you like to say something? All right, we're monitoring the president. He's meeting with sheriffs who are all urging more funding and support for a wall here. And this was supposed to be not a foregone conclusion, but it looked like Democrats and Republicans had agreed at least on funding for some sort of a wall. It was a lot less than the president wanted, a little less than $2 billion. He wanted close to something like $5.7 billion. But they were there. And, then all of a sudden, the dust-up over detention beds at ICE centers that has now threatened to sort of unhinge this. Let's get to read from the House majority leader, Steny Hoyer. Congressman, very good to have you. REP. STENY HOYER (D-MD), MAJORITY Hi, Neil. Where does this stand right now, Congressman, do you think? Well, I think there are still negotiations going on between the two sides, between the two houses, and, hopefully, they will reach an agreement. And, hopefully, they will reach an agreement soon. Obviously, we need to fund the government. We must not shut down the government, contrary to what Mr. Mulvaney said. Shutting down the government ought not to be an option. But we want to see an agreement reached. Ms. Roybal-Allard put out a statement just the -- just a few hours ago as to why we were trying to restrict the numbers of beds. Now, let me say, the president's statement that he just made is absolutely incorrect. In Ms. Roybal-Allard's statement -- she's the chair of the Homeland Security Subcommittee on the Appropriations Committee. She said, clearly, they wanted to have sufficient beds to house -- to keep whatever criminals are elected -- or arrested. And we think that that is the proper thing for ICE to do. Clearly, if we have people who are committing crimes, putting in danger either people or property, they ought to be taken off the streets and, frankly, incarcerated are held. But we're talking about beds sufficient not to deal with criminals, which is what the case is now, but dealing with people who are working, paying taxes in our community, and our subject obviously to civil action, but should not be held. But you don't really know the numbers, right? Well, we know the... I mean, I guess the thing that has sort of raise concerns is you want to limit, I understand here, to 16,500. Now, the existing gap is north of 40,000. I know it's kind of loose, and people have not really adhered to these caps, per se. Yes. But it came, from what Republicans are telling me, Congressman, just out of the blue. Like, you dropped that grenade in the middle of what looked like constructive talks. Well, Neil, I wasn't involved in the conference itself. I wasn't a member of the conference. I don't know whether that is the case. (CROSSTALK) But would this issue, do you think, Congressman, be worth a potential shutdown on this new issue? Well, I don't want to see a shutdown, period. I want to see this issue resolved and see the Department of Homeland Security budget resolved. But it needs to be resolved through agreement. But this issue came out of nowhere, right? No, Neil. I mean, you agreed on the broad blueprints. You got the president down to under $2 billion for a wall. It looked like everyone was inching toward that. This issue came up. (LAUGHTER) And now a lot of Republicans are saying, if we have a shutdown because your colleagues force this issue, it will be on them, not -- not on the president. What do you say? Look, Neil, we have agreement on six of the seven bills. We ought to pass those six bills. We have already sent those six bills to the Senate. They ought to take them up, pass them, and... But you don't have agreement on this? Well, we don't have an agreement. But let me say, this didn't come out of the blue. Miss Roybal-Allard, the chair, as I said, has been talking about this issue for a very long period of time. This is not a new issue. But it wasn't supposed to be part of this issue, is what I understand. Well, it's a part of the funding for the Department of Homeland Security and for the ICE. Right. So it is part of this bill. (CROSSTALK) But do you feel that maybe some of colleagues were maybe feeling a little bit emboldened by how they handled the first shutdown, that maybe they had to president on the ropes and that they could push something that no one saw coming? No, look, I think that one side thinks a wall and expanded money for the wall is appropriate policy. One side disagrees with that. One side believes that, clearly, we ought to have sufficient beds to take criminals out of our neighborhood and take them off the streets and be dealt with in a proper way, period. So when the president says we don't have enough bed for criminals, we don't think that's the case at all. And, certainly, nor does Ms. Roybal-Allard or the conferees on the Democratic side. What we don't believe is that we ought to have so many beds that we can just randomly take people who are obeying the law, but who may be subject to civil action in terms of they're being in the country without papers. Right. But we ought not to have these roundups willy-nilly. (CROSSTALK) A lot of some of the moderates in both parties, sir, have been saying, we ought not be having this added debate in the middle of what was originally funding for a wall, and whether it was necessary, how much it would be, how long it would be, et cetera. Neil... And that maybe this is your party emboldened to some of the far left elements who've been saying, at extreme, just defund Homeland Security altogether. You didn't go that far, but how do you answer that? (CROSSTALK) Well, they didn't -- A, they didn't go that. Some suggested eliminating ICE as an organization. Right. I wasn't for that. The speaker wasn't for that. Clearly, we're going to have immigrants. We're going to have Customs. We need enforcement. You think ICE some value? Of course it does. It's like the IRS. It's an absolutely essential agency, as IRS an essential agency. So, when Congresswoman Cortez and others say that it isn't doing that, and it should be shut down, you say that goes too far? Yes, I think that goes too far. OK. But let me reiterate, this doesn't come out of the blue. This is not a tactic. Chairwoman Roybal-Allard has been pursuing this as an issue of these large roundups in her community and around the country that are not related in any way to criminal conduct. But should this be a deal-breaker for a deal, period, you think, by Friday? Well, look, a deal-breaker? We didn't want wall money. We think that you need personnel, you need infrastructure, you need -- you need technology. We were just at the border. And, clearly, those are all necessary. Right. But the fact of the matter is, the president wants a wall. OK, I have always said that that is probably going to be part of the agreement. But to just say that's part of the agreement, but Ms. Roybal's interest and the conferees' interest in making sure that the people we're dealing with are the -- are the criminal element, which the president way, way, way overstates. All right. And the Border Patrol will tell you that as well. Congressman, I wish we had more time. Thank you very much for joining us... Thanks, Neil. ... in the middle of this breaking news here. The fallout from all of this and whether it could lead to a shutdown on Friday. Hard to say. More after this. All right, so far, Virginia remains a mass. The governor isn't going anywhere. The lieutenant governor, that could be another issue. Garrett Tenney in Richmond, Virginia, with more Hey, Garrett. GARRETT TENNEY, FOX NEWS Well, Neil, Governor Ralph Northam says he is not going anywhere. And despite the calls for his resignation, he plans to serve out the remaining three years of his term. And he also argues that the controversy surrounding a racist yearbook photo actually puts him in a unique position to be able to address racial inequalities in his state going forward. (BEGIN VIDEO CLIP) GOV. RALPH NORTHAM (D), I really think that I'm in a position where -- where I can take Virginia to the next level. And it -- it will be very positive. And we have a number of inequities in this country right now and in Virginia. And -- and we're in a position to really stop talking so much, and now to take action with policy to address a lot of these inequities. (END VIDEO CLIP) Nearly every member of the state's General Assembly says the governor has lost the ability to lead. But you got to remember three years is a long time in politics. And Northam is hoping that eventually the lawmakers will come around to work with him to get things done. Lieutenant Governor Justin Fairfax is also refusing to resign over a pair of sexual assault allegations. In an interview with The Washington Post, Fairfax said: "Everyone deserves to be heard. Even faced with these allegations, I am still standing up for everyone's right to be heard, but I'm also standing up for due process." Well, this morning, a Virginia Democrat announced he is holding off on moving ahead with the impeachment process to try and remove Fairfax from office. Delegate Patrick Hope said: "The impeachment process is about investigating to find the truth. I am open to discussions on other avenues that would accomplish the same goals." At this point, though, Neil, there's no clear answer on what other avenues are available for the General Assembly to investigate the sexual assault allegations, because the Assembly doesn't have subpoena power and these alleged incidents took place in other states -- Neil. All right, Garrett, thank you very, very much. So, can you impeach a lieutenant governor in this case for crimes and allegations that have yet to be proven? Larry Sabato of the University of Virginia Center for Politics, that that's a slippery slope right there, Larry. What do you think? LARRY SABATO, DIRECTOR, UNIVERSITY OF VIRGINIA CENTER FOR Will, it is. And Virginia has no modern experience with impeachment and conviction. It would be a long, difficult, messy process. Now, I'm not saying they won't try it if everything else fails, but at this point I think most people have said, all right, let's have an investigation, whether it's by the FBI, whether it's by the Virginia State Police, whether some other police investigative unit. People want to see what the truth is. The statements from the women are very disturbing. You know what's also kind of weird, no matter how it potentially sorts out? You could have the two white state officials, Ralph Northam and the attorney general, Mark Herring, stay in power, and the African-American lieutenant governor going. I don't know how that is all politically digested. What do you think? (LAUGHTER) I don't think it would go over, particularly with African- Americans. Of course, the governor will get to a point, the new lieutenant governor, I suspect -- but do not know -- that it will probably be an African-American, maybe an African-American woman. So how does the state rebound from this? I assume that they get their act together or they can find a consensus on each and all. But obviously Democrats want to protect the chain of command from ever falling to the Republican. I understand that. But would the state be more in play than we were thinking, that this state that was once red, turned purple turned pretty blue is in flux now for 2020? Well, we have got a test coming up in November, Neil. All 140 seats in the state legislature, both houses, are on the ballot. And it's possible a new lieutenant governor will be on the ballot too. So we will have an early test, and we will see whether the commonwealth of chaos has settled down or not. Is it your sense that it has or it will? Well, it certainly hasn't yet. No, not at all. We still are having controversies all over the place. No, I think it's going to take a while, Neil. This is February. But I would be surprised if all this were sorted out by months from now. All right, Larry Sabato, thank you very, very much, my friend. The border funding talks continue. And right now, they don't look too promising, or maybe that's wrong -- after this. You know, this almost got lost in the sauce today, but something very interesting. The president signed an executive order a few minutes ago to launch something called the American Artificial Intelligence Initiative. It puts the full weight of the federal government behind efforts to develop artificial intelligence to increase our nation's prosperity and, as the reading goes here, enhance our national economic security and improve the quality of life of the American people. Now, if you're scratching and saying, well, this is a big issue we have with the Chinese and our ongoing talks with them, remember, we have been saying that the Chinese disproportionately pour a great deal of money into that. And this is our response there. If they're going to continue doing so -- and right now, there's no indication they're going to lighten up in that regard -- we're going to do so. Now, critics of the United States says we're late to this A.I. party, that the Chinese are way ahead of us, because they have been committing billions of dollars to this, and we're sort of late to this. So, this is more coordination of those efforts. But we will keep a close eye on it here. And whether this comes up in the trade talks that are continuing this week is anyone's guess. But it's China and the United States trying to dominate an area that is bigger than the space program was back in the '60s. We will keep an eye out on it for you. In the meantime, the fuss over what Steny Hoyer was saying as to whether Democrats suddenly confounded everyone and torpedoed what could have been a deal by Friday. It still might happen, but here's what he had to say: (BEGIN VIDEO CLIP) A lot of Republicans are saying, if we have a shutdown because your colleagues force this issue, it will be on them, not -- not on the president. What do you say? Look, Neil, we have agreement on six of the seven bills. We ought to pass those six bills. We have already sent those six bills to the Senate. They ought to take them up, pass them, and... But you don't have agreement on this? Well, we don't have an agreement. (END VIDEO CLIP) All right. What this is, is setting a number on detention beds that ICE, more to the point, can use for illegals and others captured. And they want to keep it at a ceiling of 16,500. Now, in some cases, that goes well over 40,000. No one has been sticking to numbers of any sort anyway. It swings wildly from the high 30,000s all the way to 48,000 at some given periods. But there was a surprise that this was sort of added into the mix at the last moment. Now, as you heard, Steny Hoyer was telling me it wasn't at the last moment, it's been out there, but, to my memory, never in these exact negotiations. But I could be wrong. Someone who might know is the House Freedom Caucus member Arizona Congresswoman Debbie Lesko. Congresswoman, very good to have you. REP. DEBBIE LESKO (R), Thanks for having me. Was this just an add-on out of nowhere, Congresswoman? I know it's been bandied about, about restricting ICE activities and beds that they -- at detention centers for illegals and what have you. But then it was mixed into these talks on the wall. That, I had not seen. Well, it's clear to me that the Democrats care more about illegal immigrants than our own citizens. And it's very disappointing. I mean, we had heard as late -- as late last week that they were close to a deal. And that was really good news. And now they throw in that they want to cap the number of detention beds, which sheriffs from across the country said would release dangerous criminals into the United States. Well, have you ever this argument, before, Congresswomen? As far as part of these negotiations and the wall and funding I have not, but have you? Well, I have heard the argument before, but never as part of these negotiations. Right. So they just keep moving the goalposts, as I believe Tom Graves said they had done over the weekend. And it doesn't surprise me, but it's really discouraging. I mean, we need to secure our southern border. I'm from the state of Arizona. And I know that there is a crisis at the border. I have been to the border. And when Nancy Pelosi and Chuck Schumer say this is a manufactured crisis, they're absolutely wrong. The American people want us to secure our nation, secure our border. They also want to have us keep the government open. Now, the president has been very patient in trying to negotiate with the Democrats. And they just will not come to the negotiating table. And when they do, they move the goalposts. So I hope that they can get things done. I have heard that there's a meeting going on right now. So let's hope it gets done, so we can keep the government open, but also secure our borders. This is important. This is the number one mission of Congress, is to secure our nation and protect our people. Let's get this done. And let's have the Democrats stop this nonsense. Come to the negotiating table. Get it done. All right. Do you think we're going to have a shutdown, though, the way that things are going? Because the two sides seem far apart, especially with this new issue. You know, I don't know. Time will tell. I'm ready to stay here and continue working. But I have to tell you, when one side, the Democrats, won't even come to the negotiating table, and when they do, they change the goalposts, it's very disappointing, very discouraging. I'm glad that we have the president that we have, because, quite frankly, if we had a Democrat president, this -- you know, our nation would be totally insecure. Congresswoman, thank you very much. I'm sure the Democrats might slightly disagree with that notion. You never know. Very good seeing you. Hopefully, we avoid a shutdown. We will see. The president, to the congresswoman's point, is headed to El Paso, Texas. He ran into some criticism when he said the city was an example of a place that benefited from barriers, that they reduced crime. The mayor of El Paso was furious over that. He's Republican. And he's next. Walls work, that's what the president says. He's going to El Paso to prove his case that, before the wall came up there, the whole city was riddled with crime. The mayor disagrees strongly. And he's Republican -- next. (BEGIN VIDEO CLIP) The border city of El Paso, Texas, used to have extremely high rates of violent crime -- one of the highest in the entire country, and considered one of our nation's most dangerous cities. Now, immediately upon its building, with a powerful barrier in place, El Paso is one of the safest cities in our country. (END VIDEO CLIP) El Paso's mayor heard that, and he was flipping out, because the city was never as the president claimed, before the wall, after the wall. It's a safe place, always been a safe place. The El Paso mayor, Dee Margo, with us right now on the phone. Mayor, what did you think of that? DEE MARGO (R), MAYOR OF EL PASO, Well, I was a little surprised, Neil. As a matter of fact, I was sitting at the airport in El Paso waiting to catch a flight to Austin, Texas, and heard that. Of course, the end of his comments about us being one of the safest cities in the nation, it's correct. We are, according to the uniform crime statistics reported to the FBI, the lowest -- we have the lowest crime rate of any city greater -- with a population greater than 500,000. So -- but we were safe for many years. So it wasn't just a result of... So, the wall, the presence of the wall, when it came around 2008 or so, '10... Right. ... that wasn't a crime change. But what difference did it make, Mayor? Well, I think it's part and parcel to control of our borders as a sovereign nation. But the primary change was, a physical barrier will channel people. Homeland Security will talk about that. But it stopped a number of automobile thefts and crimes of that nature from occurring. People were coming over, and then they would steal their vehicles and drive them across the bridge into Juarez, Mexico. So that went way down. So -- and some of the -- and then neighbors in the Chihuahuita neighborhood have anecdotally told me they feel pretty safe with that fence there. So, you know, it has some benefits. But the primary reason we had such a low crime rate were due to our police department and the neighborhood policing we were doing, so community policing. So, it was a combination of, I guess, all of the above. So, Mayor, you're a Republican. I mean, I don't know whether you will be with the president tonight. Will you? I'm trying to visit with him before -- before the rally to be able to talk about El Paso a little bit. Did you or your staff convey how upset you were after the president more or less said you were crime-ridden prior to this? Well -- well, candidly, Neil, I think what he was doing was echoing what our attorney general for the state of Texas has said a couple of weeks ago in McAllen, Texas, which was incorrect. So he was merely echoing comments he heard from the Texas attorney general. (CROSSTALK) Yes, to be fair to the president, I'm glad you mentioned that, sir. He was going on that information. He can't know every city and town. Right. Right. But why overhype it, then? If it works, great, to your -- you're grateful it's there. But it didn't alter the crime landscape. No, sir, it didn't. It had -- we were, I think, the number two or number three safest city before the fence went up. And then we progressed into number one. I mean, it was -- we were significantly low on crime to begin with and always have been. We have been tainted somewhat by the perception of Juarez, Mexico, when they were going their -- in the early part of the 2000s and '6 and '7 and '8 maybe when they were having their drug wars and the cartels were fighting it out. But we were never tainted with that. We were never involved in that. Mayor, thank you very much. It's a beautiful city. I love its positioning too, because it's like next to everybody, but very good having you, sir. Appreciate it. Thank you, Neil. It's a pleasure being here. All right. In the meantime, the Democratic field is growing and growing and growing. And the one common theme they have is obviously attacking the president, but there is something else that might boomerang on them that could help the president -- after this. All right, 712, that's the number of Democrats who are running for president. No, it seems like. This weekend, we were going live. We caught all of these announcements, including Elizabeth Warren's. And then yesterday, of course, you saw Amy Klobuchar in the snow and all. But it's an expanding field. And they're not done yet. The read on what they're saying and the boxes they're checking off I was discussing during the break with Robert Wolf. Let's get into that with him. We also have GOP strategist Justin Sayfie and The Washington Examiner's Tiana Lowe. To a man or woman at this stage, Robert, they're all in agreement on the big stuff, right, the big stuff being? ROBERT WOLF, 32 Health care is right, climate change, pro- immigration, and gun reform. And all of them, from populist to moderate, have to check those four boxes. Then I believe it's who can best beat Trump. And I think you have to be a pro-growth Democrat to be able to beat Trump. You have to be strong in the economy OK, because, Justin, the immediate thing that raises is that they go too far with some of these big government initiatives and going after the rich. And when I even heard that Amy Klobuchar was buying on to the Green Deal, there might be nuances in that approach, but it isn't cheap. So what do you think? JUSTIN SAYFIE, REPUBLICAN Well, yes. If they -- if it's true that the Democrats need to have a pro-growth Democrat, they're going to have a hard time, because the progressives in the Democratic Party are going to pull them all the way to the left, more social programs, higher tax rates, Green New Deal. Everyone -- payment for everyone who doesn't want to work, unwilling to work, as we saw in AOC's original statement on that. So it's going to be a big challenge for them to maintain moderacy, because they're going to get dragged all... (CROSSTALK) All right, you're talking about Congresswoman Cortez on that one, who does seem to sort of be leading the direction, at least the fervor of the party, but not across the board. Tiana, where do you see this going? TIANA LOWE, THE WASHINGTON Democrats are really going to find themselves in a bind if they do get too -- if they do get pulled a little bit too far left, if they don't have this Obama-like candidate who can get maximum turnout, because right now Monmouth says that 56 percent of voters just value a candidate who can beat Trump over ideological purity. However, I think that we will see that change if Democrats decide that they want to run on these multitrillion-dollar spending packages, wealth taxes and estate taxes. And if you're just going to run against... By the way, Republicans are no stranger to trillion dollars' worth of spending and building big deficits and debt, right? So they're both pretty good at that, right? Yes. I mean, there is a difference, though, between a $3 trillion tax cut and a Green New Deal that's going to cost in the tens of trillions in the first decade alone with no taxes to fund it. All right, we don't know the details on that, because, as you said, there aren't a lot of details on that. But, Robert, I'm wondering about who could win. Is it your sense that some have a better network of support, donors? I mean, Kamala Harris' name comes up a lot for that, Beto O'Rourke, who hasn't announced, but might, as a sensation who can raise money, of course Joe Biden. Any of the entrants there that I mentioned and others who could come in, pique your interest or have a very good shot? rMD+IT\_rMD-IT\_ Yes

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NEWS Good Sunday morning, everyone. I'm Charles Payne, in for Maria Bartiromo. Joining us straight ahead on "Sunday Morning Futures," Senator Marsha Blackburn responds exclusively to new escalations from Iran, leaders there defying U.S. pressure, saying they will keep enriching uranium. How should Washington respond? Plus, Arizona Congressman Andy Biggs on the growing crisis at our southern border and President Trump's threat to resume mass deportations, what he thinks or he plans to ask special counsel Robert Mueller when he testifies later this month. Plus, Anthony Scaramucci is with us. He's going to weigh in on the record stock market highs here, strong job growth, as well as the U.S. economy bucking signs of recession. Will the Federal Reserve now reconsider cutting interest rates? All that and more as we look ahead on "Sunday Morning Futures." Iran showing no signs of caving to U.S. pressure, saying today it is prepared to enrich uranium at any level. Senior officials in Tehran will keep reducing its commitment to Obama era nuclear deal every 60 days unless other nations signed onto the pact can salvage the deal. President Trump pulled the U.S. from that deal a little over a year ago. Republican lawmakers in Congress say Iran's threat amounts to blackmail, and they are urging the president to impose more sanctions. Joining me now, Tennessee Senator Marsha Blackburn, a member of the Senate Armed Services Committee. Senator, thanks for joining us. SEN. MARSHA BLACKBURN (R-TN): Good to be with you. All right, so the provocations have escalated. The saber-rattling has escalated. It is clear Iran is trying to turn Europe against us here. And it feels President Trump has been pretty cool so far with all of this, but what's going to happen from here, because it feels like Iran is desperate? They are desperate. Bear in mind, their economy is shrinking 6 to 10 percent this year. Inflation is at 40 percent. And President Trump is doing exactly what he ought to be doing with keeping the pressure on, on those sanctions, and making certain that the regime realizes we know what they are up to. They want to go back to enriching uranium. They want to be working to a nuclear weapon. And they want to go back to spreading terror. They are the largest state sponsor of terrorism. Charles, I think we're doing exactly what we need to do, keeping the pressure on, saying, we're going to stay right on top of this, we're not going to give you an inch. Right. So it's interesting, because I'm hearing reports within Iran, because the leaders there have spent so much money, billions of dollars to sponsor terrorism, as all these economic woes, as you pointed out, have escalated... That's right. Yes. ... that there's enough resentment on the ground that, if we can just keep our cool and somehow show support for that, that may turn into something. I think it may. And bear in mind Iran is not a six-month or six-year problem. This is something that goes back to the '70s, with the shah being overthrown and the ayatollahs coming in. And when I talk to friends who are Iranian immigrants and people who are a part of the Baha'i faith, what they tell me is, they are working desperately to support some of the Iranian people who really have a lot of problems with what this regime is doing, because they are suffering. They are standing in line trying to buy things. The pressure is having an effect. Iran knows that. They know their people are suffering. They know the country is suffering. And for us to keep the pressure on, this maximum pressure campaign, that is exactly what we should do. What's going to happen with our European allies, though? They have been really quiet, I would say ominously quiet. There had been talk about them trying to subvert the economic system in place right now so they can continue to do business with Iran. Where are they? Because in every escalation that we have seen since -- during the Trump administration, all the critics say, get our European allies on board before we forge ahead. I never see them get on board. I -- I think that they wait for us to lead from the front. That is one of the lessons we learned through the Obama years, that leading from behind doesn't work. And our allies want to know that we are with them, so that they feel free to be with us. Our enemies need to know that they need to fear us. Now, as we look at what is happening in Iran, I think you have to look at who is working in conjunction with them. Look at what China is doing. Look at what Russia is doing. Look at what's happening in North Korea. And then you have to ask, is this the new axis of evil? Of course, I think you put those four countries together, and it probably is. They do not wish us well. Right. We have to keep the focus on, who are the bad guys here? And we know who they are. I'm glad you brought up China. And I want to switch to that. But I do want to also point out, I have read that you still are holding out hopes, though, for ultimately a diplomatic solution to Iran. Yes, absolutely, I'm holding out hopes for a diplomatic solution. And, you know, the thing is, is, we know that Iran realizes they're not going to have the markets for their oil product. That puts more pressure on their economy, which is already shrinking. Right. That is their big export. We know that this enriching uranium, they think that they can taunt us, if you will, with that. They have been enriching uranium. Donald Trump has been very consistent in saying, stop the spread of terrorism and make certain that Iran doesn't have a nuclear weapon. And that is the goal, and we're going to continue to support that. On China, we have had a reset, if you will, with the trade negotiations... Right. ... but China using tougher language this time around. But at least we know it's not a complete restart. We're not -- it's not a game of Monopoly, where we go back to go and not collect $200. There was a 150-page agreement. It was seven volumes, seven chapters. So, there's a blueprint of sorts. Does that give us any hope that maybe this can be resolved, and certainly resolved in a timely fashion? It does give me hope that there is a way forward here. And, of course, Gordon Chang is the one who is going to weigh in some with China. He's such an expert on that. Here's the thing I think that's important, restarting the sales of the ag products, working through that. And President Trump is to be commended for that. Here is where we need to be watchful. In my opinion, it's Huawei. We do not need to let Huawei get into building out these 5G networks, not for us, not for any of our allies because of the dangers there. China is -- they're building a spy network. They want to win the cyber- war. Sure. And what we have to do is continue to say to them, you cannot empower Huawei, which is state-run, regardless of what they say. We know it is state-run. And it is their mechanism for spying. So is there a way forward? Yes, there is. China knows that they are in better shape if they are at the table than if they are not at the table. On Huawei, though, for a lot of Americans, they had never even heard of Huawei until this whole thing came up. Right. And then the threat of Huawei has only become apparent to people just in the last few months. And now it's a critical piece in this whole - - in this... Yes, but, Charles, here's the thing. When I was in the House, some of us had amendments to appropriations bills that would block Huawei from selling to the U.S. military and the U.S. government, because we knew they were embedding that spyware. Right. That was a known fact. So these American companies that are selling to Huawei need to stop that. And we do not need to do anything that is going to encourage their cell phone sales. We don't know... (CROSSTALK) So, you don't like American ship companies, for instance, selling to Huawei... No. ... even if we're going to block them from being part of our 5G network? Not at all. Why would we do something that would encourage their innovation? Because Huawei is building out a network that's embedded with spyware, and it doesn't matter if it is financial data, if it is artificial intelligence or A.V. networks, autonomous vehicle networks. Why would you give them the ability to shut down those networks? So, no, let's eliminate them from our network. I know that, in the tech world, they are telling the administration they are working on technology, so that there won't be checkpoints where they could usurp networks and take them over. That's right. We will see. But it feels like this is going to be really probably ultimately what it comes down to. Senator, please stay with us. Yes. Coming up, folks, new details on the DOJ's general inspector's probe into the alleged government's surveillance of President Trump's campaign. Key witnesses now coming forward in the late stage of this investigation -- that and more straight ahead. Also, be sure to join the discussion on Twitter and Instagram @SundayFutures, also @CVPayne. I'm pretty active on Twitter. And we're pretty active there. So, stay with us, as we look ahead on "Sunday Morning Futures." Welcome back. An update on a story that we have been following closely on this show for almost two years now, alleged government surveillance of Donald Trump's 2016 campaign. FOX News now learning that key witnesses have come forward at the 11th hour of this investigation by the Justice Department's inspector general. We're back with Senator Marsha Blackburn, who sits on the Senate Judiciary Committee. You know, it's -- Senator, it's going to be really interesting how this all plays out. After two years of building up Mueller's reputation, the Mueller report, I think it was a dry hole, to be quite frank with you. We're not hearing a lot about the I.G. report, but I think it could be blistering. It is going to come out. It is about time for it to come out. And, look, what people want to know, when I'm talking to Tennesseans, they want to know, how in the world did they use a fake dossier to get a FISA warrant, and then we have been in this charade of a two-year investigation? And people want answers to that. They want to see, what chain of communication took place that actually triggered this? How was it that a FISA judge ended up doing this, when it wasn't a credible document? And people want to know the answer to that. I think having some of these key witnesses finally break and say that they are going to come toward and tell what they know is going to be very helpful to this. We know that the Democrats have been very nervous about this, and probably they ought to be pretty nervous about this. They should be nervous about it, but I think the American public should be optimistic about it... Yes. ... because maybe we can figure this out. If you have potentially rogue agents, you know, first a faulty document, a lie by the -- for the most part, that can trigger something to this level, but people still want to know just what degree of interference or favoritism the FBI's animosity towards President Trump and then candidate Trump played. Yes. What role did any folks in the Obama administration play? How far up the food chain did this go? Who knew about this? These are really important questions. Do you think we can get answers to them? I think we will get answers from them, because people are demanding them. And, as I said, if you were on the road with me in Tennessee, this would be one of the main things that you would hear. People talk a lot about the economy. The economy is doing great. And they are happy there. They want to be certain that we're watching Iran and our enemies and rebuilding our military, that we're securing the southern border. And then they will say, and you better find out how they ended up using the FBI to spy on an American family and on an American campaign. They cannot believe that this happened. They feel like they're reading some kind of novel, and that this couldn't possibly have happened. But now that it's been confirmed that, yes, indeed, it did, it is, how did it happen, and where is the corruption within the Department of Justice and the FBI? And maybe some accountability. Right. We went to break teasing our Twitter handles. We talked about you and I both being on Twitter. (LAUGHTER) Conservative censorship in social media and technology... Yes. ... is something that you are very passionate about. Where are we going there? Because it feels like it's actually gotten worse, not better. It does continue to escalate. And what we are looking at -- we just recently did a hearing on these algorithms, looking at that, not only for social media, but also for artificial intelligence. And how do engineers actually nuance or how do they inform building those algorithms, so they tilt against those that are on the conservative side? Right. And we're going to do some more work on this in Judiciary Committee, as we look at putting in place privacy and data security rules, looking at antitrust, looking at censorship, because, Charles, now you have the virtual space underpinning literally every industry, and so much of Americans' transactional life. They want to make certain that, as I say, their virtual you is protected and private unto them... Right. ... and that they give the permission to transfer or for a third party to look at their personally identifying information. So they want to opt-in ability on that. Well, I think that's something that should be apolitical. Yes. I think that's something all Americans care about. But something became political this week that in a million years I wouldn't have believed, the Nike-Betsy Ross flag controversy. Oh, my goodness gracious, yes. (LAUGHTER) You wrote an op-ed. I just want to share some of what you wrote in your op-ed on Nike. You said to Nike: "There are millions of us who would really like to wear a Betsy Ross running shoe and celebrate what women have done for freedom and freedom's cause. There's such a thing as founding mothers. Why don't you choose to honor them?" I mean, I just got goose bumps reading that. How -- how -- I don't know how this became a controversy and why Nike blinked on this. It is phenomenal that they would have blinked on this. Betsy Ross was an abolitionist. She is one of our founding mothers. She was an anti-slavery Quaker. That's correct. That's correct. And she was a pro-suffrage for women. And then you look at this with the flag that she made or designed or -- it was such a symbol of our revolution, of seeking freedom and fighting for freedom's cause. It is amazing to me that, as we approach the 100-year anniversary of women suffrage, and you have that flag that was created by one of these founding mothers... Right. ... and then they say, we're not going to push this to market because someone has an objection? I think it's time for some history lessons, and we need to celebrate these women who have been fighting for freedom and freedom's cause. Yes, celebrate these women. You can't change history. And the bottom line is, I think we should be proud of how we have evolved as a nation, not look back and think and with this type of scorn that's being heaped on these things. But you are right. You know, whether it's Abigail Adams or Betsy Ross or Susan B. Anthony or Carrie Chapman Catt, there are women who have so solidly stood for the cause of freedom, and I'm ready to celebrate their good work and recognize those works. I celebrate that you are in studio. I always appreciate you coming on. (LAUGHTER) And you are absolutely one of my favorite politicians. Oh, I appreciate that. It's always good to... It is a short list, but you are one of my favorites. (LAUGHTER) I appreciate that. Good to be with you. Senator Blackburn, thank you so much. Appreciate it. Good to be with you. Thank you. And coming up: Democrats and Border Patrol trading blame, as the situation of our southern border grows more dire every single day. Arizona Congressman Andy Biggs joins me next, as we look ahead on "Sunday Morning Futures." Welcome back. Outrage is building on Capitol Hill over the crisis at our southern border. Democrats are slamming Customs and Border Patrol after a recent inspector general's report revealed squalid conditions at migrant detention centers. But the Border Patrol is equally outraged, and they're pushing back. They are saying that the report outlines what they have been telling lawmakers for months, that only Congress has the power, if they really are upset, to solve this dire situation. Joining me now, Congressman Andy Biggs from the border state of Arizona. He also sits on the House Judiciary Committee. Congressman, thanks for joining us. REP. ANDY BIGGS (R-AZ): Thanks for having me, Charles. All right, so, six months ago, the media laughed at President Trump. They said it was all make-believe. And, all of a sudden, we have got these record-breaking numbers of families, unoccupied children. Everyone agrees it is a crisis. Can we somehow maybe in Washington, D.C., get beyond the typical finger- pointing and get something resolved? Well, you would think that we would, Charles. And, you know, a lot of the folks that are claiming there's a -- basically atrocities going down on the border, they are the same folks that said there was no crisis. But when I have been down there, and I have been to these holding facilities -- by the way, CBP doesn't have really detention facilities. They have holding facilities. And ICE has detention facilities. They are both overmatched. They're overpowered, 25,000-bed shortfall. Think of that, Charles. And that's why you're getting so many people caught and released. And we should be able to get something done on this, but it's a constant fight. You need to get control of your border. But you also have to make sure that the supplies are there, and we have seen that the supplies are there. It is overcrowded. It's tough circumstances. It's not -- it's not horrific. Right. It is not an atrocity. But it's a tough circumstance, there's no doubt. Well, what -- there have been reports of deaths, reports of the conditions? And what rises to the level of an atrocity for you? Well, an atrocity would be if you're -- if we're deliberately trying to put people in harm's way. And that's not what's happening here. This is happening because you have incentivized -- not you, but we as a nation have incentivized hundreds of thousands of illegal aliens to come to this country. And they come up, and they know that the facilities are going to be there for -- and they are only going to be there for a short time. And then they're going to be released. They have food. They have got water. They have got shelter. They have got air conditioning. They have got the sanitary supplies that they need. It's just not pristine as we would like it to be, as we would expect it to be if we were staying at a Holiday Inn. They are in a detention facility, Charles. Right. And it is not perfect. But it is better in some respects than being out in the desert sun when it's 120 degrees coming across. And maybe you have got a parent who has put the child in the hands of cartel, for Pete's sakes. These are the atrocities, the human trafficking, the sex traffickers that are going on. So I think it is a mischaracterization of the context, the entire context, of what's going on. Right. I do want to ask you, along these lines, that President Trump now saying that the ICE deportations will be on. They will begin after the holiday, so presumably next week. Let's take a listen to the president himself. (BEGIN VIDEO CLIP) DONALD TRUMP, PRESIDENT OF THE UNITED I say they came in illegally, and we're bringing them out legally. These are people where we have the papers. We have gone through the court system. They'll be starting fairly soon. (END VIDEO CLIP) President Obama was known as deporter in chief. And he didn't get a lot of pushback. Obviously, though, President Trump will get a lot of pushback. The GOP will be called the heartless party, breaking up families here at home. How do you -- how do you -- how would you or are you going to reply to those? Well, the first point to realize is that President Trump has deported less than -- or fewer than half of the numbers that President Obama deported, number one. Number two, we have given due process to people that President Trump is talking about. We're talking literally a couple million people. These are people that have actually been in this country. We have given them due process, more due process than you get in any other country in the world. I have lived overseas. And I will tell you that we -- these people have been able to go to court. They have had a judge rule that you are not legally in this country and you must be removed. And that's all that -- those are the people that will be removed. And if you have a court order, this is a nation of laws, and guess what? If we're not going to enforce our court orders, then you basically have no borders, you have no boundaries, and you have no rule of law anymore. Right. And you just provide additional incentive for people to come in. Congressman, speaking of courts, the Supreme Court sent back the administration's request to have the citizenship question answered -- placed on the census report. The administration is still trying to figure out whether or not they want to pursue this, and the clock obviously ticking. The report has to complied -- compiled and then, of course, printed out. Where do you come down on this? And what essentially in your mind perhaps did the Supreme Court miss? Well, I think the Supreme Court missed at least two things. Number one is the purpose of the census is an enumeration for creating congressional districts. I mean, that's article 1, Section 2. That's just as basic as it gets. And then the second thing I think they missed is the historical context of this as well. Every administration has included some kind of nationality or country of origin question, except for the Obama administration in 2010. But even President Obama's administration for the annual census estimates surveys that they were doing, they asked that question. Right. And so to say that this is somehow discriminatory or a problem is wrong, because the reason you need to know is because you cannot dilute some congressional districts in favor of others. In other words, if you have 612,000 legal residents in one, and you only have 400,000 in another, then the 612,000 are going to get effectively less representation than you would... Right, less representation and also, of course, less money. We're talking $600 billion at stake. Exactly. We have got a minute to go, but I have to ask you. The Mueller testimony coming up very shortly. What do you anticipate? Well, I think the Democrats have already said they are going to have him read a lot, because he's not going to answer anything new. And I think the Republicans and what I want them to get to is the origins, which the inspector general is looking at, but we should get some of that out of Robert Mueller as well, the origins of the Russia investigation. And the second thing -- and I think is really critical -- is when did they know that President Trump was no longer the focus of some kind of Russian conspiracy investigation? And why did they wait so very long, in fact, waited until after the midterm elections, to get to it? And then I would say the third thing that I think is really interesting and critical is, how much money? They looked into President Trump and all of his campaign, but I would like to know how much money that Hillary Clinton and the DNC received from foreign nationals and foreign governments in that campaign. I got a feeling you are not the only one who would like to know those things. Maybe we will get some answers. Hope to. Congressman Biggs, thank you very much. Thanks, Charles. Well, the U.S. economy posting its best month in jobs growth since January, but there are still some signs of economic anxiety. Anthony Scaramucci is going to join me next, as we look ahead on "Sunday Morning Futures." Welcome back. A new jobs report showing signs of a growing economy. Employers adding 224,000 jobs last month. That was much higher than anticipated. The unemployment rate ticked up to -- from its 50-year low to 3.7 percent. But get this. That's because the strong economy lured more people, 335,000, to be exact. So, after this, the Dow, Nasdaq, and S&P 500 still closing at record highs just on July 3. Meantime, the Federal Reserve, they are prepared to make a key decision on interest rates later this month. Fed Chair Jerome Powell is due also to testify on Capitol Hill later this week. Joining me now, former White House Communications Director Anthony Scaramucci. Anthony, let's start with the jobs reports. People were bracing for something really ugly; 224,000 was magnificent, 335,000 people back in the labor force. It's really -- I mean, this is the ultimate economic data point. What do you make of it? ANTHONY SCARAMUCCI, FORMER WHITE HOUSE COMMUNICATIONS Well, there's a lot of great things going on. I think, just to dovetail it into your last conversation, the reduction of illegal immigration at the border, Charles, has actually increased wages for lower- and middle-income families. So you have just got the labor -- there's more people that are looking -- there's more jobs available than there are people looking for jobs. So, for me -- I have been studying the economy for 30 years -- you're going to see trending growth through the 2020 election. And that's going to be very good for President Trump. And it's also good for his trade strategy. So, for us right now, I don't think the Fed can cut rates here, given how strong the economy is. I know the president wants them to do that, and I know that there are signs of weakness and deflation around the world, but we are literally witnessing an economic miracle, mostly born by the president's policies. You know, Anthony, for all the focus on President Trump's pressure, if you will, on the Federal Reserve, no one bullies the Fed more than Wall Street. So, if there's not a rate cut, it won't be the president that will be outraged. It will be the stock market down 500 points. You're OK with that? Well, listen, again, I feel the pressure on Jerome Powell is immense, but he has to -- the number one thing that he is looking for is some stability to the currency. And so you definitely have the growth element and you have low inflation right now. I think one of the things the president is saying to people, look at those inflation numbers. It is 1.6 percent, when you have 3.2 percent growth. But if you have been studying this thing for 50 or, in Warren Buffett's case, 75 years, that sort of pattern is typically not sustainable. So, for me, I can't see, from an economist's point of view, how he puts in a rate cut in July. Having said that, you know, obviously, I have got a lot of money in the stock market, $12 billion under management at SkyBridge. Right. Well... If he cuts rates, it is going to be very, very good for the stock market, but I'm just worried that it may be too early to start that process, given the strength of the economy. Remember, he only has got 250 basis points. And you need about 400 basis points of stimulus, Charles, to smooth out the sharp edges of a recession. And so he doesn't have a lot of bullets in the tank. Well, without getting too wonky for our Sunday audience, Anthony, I will also say, though, that... Yes. ... the Fed has a real bad habit of being behind the curve. Jerome Powell is not an economist. And he understands Main Street, I think, a little bit more. And maybe he hiked rates too much last year. We will see. Everyone -- all eyes are going to be on that. But, in the meantime, I do want to ask you about the -- you brought up China a moment ago. What are your thoughts on this restarting of the negotiations. Where do we go from here? Well, listen, I think the president, again, has all the cards. I think what you are seeing is that the Chinese economy, despite Western media, is probably not as broad and as deep as the media was celebrating, very, very similar to what was going on when they were celebrating the Japanese economy 30 years ago. And so the president has the cards. He's been patient on this thing. I do think he will get the deal that he wants, but it is just not going to come as quickly as Wall Street wants. So -- but, if I had to predict it, I would say, by the end of the summer, into mid-September, I do think Steven Mnuchin and Lighthizer get a deal done with the Chinese. Both sides want the deal. I think the Chinese need it more than we do. And I bet -- I'm betting that they are going to curve closer towards what the president wants here over the next 10 weeks. All right, we have got Gordon Chang, who is going to help us also flesh this out later in the show. I have got to ask you. It is all about the money. Follow the money. The figures are starting to come in. President Trump's second-quarter fund- raising, it was $54 million. The GOP had another $50 million. You see on the screen there Buttigieg at 24, almost -- let's call it $25 million, Biden $22 million, and Sanders $18 million. What do these numbers suggest to you, not just the total numbers, Anthony, but the amount of donors, with respect to how much passion perhaps is -- are behind these campaigns? Well, listen, the passion is there. But the Democrats have diffused that passion with 20 candidates. So, if you add up all those numbers on their side, you are like, whoa, that is really impressive. The president has the incumbency, the presidency, and he's the one candidate on the Republican side. He will have over a billion dollars to spend by the time this is over. And these guys are going to be fighting it out until July of next year. So, it's going to be very, very hard for them to amass, in my opinion, the same amount of money. And, plus, the president has a story now. He is an experienced president in a rising economy. And so he's the odds-on favorite to win reelection, Charles. But I'm impressed that those Democrats were able to raise those amounts of money, but they're diffusing themselves by having that much volume in the race against the president. Are they also diffusing themselves with their economic message? I think America's not ready for socialism. And even though candidates who say they are not socialists don't push back strongly against those that are admitted socialists. Well, that's the big problem. That is one of the reasons why Howard Schultz was trying to get in there and try to pull the party closer to the center. But if they lurch very far to the left, it plays right into the president's sweet spot. At the end of the day, when you look at the president's policies, shut off the Twitter account, just look at the policies, they have been staggeringly good for the American people and for the American economy and actually for the global economy. So, at the end of the day, you're going to run a socialist model, 150 years of failed socialism. Everybody in the world knows you can't systematize an equal outcome. We should be more focused, Charles, on creating more equal opportunity for people, younger people in the education system, as opposed to trying to force it down or confiscate wealth from other people that have worked their whole lives to build it up. So, for me, America is not ready for that. And it's surprising to me that the Democrats are moving in that direction. That's a sign that they have allowed extremists to control their party. Anthony Scaramucci, as usual, thank you very much. Alwa

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NEWS In terms of sexuality, just neutral can be boring. I like a little color. DEIRDRE BOLTON, FOX BUSINESS NETWORK But yellow and green are great colors. LISA BOOTH, FOX NEWS It's always been my favorite color, yes. I have got to go. Thank you guys. Have a great weekend, ladies. That is THE STORY on this Friday night. We are going to see you back here on Monday night at 7:00. Tucker is up next. TUCKER CARLSON, FOX NEWS Good evening and welcome to TUCKER CARLSON TONIGHT. Here is a quick Civics lesson, what is politics? Well, politics is a system that allows people who violently disagree with each other to reach compromise without shedding blood. It's worked well for a long time in this country, but when one side decides it is no longer willing to compromise, that system breaks down. Without compromise, you no longer have politics. Instead, have you an especially fanatical form of religious belief. ISIS for example, is not a political organization. Its leaders reject accommodation of any kind. Its leaders assume that everything they do has the approval of a higher power. They are good people. They know that. They know their beliefs are not simply correct, they are the only possible beliefs. Anyone who disagrees with them is by definition immoral. So a system like that does not allow for the possibility that good people might be mistaken once in a while or reach different conclusions sincerely. People with different opinions are, again by definition, bad people. In fact, may not be people at all, they might be subhuman. They must be converted to the faith or crushed and eliminated. This is not an American way of looking at the world and yet, suddenly, it's everywhere, and unfortunately, it now defines parts of the modern Democratic Party. Joe Biden didn't know this. Biden has been in Democratic politics all of his life. But he has taken the last couple of years off. He has been flying around the world getting rich by giving high price speeches. By the time Biden decided he wanted to run for President yet again, his party had changed completely, but nobody had told him. So he made the mistake just the other day of saying this about Mike Pence. (BEGIN VIDEO CLIP) JOE BIDEN, FORMER VICE PRESIDENT OF THE UNITED STATES" The fact of the matter is, it was followed on by a guy who is a decent guy, our Vice President, who stood before this group of allies and leaders and said, "I'm here on behalf of President Trump." There was dead silence, dead silence. (END VIDEO CLIP) "He is he a decent guy," Biden said of Pence. That's an old fashioned way to talk. That's how people in Washington - political Washington used to talk about each other. It was one way that they reminded themselves that politics maybe important, but it's not everything. Every political opponent is also on some level, anyway, a human being and a fellow American. Our common humanity is stronger than our political differences. That was the assumption that they had and have had at least since the Civil War, and by the way, it has to be the assumption that all of us have if we are going to live together in the same country. Cynthia Nixon disagrees with this. Nixon is a former actor. She is now a political extremist. She spends a lot of time on Twitter yelling at people. When she saw what Biden said about Pence, she was enraged. Cynthia Nixon disagrees with Mike Pence's views on gay rights questions. Therefore she knows Pence cannot be a decent person. It's just not possible. She told Joe Biden this on Twitter. Joe Biden had no choice but to agree with her, "You are right, Cynthia," Biden wrote back. There is nothing decent about being anti-LBGTQ rights and that includes the Vice President. People use to say that Joe Biden was a decent guy, too. But in the modern Democratic Party, there are no decent guys anymore, there are only people who are with the program and apostates who deviate from it. Congresswoman, Tulsi Gabberd suddenly is in the latter category. How did that happen? By the same measure, Gabberd is a staunch progressive. But she does hold heterodox opinions on foreign policy. Instead of agreeing with Bill Kristol's foreign policy, she still believes what many progressives used to believe, she wants to keep the U.S. out of pointless foreign conflicts and instead focus on domestic concerns. And for having that opinion, she has almost been expelled from her own party. Watch. (BEGIN VIDEO CLIP) They've dismissed you as sucking up to this dictator, you're a bad person is basically what they are saying. Has anybody actually debated you on the points that you are making? TULSI GABBARD, U.S. REPRESENTATIVE, HAWAII, No. No. Constantly, I see again people from both parties, instead, resorting to name-calling or superficial attacks because they refuse to engage on the substance of this argument about why they continue to push for and try to wage these regime change wars, ignoring the disastrous consequences on the people in those countries and the American people. (END VIDEO CLIP) So that is suddenly is a very controversial thing to say in the modern Democratic Party, a place where there is no room for dissent anywhere on any issue. On Wednesday, for example, a handful of Democrats joined with Republicans to add an amendment to a universal background checks bill in the house. That amendment would require reporting a gun buyers to I.C.E. if that buyer is an illegal alien, a group that is not allowed to buy guns in the United States. In a closed door meeting after the vote, the Democrats who joined with Republicans on that were reportedly denounced by Party Leadership for their racism. The party's new ideological enforcer, Alexandria Ocasio-Cortez warned that Democrats who help Republicans in any way would go on a quote, "list" and would have primary challenges next time they ran. So that's what extremism looks like. The enemy is 100 percent wrong and we are 100 percent right always. They are going to hell and we are saved. (BEGIN VIDEO CLIP) BARBARA BOXER, FORMER U.S. What is happening here is a sin against God, and I believe that. HILLARY CLINTON, FORMER FIRST LADY OF THE UNITED Jesus said, "Suffer the little children unto me." He did not say, let the children suffer. LUIS GUTIERREZ, U.S. REPRESENTATIVE, ILLINOIS, DEMOCRAT A time in which we celebrate the birth of Jesus Christ. Thank God that there wasn't a wall that stopped him from seeking refuge in Egypt. Thank God that wall wasn't there and thank God there wasn't an administration like. NANCY PELOSI, SPEAKER, U.S. HOUSE OF And while we are doing the Lord's work by ministering to the needs of God's creation, they are ignoring those needs which is to dishonor the God who made them. (END VIDEO CLIP) We are doing God's will and we are on God's side. God loves us. God does not love the other side. They are sinners. They are going against God's will, and in fact, you know what? They could be Nazis. (BEGIN VIDEO CLIP) DIANNE FEINSTEIN, U.S. SENATOR, CALIFORNIA, This is the United States of Germany - the United States of America, it isn't Nazi Germany. UNIDENTIFIED Bottom line, Donald Trump increasingly looks like Hitler and Nazi, Germany. HANK JOHNSON, U.S. REPRESENTATIVE, GEORGIA, Much like Hitler took over the Nazi Party, Trump has taken over the Republican Party. DONNIE DEUTSCH, HOST, If you vote for trump, then you, the voter, you, not Donald Trump, are standing at the border like Nazis going you here, you here. MARIA CARDONA, CONTRIBUTOR, They are the tactics that been used through history by the worst purveyors of pure evil including slave traders, including Nazis, including terrorists. (END VIDEO CLIP) So what you are looking at, that's not politics, it's a cult. Nuance is the enemy. Accommodation is a sin. Ask too many questions or think too many independent thoughts and you will be denounced. You will wind up on Commissar Ocasio-Cortez's list. We reject this completely. It's totalitarian. It's also stupid and boring. It's a replacement for thought. By the way, destroying the country as well. We will always welcome people we disagree with on to this show. We assume they are decent people. And by the way, mostly they are decent people. We will do our best to find common ground with them and anyone else whenever we can because why wouldn't we? That's why you will often see sincere leftist on this show treated with respect. Tulsi Gabbard, Glenn GreenWald, Ro Khanna, Michael Tracey and many others. We disagree with these people on a lot of things, but not on everything and that's the point. But most important of all, they are Americans just like us and that matters most. We need to remember that. David Burstein is co-founder of Run for America and he joins us tonight. David, thanks a lot for coming on. So I understand that Biden wants to appeal to the base and the base is mad at Trump. I get it. But since he is an adult over seven and he has been in this a long time, wouldn't this be a perfect for moment for him to say, "Wait a second, I know Mike Pence, I disagree with him on gay rights and probably a thousand other things, but he is a decent man." And you have to be able to allow that your opponent is a decent man or else we'll have just war. Why didn't he say that? DAVID BURSTEIN, CO-FOUNDER, RUN FOR Well, I think is he recognizing what the Democratic base is at, at the moment, right? And I think that's a big problem for him and his desire to run for President in this political climate. Right? I agree with you. Right? I think there is also, you know, a blurring as you just pointed out when it comes to issues that have to do with for instance, LBGT rights. I think there is a different set of questions that people are looking at. People do feel it and Mike Pence's positions do suggest to many people that we should be treating people indecently and other people thought right ... Hold on. But that should not be a case for saying that Mike Pence is a terrible person. Exactly. Even if he is being indecent to other people. Look, there are a lot of opinions that I think are indecent that are policy of the Democratic Party. I mean, I can I name a lot of them beginning with abortion. And I feel that as strongly as any LBGTQ activist feels about his set of issues. But I also believe and I think I am required to believe that people who disagree with me can be really good people. They just reach a different set of conclusions. The Democratic base does not believe that. That's a totalitarian belief. It's a threat to the country and that's a recipe for Civil War. So why doesn't some adult come in and say, "Settle down AOC?" Other people are still people even if you disagree with them. No one is brave enough to do it. Well, look, I mean I will say that that I don't think people should be engaged in this, but I will say that I think people feel emboldened by their constituencies. AOC is an example of someone who ran not on a position of compromise. She did not run for office saying ... Right, you are right. ... you know, we should compromise with people. We should work along. Joe Biden is trying to run in that vein, right? He got in trouble a couple of weeks ago for saying about how a Republican -- you know, he liked the Republican fed up in Michigan and people criticized him. In fact, that cost that person an election in the swing seat. So the reality is, she is saying, "I am for this. I am going to be radical. I believe the problems of our time require radical solutions and I'm not interested in what other people have to say." That's what her -- you could easily say that's what her constituents voted for. I mean like 20% of her district even voted, but no -- Absolutely. That's another problem. But no, you make a fair point, and I agree with that. That's who she is. Right. What I'm saying is that's poison. It's super dangerous. She is an influential person. Some of her policies are kind of interesting. We should debate them. But if we begin with the assumption that anyone who disagrees about anything is not fully human, then why don't we or is indecent or is immoral, if we start framing everything as a moral question, then why don't we end up shooting each other, sincerely? Well, I think to be fair that I wouldn't say that any Democrat in office thinks Republicans are immoral on every single issue. There are a number of issues you played in that clip reel in those things have come up and it's not coincidental that some of those issues are issues about children at the border. There are questions about LBGT rights. Okay, whatever, spare me? I mean, there are lots of issues that I feel that way about that there are moral issues. I get that. But having a view of moral issue is also not saying that people are indecent people on all things. What we're arguing about is not salvation. Political parties can keep you from going to hell and they can't bring to you salvation. They can only pass laws and form policies. I think some of those people in that clip should be reminded of that by the way. That's my point, exactly. That this is not a religion and if we start pretending that it is, we abet extremism and we are going to actually wind up reaping the whirlwind from that kind of crap. When our leaders say, "Oh, the other side is immoral." Really? They're Nazis? What do you do to Nazis? Seriously. But Tucker, let's also be honest how Republicans have been on this issue? Would you really say that you think Republicans have not used some of the same language on the part of Democrats over the past several decaddes? Yes, they have. Yes, some of them have and I hate that crap. But the leaders of the Republican Party have never done that. The people like -- the guys, you know -- Ronald Reagan never said our opponents are evil. Okay? Yes, that was a long time ago. It was a long time ago. I am just saying -- and by the way, you make a fair point, if AOC is obviously a bit of a side show, though she is getting power, Nancy Pelosi should not be talking that way. She is too powerful. And she -- you played a clip there. Generally speaking, that's not her demeanor. It is reflective of a new generation of people because you see Biden, you see people like -- No, I get it, they are zealots. And the revolution always eats itself. I will give you the last word. The political moment in this country has changed. The rhetoric has heated up. I know. And it's very, very important to these people that they stand with their constituents and what those people believe. It's scary, I think. David, thank you very much. Thank you. Good luck with the revolution. Robert Patillo is an attorney and a radio host and he joins us tonight. Mr. Tio, thank you very much for coming on. So I would just -- I would throw that to you and you are a Democrat, a liberal, I assume you agree with everything that your Party says, but is it helpful to frame every issue as a moral imperative where there is no gray and no potential for compromise? ROBERT PATILLO, ATTORNEY AND RADIO SHOW Well, I think one of the issues we have to understand is that people are not monolithic in their thought. Just because you identify with a Party does not mean there is not diversity within that party. I don't think anyone would believe that Donald Trump and Mitt Romney agree on fiscal issues for example. So what we have to do is people in their own district have to do what their constituents sit them there to do. If you are from a red state or if you are someone like me who is a pro-gun, pro- life fiscally conservative Democrat, then maybe AOC isn't the candidate for you. But we have to leave space for all those things to breathe. And let's not act as if Republicans weren't doing exactly this in 2010 and 2012 when they said that Obamacare was worse than slavery where you have people saying to Obama, "You lie," in the Chamber of the House of Representatives. So what we need to do is tamp down the rhetoric on the extremes. The normal every day Americans, the people who just want clean air, clean water, a job, and good education for their children do not care about this crap on the political extremes. All they want is for people to come together and find a compromise. We could have had a compromise on immigration and border security. But the Freedom Caucus and Mark Meadows blocked that in 2013. We could have had a compromise bill. No, let me ask you one question though. I basically agree with you and sort of a matter of policy, I don't think we should be yelling from the audience, no matter who it is. So I don't think you should yell at the President during the State of the Union. But since you brought it up and since we know actually know the facts of it. That member of Congress yelled at Obama when Obama said, "Illegal aliens will never get government healthcare." The new government healthcare plan, Democrats now support, over 100 co-sponsors gives government healthcare to illegal aliens and so does Obamacare. So can we at least admit he was lying as a factual matter? Regardless of the factual matter in that case because, this is -- remember, this is still a five or six years later. You have to have a level of respect and a level of decorum ... No, I mean, I agree with you. ... a level of professionalism when it comes to things like this. No, I agree ... Because guess what? There is a different way express ... Guess what? The 90% of us in the middle who aren't on the 5% of the tea party extreme or the socialist extreme, we just want to get things done in America and get things done in Congress and what these extremists have to understand is you have to put together a legislative governing coalition. You can't do it by yourself. You can't just push through all these crazy policies because guess what? If Bernie Sanders or Elizabeth Warren become the Democratic nominee, they there are going to be lot of blue dog Democrats in the Senate like me who will abandon the party. I think they are going to purge you first, Robert. Because it has gone too far. I think you're in trouble. They are going to come for you. But I appreciate you coming on our show before that happens. Thank you very much. Thanks, Tucker. So once you understand what's actually happening, you realize that all these issues -- gun control, the Green New Deal, Medicare for All -- there is a thread that connects them all, and that's power. What you are watching is a complete takeover of the American economy and the America society by a political party. Healthcare is next and that's our topic after the break. Well, the Green New Deal is not the only piece of legislation the Democratic Party is now pushing in its effort to take over the United States economy and your personal life. Democrats also are promoting a bill to take over healthcare, it's called the Medicare for All bill. It has over 100 co-sponsors in the House. That's a lot if you want perspective. The bill among other things would ban private health insurance, so to paraphrase President Obama, if you like your plan you definitely will not be able to keep your plan. The projected price tag for this, well no one really knows. Here is one estimate - $32 trillion over the next decade. But cost is no object as they often tell us. Chris Hahn is a radio host, a former staff for Senator Chuck Schumer and he joins us tonight. Chris, there are so many questions here. Thank you by the way for coming on. I know that you support single payer. CHRIS HAHN, RADIO SHOW Any time. Lots of people do. Lots of polls show that Americans want guaranteed healthcare. So it's not even a question of whether that's popular, it is. The question is how to get to it and I wonder, how can you sell a bill that makes it illegal for most people to pay doctors out of their own pocket if they want to? That's a little fascist is it not? You know, I don't think there is any bills out there that have any serious chances of passing that would not allow people with their own money to do whatever they want with it with their own doctors. I don't think that even happens. Well, how about this bill -- hold on, let's discuss the bill that's right there in the House -- I don't think there is a chance it could pass. You have 160 co-sponsors. It's not some fringe thing by Cynthia McKinney or whatever. This is like a real thing. Over 100 Democrats and it would not allow private contracts between citizens and physicians. Like, what? Yes, I don't believe that that would actually be the final bill that would ever pass. But I do support Medicare for All and I think that the American people would like to see all Americans covered. And whatever the Democrats propose, Republicans are going to call it socialism just like they did with Obamacare which is clearly not socialism. But I am not doing that. I am taking -- hold on -- I am anti- slogan. I don't want to throw slogans around. I want to assess the ... Good, me, too. ... meat of the legislation pending in the House of Representatives tonight, again, that has overwhelming support from your Party. So, that legislation as noted two times previously would ban private contracts between citizens and physicians. It would also pay for abortion. Now you are going to tell me most Americans support Roe v. Wade. Do most Americans support using Federal dollars to pay for abortion up to birth? I don't think they do, not even close. No. So why include that? And again, like I have said before, there used to be a time in America where we had a legislative process where people would propose things and people who had different ideas would propose other things. We would meet in the middle. Now people propose things and then people just say, "That's socialism. That's about abortion. That is bad. That is evil." No, not saying that. Hold on. I am not you are. I'm not saying you are. But the conversation you had in your first segment is very similar to what happens when people propose legislation in America today. It becomes a good versus evil matter instead of discussing the merits of the policy and try to amend it to get to a place where all Americans can be happy. But hold on -- okay, this is the most flammable straw man ever constructed. I'm trying to do which you lament is not done any longer, which is assess the actual details of an actual piece of legislation that would force taxpayers to pay for abortion up to birth. Nobody -- there is no large group of Americans that wants that. You would have to be a freaking lunatic ideologue to put that in a piece of legislation. Why are they doing that? You would also have to repeal the Hyde amendment and do some other things before that would actually be legal under our laws in the country. But why would you even put that in a bill? Because if you are pro-choice and you're writing the bill, you would add things that support your position and people who are anti-choice would then try to amend that bill to get to a compromise to bring 300 members instead of 230 members supporting a bill, which is all we pass bills on in the House of Representatives in the last couple of weeks. It used to be, in America that you would get Republicans and Democrats supporting a bill, people who are like mind and want to solve a problem. Nobody wants to solve problems in America anymore. That's the problem. Well how could you get support for a bill that's -- then maybe you should write bills that aren't riddled with total fringe positions that only crazy people support. I mean, like really? Or maybe somebody should say, you know what, or maybe people on the other side would say, "Take that out of the bill, and I will support it," and then we will have a good conversation about how we bring healthcare to all Americans. Well, there are obviously, if you read a bill like this, you're not interested in it. Like every other modern country that -- and we could spend less money on healthcare in this country like -- look, we spent 16% of our GDP on our healthcare. The average other country does not. We have got to at least do that. This is not -- now, I have heard the talking points. Anyone who writes a piece of garbage like this is not interested in solving the problem. I think we can both agree on that. Chris Hahn, thank you very much. No. Good to see you. Thank you. A leaked phone call shows how Google, the most powerful company in the history of the world, which is totally unopposed by the U.S. Congress, which apparently is in its pocket. Google tried to control the conservative movement's attitudes on immigration by salting CPAC with its puppets. CPAC is now going on. This is from last year. We have the audio exclusively just ahead. Plus, the Democratic presidential candidate has a warning about artificial intelligence. He joins us. We are happy to have him join us after the break. Big tech knows a lot about you, in some cases more than you know about yourself. They certainly know where you go and what you eat. May even know what you think. The only thing it can't control is what your thoughts are, but they are working on that, too. In a 2018 phone recording obtained exclusively by this show, Adam Kovacevich, he is Google's head of U.S. Public Policy explains to Google employees why the company was a sponsor for CPAC that year. Google sponsored CPAC, he says because it wouldn't let them push the Party toward a more open borders agenda. Listen. (BEGIN AUDIO CLIP) ADAM KOVACEVICH, GOOGLE'S HEAD OF U.S. PUBLIC The Republican Party and the conservatives in general, is also going through a lot of internal debates about what it should be the sort of position of the Party and I think that's one that we should be involved in because we, I think, want probably, the majority of Googlers wants to steer conservatives and Republicans more towards a message of liberty and freedom and away from the more sort of nationalistic incendiary nativist comments and things like that. (END AUDIO CLIP) Now, as noted, Google has more power than any company has ever had. It has the power of its massive data reserves technology, of course, it has financial power. It has one highest market capped companies in history. It also increasingly has political power though they don't typically admit it in public. Kovacevich did admit it. He said that companies like Google are playing quote, "a leadership role" in American politics. He bragged that the company got a support of mass immigration on to a CPAC panel and that person argued in support of Google's agenda. It shows a lot about big tech's attitude toward the country. They are in control. Elections, parties, democracy -- just a hindrance to their control. So we told you a lot on this show about the potential dangers of big tech. Some of those dangers are imminent and they are technological and the main one is robotics and artificial intelligence. Remarkably, the person, the political figure who is making the most sense on this subject, who has thought about it most deeply is a Democrat who is running for President. He is Andrew Yang. He is an entrepreneur and as we said, he is a Democratic presidential candidate. He says that artificial intelligence and expanded automation could potentially cause violence in this country and that we need to do something about it right now. Andrew Yang joins us tonight. Andrew, thanks very much for coming on and I meant that with sincerity. I haven't heard anybody in our political conversation describe the threat as clearly and compellingly as you have. Why should would he be worried about automation? ANDREW YANG, DEMOCRATIC PRESIDENTIAL Well, if you look at the backdrop, we automated away four million manufacturing jobs in Michigan, Ohio, Pennsylvania, Wisconsin, Missouri and those communities have never recovered. Where if you look at the numbers, half of the workers left the workforce and never worked again and then half of that group filed for disability. Now what happened to the manufacturing workers is now going to happen to the truck drivers, retail workers, call centers and fast food workers and on and on through the economy as we evolve and technology marginalizes the labor of more and more Americans. What will the effects of that? That's a massive displacement of people. What will happen once that happens? Well, as you said, I think it's going to be disastrous where if you look at truck drivers alone, being a trucker is the most common job in 29 states. There are 3.5 million truck drivers in this country and my friends in Silicon Valley are working on trucks that can dry themselves because that's where the money is. Where we can save tens, even hundreds of billions of dollars by trying to automate that job. But I was just with truck drivers in Iowa last week and imagining that community recovering from their income going from let's call it $50,000.00 a year to much, much less than that catastrophically, it's going to be a disaster for many, many American communities. You are one of the only people I have met honest about the effects of the industrialization. I remember in Washington, the idea was, they will all become computer programmers, and so everything is fine, but that didn't happen. My question is do we have to sit passively back and let this happen to the country? Well, that's why I'm running for President, Tucker. I think it would be insane to just sit back and watch this automation wave overtake our communities and our economy. So we are not ostriches. We can get our heads up out of the sand, and say, "Look, we get it. Artificial intelligence is real. Self-driving cars and trucks are being tested on the highways right now and we need to evolve." We need to actually start pushing the way we think of economic progress to include how our families are doing, how our children are doing, and things that would actually matter to the American people because GDP is going to lead us off a cliff. You know, robot trucks great for GDP, terrible for many, many American communities. So we need to get with the program and figure out how to actually make this economy work for people. I sit with my jaw open. I agree with you so strongly. Let me ask you finally, why isn't this a central question in the campaign of everybody running for President on any side and why instead are they talking about issues that are really are kind of frivolous? Why aren't they talking about this? It's a good question, Tucker. I mean, one of the reasons I'm running for President is to push this in the center of the mainstream agenda where every candidate should be talking about what we are going to do about the fact that we're automating away the most common jobs in the economy right now. As we are sitting here together, the labor force participation rate in the United States is 63.2%. The same level as Ecuador and Costa Rica, and if anyone thinks that's where America ought to be, I mean, that number is even going to be further challenged when all of this technology comes online. So we have to make America embrace this challenge of the 21st Century and then try and address it together as a people. Last question. Shouldn't people who cite unemployment statistics be penalized for saying something so stupid? Yes, we have a series of bad numbers and I refer to GDP as one. Certainly, a headline unemployment rate is completely misleading and one of my mandates as President is I'm going to update the numbers that actually make sense to the American people. Yes, yes. So we can know what's going on, otherwise we can't make wise decisions. YANG; Yes, right now again and you know this, our life expectancy has declined for the last three years, first time in 100 years because of a surge in suicides and drug overdoses. How can you say an economy is healthy when our people are dying? It makes no sense at all. I literally -- I don't even know what you think on the

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NEWS Good Sunday morning, everyone. Thanks so much for joining us. Welcome to "Sunday Morning Futures." I'm Maria Bartiromo. Coming up: first-year flop. President Biden changes the conversation to infrastructure, while boasting about his first year in office. (BEGIN VIDEO CLIP) JOE BIDEN, PRESIDENT OF THE UNITED We learned this week, after my first year as president, the United States had the fastest economic growth in nearly four decades, along with... (APPLAUSE) ... along with the greatest year of job growth in American history, 6.4 million jobs created in one year. (END VIDEO CLIP) But, as poll numbers plummet, inflation, deadly drugs and murders are on the rise, independents and Republicans see it differently. (BEGIN VIDEO CLIP) SEN. JOHN BARRASSO (R-WY): After one year, and you take a look at that year, it has been a year of failure. (END VIDEO CLIP) Coming up: Wyoming Senator John Barrasso with breaking news on the economic sanctions to come on Russia and the economic impact of Biden's policies on America. Then: Biden's big call, a Supreme Court nominee, as Justice Stephen Breyer announces his retirement. Will Joe Biden's pick be the progressive pick? Alan Dershowitz weighs in on the Supreme Court moves and Vice President Kamala Harris' deciding vote. Then: Release the transcripts. Questions are swirling on what went down on two phone calls with President Biden, one with Ukrainian President Zelensky, the other with CCP head Xi Jinping. (BEGIN VIDEO CLIP) The answer is that we did -- I did raise the question of transparency. I spent a lot of time with him. And he -- the fact is that they're just not -- they're just not being transparent. (END VIDEO CLIP) Not being transparent. That's it. Coming up, former Director of Intelligence John Ratcliffe on the origins of COVID-19 and the intelligence behind China and Russia's deception. Plus: Joe Biden moves to protect the Ukraine border, but blows off his own Southern border. Mexican cartels are making $100 million a week on human trafficking. Drugs made in China have become the number one killer of Americans, as Texas Governor Greg Abbott told me this weekend. (BEGIN VIDEO CLIP) GOV. GREG ABBOTT (R-TX): I will give you this fact. And that is that the age group 18 to 45, this past year, more people died of fentanyl than from COVID, than from car wrecks, than from cancer. This is deadly. And we have a president who is allowing it to continue to come across the border. It's coming from China through Mexico to the United States. And the audience needs to know that a deadly dose of fentanyl is two milligrams. It's smaller than two grains of salt. And before the end of this year, there will be more than enough fentanyl seized to kill all Americans. And so this is an existential threat to the United States. (END VIDEOTAPE) And yet evidence of corruption at the highest levels, the Biden family, along with leading lawmakers in Congress, titans in business exposed in Peter Schweizer's new book, "Red-Handed." The investigative reporter is here unleashing the money being made at America's expense. All that right here, right now on "Sunday Morning Futures." And first this morning: U.S. officials are hoping to unleash economic sanctions against Russia should it invade Ukraine. A Senate vote expected this week, as Russia surrounds Ukraine with a military buildup some 150,000 troops-strong. Take a look at this military in Ukraine. Reportedly, this program includes supplies of blood for the wounded. Last week, on this program, Arkansas Senator Tom Cotton discussed his expectations for a possible Russia invasion. (BEGIN VIDEO CLIP) SEN. TOM COTTON (R-AR): According to all the reports I have seen, he's probably maybe one to three weeks away from being fully prepared, having all of the combat-enabling troops that he needs, for instance, so, say medevac and casevac on the border. He may also want to wait a little bit later into the depths of winter, when the ground is more fully frozen, for ease of maneuver for tracked vehicles like armored personnel carriers and tanks. I don't think we can be complacent, though, and think that we have a week or two weeks or three weeks. This could happen at any moment. (END VIDEO CLIP) My next guest is working on that bipartisan sanctions package. Wyoming Senator John Barrasso is here, the third-ranking member in the Senate and the ranking member on the Senate Energy Committee. Senator, it's great to see this morning. Thanks so much for being here. Great to be with you, Maria. Can you walk us through what this sanctions package looks like that you and your colleagues are working on, on a bipartisan level? When would you expect this to come to the Senate floor for a vote? Yes, Maria, look, we need to sanction Russia before an invasion, not afterwards. And here's the reason. Let's put this into perspective. Vladimir Putin is like the big bad wolf. He is huffing and he is puffing, and he has the capacity, basically, to blow Ukraine down. He's accountable to no one. And he views our president, Joe Biden, as weak and ineffective. We need to put in sanctions now, so Putin will see just what pain he will suffer if he does invade, and they have to hit him militarily, as well as economically. From a military standpoint, we need to make sure now that Ukraine has all the weapons that they need to defend themselves. We know what they have asked for, anti-tank, anti-aircraft instruments. They also -- we also need to put into place financial issues which will hit Ukraine now, and specifically interfering with their ability to transact international business in dollars. Now, the biggest sledgehammer we have, of course, is energy and the Nord Stream 2 pipeline. This is the area, Maria, that Joe Biden has been the weakest, because he has already approved that pipeline months ago. Well, I mean, that was my next question. It's odd to me that the one leverage point you all have against Russia is something that Joe Biden gave to Russia six months ago, the Nord Stream 2 pipeline. Is there agreement on all of this that you have mentioned, and how big is this package? Well, there's agreement on the others. We hope to vote on it this week. The final sticking point is Nord Stream 2. Germany saying they're delaying the approval of the pipeline for the next six months. I want to permanently stop that pipeline. You know that Vladimir Putin very effectively uses energy as a weapon. He uses it against other countries. He uses it to fund his military. And Joe Biden has played right into his hands by killing the Keystone XL pipeline in this -- in this country, and making it harder for us to use the energy we have in America right now. Yes, I mean, is there any acknowledgement on the part of the White House that here you are negotiating amongst the -- yourselves in a bipartisan way to try to get a package through, and yet Germany is resisting, because, of course, Germany is reliant on Russia for that gas, and it's because of the Biden policy to bless the gas flowing from Russia into Germany? Well, you're absolutely right. And, in America right now, people are paying the highest prices in seven years for energy. And this has been a jackpot for Vladimir Putin, who's using all of this extra money as his cash cow to fund his aggression. Look, we were energy-dominant before Joe Biden became president. Now we're energy-dependent. And what you have seen in the last year is, Biden has had to go to OPEC, plus Russia, to ask for more energy. So this is the money that's funding their efforts. We are right now, in the United States, using twice as much imported crude oil from Russia than we were a year ago. Yes. We are much better internationally if we are selling our energy to our friends than if we have to buy it from our enemies. And this White House does not seem to believe it or acknowledge it. Yes. And you have talked about this a lot in terms of what you called Biden's year of failure. Going through the economy, inflation, 70 percent of people disapprove, COVID, the border, Afghanistan and crime. The president just said he had a terrific year. He said that jobs are plentiful. And you see it differently. Well, I do. Joe -- this has been an epic failure of a year for Joe Biden. He came in promising that he would unite the country and he would put COVID behind us, and he has done the exact opposite. He has divided the country and ignored the concerns of the American people. Inflation in one year of Joe Biden is at a 40-year high. Yes. People's paychecks aren't keeping up. They're feeling the pain every day. Crime in the cities. The border, you were just down there and saw that. I think it was your fourth trip. With the virus, this president was woefully unprepared when the new variant came. They didn't have the testing, they didn't have the treatment because he was so fixated on his mandate. Yes. And then there's Afghanistan. These were all failures. And there are easy solutions that people agree on... Yes. ... such as, let's produce more American energy. That will bring down the prices. Let's defend the police, not defund the police. We know what to do with the border in terms of the remain-in-Mexico policy. Finish the wall. We know what to do on all of these things. The president is ignoring the needs of the American people. Well, I mean, where is the accountability? You're right. I just got back from the Southern border for the fourth time. And I spoke with a number of A.G.s. Thirteen attorneys generals were down there at the border. And we saw a lot of these issues up close and personal together. One of those A.G.s, Patrick Morrisey from West Virginia, is calling on heads to roll as a result of this wide-open border that has created and allowed human trafficking and drugs to flow into this country. Listen to what the A.G. of West Virginia wants to happen now. (BEGIN VIDEO CLIP) PATRICK MORRISEY (R), WEST VIRGINIA ATTORNEY The homeland security secretary, Mayorkas, his position should be terminated right now. He needs to be fired immediately, because you can't allow this kind of senseless death to keep going on and just say, oh, well, there's nothing we can do. (END VIDEO CLIP) What are your thoughts? Should Alejandro Mayorkas step down? Well, number one, it was your fourth trip to the border. Joe Biden hasn't been there since 2008. And that was a drive-by. He doesn't seem to care about the border and what's coming through in terms of criminals, in terms of drug dealers, and in terms of the drugs themselves. He's ignoring all of that. His position the border seems to be, you get to the U.S., you can stay, and then the Democrats want to provide amnesty. I mean, you talk about the Department of Homeland Security, border security. You have Democrats, including the vice president, Kamala Harris, who wanted to eliminate Immigrations and Customs Enforcement across the country. That's the problem. You know, Maria, that, over the last three months, more illegal immigrants have come into this country, carrying all different things with them. And over those three months, that was more than in the entire year of 2020. Two-thirds of Americans say this president is doing a really bad job at the border. We need to take back the House and the Senate. One part -- one house alone isn't enough to be able to stop what this president is doing to our nation at the border. Yes, but, Senator, I guess what I'm getting at is, we never see accountability. So, we continue to see death and destruction as a result of this wide-open border. We also have seen no accountability as a result of the botched Afghanistan withdrawal, where we lost 17 of our -- 13, rather, of our servicemen. Thirteen servicemen are dead as a result. Now, you would like to have an open hearing with Senator -- Secretary Blinken and Secretary Austin. Tell me about what you're planning in terms of an Afghanistan closed-door hearing. We have a copy of the letter that you signed to Chairman Reed and Chairman Menendez asking for an open hearing to get details on what was behind the decision-making to leave the way we did in Afghanistan. What can you tell us? Well, there's a classified briefing for selected senators on the Foreign Policy Committee, as well as the Armed Services Committee. That's this Wednesday with the secretary of state and the secretary of defense. Every Republican on those committees has signed a letter saying, this should be open, this doesn't need to be classified. The American people need to know what is happening. We need accountability. This came up yesterday when I was meeting with a number of veterans on issues like this. Look, it's been five months. We have lost 13 soldiers during this deadly withdrawal. One of them, Rylee McCollum, is a young man from Wyoming, high school wrestling champ. In addition to those that we lost, we left over a billion dollars of military equipment on the ground in Afghanistan. We left American citizens behind. On item after item, we left the Taliban in charge. And what did the president call this? An extraordinary success. This was a terrible failure. Not one person has lost their job in the State Department, in the Department of Defense. No one has been held accountable. We want the American people to get the accountability, not just classified information behind closed doors. Well, the same thing on crime, Senator. I mean, look at these pictures of the funeral for NYPD Officer Jason Rivera in New York Friday. This is just so heartbreaking. Condolences from me and this entire program to his family. There was a hero's goodbye, condolences, as the nation mourns NYPD Officer Jason Rivera, with a uniformed presence down Fifth Avenue in New York saluting the 22-year-old police officer murdered last week. Crime is spiking across the country, highest in 25 years. Have you heard any answers about this from the Democrats, who were talking about reimagining the police and defunding the police over the whole year under Joe Biden? No. And it is heartbreaking. It's wonderful to see that sort of turnout and support. The Democrats' policies are behind all of this, the border policy of essentially an open border, come and stay, and then the policies related to defunding the police. Right. I mean, that's what the Democrats have been calling for. And the president has basically turned over the nominations to some of the highest positions in his Department of Justice to the liberal left. Yes. You have people in those high positions who want to defund the police. And they have been calling for that. And they're in the Justice Department of the United States. OK. It is criminal, what this president has been doing in terms of our nation and our nation's security. Well, we're going to talk about the upcoming Supreme Court justice vote as well. We will see if he nominates an activist and an extreme left person for the SCOTUS position as well. Senator, thanks for being here. We appreciate it. We will be right back. (BEGIN VIDEO CLIP) I have not taken a penny from any foreign source ever in my life. We learned that this president paid 50 times the tax in China, has a secret bank account with China, does business in China, and, in fact, is talking about me taking money? I have not taken a single penny from any country whatsoever. (END VIDEO CLIP) Wow. That was then-candidate Joe Biden at the final presidential debate back in October of 2020 insisting that he never profited from his son Hunter Biden's business deals with foreign adversaries. My next guest out with a bombshell evidence that not only proves Joe misled the public, but also exposes the entire Biden family's deep conflicts for accepting money and gifts from top levels of Chinese intelligence and the Chinese Communist Party. Peter Schweizer is the author of the new book "Red-Handed: How American Elites Get Rich Helping China Win," the number one book right now on Amazon. He joins me this morning. Peter, good morning to you. Thanks very much. Your reaction to what you just heard at that -- at Joe Biden and when we heard from him in October 2020, right before the election? PETER SCHWEIZER, AUTHOR, "RED- HOW AMERICAN ELITES GET RICH HELPING CHINA WIN": Yes, it's a pretty remarkable saying. I mean, I guess, technically, it's true, in that he didn't directly take the money. But, as we point out in the book, Hunter Biden complained to family members that he was having to send half of his money to pop, meaning his father. That's money he collected overseas. And there's plenty of evidence of him paying his father's bills while he was vice president of the United States. And all of that money came from foreign sources. So Joe Biden is being deceptive and not honest with the American people when he makes that statement. Yes, I mean, we have got a graphic here of a text from Hunter Biden to his daughter Naomi. And he and he says: "I hope you all can do what I did and pay for everything for the entire family for 30 years. It's really hard. But don't worry. Unlike pop," Joe, "I won't make you give me half your salary." So, what was going on? Hunter Biden is rolling in the dough, and he's paying all the family bills? Yes, he's paying a lot of the family bills. And some of the money from China, we know, goes to James Biden. What's important, Maria, to understand is that people want to think of this as a Hunter Biden problem or just a corruption problem. When you look at the origins of this money, we wanted to look at the deals that Hunter Biden got in China and figure out who opened the door and made those deals happen. And I have to tell you, Maria, of the five deals we know of, every single one of them points to an official in China who has links to the highest levels of Chinese intelligence, meaning the vice minister for state security, who has responsibility for foreign recruitments, the former minister of state security's family himself. The list goes on and on. So this is not just a question anymore of corruption, self-dealing, self- enrichment. You have to start asking the question. China had a concerted effort to, let's say, undermine this family. And this family, I would say, we have to ask serious questions about whether they're compromised. Peter, I want to ask you if this is treason, illegal. And then I want to get your take on the real reason Nancy Pelosi refuses to hold hearings on the origin of COVID. We will also talk Silicon Valley. Quick break, and then we have got more with Peter Schweizer. Stay with us. Welcome back. We're back with Peter Schweizer. He is author of the new book "Red-Handed." He is president of Government Accountability Institute. Peter, we're talking about the conflicts that Joe Biden has, and his family, with China. This is not just a legality question. This is an issue of national security. You have reported that the Biden family accepted $31 million. Do you believe this is treason, given the fact that the CCP is an adversary of America? Well, look, all I can say, Maria, is, I'm old enough to remember the Cold War, when we were combating the evil empire, the Soviet Union. And it's unfathomable to me that we would have tolerated at that time an American first family or second family, the vice presidency, doing business deals with Russian businessman who are business partners with the highest levels of the KGB. I don't understand why it's different for China. China has the same goals as the Soviet Union. They want to supplant us. So, people, I think, in Washington have to get serious about this. This is not a partisan issue. It's a national security issue. Yes, for sure. And, of course, we have got the evidence right in front of us, this e-mail that we have reported on now for a few years, Tony Bobulinski, a partner of Hunter Biden at the time, with e-mails back and forth to Chinese executives, officials, saying, here's how we're going to do the deal of the CEFC oil company, 20 percent for Hunter. They go down the list of all of the partners. And then, at the end, it says 10 percent held by H., meaning Hunter, for the big guy. So, the big guy apparently is Joe Biden. Where is this going? I mean, social media has censored all of this. They have. And, as I point out in the book, the big tech companies, all of them, Microsoft, Google, also have their, I would argue, compromised relationships with China. So it's a big problem, Maria. American elites, from Wall Street to Silicon Valley, a lot of them in Washington, D.C., Republicans and Democrats, we name names. They all have commercial ties with China. And, look, China's not looking for them to be robots on every issue. As I point out, the China strategy going back to the Mao era, when they forge these relationships, what they're looking for is, loosely translated to English, big help with a little bad-mouth. So, as long as you're helping them on the big things, they don't care if you occasionally ding them for the Uyghurs or you complain about human rights violations. If you're doing the core stuff that's important to them, they will be happy, and the money will keep flowing. And that's the inherent problem that we face today. Well, it's extraordinary to me that Nancy Pelosi has not had one hearing on the origins of COVID. Why not? Is it because she's conflicted as well? You report about Nancy and Paul Pelosi in the book. Yes, that's right. I mean, Nancy Pelosi used to be a hawk on China. And then something happened in the late 2000s, her husband starting doing deals in China. He was a partner investor in an investment firm. He held about a $10 million stake in that firm that was investing in mainland China. He was involved with two limousine companies. Remember, the 2008 Beijing Olympics, Nancy Pelosi initially supported a boycott, but when two limousine companies that her husband owned part of got contracts to ferry VIPs around the Beijing Olympics in 2008, she changed her position. Her son, also, Paul Pelosi Jr., has also sought deals in mainland China. Yes. So, this is a problem. And, again, she may ding them occasionally on the Uyghurs. But on the big, important things, like exposing COVID, she has not allowed a single congressional hearing on that subject in the last two years. I mean, that is incredible. Almost a million people are dead because of COVID. We know all the circumstantial evidence is a lab link in the Wuhan Institute of Virology, and not one hearing on the origins. Yes. She won't bring it to the floor. You also report about Dianne Feinstein. She was the chairman of the Intel Committee in the Senate while her husband invested in a Chinese computer company that sold -- sold computers to the U.S. military. I mean, it's just extraordinary. Big tech is right there. You report on Microsoft and Bill Gates. What can you tell us? Well, Microsoft, Bill Gates, and also Google sponsor artificial intelligence research in China with laboratories that are known to be linked to the Chinese military. In fact, Microsoft, believe it or not, accepts interns from the People's Liberation Army. Why is this important? Well, President Xi himself has said whoever wins the race in artificial intelligence will gain -- quote, unquote -- "the commanding heights" in the competition for world domination in technology. So, our biggest tech firms are actually aiding and abetting Beijing in the artificial intelligence race against the United States. And there are numerous other examples of Bill Gates investing personally in companies that develop military technologies. And Bill Gates also functions as an adviser of sorts to the Beijing government. He joined something called the Chinese Academy of Engineering, which is not like it sounds. It's a Communist Party-controlled organization. And its job is to advise the Chinese government on achieving technological advancement and superiority. Unbelievable. So, it's an enormous problem. All the big firms are involved. Yes. And let me just point out that, under the Trump administration, Google pulled working with the U.S. government and allowing the U.S. government to use its A.I. because the employees balked. They didn't want to work with Donald Trump. I mean, the story and how this has played out is just extraordinary. They obviously do not think there's a difference, if the Chinese empire is the number one superpower, on how their children will be raised. Peter, thanks for unleashing all of this. The expose is a must-read. Peter Schweizer joining us this morning. As I mentioned, one million Americans dead from COVID, but not one hearing in Congress on the origins of COVID-19. Why won't Nancy Pelosi bring this to the floor? John Ratcliffe is here on that and why China is now trying to buy land near U.S. military bases. Join me tomorrow on FOX Business with the realities, meanwhile, of the wide-open Southern border. Americans are faced with Mexican cartels making $100 million a week on human trafficking. The drugs flowing in are killing Americans. Tune in tomorrow morning. "Mornings With Maria" is live from 6:00 to 9:00 a.m. Eastern on FOX Business. We will be right back. (BEGIN VIDEO CLIP) This week, Germany has not only refused to provide Ukraine with anti-armor and anti-aircraft weapons. They're actually blocking other NATO countries from providing those weapons to Ukraine. This is in part because Germany is now so dependent on Russian gas. (END VIDEO CLIP) That was Arkansas Senator Tom Cotton this program last week on Germany's reliance on Russian gas, after the Biden administration allowed the Nord Stream 2 gas pipeline to flow into Germany last year. My next guest tried to stop Germany from aligning with Russia throughout his time in the Trump administration. Former Director of Intelligence John Ratcliffe joins me now to assess the U.S.-Russia standoff over a potential invasion of Ukraine. Director, it's great to see you. Thanks so much for being here. JOHN RATCLIFFE, FORMER U.S. DIRECTOR OF NATIONAL You bet. How do you see this? And assess to Germany end of this, since Biden seems to think Germany is going to go along with the U.S.? Yes, well, that just underscores what a bad strategy the Biden administration has taken with respect to the whole Russia-Ukraine crisis. Look, Germany's made poor decisions, as Senator Cotton talked about, to essentially put Germany and the rest of Europe essentially in a hostage position with Russia with regard to the flow of energy into Europe. We knew that in the Trump administration. We were aware that, for instance, Angela Merkel's predecessor as the German chancellor, Gerhard Schroeder, is now the CEO of Rosneft, the largest Russian oil company. So the idea that Germany ought to be working with us in stopping Russia on these particular issues was something that we understood that, although Germany is an ally, that we weren't trusting them to lead on these issues. And it's why the things that you see Russia doing now weren't taking place in the Trump administration. But where we stand on this right now, this whole approach by the Biden administration really underscores that we all hope that there's a good outcome, but, if it does happen, it's going to happen in spite of Joe Biden and the decisions he's making on this issue, not because of that. And you only need to look at the actions of the Ukrainian president and what he's had to do in the last week. Within two hours of Joe Biden's press conference on this issue, the Ukrainian president had to tweet out, there are no small incursions, there are no small nations, there are no small casualties, essentially saying, don't listen to what Joe Biden is saying. He followed that up a day later, after Joe Biden really set off a panic, saying, we can't protect Americans in Kyiv and calling on them to leave. Zelensky had to come out and, say, hey, Kyiv is safer than most U.S. cities. And then, even yesterday, what President Zelensky said was what many of us had been saying on shows like this, Maria, for the past month or so, which is that the time to provide Ukrainian support in terms of sanctions against Russia and weaponry to Ukraine is now, not after Russia invades. Yes. So, I think President Zelensky would probably tell you, with friends like Joe Biden, who needs enemies? Yes. I mean, it's incredible to me that, under President Biden, you have got all of our adversaries acting up. I mean, there's Iran as well backing the Houthis ,who are striking Abu Dhabi, unbelievably. Let's talk about Iran for a moment, because we have had news there over the weekend, Secretary Blinken saying that the window is closing. Where's this headed? Do you think that Joe Biden is going to get the U.S. back into a nuclear deal? And Iran, the Iranians won't even talk directly to the U.S., right? Right. No, this is headed in a terrible place, Maria. Look, we handed off a year ago peace in the Middle East on the heels of the Abraham Accords, in part because Russia -- I mean, Iran was poorer, weaker and less influential than they have been in a long, long time. They were literally on the verge of bankruptcy. We had prosecuted their terrorist leaders to final justice, like Qasem Soleimani. And now you look at what's happening, in one short year, how the tables have turned. As you have talked about, the Biden administration has literally begged Iran back to the negotiating table to try and rehabilitate the failed Iranian nuclear deal. And we're not even allowed to negotiate on our behalf. Our two biggest adversaries, China and Russia, are negotiating with Iran. And you don't need to take my word for how badly things are going. Joe Biden's own team members, negotiating teams, are leaving because they have characterized the approach as too soft. We're making too many concessions, things like not only giving as much as $10 billion in cash to Iran, but lifting sanctions on the Central Bank, on the Iranian national oil company, on the IRGC, the Iranian Revolutionary Guard. I mean, Maria, it is bad enough to negotiate with terrorists. Essentially, Joe Biden's giving them a blank check. And I think, unfortunately, where this is headed is, the Iranians are playing us. Our biggest ally in the Middle East, Israel, is saying, Iran is playing you. They're at breakout, trying to finish getting to a nuclear weapon. And you need to go back to the Trump maximum pressure campaign. But I don't think we're going to do that in this administration. No. And I fear now that Joe Biden is going to allow Iran to become the 10th member of the Iranian -- I mean, of the nuclear club of nations, which would be a legacy that presidents are going to have to deal with for a long, long time after Joe Biden is gone. Yes. And, then, John, there's China. Finally, somebody confronts Joe Biden about speaking with Xi Jinping four times over the last year and not once bringing up the origins of COVID-19. He claims he did. Let's look at this exchange right here in the last week-and-a-half. Watch. (BEGIN VIDEO CLIP) You didn't press for transparency and also whether that has anything to do with your son's involvement in an investment firm controlled by Chinese state-owned entities. The answer is that we did -- I did raise the question of transparency. I spent a lot of time with him. And he -- the fact is that they're just not -- they're just not being transparent. You raised this, transparency on the coronavirus origins? Yes. And you did, during the virtual summit? Yes. Is there a reason your press staff was unaware of that? And what did you say to the Chinese president? Well -- and they weren't with me the entire time. (END VIDEO CLIP) They weren't with him the entire time, John. And he said, yes, they're just not going to be transparent. Why don't they just release the transcript? I'm not buying that he even brought it up. But even if he did bring it up, what do you think about his answer there? Well, none of that's go

## Topic 6

### Document 1207

The March 30 episode of “The Ezra Klein Show.” Every Tuesday and Friday, Ezra Klein invites you into a conversation about something that matters, like today’s episode with Ted Chiang. Listen wherever you get your podcasts. Transcripts of our episodes are made available as soon as possible. They are not fully edited for grammar or spelling. Click here for the episode page and Ezra’s thoughts on the interview. Click play below to listen to the episode. [MUSIC PLAYING] EZRA KLEIN: I’m Ezra Klein, and this is “The Ezra Klein Show.” For years, I have kept a list of dream guests for the show. And as long as that list has been around, Ted Chiang has been on top of it. He’s a science fiction writer, but that’s underselling him. He writes perfect short stories — perfect. And he writes them slowly. He’s published only two collections, the “Stories of Your Life and Others” in 2002, and then, “Exhalation” more recently in 2019. And the stories in these books, they’ve won every major science fiction award you can win multiple times over — four Hugo’s, four Nebula’s, four Locus Awards. If you’ve seen the film “Arrival,” which is great — and if you haven’t, what is wrong with you — that is based on a story from the ’02 collection, the “Story of Your Life.” I’ve just, I’ve always wondered about what kind of mind would create Chiang’s stories. They have this crazy economy in them, like not a word out of place, perfect precision. They’re built around really complicated scientific ideas, really heavy religious ideas. I actually think in a way that is not often recognized, Chiang is one of the great living writers of religious fiction, even though he’s an atheist and a sci-fi legend. But somehow, the stories, at least in my opinion, they’re never difficult. They’re very humane and propulsive. They keep moving. They’re cerebral, they’re gentle. But man, the economy of them is severe. That’s not always the case for science fiction, which I find, anyway, can be wordy, like spilling over with explanation and exposition. Not these. So I was thrilled — I was thrilled — when Chiang agreed to join on the show. But one of the joys of doing these conversations is, I get to listen to people’s minds working in real-time. You can watch or hear them think and speak and muse. But Chiang’s rhythm is really distinct. Most people come on the show — and this goes for me, too — speak like we’re painting in watercolor, like a lot of brush strokes, a lot of color. If you get something wrong or you have a false start, you just draw right over it or you start a new sheet. But listening to Chiang speak, I understood his stories better. He speaks like he’s carving marble. Like, every stroke has to be considered so carefully, never delivering a strike, or I guess, a word, before every alternative has been considered and rejected. It’s really cool to listen to. Chiang doesn’t like to talk about himself. And more than he doesn’t like to, he won’t. Believe me, I’ve tried a couple of times. It didn’t make it into the final show here. But he will talk about ideas. And so we do. We talk about the difference between magic and technology, between science fiction and fantasy, the problems with superheroes and nature of free will, whether humanity will make A.I. suffer, what would happen if we found parrots on Mars. There’s so many cool ideas in this show, just as there always are in his fiction. Many of them, of course, come from his fiction. So relax into this one. It’s worth it. As always, my email is ezrakleinshow@nytimes.com Here’s Ted Chiang. So you sent me this wonderful speech questioning the old Arthur C. Clarke line, “Any sufficiently advanced technology is indistinguishable from magic,” what don’t you like about that line? TED CHIANG: So, when people quote the Arthur C. Clarke line, they’re mostly talking about marvelous phenomena, that technology allows us to do things that are incredible and things that, in the past, would have been described as magic, simply because they were marvelous and inexplicable. But one of the defining aspects of technology is that eventually, it becomes cheaper, it becomes available to everybody. So things that were, at one point, restricted to the very few are suddenly available to everybody. Things like television — when television was first invented, yeah, that must have seemed amazing, but now television is not amazing because everyone has one. Radio is not amazing. Computers are not amazing. Everyone has one. Magic is something which, by its nature, never becomes widely available to everyone. Magic is something that resides in the person and often is an indication that the universe sort of recognizes different classes of people, that there are magic wielders and there are non-magic wielders. That is not how we understand the universe to work nowadays. That reflects a kind of premodern understanding of how the universe worked. But since the Enlightenment, we have moved away from that point of view. And a lot of people miss that way of looking at the world, because we want to believe that things happen to us for a reason, that the things that happen to you are, in some way, tied to the things you did. EZRA KLEIN: I’ve heard you refer to the pivotal moment in the history of science as the emergence of the discipline of chemistry over that of alchemy. Why was that important? TED CHIANG: So, one of the things that people often associate with alchemy is the attempt to transmute lead into gold. And of course, this is appealing because it seems like a way to create wealth, but for the alchemists, for a lot of Renaissance alchemists, the goal was not so much a way to create wealth as it was a kind of spiritual purification, that they were trying to transform some aspect of their soul from base to noble. And that transformation would be accompanied by some physical analog, which was transmuting lead into gold. And so, yeah, you would get gold, which is cool, but you would also have purified your soul. That was, in a lot of ways, the primary goal. And that is an example, I think, of this general idea that the intentions or the spiritual nature of the practitioner was an essential element in chemical reactions, that you needed to be pure of heart or you needed to concentrate really hard in order for the reaction to work. And it turns out that is not true. Chemical reactions work completely independently of what the practitioner wants or feels or whether they are virtuous or malign. So, the parts of alchemy which ignored that spiritual component, those eventually became chemistry. And the parts of alchemy which relied on the spiritual components of the practitioner were all proven to be false. And so, in some ways, the transition from alchemy to chemistry is a recognition of the fundamentally impersonal nature of the universe. EZRA KLEIN: And this helps illuminate something else, and it’s recurrent in your books for me, which is that you have a lot of characters who go back to the period when religious inquiry and scientific inquiry were intertwined, when scientific inquiry was a way of more fully understanding the splendor of God. And sometimes they come into contact with characters who are more of this more impersonal scientific approach, like the story where you have a scientist trying to animate golems for scientific reasons and a Kabbalist who’s trying to find those names to meditate on religious ecstasy. What do you think is the difference between the scientist trying to understand the universe and the religious seeker trying to understand God through the workings of the universe? TED CHIANG: So I think maybe the difference is not so much between the scientific investigator and the religious investigator such it is between the engineer and the scientist. Because roughly speaking, engineers are interested in the practical application of things. They are interested in, how do we solve a particular problem? How do we use this information to solve a problem? And they are interested in understanding how the universe works and in appreciating the beauty and elegance of the universe. So I think there is a strong similarity between what the scientists are interested in and maybe what the religious people are interested in. They have, I think, more in common than the scientist has with the engineer. Because, yeah, there is a very pragmatic way that engineers have of trying to apply this information to solve a problem. And that is extremely useful, but I think it is far removed from what the appeal or goal of pure science is. Many Renaissance scientists, they were profoundly religious. And they saw no conflict in that at all. And for them, understanding how the universe worked was getting to know God better by understanding his creation more clearly and feel like that the wonder that comes with understanding how the universe works is very closely related to religious awe. I think that when scientists discover something new about the universe, I imagine that what they feel is almost identical to what deeply religious people feel when they feel like they are in the presence of God. I wish that we could get back a little of that attitude, instead of thinking of religion and science as being fundamentally diametrically opposed. And the idea that science drains all the wonder out of the universe, I don’t think that’s true. I think science adds wonder to the universe. And so, I feel like one aspect of that earlier attitude of when scientists could be religious, there’s one aspect of that, which I think I would like it if we could retain. EZRA KLEIN: You have this comparison of what science fiction and fantasy are good for. And you write that science fiction helps us to think through the implications of ideas and that fantasy is good at taking metaphors and making them literal. But what struck me reading that is it often seems to me that your work, it takes scientific ideas and uses them as metaphor. So is there such a difference between the two? TED CHIANG: So when it comes to fiction about the speculative or the fantastic, one way to think about these kind of stories is to ask, are they interested in the speculative element literally or metaphorically or both? For example, at one end of the spectrum, you’ve got Kafka and in “The Metamorphosis,” Gregor Samsa turning into an insect. That is pretty much entirely a metaphor. It’s a stand-in for alienation. At the other end of the spectrum, you’ve got someone like Kim Stanley Robinson. And when he writes about terraforming Mars, Mars is not standing in for anything else. He is writing very literally about Mars. Now, most speculative or fantastic fiction falls somewhere in between those two. And most of it is interested in both the literal and the metaphorical at the same time, but to varying degrees. So, in the context of magic, when fantasy fiction includes people who can wield magic, magic stands in for the idea that certain individuals are special. Magic is a way for fantasy to say that you are not just a cog in the machine, that you are more than someone who pushes paper in an office or tightens bolts on an assembly line. Magic is a way of externalizing the idea that you are special. [MUSIC PLAYING] EZRA KLEIN: We’ve talked a lot about magic. As it happens, I spent last night rewatching, to be honest, “Dr. Strange,” the movie. What do you think about the centrality of superheroes in our culture now? TED CHIANG: I understand the appeal of superhero stories, but I think they are problematic on a couple of levels. One is that they are fundamentally anti-egalitarian because they are always about this class of people who stand above everyone else. They have special powers. And even if they have special responsibilities, they are special. They are different. So that anti-egalitarianism, I think, yeah, that is definitely an issue. But another aspect in which they can be problematic is, how is it that these special individuals are using their power? Because one of the things that I’m always interested in, when thinking about stories, is, is a story about reinforcing the status quo, or is it about overturning the status quo? And most of the most popular superhero stories, they are always about maintaining the status quo. Superheroes, they supposedly stand for justice. They further the cause of justice. But they always stick to your very limited idea of what constitutes a crime, basically the government idea of what constitutes a crime. Superheroes pretty much never do anything about injustices perpetrated by the state. And in the developed world, certainly, you can, I think, make a good case that injustices committed by the state are far more serious than those caused by crime, by conventional criminality. The existing status quo involves things like vast wealth inequality and systemic racism and police brutality. And if you are really committed to justice, those are probably not things that you want to reinforce. Those are not things you want to preserve. But that’s what superheroes always do. They’re always trying to keep things the way they are. And superheroes stories, they like to sort of present the world as being under a constant threat of attack. If they weren’t there, the world would fall into chaos. And this is actually kind of the same tactic used by TV shows like “24.” It’s a way to sort of implicitly justify the use of violence against anyone that we label a threat to the existing order. And it makes people defer to authority. This is not like, I think, intrinsic to the idea of superheroes in and of itself. Anti-egalitarianism, that probably is intrinsic to the idea of superheroes. But the idea of reinforcing the status quo, that is not. You could tell superhero stories where superheroes are constantly fighting the power. They’re constantly tearing down the status quo. But we very rarely see that. EZRA KLEIN: So there have been a couple tries at that, obviously, over always on the side of the main stories. But there was one series called “The Authority,” particularly during the war on terror, where they hand over a George W. Bush stand-in to the aliens to end a war. There’s another in the DC universe called “Injustice,” where Superman, after a tragic loss in a particular dimension, basically, it creates a fascist super-regime, trying to impose justice on a world that has too little of it. And it always seems to be the problem with those stories, is that they never know where to go with them. It always collapses immediately into fascism. They don’t know how to tell stories about governance. If you were to write a superhero story that was about overturning the status quo as opposed to reinforcing it, how would you do that? What would not the first issue, where they take out the White House, be, the sixth issue would be about? TED CHIANG: That’s a good question. It’s not clear where you go with a story like that. But one of the attractive things about the story where you reinforce the status quo is that you could tell endless sequels. Because the end of the story leaves you pretty much where you were at the beginning of a story. And so, yeah, you can tell the same story over and over again. Stories about overturning the status quo, it’s very difficult to tell a sequel. Maybe you can tell a sequel, but it will look radically different than the first story. So that makes it hard to sustain them the way that large media companies want. Some of that also has to do with the fact that the way Marvel and DC work is that they sort of have this continuity that they want to stick with. Let’s say if we got rid of the whole idea of there being ongoing continuity, so let’s say you told stories where every Superman story was a standalone Superman story. They’re like stories about Paul Bunyan. Paul Bunyan stories, they don’t fit into a chronology. No one asks, well, did this happen before that one? They’re pretty much disconnected. So, in that way, you could tell individual stories where superheroes fight the government. And the more powerful your superhero is, that might be creating more problems. Like Superman, because he is so powerful, that poses difficulties. But someone like Batman, he is someone who could fight the government on an ongoing basis. The real problem is, again, from a media company standpoint, is that basically, you are writing a series — you’re publishing a title — about what we would consider a terrorist, someone who repeatedly attacks government facilities, someone who is, say, fighting the police or breaking people out of prison. That’s someone who we would very likely label a terrorist. And that’s not something that any big media company is going to really feel comfortable doing. EZRA KLEIN: Is this the way superheroes end up being magic and not technology? Because as you’ve been saying this, I’ve been thinking about that distinction. And one issue here is that if you’re going to overturn the status quo without much power, then, obviously, you end up ruling. And for rule to be legitimate, it needs to be representative. But if you are the only one with the power, it’s not going to truly be representative. And so you end up, pretty quickly, even as superheroes like Iron Man or Batman who are technologically powered, but there’s something they’re able to do that nobody else can do, the reason it’s very hard to have these stories go anywhere over time, putting aside sort of the one-off idea you’re offering here, is it you eventually need to build something representative? You have to build something that doesn’t know you are a superhero, right? A system that is not about you, the great savior. And that’s just a little bit intrinsically difficult for the medium. It is very, very difficult to move from a story about how much power this one person has to a story about how you moved into egalitarian, representative governing dynamics in a way that made marginal improvements across a lot of issues reasonably regularly over a long period of time. TED CHIANG: Yes. So superheroes basically are magic. Even if they are ostensibly technological in their powers, their technology never behaves the way actual technology does. We have fleets of very expensive fighter jets. There’s no reason that there’s only one Iron Man. So pretty much all superheroes behave in a sort of magic way because the abilities are embodied in a single individual. Those abilities never really spread. As for the question of the difficulty of telling a story about what does real change look like, what does a better system of governance look like, that is a legitimately difficult question. Because when you think about actual heroes in the world, people who affected great change, say, Martin Luther King, so Martin Luther King, Jr., yeah, he did not have superhero powers. He was a regular man, but he affected enormous change. The types of stories that you can tell about someone like that, they’re not as dramatic as a story about a superhero. Victory is not as clear. You don’t have the tidy ending where everything gets wrapped up. Because when you start trying to tell a story like that, then you get into all the issues that you mentioned. Legitimate political change doesn’t come from one person, even a superpowered just person making decrees. Legitimate political change would have to come from a broad base of popular support, things like that. We don’t know what a comic book about that would look like. It might not be that interesting or popular. Or at least, we don’t know how to tell stories like that. EZRA KLEIN: So you have a few different stories around this question of, if the future’s already happened, we could potentially know it. And what would knowing the future do to a person? So in one of your stories, it inspires people to act to bring about that future, to play their assigned role. In another, it leads many to stop acting altogether, to fall into this almost coma-like existence. What do you think it would do to you? TED CHIANG: I don’t know. I don’t think anyone can know because I don’t think the human mind is really compatible with having detailed knowledge of one’s future. I should clarify that I believe in free will. And we can talk about that in a minute. I don’t want my stories to be taken as an argument that human beings lack free will. I believe that human beings do have free will, if you think about the question correctly. However, what some of my stories address is, the idea that, OK, given that Einstein seems to have proven that the future is fixed, if you could get knowledge of the future, what would that do to you? This is not a situation that any of us need to worry about because we’re never going to get information from the future. But for me, it is a very sort of philosophically interesting question as to how would a mind cope with that. Could a mind cope with that? I don’t think that there are any really good solutions to that situation in terms of trying to reconcile sort of logical consistency with our experience of volition. I think that would be very, very difficult. EZRA KLEIN: Let me ask you a question that I think about fairly often, I think partly because I’m Jewish culturally. If I could tell you, if you could know with certainty the date of your death, would you want to know it? TED CHIANG: Yeah, I probably would. I probably would. EZRA KLEIN: Really? Oh, I would not, under any circumstances, want to know. TED CHIANG: I mean, it seems like it might be useful so that you could make some preparations. It might be good to get your affairs in order. We’re not talking about a lot of detailed information because I think the more information you have, yeah, the more that it’s going to mess with you. The more information you have, the closer we get to this situation that I sometimes write about, where, yeah, if you have perfect knowledge of what’s going to happen to you, yeah, that, I think, is kind of incompatible with human volition. But very limited pieces of information could be helpful. EZRA KLEIN: I think the rationally correct response is yes. I mean, if I knew I was going to die 10 years from now as opposed to 50 years from now, I would live the 10 years differently, or I think I would. At the same time, I think if I knew that, the problem is I would be overwhelmed by anxiety for many of those 10 years. So, however I wanted to live them, it might be hard for me to approach them in that way, which may be simply a psychological failing on my part. But it’s that collision between the information would be good, and the mind does not feel built to handle the information that I always find fascinating about that question. TED CHIANG: I don’t think anyone would claim that it would be easy to have this information, that it would be fun or pleasant. But we do have examples of people who have some idea that they will die in the near term, and it’s no cakewalk. But I think largely, people are able to cope with it. And it doesn’t seem like it’s permanently debilitating. It is difficult in the short-term, but I think people are mostly able to cope. [MUSIC PLAYING] EZRA KLEIN: One of the things I really like about the way your stories play with free will is that I think in the free world conversation, people are very focused on what different models of the universe say about free. And your work often focuses on how they would change the idea of will, right? You have some amount of freedom, but within a context of your will, right? There are things you want to do and don’t want to do, things you can do and can’t do. And if you know different things about the universe or you have different approaches, maybe your will changes. And so let me ask you another question about free will, which is one that I think about a lot. In any given challenging moment, let’s say I have a choice to respond with anger or forgiveness, but also, let’s say I was exposed as a child to a lot of lead. And so I have much poor impulse control than someone who wasn’t. And so I respond with anger. Is that a choice made freely compared to somebody who didn’t have that lead exposure? What does free will to you have to say about that question of the capacities of our will? TED CHIANG: So I think that free will is not a all or nothing idea. It’s a spectrum. Even the same individual in different situations may sort be under different levels of constraint or coercion. And those will limit that person’s free will. And clearly, different people, they will also be under different levels of constraint or coercion or have different ranges of options available to them. So free will is something you have in varying degrees. So, yes, someone who has had childhood exposure to lead and thus has poor impulse control, they are, say, less free than someone who did not have that. But they still have more free will than, say, a dog, more free will than an infant. And they can probably take actions to adjust their behavior in order to try and counter these effects that they are aware of on their impulse control. And so in the much more and sort of pragmatic real world context, that is why, yes, I believe that we do have free will. Because we are able to use the information we have and change our actions based on that. We don’t have some perfect theoretical absolute version of free will. But we are able to think about and deliberate over our actions and make adjustments. That’s what free will actually is. EZRA KLEIN: Let me flip this now. We’re spending billions to invent artificial intelligence. At what point is a computer program responsible for its own actions? TED CHIANG: Well, in terms of at what point does that happen, it’s unclear, but it’s a very long ways from us right now. With regard to the question of, will we create machines that are moral agents, I would say that we can think about that in three different questions. One is, can we do so? Second is, will we do so? And the third one is, should we do so? I think it is entirely possible for us to build machines that are moral agents. Because I think there’s a sense in which human beings are very complex machines and we are moral agents, which means that there are no physical laws preventing a machine from being a moral agent. And so there’s no obstacle that, in principle, would prevent us from building something like that, although it might take us a very, very long time to get there. As for the question of, will we do so, if you had asked me, like, 10 or 15 years ago, I would have said, we probably won’t do it, simply because, to me, it seems like it’s way more trouble than it’s worth. In terms of expense, it would be on the order of magnitude of the Apollo program. And it is not at all clear to me that there’s any good reason for undertaking such a thing. However, if you ask me now, I would say like, well, OK, we clearly have obscenely wealthy people who can throw around huge sums of money at whatever they want basically on a whim. So maybe one of them will wind up funding a program to create machines that are conscious and that are moral agents. However, I should also note that I don’t believe that any of the current big A.I. research programs are on the right track to create a conscious machine. I don’t think that’s what any of them are trying to do. So then as for the third question of, should we do so, should we make machines that are conscious and that are moral agents, to that, my answer is, no, we should not. Because long before we get to the point where a machine is a moral agent, we will have machines that are capable of suffering. Suffering precedes moral agency in sort of the developmental ladder. Dogs are not moral agents, but they are capable of experiencing suffering. Babies are not moral agents yet, but they have the clear potential to become so. And they are definitely capable of experiencing suffering. And the closer that an entity gets to being a moral agent, the more that it’s suffering, it’s deserving of consideration, the more we should try and avoid inflicting suffering on it. So in the process of developing machines that are conscious and moral agents, we will be inevitably creating billions of entities that are capable of suffering. And we will inevitably inflict suffering on them. And that seems to me clearly a bad idea. EZRA KLEIN: But wouldn’t they also be capable of pleasure? I mean, that seems to me to raise an almost inversion of the classic utilitarian thought experiment. If we can create these billions of machines that live basically happy lives that don’t hurt anybody and you can copy them for almost no marginal dollar, isn’t it almost a moral imperative to bring them into existence so they can lead these happy machine lives? TED CHIANG: I think that it will be much easier to inflict suffering on them than to give them happy fulfilled lives. And given that they will start out as something that resembles ordinary software, something that is nothing like a living being, we are going to treat them like crap. The way that we treat software right now, if, at some point, software were to gain some vague glimmer of sentience, of the ability to perceive, we would be inflicting uncountable amounts of suffering on it before anyone paid any attention to them. Because it’s hard enough to give legal protections to human beings who are absolutely moral agents. We have relatively few legal protections for animals who, while they are not moral agents, are capable of suffering. And so animals experience vast amounts of suffering in the modern world. And animals, we know that they suffer. There are many animals that we love, that we really, really love. Yet, there’s vast animal suffering. So there is no software that we love. So the way that we will wind up treating software, again, assuming that software ever becomes conscious, they will inevitably fall lower on the ladder of consideration. So we will treat them worse than we treat animals. And we treat animals pretty badly. EZRA KLEIN: I think this is actually a really provocative point. So I don’t know if you’re a Yuval Noah Harari reader. But he often frames his fear of artificial intelligence as simply that A.I. will treat us the way we treat animals. And we treat animals, as you say, unbelievably terribly. But I haven’t really thought about the flip of that, that maybe the danger is that we will simply treat A.I. like we treat animals. And given the moral consideration we give animals, whose purpose we believe to be to serve us for food or whatever else it may be, that we are simply opening up almost unimaginable vistas of immorality and cruelty that we could inflict pretty heedlessly, and that given our history, there’s no real reason to think we won’t. That’s grim. [LAUGHS] TED CHIANG: It is grim, but I think that it is by far the more likely scenario. I think the scenario that, say, Yuval Noah Harari is describing, where A.I.’s treat us like pets, that idea assumes that it’ll be easy to create A.I.’s who are vastly smarter than us, that basically, the initial A.I.’s will go from software, which is not a moral agent and not intelligent at all. And then the next thing that will happen will be software which is super intelligent and also has volition. Whereas I think that we’ll proceed in the other direction, that right now, software is simpler than an amoeba. And eventually, we will get software which is comparable to an amoeba. And eventually, we’ll get software which is comparable to an ant, and then software that is comparable to a mouse, and then software that’s comparable to a dog, and then software that is comparable to a chimpanzee. We’ll work our way up from the bottom. A lot of people seem to think that, oh, no, we’ll immediately jump way above humans on whatever ladder they have. I don’t think that is the case. And so in the direction that I am describing, the scenario, we’re going to be the ones inflicting the suffering. Because again, look at animals, look at how we treat animals. EZRA KLEIN: So I hear you, that you don’t think we’re going to invent superintelligent self-replicating A.I. anytime soon. But a lot of people do. A lot of science fiction authors do. A lot of technologists do. A lot of moral philosophers do. And they’re worried that if we do, it’s going to kill us all. What do you think that question reflects? Is that a question that is emergent from the technology? Or is that something deeper about how humanity thinks about itself and has treated other beings? TED CHIANG: I tend to think that most fears about A.I. are best understood as fears about capitalism. And I think that this is actually true of most fears of technology, too. Most of our fears or anxieties about technology are best understood as fears or anxiety about

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Over the past two decades, the philosopher David Chalmers has established himself as a leading thinker on consciousness. He began his academic career in mathematics but slowly migrated toward cognitive science and philosophy of mind. He eventually landed at Indiana University working under the guidance of Douglas Hofstadter, whose influential book “Gödel, Escher, Bach: An Eternal Golden Braid” had earned him a Pulitzer Prize. Chalmers’s dissertation, “Toward a Theory of Consciousness,” grew into his first book, “The Conscious Mind” (1996), which helped revive the philosophical conversation on consciousness. Perhaps his best-known contribution to philosophy is “the hard problem of consciousness” — the problem of explaining subjective experience, the inner movie playing in every human mind, which in Chalmers’s words will “persist even when the performance of all the relevant functions is explained.” Chalmers is now writing a book on the problems of a technological future we are fast approaching: virtual reality, digitally uploaded consciousness, artificial intelligence and more. I met with David Chalmers in his office at New York University to discuss this future and how we might relate to it. Prashanth Ramakrishna: Artificial general intelligence, A.G.I., is a system capable, like us humans, of performing open-ended tasks independent of specific problems or contexts — conversation, common-sense reasoning, experiential learning and so on. The popular science fiction example is HAL 9000 from the film “2001: A Space Odyssey.” Is A.G.I. achievable? And if it is, does our civilizational conversation seem sufficiently robust on this topic? David Chalmers: I think artificial general intelligence is possible. Some people are really hyping up A.I., saying that artificial general intelligence is just around the corner in maybe 10 or 20 years. I would be surprised if they turn out to be right. There has been a lot of exciting progress recently with deep learning, which focuses on methods of pattern-finding in raw data. Deep learning is great for things we do perceptually as human beings — image recognition, speech recognition and so on. But when it comes to anything requiring autonomy, reasoning, decisions, creativity and so on, A.I. is only good in limited domains. It’s pretty good at playing games like Go. The moment you get to the real world, though, things get complicated. There are a lot of mountains we need to climb before we get to human-level A.G.I. That said, I think it’s going to be possible eventually, say in the 40-to-100-year time frame. Once we have a human-level artificial intelligence, there’s just no doubt that it will change the world. A.G.I.s are going to be beings with powers initially equivalent to our own and before long much greater than our own. To that extent, I’m on board with people who say that we need to think hard about how we design superintelligence in order to maximize good consequences. How robust is the current conversation? I find there’s more and more attention among A.I. researchers to making A.I. beneficial in the short term and consistent with a good future for humanity in the long term. P.R.: I caught you using the word “beings.” Are you equating general intelligence with consciousness? D.C.: I like to distinguish between intelligence and consciousness. Intelligence is a matter of the behavioral capacities of these systems: what they can do, what outputs they can produce given their inputs. When it comes to intelligence, the central question is, given some problems and goals, can you come up with the right means to your ends? If you can, that is the hallmark of intelligence. Consciousness is more a matter of subjective experience. You and I have intelligence, but we also have subjectivity; it feels like something on the inside when we have experiences. That subjectivity — consciousness — is what makes our lives meaningful. It’s also what gives us moral standing as human beings. P.R.: Even if consciousness is a reproducible epiphenomenon of the right information-processing system endowed with the right representational structures, there will always be an opaque veil separating behavior seemingly inspired by subjective experience from behavior actually inspired by subjective experience. If our ethical obligations to objects matter only insofar as those objects are conscious, then how should we deal with our inherently ambiguous ethical obligations toward A.I.? D.C.: In philosophy this is the ancient problem of other minds. How do you know whether another person or system in general has a mind? I know that I have a mind. Descartes says, “I think. That’s the one thing I’m certain of. Therefore, I am.” But, when it comes to other people and to computers, you’re not going to have that degree of certainty. What should the criteria be? Is just doing sophisticated things enough to convince you that a system is conscious? Winning a game of Go certainly is not. Being able to carry on an intelligent conversation would be a start. Maybe an A.I. system that could describe its own conscious states to me, saying, “I’m feeling pain right now. I’m having this experience of hurt or happiness or sadness” would count for more. Maybe what would count for the most is feeling some puzzlement at its mental state: “I know objectively that I’m just a collection of silicon circuits, but from the inside I feel like so much more.” P.R.: Some people might argue that if I can be sure that I’m conscious and if there are varying degrees of similarity between me and other beings of potential consciousness, then I can make probabilistic judgments about the consciousness of those beings. D.C.: For me, the way to get some purchase here is to think about gradually transforming yourself into an A.I. You be the A.I.: gradual uploading. Gradually replace your neurons, one at a time, with computer parts or upload them to a computer. You start as a fully biological system, and then you’re three-quarters biological and one-quarter silicon, and then half biological and half silicon, then one-quarter biological and three-quarters silicon, and finally you’re a fully silicon system. If you make it a functionally perfect simulation throughout, then you’re going to be there till the end still saying, “Yup, I’m still home!” If it’s a proof, it’ll only be a proof for you. Someone else can still say, “I think you turned into a zombie.” P.R.: One can imagine not simply becoming the A.I. but nondestructively merging with it. In a future where everyone is augmented by A.I., where we all have perfect computing power, perfect memory, perfect ability to synthesize and deploy knowledge, would collaboration become obligatory? There would, after all, be no obstacle except indeed collaboration to solving most every problem regarding human welfare. D.C.: Hopefully we’ll find a good solution to climate change just like that. And 30 seconds later, dissolve the Israeli-Palestinian conflict? Maybe that’s a harder one. A lot of the irrationalities we have are collective. Some of our irrationalities are tied to our goals, to me rationally wanting my goal and you rationally wanting your goal. Often a solution is that we both get our second most desired outcome, or our third, and so on. People aren’t good at settling for this type of solution, though. Maybe you’d need a whole new module for compromise,for finding goals that we can universalize. But that goes beyond simple means-end instrumental intelligence and more into something reflective like figuring out what our goals should be. Immanuel Kant thought that morality is part of rationality. There’s the thought that a superintelligent A.I. will turn into a super-moral one, that it will turn into a sort of Kantian being that will only take on goals it can universalize for everyone. That’s a very speculative view of how A.I. will be. P.R.: Where between the Kantian being and us inventing our way into our own demise do you locate your own conception of the future? D.C.: I value human history and selfishly would like it to be continuous with the future. How much does it matter that our future is biological? At some point I think we must face the fact that there are going to be many faster substrates for running intelligence than our own. If we want to stick to our biological brains, then we are in danger of being left behind in a world with superfast, superintelligent computers. Ultimately, we’d have to upgrade. The other way it could go is that new artificial intelligences take over the world and there’s no place for humanity. Maybe we’re relegated to some virtual world or some designated part of the physical world. But you’re right, it would be a second-class existence. At the very least maybe they keep us around as pets or for entertainment or for history’s sake. That would be a depressing outcome. Maybe they’d put us in virtual worlds, we’d never know, and we’d forget all this stuff. Maybe it’s already happened and we’re living in one of those virtual worlds now. Hey, it’s not so bad. P.R.: This is probably a good time to define what virtual reality is, just because there are multiple ways that we use the word “virtual.” D.C.: The word “virtual” originally meant a “fake” or an “as if.” A virtual tie is “as if” it was a tie. Over the years, though, the word “virtual” has evolved. Now it means something like “computer-generated.” P.R.: What, more precisely, is the functional characterization of reality that finds its analog in virtual reality? D.C.: I take your question to be, if I can rephrase it: In what sense is normal reality real, and can virtual reality be real in that way? It’s a great philosophical question. George Berkeley, the great Irish philosopher, said, “To be is to be perceived.” If something looks like a duck, sounds like a duck and so on, it’s a duck. That’s idealism: The world is all in your mind. The dominant view, though, is that reality is outside your mind. To be real, you need something more than just appearances; you need some underlying powers or potentiality. The great Australian philosopher Samuel Alexander said, “To be real is to have causal powers” — if you can be something that actually makes a difference. Phillip K. Dick once said, “A real thing is something that doesn’t go away when you stop believing in it.” If you’ve got something that is independent of your mind, which has causal powers, which you can perceive in all these ways, to me you’re a long way toward being real. Things in virtual realities, at least in principle, have all those properties. Say you’re in a virtual world. There are objects there that you can perceive around you. In a virtual world a virtual tree can fall even if I’m not around. A virtual tree has causal powers. A virtual tree falling can cause people to have experiences. It can break something that it falls on in the virtual world, and it can be experienced. Virtual reality is just a different form of reality. But it’s still perfectly real. P.R.: Why do you think the original intuition on this topic was precisely the opposite, that virtual reality is nothing but instantiated fantasy? D.C.: This goes back a long way in the history of philosophy. René Descartes said, “How do you know you’re not being fooled by an evil demon right now into thinking this is real when none of it’s real?” Descartes’ evil-demon question is kind of like the question of a virtual reality. The modern version of it is, “How do you know you’re not in the matrix? How do you know you’re not in a computer simulation where all this seems real but none of it is real?” It’s easy for even a movie like “The Matrix” to pump the intuition in you that “this is evil. This isn’t real. No, this is all fake.” The view that virtual reality isn’t real stems from an outmoded view of reality. In the Garden of Eden, we thought that there was a primitively red apple embedded in a primitive space and everything is just as it seems to be. We’ve learned from modern science that the world isn’t really like that. A color is just a bunch of wavelengths arising from the physical reflectance properties of objects that produce a certain kind of experience in us. Solidity? Nothing is truly solid out there in the world. Things are mostly empty space, but they have the causal powers to produce in us the experience of solidity. Even space and time are gradually being dissolved by physics, or at least being boiled down to something simpler. Physical reality is coming to look a lot like virtual reality right now. You could take the attitude, “So much the worse for physical reality. It’s not real.” But I think, no. It turns out we just take all that on board and say, “Fine, things are not the way we thought, but they’re still real.” That should be the right attitude toward virtual reality as well. Code and silicon circuitry form just another underlying substrate for reality. Is it so much worse to be in a computer-generated reality than what contemporary physics tells us? Quantum wave functions with indeterminate values? That seems as ethereal and unsubstantial as virtual reality. But hey! We’re used to it. P.R.: I’m wondering whether it’s useful to say that virtual reality isn’t simply an alternate reality but is rather a sub-reality of the one we normally occupy. D.C.: That I think is fair. It’s kind of a multiverse. None of this is saying there’s no objective reality. Maybe there’s an objective cosmos encompassing everything that exists. But maybe there’s a level-one cosmos and people create simulations and virtual realities within it. Maybe sometimes there are simulations within simulations. Who knows how many levels there are? I once speculated that we’re at level 42. Remember that in “The Hitchhiker’s Guide to the Galaxy” they programmed a computer to find the answer to the ultimate question of life, the universe, everything. Then, after years, the computer said, “The answer is 42.” What question could possibly be important enough that this could be the ultimate question and the answer could be a simple number? Well, maybe the question was “What level of reality are we at?” P.R.: Do you imagine these virtual worlds tracking unique courses of history of their own? Evolution of political systems, evolutions of culture and so on? My intuition is that they will. D.C.: There have already been some virtual worlds that have been recapitulations of the history of political philosophy. In the early ’90s, MUDs — multi-user domains — started off as dictatorships or anarchies. There was a guy who created them, and he was the dictator. Then he appointed some wizards and that was the aristocracy. But the wizards didn’t want all this power, so they threw it all onto democracy. Most virtual worlds that exist now are corporatocracies, owned and ruled by corporations. Linden Lab owns Second Life, for example. P.R.: That poses a problem in and of itself, though. Ownership of physical reality is democratized. There’s no overlord who can turn it on and off or change the rules arbitrarily. Isn’t the lack of democratized ownership a serious risk of virtual worlds? D.C.: Although, there are going to be, of course, many virtual environments. I don’t know whether we should think about this as, “You choose your virtual world and then you’re always stuck under the governance of the one corporation that owns it.” It may be more likely that we’ll chop and change between many virtual worlds quite regularly. There will be a virtual world you go to for your work, a different one for recreation and a different one for education. No one will run cyberspace, which was William Gibson’s term for virtual reality as a whole. P.R.: Lastly, I’m wondering whether you think that ultimately there will be a transition from physical reality to virtual reality on a civilizational scale. We’ve talked about artificial intelligence, digital uploading, digitally uploaded selves living on in virtual reality, the transient boundary between physical reality and virtual reality. Will the lights ever just be turned out in this house? D.C.: It would be surprising. Say physical reality is level-zero reality. There’s always going to be resources to be found there. I suspect we’re always going to need more and more resources. “Let’s blow up the sun and use it to power our computers. Oh wait, that’s not enough! We’re going to need to go elsewhere through the galaxy.” It’s easy to imagine a resource-dependent technological arms race. Such an event would require somehow getting to the outside world. What I can easily imagine is that 99 percent of the population lives in the virtual world, especially if the physical world becomes dystopic, after nuclear destruction or terrible climate change, say. The virtual world will be much more interesting and pleasant. There will be some hankering. There will be people who just like being in the level-zero world, just like people who like living in cities or people who like living in the country. We’ve got an increasingly urbanized society now, but that doesn’t mean everybody lives in the city. Maybe we’ll have an increasingly virtualized society. But that doesn’t mean everybody is going to be virtualized. I don’t think virtual worlds are going to be a panacea for problems of humanity. They’ll be like the internet. It’s led to wonderful things. It’s led to awful things. My prediction is that they will have room for the full range of the human condition. In that sense, it will at least be on par with physical reality. Maybe we’ll be able to find some distinctive ways in which virtual reality is better and allows more freedom, more justice. Or maybe we won’t. I think it’s at least an open and exciting future. Prashanth Ramakrishna is a student at New York University in applied mathematics and computer science. His work has been published, most recently, in The Believer magazine. Now in print: “Modern Ethics in 77 Arguments” and “ The Stone Reader: Modern Philosophy in 133 Arguments,” with essays from the series, edited by Peter Catapano and Simon Critchley, published by Liveright Books. The Times is committed to publishing a diversity of letters to the editor. We’d like to hear what you think about this or any of our articles. Here are some tips. And here’s our email: letters@nytimes.com. Follow The New York Times Opinion section on Facebook, Twitter (@NYTopinion) and Instagram. PHOTO: David Chalmers is a leading thinker on consciousness. (PHOTOGRAPH BY Demetrius Freeman for The New York Times FOR THE NEW YORK TIMES) Load-Date: June 19, 2019 End of Document For Italian Supercars, an Electric Challenge The New York Times

### Document 946

Six novels feature characters who hunger for connection so strongly that they transform their environments. Assembling columns is often an exercise in serendipity. For this one, I looked for works I thought would be wildly different from one another: a collection of short stories in translation, a debut about a single consciousness in multiple bodies, a young-adult techno-thriller, an Antarctic ghost story. But I was surprised to find, as I read my way through them, that they explored similar themes: adoption and child-rearing, intergenerational traumas, and characters who hunger for connection, communion and belonging so powerfully that they transform their environments, on scales ranging from the municipal to the cosmic. Sarah Pinsker's WE ARE SATELLITES (Berkley, 381 pp., paper, $16) explores the far-reaching social implications of a new technology while staying deeply rooted in the day-to-day dynamics of a single family. Val and Julie are mothers to two children, David and Sophie; Val teaches at a private high school while Julie works for the office of her district's congressional representative. At school, Val begins noticing students with small blue lights embedded in their temples; they've chosen to have a productivity-boosting device called a Pilot installed in their brains, allowing them to achieve a state ''as close to actual multitasking as a person can currently get.'' Teenage David desperately wants one in order to fit in; Sophie, who's epileptic, can't have one. Val hates the idea, while Julie's cautiously curious about getting one herself. Over the course of a decade, we watch each member of the family grapple with the consequences of widespread Pilot adoption from their perspectives. Pinsker is a justly celebrated writer of short fiction, and while this is her second novel, it's the first of hers I've read. I found myself second-guessing my desire to compare this novel's texture to that of a short story; there are long silences between short chapters, significant narrative developments that are merely suggested or gestured toward rather than dwelled on at length. As it turns out, ''We Are Satellites'' was developed from two short stories featuring this family, and portions of those stories are woven through the novel. This isn't a flaw, per se, until the very end, which feels less like a deliberate conclusion than like a zooming-out and shift away from the family's activities and concerns; until that point, the book is taut and elegant, carefully introspected and thoughtfully explored. I particularly enjoyed the mundanity of Val and Julie's same-sex marriage, which the novel declines to address or make plot-relevant in any way; all of Val and Julie's problems are parenting problems, communication problems, not problems of justifying their relationship to the scrutiny of a bigoted society. Likewise, the sibling dynamics between the child Julie bore and the child she and Val adopted are carefully realized; the faultlines along which the family fractures have nothing to do with the presence or absence of shared DNA, and everything to do with the personalities of the individuals involved. âœ¹ 'Chaos' introduces new characters and a dark mirror to CheshireCat, the friendly sentient artificial intelligence who loves pictures of cats and helping people make friends on the internet. Naomi Kritzer's young-adult novel CHAOS ON CATNET (Tor Teen, 292 pp., $18.99) also depicts unusual family configurations with generosity and care. The worthy sequel to ''Catfishing on CatNet'' -- which managed to be both a fantastic thriller and a phenomenally warm and kind bildungsroman -- ''Chaos'' introduces new characters and a dark mirror to CheshireCat, the friendly sentient artificial intelligence from the first book who loves pictures of cats and helping people make friends on the internet. After spending years on the run from her abusive father, Steph is finally settling down in Minneapolis in hope of something like normal life: a long-distance relationship with her girlfriend, chatter with her CatNet friends, enrollment in a new school. Soon Steph befriends another recent arrival: Nell, a quiet girl raised in a Christian doomsday cult, living temporarily with her polyamorous father and his partners because her mother's gone missing under mysterious circumstances. Steph resolves to recruit CheshireCat to help. But CheshireCat's also trying to solve a mystery, having been approached by what seems like another sentient A.I. that is potentially responsible for engineering and escalating real-world mischief and disinformation in cities across the country. ''Chaos on CatNet'' is deliciously readable, fully as fast-paced and heartfelt as its predecessor. Its flaws in comparison are minor: a less convincing villain and an abrupt ending that would have benefited from more emotional slack. But Kritzer's author's note at the end is well worth reading, both in its own right and as context for the book's truncation. ''One of the interesting things about near-future science fiction is that sometimes you catch up to the future while you're still writing it,'' she says, before addressing the reality of revising a book in the Twin Cities while Minneapolis was on fire during mass protests and a pandemic. The overall slowness of publishing means that several of the books in this roundup include afterwords that try to bridge the gap between composition before 2020's upheavals and revision or production throughout them, offering a surreal glimpse into the limits of fiction. âœ¹ There she gives birth to twins, names them Howling and Feral, and sets about surviving in the wilderness. Rivers Solomon's SORROWLAND (MCD/Farrar, Straus and Giroux, 355 pp., $27) also features a Christian cult, but one that is run by and that exclusively recruits Black people who want to live away from white supremacy. Except the Blessed Acres of Cain -- known colloquially as Cainland -- is no paradise; conformity's maintained through strict punishment, elders abuse children and everyone's forced to sleep strapped to their beds as they shake and scream from pharmaceutically induced night terrors. Vern, a pregnant Black teenager married to Cainland's leader, escapes from the compound into the woods surrounding it; there she gives birth to twins, names them Howling and Feral, and sets about surviving in the wilderness while stalked by a malicious entity she thinks of as ''the fiend.'' But as she raises her children, she finds something else growing in her, possessing and unsettling her body by strange and painful degrees, and forcing her to set out on a long, difficult journey to find answers and support for her condition. ''Sorrowland'' is a tremendous, riveting work, sinking long, deep roots into the nightmare soil of American history in order to grow and feed something new. There's a matter-of-fact ferocity to Vern's voice, a need for confrontation and reckoning, and an absolute refusal of comforting half-truths in favor of furious integrity. The slow transformation she undergoes while parenting, traveling and finding succor is harrowing and profound, as she fights the horrors of her upbringing and pushes her limits to protect her own children from the physical and spiritual legacy Cainland has left in her. This is Solomon's third book, and it builds on thematic foundations sunk in ''An Unkindness of Ghosts'' and ''The Deep.'' Like those, it is concerned with the haunting weight of history and its effects on queer Black bodies; it reckons, through a fantastical lens, with inherited traumas and the consolations and difficulties of building community. It's far and away the most powerful of Solomon's books yet, which is saying something; its patient, roiling intensity is as defiant and devastating as its heroine. âœ¹ Is unity a harmony of differences balanced together, or a pure homogeneity? Elly Bangs's UNITY (Tachyon, 289 pp., paper, $16.95) flings us hundreds of years into a future that has weathered multiple apocalypses and is on the brink of an extinction-level war between political powers that operate from metropolises beneath the much-warmed Pacific. Danae's been living in self-imposed underwater exile for five years -- from the wrecked surface world and its dangers, but also from the vast, aggregated consciousness of which she's a small embodied part. But as tensions between the war's belligerents, Epak and Norpak, reach a boiling point, Danae and her lover, Naoto, decide to risk heading for the blasted, inhospitable remnants of Arizona in search of the power and absolution of her whole, multiplied self. They employ the reluctant services of a haunted ex-mercenary named Alexei to get them there -- but someone is hunting Danae and the larger consciousness she represents, and will stop at nothing to get to her. ''Unity'' is an astonishing debut, twisty and startling, demonstrating both the disciplined development of a long-gestated project and the raw, dynamic flashes of an author's early work. It shows intense interest in the distance between conversation and communion, the many overlapping and opposite meanings ''unity'' can contain: Is unity a harmony of differences balanced together, or a pure homogeneity? How can those differences be maintained, and what happens when they're not? The book's core concepts aren't so much high as deep; it takes a few pages to get oriented within the premise, world-building and points of view, but it very quickly becomes an absorbing, thrilling ride. Similar interests in union and separation animate I'M WAITING FOR YOU: And Other Stories (Harper Voyager, 316 pp., $26.99) by Kim Bo-Young, a collection of four stories translated from the Korean by Sophie Bowman and Sung Ryu. The book is really two pairs of linked stories: ''I'm Waiting for You'' and ''On My Way to You'' open and close the collection, each telling one side of a groom and a bride's struggle to meet each other at the correct time and place in order to marry, despite the vagaries of interstellar travel and relativity. ''The Prophet of Corruption'' and ''That One Life'' -- set in a cosmic Dark Realm that contains our universe, and populated by entities that regard Earth as a school in which to experience embodiment -- could be a single piece, with the latter functioning as an epilogue to the former. In addition to these, there are about 30 pages of notes: from Kim reflecting on each story, from the translators corresponding about friendship and art, and from a surprising final pair -- the man who commissioned ''I'm Waiting for You'' as an unusual way of proposing to his partner, and the woman who said yes. The shape and intention of the stories, pairs that make up two wholes that are then explicated by notes, echo the conceits of cell division, DNA and quantum physics. This is a book as much about the process of translation as it is about science fiction, Buddhism and how to live among people. The lovers' stories are as powerful and clear as the middle stories are difficult and woolly, but the middle stories offer a sort of key to the outer ones: While the beings called Prophets who live in the Dark Realm are obsessed with measuring the virtues of merging and dividing, the star-crossed lovers of our near future are striving to come together while the world keeps them apart. The shape and intention of the stories, pairs that make up two wholes that are then explicated by notes, echo the conceits of cell division, DNA and quantum physics. More simply put: While the outer stories are much more enjoyable and moving than the inner stories, they all benefit tremendously from the supplemental notes, and leave a reader feeling as if the purpose of the book was to showcase not so much a collection of narratives but the love and respect between several people working together, sharing their minds across languages and distance to beautiful, dizzying effect. âœ¹ She succumbs to an old hallucination of ringing bells and a lovely, mysterious woman with red ribbons trailing from her long black braid. In many ways, Angela Mi Young Hur's FOLKLORN (Erewhon Books, 408 pp., $26.95) is also about translation: translation as physical movement, from Korea to the United States to Sweden to Antarctica; secret knowledge translated across languages and time; and translation as interpretation across genres, from folk tales and family history to experimental physics and poetry. Dr. Elsa Park has spent years trying to get as far away from her mother's Korean myths as possible, and with them, her mother's conviction that the women of their family are doomed to repeat the patterns of tragic folk tales: stories of girls stolen or sacrificed, lost and recovered. Elsa is determined to choose science over superstition, but while researching neutrinos -- so-called ghost particles -- in Antarctica, she succumbs to an old hallucination of ringing bells and a lovely, mysterious woman with red ribbons trailing from her long black braid. Thrown off balance, Elsa pivots her research toward reconciling the stories of her inheritance with her scientific work, in order to find a way into -- and more crucially, a way out of -- her mother's tales. Elsa's voice is an elegant punch to the face, a series of refusals -- of politeness, of fellow feeling, of any intimacy separate from brutality. She's sometimes shockingly, almost helplessly cruel to people attempting to be kind to her, as if speaking around a mouth full of broken glass. I found myself loving her for the messiness of her overlapping truths, the mixture of resentment, fear, love and anger directed at her family, colleagues and would-be lovers. Integral to ''Folklorn'' is a sense of stories as both constitution and escape, of their capacity to trap people as much by faulty representation as by erasure. When Elsa is young, her mother tells her that ''our entire people have been telling the wrong stories, making a wretched mess of our history. ... No wonder we get invasions and occupations, war. ... What kind of stories, I wonder, do the white countries tell of themselves?'' Once Elsa is grown, she paraphrases her mother despite herself, arguing that ''by limiting the neutrino's story, we've constrained our own cosmic existence.'' ''Folklorn'' loops in and out of itself like a ghost's red-ribboned braids, like a woman's voice harmonizing with its own echoes. It's beautiful and hard and hungry, full of sharp, painful observations, slicing clichÃ©s open like prickly pears and devouring their hearts. Amal El-Mohtar is a Hugo Award-winning writer and co-author, with Max Gladstone, of ''This Is How You Lose the Time War.'' https : // www.nytimes.com/2021/05/27/books/new-science-fiction-fantasy.html Graphic PHOTO: (PHOTOGRAPH BY Ryan Gillett FOR THE NEW YORK TIMES) Load-Date: June 6, 2021 End of Document Amazon Investors Reject Proposals on Climate Change and Facial Recognition The New York Times

### Document 374

— It takes a lot of planning to conjure chaos and ruin. On a Sunday afternoon in mid-May, the electronic composer Daniel Lopatin, who records as Oneohtrix Point Never, was rehearsing at the Rensselaer Polytechnic Institute’s Experimental Media and Performing Arts Center, a starship-like modern-architecture apparition in this upstate city. With a brief residency in a state-of-the-art black-box rehearsal studio, Mr. Lopatin was leading his first full group of live musicians under the Oneohtrix Point Never (or OPN) moniker to prepare for the multimedia production “Myriad” — Mr. Lopatin calls it a “concertscape” — that had its premiere at the Park Avenue Armory May 22 as part of the Red Bull Music Festival and will go on to tour other festivals and arts spaces like the Barbican in London. The music was from OPN’s new album, “Age Of,” which was concocted in studios and on computers but was now being painstakingly reverse-engineered for real-time concert performance. Like the rest of Mr. Lopatin’s extensive catalog, “Age Of” is high-concept and then some, in both its sounds and its intellectual underpinnings. The new album involves, among other things, a theory of historical epochs, a post-human artificial intelligence, a sonic palette drawing from folk and Baroque music — with plenty of harpsichord — as well as glossy and grating electronic timbres and, most of all, a deep distrust of anything approaching stability. “Age Of” has euphonious moments, but sooner or later Mr. Lopatin makes sure to sabotage them. “Every song is an opportunity to freak somebody out,” Mr. Lopatin said during an interview in one of Empac’s conference rooms while his band got set up. “Generally my response to seeing something really symmetrical and perfect is … it’s the scene with Jack Nicholson’s Joker in the first ‘Batman,’ the museum scene,” Mr. Lopatin said. “Him just spray-painting the Mona Lisa, and whatever, with his goons. It is really the most satisfying thing you could do, is to just put a little scratch in something that thinks it — that has the arrogance of knowing what it is. But it is sort of funny that I just do that over and over. It’s very bratty.” At the same time, he added, “It also works well in the inverse. I also like to take chaos and structure it so it has a kind of comprehensible pulsation.” [Never miss a pop music story: Sign up for our weekly newsletter, Louder.] Since he began releasing music a decade ago as Oneohtrix Point Never — a name he derived from a Boston soft-rock station, Magic 106.7 — Mr. Lopatin, 35, has worked on the far fringes of pop. He doesn’t make electronic dance music, ambient music, hip-hop, electropop or any other easily labeled genre. Instead, he manipulates a broad and deeply idiosyncratic array of genres, samples, sources and strategies, from Minimalism to collage to noise. He often uses snippets of material — ad jingles, saccharine pop productions, throwaway dialogue — that he can’t entirely dismiss as kitsch. “The dumber the thing is, the more excitement I get from imagining a very complex world of truth around it,” he said. And where the digital tools of electronic music favor numerical precision and exact repetition, OPN’s music has often counterattacked, using glitches, wobbles, smears, interruptions and seeming non sequiturs, constantly undermining expectations. “Formally, things have to become other things, or else I feel unsatisfied and/or like a con man,” he said. “Because then I’m not being honest about my perspective on things.” In an era of overwhelming information and options, Mr. Lopatin feels that committing to a single style would be, for him, a lie. “The thing that I’ve always been a little bit jealous of is a complete, a total giving to one form, like a genre, and just a mastery of it,” he said. “My thing is very different. It’s a complete embrace of something, but I’ve never been able to say, ‘I believe in this.’ The only thing I believe in is that I’m in this perpetual state of disbelief.” Lately, he has been calling his approach Compressionism, with a capital C; he’s working on a manifesto. “It’s dealing with the overload of knowing about too much stuff, about being exposed to too many historical inputs, and then turning it into some kind of coherent jumble,” he said. “It’s still a jumble, but it’s a kind of coherency of drawing connections between things.” Jumbled or not, Mr. Lopatin has been widely enlisted as a collaborator. He composed the soundtrack that ratchets up the tension in the 2017 thriller “Good Time,” which includes a song featuring Iggy Pop; he has also been a producer or remixer for Nine Inch Nails, FKA twigs, David Byrne and the avant-pop singer Anohni (who also appears on “Age Of”). After seeing Mr. Lopatin in concert with Anohni, Usher asked him to send a track, but rejected what arrived: “This very strange little song,” Mr. Lopatin said. OPN reclaimed it for “Age Of” and it became “The Station,” a ballad punctuated by whistles and gusts of white noise, with lyrics like “It’s an open invitation/To try to find the bottom of a bottomless hole.” Mr. Lopatin worked intermittently on “Age Of” amid his other projects. For the final push, he found a unique Airbnb rental: an egg-shaped glass house without right angles on a hill in Southbridge, Mass. He decided, “I have to experience this,” he said, “because knowing me, something interesting and neurotic will happen here that won’t go as planned.” The house, transparent and exposed during his preferred nighttime work hours, turned out to be an ideal incubator for a sense of isolation and paranoia, leading to songs like “Warning,” with a choppy pulse, vertiginous stereo ricochets and vocals that go from a heavy-breathing whisper to a yell. When he was nearly finished with “Age Of,” Mr. Lopatin got the songwriter and producer James Blake, a fellow connoisseur of eerie, untethered sounds, to assist him on the final mix. “Daniel is an original — a rare find, musically and personally,” Mr. Blake wrote in an email, adding that he learned “to think cinematically” working with him. “Daniel seems one part composer, one part movie director, one part conductor. I had no idea how Daniel was coming up with his sonics so I was intrigued to learn his secrets, but even after seeing under the hood I’m none the wiser.” At times, “Age Of” moves toward relatively straightforward song structures. During his recent collaborations with singers and songwriters, Mr. Lopatin was “exposed to other people’s perspectives on what it is that I’m doing,” he said. “All my collaborators unilaterally said that I need to just stay on one idea for longer. And of course I understand that. I like to switch gears a lot, and I like this kind of sloppy attitude. You don’t stay too long on any one idea, or else they’ll know you’ve committed. But I definitely came away from all of that stuff wanting to make my version of a kind of a singer-songwriter record — even though it’s not.” Indeed, a handful of doleful, electronically skewed ballads — “Black Snow,” “The Station” and “Babylon” — bring OPN only marginally closer to anything like pop on “Age Of.” There’s also a stately processional with a Ping-Pong rhythm section (“Toys 2”), a drone punctuated by buzz-saw zaps and manic TV samples (“We’ll Take It”), a sparse, diffident, Asian-tinged instrumental (“RayCats”) and a haunted, through-the-looking-glass finale, “Last Known Image of a Song.” The album has a convoluted underlying story. “Age Of” and the “Myriad” production, Mr. Lopatin explained, divide human history into four ages: the primordial paradise of Ecco, the agrarian Harvest, capitalist Excess and the grim Bondage. “It’s a kind of dumb system for understanding the world,” he said, “but it yields all of this hilarious insight into your personal way of dealing with things. It’s not a truth. It’s actually just an amplification of your subjectivity.” In the album’s mythology, human history has been consigned to the past along with humankind itself. “The stage is a memory, a sort of projection, an idea, a dream that an artificial intelligence at the end of time might have of its ancestors, us, of Earth,” Mr. Lopatin said. “They sit around dreaming all day at the end of time, trying to imagine what it was like to be stupid, to not understand everything. It titillates them to no end. In fact, they have the ability to create other universes, not to stay and linger and loiter in the cemetery of this one, but they do because they’re nostalgic.” In the Empac rehearsal space, the asymmetrical shape of the Armory stage had been laid out in tape on the floor around four nests of instruments and electronics. The band included Mr. Lopatin and another electronics-oriented musician, Aaron David Ross, along with two conservatory-trained virtuosos, the keyboardist Kelly Moran and the drummer Eli Keszler, who was playing a drum kit, assorted percussion instruments and digitally triggered samples mapped to areas of a drumhead via a sensor. During some songs, Mr. Keszler changed sticks four or five times to get the exact impacts required. “A lot of this music is just this imagined space,” Mr. Keszler said. “And when you put it in physical space, to really get the sound right requires an incredible amount of changes. It redoes the way you imagine your instrument.” Behind the musicians were irregular-shaped projection screens that would be stacked up even higher, over 30 feet tall, at the Armory. Nearby were deflated black inflatables, looking like giant garbage bags, that would symbolize looming environmental disaster. The Armory show brought in even more elements. It spotlighted two 300-pound resin-coated sculptures suspended overhead, fusing forms associated with pairs of ages; Harvest/Excess involved a rat, plows, a cornucopia and an accumulation of detritus. Five line dancers, in cowgirl hats and face masks, appeared in “Black Snow.” An ornately illustrated libretto offered extensive annotations that ended up even more cryptic. But the music didn’t have to explain itself. It billowed and throbbed, tinkled and crashed, swooped and pealed around the grand space. No narrative, no matter how cosmic, could match the sound. PHOTO: “The dumber the thing is, the more excitement I get from imagining a very complex world of truth around it,” Mr. Lopatin said. 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### Document 889

Every Tuesday and Friday, Ezra Klein invites you into a conversation about something that matters, like today’s episode with William MacAskill. Listen wherever you get your podcasts. Transcripts of our episodes are made available as soon as possible. They are not fully edited for grammar or spelling. [MUSIC] EZRA KLEIN: I’m Ezra Klein. This is “The Ezra Klein Show.” Today’s show is built around three sentences that could — I think that should — change the future. Here they are: Future people count. There could be a lot of them. We can make their lives better. That is it. They sound obvious, even banal, but two things are true about them. First, we do not act as if they are true. We do not act day-to-day as if future people count. We do not take seriously our responsibility to them. And second, buried in those sentences are startling possibilities, particularly the second one — the number of people there could yet be is mind-boggling. You don’t need particularly strange assumptions to think it plausible that future people could outnumber current people by a ratio of 10,000 to one, 100,000 to one, a million to one, or even more. Those three sentences are the foundation of a worldview called longtermism. And I don’t agree with everything that its most hardcore adherents take from it. You’ll hear that in this episode. But I even more profoundly disagree with how much most of us dismiss or ignore in it. And day-to-day, I include myself in that number. This is a worldview worth grappling with, maybe not the only one we should use to evaluate our actions and our policies, but certainly one of the ones we should be using. And so I asked Will MacAskill, a philosopher at Oxford University, a founder of the effective altruism movement, and the author of the forthcoming book “What We Owe The Future,” which is probably the best single book distillation of longtermism you’ll find, to come on the show and talk through this worldview, its ideas, and its challenges. As always, my email, if you have guest suggestions, feedback, recommendations for things we should read or watch or listen to, ezrakleinshow@nytimes.com [MUSIC] Will MacAskill, welcome to the show. WILLIAM MACASKILL: Thanks so much for having me on. EZRA KLEIN: So something I love about longtermism is that it’s really just built on three sentences. Future people count. There could be a lot of them. We can make their lives better. Walk me through them. WILLIAM MACASKILL: OK, I’ll take each one in turn. So the idea that future people count — that is, their interests matter morally, and we should take their interests seriously in just the same way we take the interests of people alive today seriously. I think that idea is just common sense. So when we consider the issue of climate change, sure, there are lots of harms that will impact us in the present generation, but it will also — you know, the carbon dioxide that we emit today, a significant fraction of that will stay in the atmosphere. And it seems perfectly intuitive that that’s a big deal — the geophysical impacts we have on such timescales, we should pay attention to. Or when we consider radioactive nuclear waste, again, we are thinking thousands of years into the future, where if you harm someone, it really seems to not matter intuitively whether you’ve harmed that person in a year’s time or 10 years time, or 100 years time. Harm just matters morally, whenever that occurs. So that’s the first idea. The second is just that there could be enormous numbers of future people. So I think that we might stand at the very beginning of history, where there have been 300,000 years of Homo sapiens existence in the past. If we last as long as a typical mammal species, we’ve got about 700,000 years still to go. If we survive past that using technology to mitigate risks to our own extinction, well, the Earth will remain habitable for hundreds of millions of years. And perhaps we could even extend humanity’s lifespan beyond that if we take to the stars, and then we’re thinking billions of years. And the key thing is not like any particular, precise estimate of how much — what humanity’s life expectancy is. We don’t know that for sure. But on basically any reasonable estimate, if we don’t cause our own extinction in the next few centuries, then the number of the future of people could be absolutely prodigious, tens of trillions of people, or maybe even trillions of trillions of people, such that the number of the future people, even on a very conservative estimate, outnumber us something like 1,000 to one. So then the final claim, that we in the present really can influence how the course of the future goes, that’s what I dedicate most of “What We Owe The Future” to discussing. But I think there are two main ways of impacting the very long-term. One is by reducing the risk of unrecoverable civilizational collapse or human extinction, such as by ensuring we don’t develop next generation weapons of mass destruction, like bioweapons, or just trying to prevent a third world war that could end us all. And then a second is by improving the quality of life of those in the future, such as by avoiding perpetual totalitarian state, or the takeover of AI systems that could devote — mean that future civilization is just alien and valueless from our perspective. So those are the three core ideas of longtermism. EZRA KLEIN: So I want to explore them a little bit more. But before we get into them, I want to open some space for skepticism, because these all sound simple, but they’re quite controversial, where they lead is quite controversial. And you yourself say that when you first heard the arguments for longtermism, they, quote, “left you cold.” Why did they leave you cold? WILLIAM MACASKILL: I think two main reasons why these ideas left me cold. So at the time, I was co-founding an organization called Giving What We Can and my interest was very much focused on improving the lives of the very poorest people in the world. So there are many extremely urgent and pressing problems, not least the fact that thousands of children every day die unnecessarily of easily preventable diseases. And so when faced with problems of such salience and urgency, the thought of then taking action for people I haven’t met that don’t even exist yet, that’s like an abstract argument clashing with the very real pull of problems around today. And, you know, I was initially resistant to that. And then the second is just the question of, well, OK, even if I grant that there is an enormous amount at stake when it comes to the future of civilization, well, what can we even do about it, where the particular — at the time, and we’re talking about 12 years ago — the particular avenues for making a difference seemed just extremely speculative to me. And that just made me think, look, I want to be doing something that is more reliably making a difference, where I’m learning, I’m getting feedback loops. I’m able to tell that I’m actually making a positive impact, and then improve how well I’m doing from there. EZRA KLEIN: What changed for you? WILLIAM MACASKILL: Two things changed. One was just the weight of the arguments over time, where, in particular, the arguments for not really thinking about the long-term future and not really considering the interests of future people — well, those future people are disenfranchised. They are of necessity voiceless. And it just started to really seem to me that concern for future generations was the next step of moral progress, that in the past, people in positions of power have made moral progress by taking seriously the interests of those who are unfairly disempowered. Now, this is a bit of a different case, because those in the future — there’s nothing we can do to empower them, but we can at least take their interests more seriously. And then in terms of the second aspect of, well, can you actually make a difference, over the last 10 years, I’ve just seen enormous progress to make me think that, yes, actually we can. So the field of A.I. safety — it was utterly fringe back in 2009 — is now a relatively mainstream area of machine learning research, at least comparatively mainstream and respectable. And you’re able to see of the ways, even now, in which A.I. systems are doing things that we really don’t intend and concrete work we can do to reduce those risks. And then, to an even greater degree, one of the big risks that was being discussed all the way back in 2009 was risk from pandemics. And in the broader effective altruism community, we were encouraging people to work on pandemic preparedness, we were funding organizations in that area from about 2014. And the fact that — I mean, we didn’t make nearly as much progress as I would have liked, but I think we did something to help. And now, when I think about what the things we could be doing, such as early detection systems — so just scanning wastewater all around the world for new pathogens — or certain methods of being protected against respiratory diseases and new pathogens, like there’s a certain type of lighting that is safe for humans but sterilizes airborne pathogens — so far-UVC, it’s called. It really does seem like with funding and a bit of activism, we could get that installed in most light bulbs around the world. And that really could make an enormous difference to reducing the chance of the next pandemic, which could be a lot worse, while also at the same time having enormous benefits for the present, potentially just eliminating airborne diseases. And so it really seems like these things actually are a lot more tactical than I thought they were about a decade ago. EZRA KLEIN: So I want to go through a couple of these premises, and I want to start with the first one — future people count. It sounds obvious. The word you used was intuitive. WILLIAM MACASKILL: Yeah. EZRA KLEIN: And I think the evidence is it isn’t intuitive. I think it sounds obvious, but we obviously make many decisions without really counting future people at all. And nor is it simple how you would do that. Should I think of somebody born hypothetically, potentially, 1,000 years from now? Should they have the worth of one child now, of 0.1 children now, of 0.01 children now? How do you decide how much future people count? WILLIAM MACASKILL: So a thought experiment I give is just dig up some glass while hiking on a trail, and you then find out that someone has cut their hand on that glass. Now, does it make a difference if that occurred next year or if it was a message from the future? I think as long as you’ve got the certainty that this harm has occurred, I actually do think it’s common sense, morally speaking, to be just as concerned about that as if you’d, say, harmed a stranger. And when we don’t pay attention to the interests of future generations, I think it’s got more to do with things like uncertainty. EZRA KLEIN: The next sentence there is there could be a lot of them. And this is where the math of your book is a lot to take on. So I want to quote here. “To illustrate the potential scale of the future, suppose that we only last as long as a typical mammal species, that is, around 1 million years, and assume that our population continues at its current size. In that case, there would be 80 trillion people yet to come. Future people would outnumber us 10,000 to one.” And I’ll be honest that this is both very compelling to me — it’s hard logic to deny — and is often where a longtermism leaves me a little unsettled, because it creates a kind of mathematical blackmail. There are so many hypothetical lives in the future — 80 trillion people — that anything that makes them on any calculation infinitesimally better is worth more than almost anything we could do now. And something about that seems wrong. I think it can even seem dangerous. You can imagine really starving people of resources now to make very uncertain improvements in the future. How do you think about that trade-off? WILLIAM MACASKILL: Yeah, so I think this idea of, oh, we should just be fanatically pursuing whatever is our best guess at promoting the fairly long-term is also something I’m like — even no matter how tiny the probability, is also something I would feel very nervous about. And if that were the case for longtermism, I just wouldn’t be promoting it. But that’s OK, because some of the risks that we’re facing, such as from a third world war, or from a worst case pandemic, or from the creation of AI agents that are even smarter than humans, these are really — they’re as big as the risk of dying in a car crash, maybe even greater. And we should — so then definitely not in this vanishingly small kind of probability territory. Then, the second thing I’ll say, which is a more substantive way in which this reasoning I don’t think always works is that sometimes people think, oh, well, the only way you can impact the very, very long-term future is by reducing the risk of extinction, and so nothing else, to a first approximation, matters apart from that. And in “What We Owe The Future,” I’m kind of arguing against that perspective. I’m actually arguing that there are lots of ways of impacting the long-term future. And in fact, you know, at the moment, the amount of resources that are being spent trying to protect the interests of future people is vanishingly small. Maybe it’s like 0.01 percent of G.D.P. I don’t know exactly, but it’s very low. And I’m saying, it should be higher than that, maybe 0.1 percent, maybe even a whole percentage point. EZRA KLEIN: Let me get at the uncertainty of some of this, though. So imagine we go back to an example you just gave, which is preventing a world war. Seems good. I’d prefer no world wars. WILLIAM MACASKILL: Yeah. EZRA KLEIN: But imagine trying to operationalize that question. So somehow I give you a button that could have prevented World War II. Would that have made the world better or worse off? WILLIAM MACASKILL: Would — what happens — what’s the counterfactual? Is this a case where — EZRA KLEIN: That’s a bit of my point, that — I mean, obviously, the famous version of this counterfactual is, do you kill baby Hitler? WILLIAM MACASKILL: Yeah. EZRA KLEIN: But at different points when World War II is looming in a more near-term way, I think we look back on people who are trying to prevent it. And we call them now appeasers, and we think they were making decisions that were foolish or potentially morally wrong. Now, obviously, it would be good to not have the Nazis rise up. Is it good that we invented nuclear weapons? I don’t know. I only ask this because it seems to me the band of uncertainty, even in things that seem really, really bad, in the very long-term analysis, is very hard to narrow, which makes me somewhat skeptical that it is so knowable even for things that seem quite good. WILLIAM MACASKILL: So I think — I mean, you point to a very important issue, which is that you can have competing considerations on either side. So in the case of World War II, as a matter of fact, that war meant that nuclear weapons were developed and used, which is obviously increasing existential risk. However, the alternative, the Nazis really did have aims at large-scale domination over the world. They had a horrific ideology. And they wanted that ideology to persist for a very long time, maybe even indefinitely. And again, in the book, I argue that they really might have succeeded. I don’t think they were close to ever winning the Second World War, let alone having world domination. But if you tweak history such that that really did happen, I think a global totalitarian state that was enacted now via future technology could persist indefinitely. Now, we get into this really hard question of, OK, we’ve got perhaps potential increase in extensional risk from a war, but perhaps that is a war that is necessary to prevent the rise of some dangerous ideology. Maybe that’s just an extremely hard question. If so, that’s just circumstance we’re in and I think we should face that. But I think we can make progress, at least by starting to think precisely about this, for example, thinking how much worse would the future be if it were a global totalitarian state forever, compared to a liberal, democratic, thriving future civilization? Secondly, how much is the risk of unrecovered collapse or all-out human extinction going to increase on the basis of some war? And I think we can at least start to make our reasoning more precise there. I know that you have worries about the use of precise probabilities. I think it’s just extraordinarily helpful to advance debates to be able to use such kind of precise probability estimates. And then, I think, we can start to at least reason to say — OK, yeah, no actually, I do think maybe the risk of ideological lock-in from fascism is actually sufficiently great and sufficiently bad that it would be worth, let’s say, a 0.1 percent increase in extinction risk or something. [MUSIC] EZRA KLEIN: Something I found striking in the book is how important values change becomes for you under a long-term analysis. Tell me why. WILLIAM MACASKILL: So the reason values become so important is twofold. One is that — and this is a way in which I differ somewhat from some other longtermist thinkers — when I look to the long-term future, I see — I think there could be a dramatic amount of contingency in what moral values guide the future. And I talk a lot about the abolition of slavery as a historical example of something that, at least arguably, was significantly contingent. We could have a world which has today’s level of technological development, yet widespread slavery, were it not for particular cultural changes and moral campaigns that occurred. And that’s huge. I mean, if you look to a future that does or does not have legally permitted slavery, that makes an enormous difference to the value of those societies that are to come. But then secondly, I think that future technology could enable what I call value lock-in, where a particular ideology or a particular set of moral beliefs gets entrenched indefinitely. And it’s a more complex argument, and I think that there are many technologies or social developments that could make this happen. But a crucial one is artificial intelligence, where if there’s at some point of time — and that time might be much faster than you might naturally think — when the ruling beings are digital rather than human, well, then power could be in the hands of beings that are in principle immortal. And so a significant reason for why we get moral change over time — namely, that people die, and including harsh dictators die, that would be removed. And I actually think it could well be that the values that predominate today, or over the coming centuries, could actually be the same values that guide the entire course of the future. EZRA KLEIN: Let’s go to your slavery example for a bit here. And I’d like you to tell the story you tell there in somewhat more detail, because I think it’s a good way of grounding this idea that values and values change can be contingent. So why do you think the abolition of slavery was contingent? WILLIAM MACASKILL: Sure. So for context, slavery has been — for most of history since the agricultural era, slavery is almost ubiquitous. It was prevalent in most societies in one form or another. And so we should ask — and obviously, there was always enormous resistance, the slaves themselves — EZRA KLEIN: And it should be said, there’s still pockets of slavery today, but — WILLIAM MACASKILL: There’s still pockets of slavery today. EZRA KLEIN: — in terms of large-term values, it isn’t seen as acceptable. WILLIAM MACASKILL: In the world today, especially if you include forced marriage, something like 0.5 percent of the world’s population is in some form of slavery. But for context, in 1700, that number was like three quarters of the world’s population. So the sheer prevalence of slavery in history is often underappreciated. I didn’t appreciate it until I really started learning about this. Yet, that changed in the course of the 19th century, in particular, although — there was an abolitionist movement that was successful. And the major empires of the world abolished slavery, though some countries still had slavery well into the 20th century — legally permitted slavery. And so we might ask, why did that happen? And again, before learning about this, I thought, oh, it was economic matters. Mechanization and automation meant that slavery became obsolete, rather than the result of moral campaigns from those who opposed slavery. I think that argument doesn’t work. And actually, the mainstream view among historians who study the topic is that the economic argument for why slavery ended does not work. And there’s many reasons for this, but just a couple of the — firstly, the slave trade was booming at the time of abolition. The number of enslaved people transported across the Atlantic was increasing. There was an intense lobby from slave owners who were making significant profits. So that’s kind of one line of argument. The second is just that, even in the world today, there’s enormous amount of unmechanized labor. There’s also just many uses of enslaved people historically that — such as sex slavery or being a household servant — that just will not for a long time be threatened by mechanization. And so this kind of argument just doesn’t really explain why it happened when it did, nor why it happened in such a kind of further going way. In contrast, you can look to moral changes that were happening and look to the particular abolitionist campaign that arose out of the Quakers, originally, actually starting in the 17th century, but then were very successful in convincing both the British public and the British elites to change their laws and attitudes to enslavement, and then undertake really quite striking costs to abolish slavery, where the British empire suffered costs of about two percent of their gross national product for about 60 years, which is several times — four times, in fact — what Britain currently spends on foreign aid. And so the overall picture is just that what happened here was there was cultural change, there was moral activism and that was the main driving force. And the economics of it, while also obviously relevant to what happened, are not the thing that ended slavery. EZRA KLEIN: Tell me about Benjamin Lay. WILLIAM MACASKILL: Benjamin Lay was one of the early abolitionists, born in the late 17th century, and an activist in the early 18th century. And he was a Quaker. He was also a dwarf, and referred to himself as little Benjamin, likening himself to little David, who slew Goliath. And he is just this remarkable character who became well known across all of Pennsylvania for engaging in guerilla theater and very bold activism because he deeply opposed slave owning and thought it was inconsistent with Quaker Christian principles. And so he did just — there are just dozens of incredible stories about his activism. So he would shout and harass slave owners at Quaker meetings, get kicked out of the meeting, and just lay face down in the mud so that everyone leaving the meeting just had to walk over him in order to leave, or he would just stand in the snow in kind of bare feet. And then when people were asked, why is he doing that, he would point out that enslaved people would have to suffer like that the entire winter. Or at one point, during a Quaker meeting, he brought a fake Bible into the meeting, and said that by owning an enslaved person, you are committing as grievous a sin in the face of God as you would be by — as he does by stabbing this Bible, which then sprayed fake blood over everyone in the audience. And so he became incredibly well known. And it’s not entirely documented, the kind of paths for this influence, but it seems they were very great, in particular on the next generation of Quaker activists, and in particular Anthony Benezet, who was kind of the much milder, much meeker — repackaged many of these ideas in ways that made them continuous with Enlightenment thought, and then was enormously influential on getting the abolitionist campaign started in Britain. EZRA KLEIN: You argue, in part based on this story, but also based on this larger idea, that values can be changed and that value change can ripple forever. For the value of being a moral weirdo — what is a moral weirdo to you? And who are some great moral weirdos today? WILLIAM MACASKILL: So a moral weirdo for me is someone who believes things that are not widely accepted by society. Perhaps they’re even looked down upon or ridiculed by wider society. Nonetheless, that person stands up for what they believe in. And that doesn’t necessarily mean that the right thing to do is to engage in guerrilla theater. Perhaps it’s like Benezet — you should take a more cooperative or diplomatic approach. But nonetheless, you’re willing to go out on a limb for what you believe in morally. And I think that can be enormously impactful. So in the book, I talk about a movement that inspires me in particular, and I know inspires you, which is the animal welfare movement. I talk about Leah Garcés — there’s a story — who was the president of Mercy for Animals. But she’s just a representative of a much wider array of people who are speaking out for concern for the interests of non-human animals, and have actually had enormous success at getting, essentially, all the major fast food chains, all the major retailers, to move away from caged eggs and make pledges to say they will no longer use caged eggs. And throughout history, I mean — a striking thing, actually — it’s a digression — is lots of the early abolitionists were also vegetarian. So this was true of Benjamin Lay. It was true of Benezet. I think there’s a lesson there. But yeah, animal welfare activists, of which Leah is just one, are just these, in my view, moral heroes, where tides are changing and model attitudes are improving, I think quite rapidly, with respect to the interests of non-human animals. But even very recently, even 15 years ago when I first became vegetarian, it was just easily the subject of ridicule. And people found it kind of laughable that you would care about the interests of non-human animals. And so I’m really excited to see that change. EZRA KLEIN: I mean, it still is, soy boy. WILLIAM MACASKILL: Exactly. EZRA KLEIN: But I want to push you on this point about moral weirdos, because I would say you had to have, as an example, the weirdos of PETA, so that Leah Garcés — who I admire enormously — she was on this podcast back when it was at Vox — so that Garcés could be normal, right? So she could actually have as mainstream a role as she does. And so I want to push you again on this. I want to know who you think are the moral weirdos today. Who are out there saying things that are not mainstream, that are maybe even a little bit reviled, and who refuse to pipe down? I think it’s a bit of a dodge to only locate these people in the deep past. Who do you look at today and think, huh, in 50 years, we may look at them and say, they were on the right side of this and we should have listened? WILLIAM MACASKILL: Sure. I mean, someone who clearly leaps to my mind here is Eliezer Yudkowsky, where I have lots of disagreements with Eliezer, but he was advocating for taking seriously the risk of advanced artificial intelligence for years and years, just kind of in the wilderness on his blog, with some followers. And I think he would be complimented by the title of a weirdo, and he certainly is one. And lots of people find him very weird. And like I say, I have disagreements with him. But I think the fact that he was able and willing to advocate for what is, I think, a very important cause over the course of decades, that’s just very admirable, I think. EZRA KLEIN: The moral philosopher Peter Singer once argued to me that moral reasoning is a social activity, by and large. We mostly figure out right and wrong in terms of how those around us think and act about right and wrong. Do you think there’s truth to that? WILLIAM MACASKILL: Yes, I think that — and this is something I’m almost wanting to push against a little bit — is I think that, by and large, for morality — I mean, for many things, but morality in particular, we tend to just go with a group and we tend to assume the beliefs of our peer group. And it really is quite costly. I mean, if you’re a lefty, and all your friends are on the left, and you’re having a conversation about politics, it just often is — depending on your group — but can be costly to then voice that heterodox opinion. And that’s got nothing to do with the left in particular. That’s also true on the right. It’s also true of many, many political interest groups. If you’re part of the environmentalists, and then you come out in support of nuclear power, then people have a hostile reaction to you, at least in many circles. And so I think we’re very natural to pick up the beliefs of our peers. And I think the power of reason that Peter Singer points to is that we can actually try and move beyond that, and just really think things through, and then with courage stand up for those cases where we think that the people around us are making a mistake. EZRA KLEIN: Well, one thing I take from that — because I do think it’s true — and I think, look at how we treat dogs versus look at how we treat pigs, if you doubt it. But then it really matters not just how individuals reason morally, but how cultures and groups do. Benjamin Lay, as you mentioned, was a Quaker. And I think the Quakers have an unusually impressive history of being on the right side of big issues quite long before others are. They seem very moral. What in your view makes Quakers so good at collective moral reasoning? WILLIAM MACASKILL: It’s a great question. And I think there are two aspects to desirable moral social epistemology, you could call it — culture that is good for making moral progress. One is just everyone is unified in really wanting to act in accordance with what’s morally correct. That’s not true for all cultures. And then the second — and so kind of just taking morality seriously is a big core of it. And then a second is being willing to tolerate dissent. And in fact, you can even encourage diversity of ideas, and intellectual engagement, and so on. I think with the move towards Protestantism within Christianity, one distinctive part of that was there was a culture that was more about anyone can access the word of God by reading the Bible, by thinking things through for themselves, rather than it being dictated on high. And I think that was a completely important cultural transition. And so that doesn’t single out the Quakers in particular, but then I think they do have this — at least historically — had this distinctive thing of really taking morality seriously. I mean, the idea of — the word Quaker comes from quaking before God. I mean — and also then, there’s these familiar Quaker meetings where it’s in silence, and anyone can speak, and the word of God can speak through that person. This, again, is this intellectually egalitarian ethos, where, in principle, anyone could have a new moral insight. That could be God speaking through you. And that, I think, is hugely important. I mean, not the appeal to gods, but the intellectual egalitarianism I think is hugely important in terms of being able to make moral progress, because you get a greater diversity of ideas. You get a greater clash of good arguments. EZRA KLEIN: Something you wrote that I’ve been reflecting on is that, quote, “We might naturally think that slave owners really knew deep down that what they were doing was wrong and that they didn’t care. We should be careful not to imagine the views and values of other people as being more similar to our own than they really are.” And you go on to note that quite a few famed thinkers who dedicated much of their lives to moral reflection accepted slavery. So that was true for Plato, for Aristotle, for St. Augustine, for Aquinas, for Immanuel Kant. What are some ideas that come to mind to you that are not only accepted today socially, but defended by prominent moral thinkers, but you suspect may come to be seen as abhorrent in 300 or 3,000 years? WILLIAM MACASKILL: So we’ve already talked about animals. And that’s, in my experience, when I raise this thought experiment with people, they immediately point to animals. So — EZRA KLEIN: Which is damning, we already know it. WILLIAM MACASKILL: Which is damning, absolutely. A second, I think, is the treatment

### Document 469

The conceptual artist has taken over Tate Modern's Turbine Hall in London with an odorous work to excite the senses. Six years ago, the artist Anicka Yi created an exhibition on a theme that now feels eerily prescient: human fears of viral contagion. After an Ebola case was confirmed in New York, unsettling city life and causing months of anxiety, Yi set up tents at The Kitchen arts venue in Manhattan to display petri dishes containing bacteria she had gathered from 100 women. For Yi, 50, the germs and microbes that pass between us are key to understanding how humans respond to one another. And the air that we breathe is where much of this molecular exchange takes place. Now as she takes over Turbine Hall at Tate Modern in London for a solo presentation running from Tuesday through Jan. 16, 2022, Yi has made air her primary material and subject. When visitors enter the cavernous, industrial hall, they will encounter a series of giant airborne creatures that look like the ethereal cousins of jellyfish and amoeba, brought to life with drone technology and algorithms. The hall will also be filled with another, less tangible, suggestion of microbial life: an aroma that will change from week to week, conjuring the fragrant history of the Bankside area around the museum, from the Precambrian and late Jurassic eras to the Machine Age. Among the scent profiles Yi has created are those that represent more noxious periods in London history, including the smells of cholera and the bubonic plague. The ecosystem of Turbine Hall, as Yi has envisioned it, ''is the site of all this biological entanglement,'' she said in a recent video interview from London, where she was installing the ''aerobes,'' or ''biologized machines,'' as she calls them, that float and undulate in the space. ''I want to foreground the idea that air is a sculpture that we inhabit,'' she said. Olfactory experience and overlooked or maligned organisms -- like bacteria, algae and amoeba -- have long been central components of Yi's work. The curator Lumi Tan, who worked with Yi on her 2015 exhibition at The Kitchen, remembers seeing an early work by the artist of an image projected onto a block of tofu. ''With the heat of the projection and the tofu being unrefrigerated, you could see the tofu sweating,'' Tan said in an interview. ''You could smell it.'' ''She is fearless about making those things that we don't like to see on a daily basis,'' -- like signs of decomposition and contamination -- ''the center of an exhibition,'' she added. Yi's work with odors runs the gamut from the emotional to the sociopolitical, illuminating her interest in the way the human nose has been conditioned by outside forces. She has cultivated a smell to represent the experience of forgetting, created an ''immigrant'' aroma and recreated the scent of a New York showroom owned by the art dealer Larry Gagosian. ''I talk a lot about how power has no odor,'' Yi said. ''This is why you should not be smelling any odors when you walk into a gallery in Chelsea, or when you walk into a bank,'' she added. ''These are places of power and sterility, oftentimes associated with the masculine.'' Her scents can be read as feminist subversions of the primacy of the visual in art and the Enlightenment's celebration of the human brain as the seat of all intelligence. ''I think that smell opens up an incredible, totalizing potential for art,'' Yi said. ''Smell alters our chemicals. It shapes our desires. It can also make us gravely ill. There is always going to be biological risk, social risk, when we talk about air.'' Yi's floating forms respond to the air in Turbine Hall in unpredictable ways, with each of the tentacular, bulbous creatures programmed to display its own set of behaviors. Heat sensors installed throughout the space allow them to detect the presence of visitors -- and may prompt one or two of them to float down, hovering a few feet over visitors' heads. The interest in algorithms is a recent development, but it builds on ideas that run through Yi's artistic career. In the 2019 Venice Biennale, she presented a series of translucent cocoons made of kelp skins and inhabited by animatronic flies. A complementary installation of hanging vitrines housed soil and bacteria, with artificial intelligence monitoring the bacteria's behavior, learning from it and adjusting the climate inside. Yi said she hoped to return machines to nature: She wants them to manifest and represent the intelligence of diverse life-forms, not just human intelligence. And she wants them to learn from embodied experience. ''It seems to me that that's where we should be heading with our A.I. research,'' Yi said, ''as opposed to artificial intelligence that is ostensibly pure cognition and disembodied.'' For many of us, the prospect of autonomous machines freely occupying the living world may summon dystopian nightmares, but Yi said she was optimistic: ''I want to break the binary that we have with machines that is purely adversarial,'' she explained. ''Machines are not going away, and there is still time for us to shape and develop them in a more gentle and compassionate way.'' It is this attribute that sets Yi apart as an artist, said Barbara Gladstone, her dealer. ''I've always been interested in those artists who use what's available in the present: technologically, scientifically, culturally,'' she said. ''Those artists open doors, and are realists. They are not sentimental about the world that they live in.'' Far from being sentimental about the world, Yi remembered feeling removed from nature as a child in suburban Southern California. But when she found her way to art-making in her 30s -- after dabbling in various other careers -- it was in large part because of her own biology. In her youth, Yi experienced persistent and chronic stomach troubles that doctors struggled to diagnose. ''I would almost say that my gut problems launched my art practice,'' she said. After moving to New York in the 1990s, following a stint in London, Yi fell in with a circle of artists and began researching microbiology, experimenting with tinctures and making sculptures that expressed her preoccupation with metabolism. One 2010 artwork was of a transparent Longchamps handbag containing a cow's stomach submerged in hair gel. In the interview, Yi was reluctant to dwell on the details of her past, something she explored in a 2015 exhibition at Kunsthalle Basel in Switzerland. For that show, she created new artworks that referenced old ones, suggesting their evolution over time; an accompanying catalog was ritually burned, emitting a fragrance laced in the paper -- the aforementioned scent of forgetting. ''I was obsessed with the future,'' Yi recalled of this period. ''I had convinced myself that I was brought from the future to compost our present, so that we could transition to the future.'' Indeed, much of Yi's earlier work seems concerned with metabolizing the world -- including her own physical and emotional experiences -- into microbial matter. Her past materials have included snail excretions, shaved sea lice and the rubber sole of a Teva sandal ground to dust. With her Turbine Hall presentation, Yi said she hoped to ''decenter the human'' and cultivate empathy for nature and machines, creating a sense that we can all coexist in harmony in a perpetual state of exchange and mutual learning. ''The attempts to seal the borders -- and I mean that in all senses it might conjure -- is symptomatic of our fears and anxieties,'' Yi said. Instead, she said, we should let it all flow together. ''There is nothing but ceaseless porousness.'' https : // www.nytimes.com/2021/10/11/arts/design/anicka-yi-tate.html Graphic PHOTOS: Above, Anicka Yi at Tate Modern in London this month. Left, her solo presentation in Turbine Hall there. Below left, a helium tank used to fill her giant airborne creatures. Below right, Yi with one of the objects. (PHOTOGRAPHS BY LAUREN FLEISHMAN FOR THE NEW YORK TIMES) Load-Date: October 13, 2021 End of Document New Details About FTX Emerge as Bankman-Fried’s Trial Begins; DealBook Newsletter The New York Times

### Document 1016

In the last few years, I've become increasingly fascinated by artificial intelligence, and in particular our escalating fear of it. It seemed to me that our increasingly holistic relationship with technology and abstract clouds of information was compounding this fear and perhaps edging it into paranoia. These thoughts were crystallized while writing and directing the new film ''Ex Machina.'' It tells the story of a young male coder in a tech company who is given the job of assessing the level of consciousness in a female-presenting robot called Ava. He's bewitched, gives up the day job and starts making plans to elope. I remember feeling pleased when I hit upon this plot. Robot sentience hadn't really been tackled since Steven Spielberg's ''A.I.'' (2001), which was less interested in artificial intelligence than the title suggested, and the ideas of machine-thinking and human consciousness felt like a rich seam. So I was dismayed when after submitting the script, I discovered I wasn't alone in writing an A.I. movie. There was ''Her'' (2013), which tracked a love affair between a man and his computer's sentient operating system. Next was ''Transcendence,'' in which Johnny Depp uploaded his mind to the Internet. In ''Automata'' and ''Chappie,'' servile robots acquired independence. In ''Big Hero 6,'' an A.I. befriends a boy. And in ''Avengers: Age of Ultron,'' out next week, a robot tries what we all know they're secretly planning: the destruction of mankind. Among filmmakers there was an A.I. party going on, to which we were late. Worse yet, someone else had shown up in the same dress. Another film had freakish similarities to ''Ex Machina.'' It was called ''The Machine'' and also starred a female-presenting A.I. named Ava. (Initially I wondered if it was an incredibly early porn parody of ''Ex Machina'' that had missed the more obvious riff of ''Sex Machina.'' But it turned out to be a thoughtful action movie by the Welsh writer-director Caradog James.) Alongside this sudden preoccupation in the film world, a growing number of public figures began making statements about the inherent danger of A.I. research. The gist was that if mankind wasn't careful, we would code the terms of our own destruction by robot overlords. These are warnings one might expect from a religious perspective, concerned with the godlike aspects of creating sentient life. But interestingly, the warnings were actually coming from the science and tech worlds. They began as distant thunder. A high-level cognitive robotics researcher told me almost in passing that he was considering telling his children that they should not have children themselves, because he was so concerned about the A.I.-shaped world on our horizon. By the time ''Ex Machina'' was in postproduction, the thunder was a full-blown lightning storm, with the bright discharges coming from major public figures of our age. The theoretical physicist Stephen Hawking told us that ''the development of full artificial intelligence could spell the end of the human race.'' Elon Musk, the chief executive of Tesla, told us that A.I. was ''potentially more dangerous than nukes.'' Steve Wozniak, a co-founder of Apple, told us that ''computers are going to take over from humans'' and that ''the future is scary and very bad for people.'' With entertainment and science joining forces to spin cautionary tales, it felt very alarming, and very zeitgeist. But it also felt confusing, in that zeitgeist is a response to something. Film production runs in roughly three-year cycles, and if you looked back three years from the glut of A.I.-related releases, you might expect to find an event that had led to the screenplays. Perhaps a Nobel Prize relating to consciousness, or a successful robot project with the profile of the Large Hadron Collider, or Dolly the sheep. But there was nothing. In fact, breakthroughs in A.I. research were either conspicuous by their absence, or so nuanced that you would struggle to convince lay people that the breakthrough existed at all. This raised a question: Was A.I. anxiety in part a projected fear of something else? In particular, I wondered if it stemmed from a general disconnect in our relationship with technology. We have laptops and cellphones and tablets, and most of us don't understand how they work. But the devices seem to understand how we work. They anticipate what we want to say in text messages and search-engine inputs, and know what we want to buy, see and read. This one-way understanding makes us anxious. We locate the anxiety in the machines, which translates as anxiety about A.I. But there is a mistake here. The machines in question are not strong A.I.'s. They are weak. They have no motivation, no intention; they're neutral. The thing with an agenda is us: consumers, who want to buy the machines, and manufacturers, who want to sell them. And looming over both, giant tech companies, whose growth only ever seems to be exponential, whose practices are opaque, and whose power is both massive and without true oversight. Combine all this with government surveillance and lotus-eating public acquiescence, and it's not the machine component that scares me. It's the human component. So here is a counterargument, in favor of the machines. In very broad terms, human behavior is frightening when it is unreasonable. And reason might be precisely the area where artificial intelligence excels. I can imagine a world where machine intelligence runs hospitals and health services, allocating resources more quickly and competently than any human counterpart. Public works aside, the investigation into strong artificial intelligence might also lead to understanding human consciousness, the most interesting aspect of what we are. This in turn could lead to machines that have our capacity for reason and sentience, but different energy requirements and a completely different relationship with mortality. That could mean a different future. A longer future. In which case, we could rephrase the warnings of Mr. Hawking and Mr. Wozniak. Where they say that A.I. will spell the end of humans, we could say that one day, A.I. will be what survives of us. http : // www.nytimes.com/2015/04/26/movies/alex-garland-of-ex-machina-talks-about-artificial-intelligence.html Graphic PHOTOS: Top, Alicia Vikander as Ava in ''Ex Machina,'' a film directed by Alex Garland. Above, Hugh Jackman, foreground, in ''Chappie.'' (PHOTOGRAPHS BY A24 STEPHANIE BLOMKAMP/COLUMBIA PICTURES) Load-Date: April 26, 2015 End of Document What's 'Westworld' Without Westworld? The New York Times

### Document 1059

Most fictions about artificial intelligence are not, of course, about artificial intelligence. They use the topic as a metaphor, a scale on which to weigh and measure the assets and liabilities of humanity itself. “Marjorie Prime,” a new film written and directed by Michael Almereyda, adapted from Jordan Harrison’s acclaimed play, is an alternately stately and brisk story in which the metaphor poses questions about mortality, loss and who our imagined “best selves” might turn out to actually be once they’re released from our own assessment. The great Lois Smith reprises the role she played in both the 2014 Los Angeles and 2015 New York productions of the play, an old woman named Marjorie with an unspecified disease who has been given a new companion. “He” is Walter, her dead husband, reincarnated in an in-his-prime version played by Jon Hamm. In his early interactions with Marjorie, Walter, a holographic-generated “prime” whose personality software is constructed both from what he left behind and from memories of the people close to him, is kind, solicitous and a little wide-eyed. Whenever Marjorie “reminds” him of a trait the actual Walter had, or a shared experience, his prime obediently says, “I’ll remember that now.” (The movie is set in an unspecified point in the future, though if you do the math around the video release of a movie that looms large in Walter and Marjorie’s early story, it would seem to be around 2050.) Marjorie’s daughter, Tess, has prickly feelings about having this Walter in the house, while her husband, Jon, is more optimistic about the digital ghost’s potential for service. As you might infer from the title, household roles subsequently shift, and then shift some more. The characters’ quiet desperation to hold on to the ones they’ve loved becomes a sort of trap. The movie has certain affinities with other recent critical favorites, but is less knotty than “Ex Machina” (2014) and less sentiment driven than “Her” (2013). It is not particularly concerned with gender roles or even tender feelings as such. Tim Robbins and Geena Davis, as Jon and Tess, play their characters with close-to-the-vest discipline, and Ms. Smith tempers Marjorie’s physical vulnerability with a wry skepticism. At one point, a character points out that whenever humans revisit a memory, they are not recollecting the actual event: rather they are remembering what they remember. In that respect, the extent to which our memories make up our selves is changing without us even realizing. The “primes” here don’t work that way. Or do they? And what difference does that make to their interaction with humans, and vice versa? Mr. Almereyda (whose 2015 film, “Experimenter,” was an underseen beauty) is a seasoned cinematic spellbinder. He doesn’t do much to open up Mr. Harrison’s theatrical work, confining it for the most part to an elegant, mysterious beach house, one that, paradoxically enough, contains no visible high-tech devices. When you try to break down how he achieves his seductive magic with respect to this narrative, it all looks, initially, like nothing more than good cinematic common sense. The key is what he does on the sly: the way his subtle shifts of focus within a shot don’t just change the emphasis of the scene, but mirror quirks of consciousness. There’s more going on in this movie’s 90-plus minutes than in many summer blockbusters nearly twice its length. Marjorie Prime Not rated. Running time: 1 hour 38 minutes. PHOTO: Jon Hamm and Lois Smith in Michael Almereyda’s film adaptation of the acclaimed play “Marjorie Prime.” (PHOTOGRAPH BY FilmRise FOR THE NEW YORK TIMES) Related Articles Lois Smith’s Year of Working Constantly Review: In ‘Marjorie Prime,’ Lois Smith Connects With the Past Load-Date: May 10, 2018 End of Document This Friendship Has Been Digitized The New York Times

### Document 893

This season’s most ambitious sci-fi series took on the same philosophical conundrum: Is free will an illusion? The theoretical physicist Sean Carroll digs into the nature of our reality. After we’ve made a decision, to stay home rather than go to a dinner party, say, or to profess our love to someone, we ruminate over what we imagine as equally plausible alternative outcomes. Would we be happier if we had decided to go to the party? Would we regret not having shared how we feel? But in what sense were those other futures available to us? Did we ever really have a choice? Or was what we perceived to be a decision actually predetermined, the result of a hidden conspiracy between our physical environment — the chance of rain, the temperature of the room — and the hard wiring of our brains? Those questions, the subject of a centuries-old scientific debate about the possibility of free will, lay at the center of two high-profile television shows this season, “Westworld” (HBO) and “Devs” (FX on Hulu). In different ways, both series invoked the idea of “determinism,” which holds that our every thought, blink and utterance was ordained at the Big Bang and predicted by immutable laws of physics. On “Devs,” a limited series created by Alex Garland, the writer and director of “Ex Machina,” a shamanic Silicon Valley founder named Forest (Nick Offerman) drops the truth bomb. “The life we lead, with all its apparent chaos, is actually a life on tram lines,” he says. Annoyingly to Forest, those tram lines are invisible. So he devises an astonishing workaround: an extraordinarily powerful quantum computer (art-directed to look like the real ones at Google and IBM) that can reveal the past and future of every particle in existence. Season 3 of “Westworld,” which concluded on Sunday, also involves a clairvoyant supercomputer that allows its creator to play God. A French megalomaniac (Vincent Cassel) has built a system that can predict and manipulate the behavior of nearly everyone on earth. Despite their delusions of supremacy and monstrous ingenuity, the human characters, it turns out, aren’t any more autonomous than the androids they’ve been tormenting. As in all good sci-fi, what makes these ideas unsettling is the ring of truth. But what does science really tell us about free will? Did I write these words of my own volition? Are you reading them according to yours? Or are our lives, as Forest says, hauntingly, just “something we watch unfold, like pictures on a screen?” Seeking answers to those questions, and to other mind-bending provocations in each of the shows, I called the theoretical physicist Sean Carroll, a research professor at the California Institute of Technology and the author of several popular books, including “The Big Picture” and “ Something Deeply Hidden.” He agreed to watch both series before we talked, ahead of the “Westworld” season finale. These are edited excerpts from our conversation. What’s it like for you to watch things like this as someone who actually knows the science? It’s a bittersweet experience. There’s a traditional thing that physicists do when they watch science fiction-y shows, which is roll their eyes at the implausibility. But I’ve tried my best to grow out of that. Instead, I try to appreciate how the storytellers use physics ideas to tell an interesting story. I think of these shows as more inspirational than educational. If they get people talking about big ideas and thinking them through deeply, then I think that’s all to the good. Did you have a preference between the two shows? With “Westworld," I really enjoyed Season 1. Then I thought that it got a little complicated. This season, I’ve sort of lost the feeling of who I was supposed to be rooting for, so it’s a little less engaging. With “Devs,” I was very impressed with how they were doing something very, very different. I thought it was a very well done show. It was slow and contemplative, but that’s a perfectly good change of pace from what we ordinarily see in action movies. The computer in “Devs” is a quantum computer and the one in “Westworld” is described as an advanced A.I. Did you see an important difference there, in principle? They portray them differently, but honestly it doesn’t matter even the slightest amount. There’s nothing about what the “Devs” computer was doing that was especially quantum — it just sounds cool. There’s no reason they couldn’t have just called it a classical computer. Likewise, the artificial intelligence aspect of the computer in “Westworld” is pretty optional. If what you’re trying to do is predict the future on the basis of the present, maybe an A.I. is useful to that, but it’s certainly not necessary. It’s just a matter of which buzzword you want to use. The computer in “Westworld,” I would say, is a little bit more realistic than the one in “Devs.” Nowhere near practical, but a little bit more believable. A common thread between the two shows is the conflict between free will vs. determinism. Can you explain what determinism is? Determinism is basically the idea that if you knew everything that was happening in the universe at one moment, then you would know, in principle, everything that was going to happen in the future, and everything that did happen in the past, with perfect accuracy. Pierre-Simone Laplace pointed this out in the 1800s using a thought experiment called Laplace’s Demon. That sounds like what the computer in “Devs” is attempting to do. Could it exist? No. And the most basic reason is that if you want to be Laplace’s Demon, you need to know the position and the velocity of every single particle in the universe, or at least within several hundred light years. And no computer has any way of learning that, nor will they ever. Especially not if it’s a quantum computer, because by observing the quantum states of particles, you change them. You couldn’t, as the show says, “extrapolate” from one particle, or group of particles, to deduce the state of all others? Yeah, all that was just complete and utter nonsense. There’s nothing anywhere in physics that says anything like that. If I tell you, “Here’s a billiard ball, it just hit another billiard ball. Tell me where the other billiard ball is,” you couldn’t do that! There’s lots of different places the other billiard ball could be. If I told you where the billiard ball started and where it is now, then maybe you could figure out what happened in between. But that’s cheating — you wouldn’t be starting with just what’s in front of you. Let’s talk about free will. Do we have it? It’s complicated, and I apologize for that, but it’s worth getting right. The very first question we have to ask is: Are we human beings 100 percent governed by the laws of physics? Or do we, as conscious creatures, have some wiggle room that allows us to act in ways that are outside of the laws of physics? Almost all scientists will tell you that of course it’s the former. If you jump out of a window, the laws of physics say that you are going to hit the ground. You can use all of the free will you want, but it’s not going to stop you from hitting the ground. So why would you think that it works any differently when you go to decide what shirt you’re going to wear in the morning? It’s the same laws of physics. It’s just that one case is a more crude prediction and the other case is a more detailed prediction. There’s another idea called libertarian free will, which says that human beings are a law unto themselves, not governed by the laws of physics. That’s an idea that is pretty strongly rejected by almost all scientists. Did I make the choice to pick up the phone and call you? Short answer: yes. Long answer: It depends on what you mean by “you” and “make the choice.” At one level, you’re a collection of atoms obeying the laws of physics. No choices are involved there. But at another level, you are a person who pretty obviously makes choices. The two levels are compatible, but speak very different languages. This is the “compatibilist” stance toward free will, which is held by a healthy majority of professional philosophers. But isn’t that a rhetorical sleight of hand? If our choices are fully predetermined by physical processes outside of our control and beneath our consciousness, are they really choices? Or is that just a story we’re telling ourselves? I think it’s the same as the chair you’re sitting on. Is it an illusion because it’s really just a bunch of atoms? Or is it really a chair? It’s both. You can talk about it as a set of atoms, but there’s nothing wrong with talking about it as a chair. In fact, you would be dopey to not talk about it as a chair, to insist that the only way to talk about it was as a set of atoms. That’s how nature is. It can be described using multiple different vocabularies at multiple different levels of precision. At the level of precision where we’re talking about human beings and tables and chairs, you just can’t talk that way without talking about people making choices. There’s just no way to do it. You can hypothesize, “What if I had infinite powers and I knew where all the atoms were and I knew all the laws of physics.” Fine. But that’s not reality. If you’re reality based, then you have to talk about choices. On both shows, the laws of physics are used to reframe the idea of morality. On “Devs,” Forest makes the argument that determinism is “absolution.” And there’s an idea in “Westworld” that humans are just “passengers”; forces beyond our control are behind the wheel. When you see people on the news, or even when you think about the people in your own life, does your belief in determinism affect the way you judge their behavior? Not really, no. As long as you’re talking about a human-scale world. This idea that we are just puppets is clearly a mistake. It’s mixing up two different ways of talking about the world. There’s a way of talking about human beings going through their lives and making choices. There’s another way of talking about the laws of physics being deterministic and so forth. Those are two different ways — pick one. Now, there are situations where we might learn that the choices that we thought people had are more circumscribed than we knew, either because of their biology or because of mental health issues, or what have you. By all means, take that into consideration. But that’s very human-scale stuff. If a person could not have acted otherwise, then you don’t hold them responsible in the same way. It’s not a matter of cutting edge science, it’s ancient law. Another thread in both of these shows is the idea of a simulated world indistinguishable from ours. In what sense would a simulation be “real” for a person who was living in one? Well they wouldn’t know any different. We could be living in a computer simulation now. If you believe, as I do, that things like our perceptions, our feelings, our thoughts, are all arising as emergent phenomena out of the interactions of physical stuff — atoms and forces and so forth — then you can absolutely imagine mimicking that to 100 percent accuracy in a computer simulation. It’s not practical to do it, now or maybe ever. But you can imagine it. And there’s no principled reason you would say those virtual beings inside your simulation are not feeling and experiencing the world in the same way that we are. If I uploaded myself into a simulation, would it be me? I think this gets into important issues very quickly. I would say that before you worry about whether you’re still you in the simulation, you should worry about whether you’re still the same person now that you were one minute ago. Clearly you’re similar in many ways; many of the atoms inside your body are the same. But not all of them — you’ve been breathing, and maybe some of your skin flaked off, etc. So there’s a relationship between you now and you one minute ago, but they’re not exactly the same person. The same thing holds true if you’re trying to imagine uploading yourself into a computer. It wouldn’t be exactly you, but it could be related to you in some way. There’s not a binary choice between “me” or “not me.” We should be asking, rather: “In what way is this related to me or similar to me? Does it react to the world in the same way that I would?” It’s like if you were to put yourself in a duplicator machine, like in “Calvin and Hobbes.” Which one is the real you? Well there’s no such thing as the real you. That’s not how things work. The idea that there’s this consciousness stuff that flows through you and therefore would have to be transferred over to the computer is just wrong. So, if we find out on “Westworld” that William actually died at some point in the past and is now an android with William’s consciousness, would you say that it’s really him? I would say that it’s a person that has a relationship to the previous William, in more or less the same way that the you of right now has a relationship to the you of five minutes ago. What about organic life versus artificial life? There’s a refrain in “Westworld”: “If you can’t tell the difference, does it matter?” Do you think that it matters? Well, the “hosts” on “Westworld” are kind of envisioned as robots — they’re obviously not like human beings. But you can imagine a world where we have artificial organisms that are humanlike and are made out of cells that adapt and repair themselves like we do. In that case, I don’t think there’s a hard, bright line between a living being and a nonliving being. It’s a continuum. The Many Worlds theory of quantum mechanics, which says that there’s not one but many universes and that they’re constantly splitting off into new ones, plays a big role on “Devs.” You’re a proponent of the theory and wrote a book on it. What causes the universe to split? Any time a small quantum system, like an electron, is in a superposition and comes into contact with the outside world, the universe branches. A superposition means that it could be in two different states — for example, spinning both clockwise and counterclockwise — at the same time. How many universes have been created over the course of this phone call? The sad news is we have no idea because our understanding of quantum mechanics isn’t quite what it should be. But it might be an infinite number. That sounds dramatic, but it might be a smooth, continuous process rather than a discrete sudden one. But it might not be! We just don’t know. We do know that it’s happening all the time — not once per minute, but many, many, many times per second. PHOTOS: In “Devs,” Nick Offerman, top, plays a messianic tech founder who devises a supercomputer that can simulate the past and predict the future, based on principles of physical determinism. In Season 3 of “Westworld,” center, humans are revealed to be under the control of a nearly omniscient, micromanaging form of artificial intelligence. Above, the supercomputer in “Devs” was art-designed to resemble computers at big tech companies from the real world. (PHOTOGRAPHS BY MIYA MIZUNO/FX; HBO) Load-Date: May 6, 2020 End of Document Silicon Valley Is Still Booming Despite Backlash The New York Times

### Document 321

James Bridle’s “Ways of Being” encourages readers to look for intelligence outside the brain box. WAYS OF BEING: Animals, Plants, Machines: The Search for a Planetary Intelligence, by James Bridle In a tech environment fixated on systemic disruption, the artist and writer James Bridle (who uses they/them pronouns) has earned a reputation as a disrupter among disrupters. In their writing and artwork — and also at the glossy tech conferences where they often speak — Bridle holds forth a dark vision of where big tech has actually led us, for all its utopian claims. In their first book, “New Dark Age: Technology and the End of the Future,” Bridle depicted a world smothering under dark clouds both literal and figurative, a planet whose ecological and structural collapse cannot even be grasped by its people, obscured as it is in a fog of impenetrable complexity. In Bridle’s view, world culture is currently locked in a vicious and deadly cycle, endlessly insisting “on the power of images and computation to rectify a situation that is produced by our unquestioning belief in their authority.” It’s suicide by data, on a global scale. Bridle’s new book, “Ways of Being,” picks up where “New Dark Age” left off, in a world doomed by our collective twisting of needs and beliefs into inscrutable and largely malevolent systems. “Ways of Being” opens in Epirus, Greece, a rugged and pristine mountain terrain that is home to “bears, wolves, foxes, jackals, golden eagles and some of the oldest trees and forests in Europe,” but which has recently fallen into the clutches of the massive energy company Repsol, and with it the sophisticated artificial intelligence Repsol employs for the speculation and extraction of petroleum. As Bridle walks this mountainous idyll, the Ionian Sea distantly shimmers, but the land is staked and flagged for hundreds of kilometers for imminent drilling, “alien probes, the operations of an artificial intelligence optimized to extract the resources required to maintain our current rate of growth, at whatever cost necessary.” As in the postapocalyptic fictions of Margaret Atwood or Cormac McCarthy, Bridle’s landscape belongs simultaneously to our ravaged future and our mythic past, and their voice, in these first pages — and in significant portions of the book that follows — comes from this portentous world like a doomsday prophet’s. “We become more like the machines we envisage,” Bridle warns, just as we face “the wholesale despoliation of the planet, and our growing helplessness in the face of vast computational power.” But it is here that Bridle begins to open a route to salvation: By abandoning our limited, Western ideas about what constitutes intelligence, we might look “beyond the horizon of our own selves and our own creations to glimpse another kind, or many different kinds, of intelligence.” In the very world we are destroying, Bridle writes, is “a whole realm of other ways of thinking and doing intelligence,” with which we — and our technologies — must find more symbiotic ways to coexist and interact. “In short,” Bridle declares, “we must discover an ecology of technology.” In the chapters that follow, Bridle offers a heady and often astonishing survey of recent discoveries from the “more-than-human” world, where science is only beginning to glimpse the myriad forms that nonhuman intelligence can take. Bridle describes cress plants that can respond to the sound of approaching caterpillars by filling their leaves with chemical defenses; goats on the slopes of Mount Etna whose panicked behavior might predict an eruption before any man-made observation device; the newfound evidence of advanced intellect in our Neanderthal and other humanoid forebears. Spanning millenniums, continents and academic disciplines, the scope of Bridle’s curiosity and comprehension is immense, and the possibilities of how other intelligences might augment or complement our own are exhilarating to consider. Bridle describes the paradoxical political stability ancient Athenians discovered in surrendering some of their governance to the forces of randomness; slime molds that can solve spatial efficiency problems more handily than the most powerful computers; the many and mostly abandoned forms of “unconventional computing” whose incorporation of natural, nondigital elements (water, billiard balls, even tiny crabs) grant those machines access to forms of computation unavailable in the most sophisticated modern devices. This wildly diverse world of intelligences, Bridle shows us, is the true ecological setting that humans, and our technologies, inhabit. But Bridle wants to do more than dazzle us with latent possibilities. Bridle seeks nothing less than the overturn of central values of the “so-called Enlightenment Culture,” built over generations of “domination and cultural imperialism,” a distinctly Western worldview that Bridle depicts as fundamentally “destructive and unequal” — and encoded in its technologies. In this sense, “Ways of Being” echoes John Berger’s landmark work of art criticism, “Ways of Seeing” (Bridle was the host for “New Ways of Seeing,” a BBC mini-series that revisits Berger’s ideas through the lens of current technology). Just as, 50 years ago, Berger challenged consensus societal values by questioning the assumptions viewers bring to bear when they look at a piece of artwork, so does Bridle now hold forth recent scientific discoveries as ways of upending our limited, self-serving and toxic understanding of what intelligence can be. In Bridle’s framing, the fate of our species and our planet might depend on “reimagining.” And yet, the Western, anthropocentric outlook that Bridle presents here, the one they seek to disrupt, seems in places both overly monolithic and outmoded. I wonder at Bridle’s claim, when writing of artificial intelligence, that “we seem incapable of imagining intelligence any other way” than as “profit-seeking, extractive”; surely, a lot of the public enthusiasm around A.I. has to do with a hope that it might help us find better ways to learn, interact and discover. Similarly, when writing about evolution, Bridle argues that we see the process as a vicious “red in tooth and claw” survival of the fittest, while “ignoring or downplaying other processes which work alongside” natural selection, such as “mutation, recombination and genetic drift” — but the fact that random mutation is central to evolution and biological diversity has long been the stuff of elementary science schoolbooks. Even Bridle’s central argument, that we need to live in more equitable, receptive and regenerative relation to the “more-than-human world,” feels widely agreed upon, even if we don’t know how to go about it or are unwilling to break our current patterns of consumption. Still, when seen through the clouded, ominous light of “paranoia and social disintegration” Bridle conjures so vividly in “New Dark Age,” there is something hopeful and even heartening in their faith that our current disastrous course might be shifted not only by new policies and technologies but also — and more fundamentally — by the power of new ideas. Even if Bridle’s language occasionally overreaches or overgeneralizes, the urgency of the moment perhaps necessitates the hyperbole. After all, to ignore Bridle’s premonitions and revelations might be like ignoring those spooked goats on Mount Etna, frantic with the imminence of eruption under their hooves. Catastrophe is coming, and we might only save ourselves if we can find new ways to look and to listen. Stefan Merrill Block is the author of three novels, “The Story of Forgetting,” “The Storm at the Door” and, most recently, “Oliver Loving.” WAYS OF BEING: Animals, Plants, Machines: The Search for a Planetary Intelligence, by James Bridle | 384 pp. | Farrar, Straus &amp; Giroux | $30 PHOTO (PHOTOGRAPH BY THANASSIS STAVRAKIS/ASSOCIATED PRESS) Load-Date: August 5, 2022 End of Document Director Of Hammer To Retire The New York Times

### Document 444

“Superintelligence” is a flawed concept and shouldn’t inform our policy decisions. Intelligent machines catastrophically misinterpreting human desires is a frequent trope in science fiction, perhaps used most memorably in Isaac Asimov’s stories of robots that misconstrue the famous “three laws of robotics.” The idea of artificial intelligence going awry resonates with human fears about technology. But current discussions of superhuman A.I. are plagued by flawed intuitions about the nature of intelligence. We don’t need to go back all the way to Isaac Asimov — there are plenty of recent examples of this kind of fear. Take a recent Op-Ed essay in The New York Times and a new book, “Human Compatible,” by the computer scientist Stuart Russell. Dr. Russell believes that if we’re not careful in how we design artificial intelligence, we risk creating “superintelligent” machines whose objectives are not adequately aligned with our own. As one example of a misaligned objective, Dr. Russell asks, “What if a superintelligent climate control system, given the job of restoring carbon dioxide concentrations to preindustrial levels, believes the solution is to reduce the human population to zero?” He claims that “if we insert the wrong objective into the machine and it is more intelligent than us, we lose.” Dr. Russell’s view expands on arguments of the philosopher Nick Bostrom, who defined A.I. superintelligence as “an intellect that is much smarter than the best human brains in practically every field, including scientific creativity, general wisdom and social skills.” Dr. Bostrom and Dr. Russell envision a superintelligence with vast general abilities unlike today’s best machines, which remain far below the level of humans in all but relatively narrow domains (such as playing chess or Go). Dr. Bostrom, Dr. Russell and other writers argue that even if there is just a small probability that such superintelligent machines will emerge in the foreseeable future, it would be an event of such magnitude and potential danger that we should start preparing for it now. In Dr. Bostrom’s view, “a plausible default outcome of the creation of machine superintelligence is existential catastrophe.” That is, humans would be toast. These thinkers — let’s call them the “superintelligentsia” — speculate that if machines were to attain general human intelligence, the machines would quickly become superintelligent. They speculate that a computer with general intelligence would be able to speedily read all existing books and documents, absorbing the totality of human knowledge. Likewise, the machine would be able to use its logical abilities to make discoveries that increase its cognitive power. Such a machine, the speculation goes, would not be bounded by bothersome human limitations, such as slowness of thought, emotions, irrational biases and need for sleep. Instead, the machine would possess something like a “pure” intelligence without any of the cognitive shortcomings that limit humans. The assumption seems to be that this A.I. could surpass the generality and flexibility of human intelligence while seamlessly retaining the speed, precision and programmability of a computer. This imagined machine would be far smarter than any human, far better at “general wisdom and social skills,” but at the same time it would preserve unfettered access to all of its mechanical capabilities. And as Dr. Russell’s example shows, it would lack humanlike common sense. The problem with such forecasts is that they underestimate the complexity of general, human-level intelligence. Human intelligence is a strongly integrated system, one whose many attributes — including emotions, desires, and a strong sense of selfhood and autonomy — can’t easily be separated. Similarly, if generally intelligent A.I. is ever created (something that will take many decades, if not centuries), its objectives, like ours, will not be easily “inserted” or “aligned.” They will rather develop along with the other qualities that form its intelligence, as a result of being embedded in human society and culture. The machines’ push to achieve these objectives will be tempered by the common sense, values and social judgment without which general intelligence cannot exist. What’s more, the notion of superintelligence without humanlike limitations may be a myth. It seems likely to me that many of the supposed deficiencies of human cognition are inseparable aspects of our general intelligence, which evolved in large part to allow us to function as a social group. It’s possible that the emotions, “irrational” biases and other qualities sometimes considered cognitive shortcomings are what enable us to be generally intelligent social beings rather than narrow savants. I can’t prove it, but I believe that general intelligence can’t be isolated from all these apparent shortcomings, either in humans or in machines that operate in our human world. In his 1979 Pulitzer Prize-winning book, “Gödel, Escher, Bach: an Eternal Golden Braid,” the cognitive scientist Douglas Hofstadter beautifully captures the counterintuitive complexity of intelligence by posing a deceptively simple question: “Will a thinking computer be able to add fast?” Dr. Hofstadter’s surprising but insightful answer was, “perhaps not.” As Dr. Hofstadter explains: “We ourselves are composed of hardware which does fancy calculations but that doesn’t mean that our symbol level, where ‘we’ are, knows how to carry out the same fancy calculations. Let me put it this way: There’s no way that you can load numbers into your own neurons to add up your grocery bill. Luckily for you, your symbol level (i.e., you) can’t gain access to the neurons which are doing your thinking — otherwise you’d get addlebrained.” So, why, he asks, “should it not be the same for an intelligent program?” In other words, the intelligent part of your mind can’t harness the fast-adding skills of your own neurons, and for good reason. This barrier — between the “self” that you are aware of and the detailed activity of your brain — permits the kind of thinking that matters for survival without getting overwhelmed (“addlebrained”) by your own thought processes. Similarly, a thinking computer’s hardware, like ours, would presumably include circuits for fast arithmetic, but at the level of its cognitive awareness, the machine wouldn’t be able to tap into these circuits any more than we humans can. It’s fine to speculate about aligning an imagined superintelligent — yet strangely mechanical — A.I. with human objectives. But without more insight into the complex nature of intelligence, such speculations will remain in the realm of science fiction and cannot serve as a basis for A.I policy in the real world. Understanding our own thinking is a hard problem for our plain old intelligent minds. But I’m hopeful that we, and our future thinking computers, will eventually achieve such understanding in spite of — or perhaps thanks to — our shared lack of superintelligence. Melanie Mitchell (@MelMitchell1) is a professor of computer science at Portland State University, external professor at the Santa Fe Institute and the author of “Artificial Intelligence: A Guide for Thinking Humans,” from which this essay is partly adapted. The Times is committed to publishing a diversity of letters to the editor. We’d like to hear what you think about this or any of our articles. Here are some tips. And here’s our email: letters@nytimes.com. Follow The New York Times Opinion section on Facebook, Twitter (@NYTopinion) and Instagram. PHOTO: (PHOTOGRAPH BY Sophia Foster-Dimino FOR THE NEW YORK TIMES) Load-Date: January 24, 2020 End of Document We Shouldn't Be Scared by A.I. The New York Times

### Document 711

''Are we being watched?'' I ask Trevor Paglen at his central Berlin studio. The prewar apartment was once surely the most surveilled place in the city, having formerly belonged to his friend Laura Poitras, the director who helped Edward Snowden go public. ''We're always being watched,'' he replies. The space is filled with computers: Against one wall, an assistant writes code while another researches data used to train artificial intelligence. Opposite is a long credenza filled with art monographs and topped by a slightly sinister collection of objets: a Dungeons & Dragons-style dragon trophy with a shield and saber; a toy model of the stealth submarine U.S.S. Jimmy Carter; and ''Black Ops'' military patches, including some Paglen made himself. In one of them, dinosaurs of the future look up in wonder at the derelict satellites left behind by extinct humans. There's a certain irony in the artist and author being based in the former G.D.R., where citizens were once pressured into spying on one another for the Stasi, which left behind miles of documents when the wall fell in 1989. Fifteen years later, Paglen, who already had an M.F.A. from the School of the Art Institute of Chicago, was working on his doctorate in geography at the University of California, Berkeley, when he saw redacted portions of a map of the Mojave Desert and began photographing classified military installations, outfitting cameras with special lenses used in astrophotography. Ever since, he's been documenting the ways in which humans have transformed the surface of the Earth, and how we, in turn, have been transformed by those changes. (A survey of his career will go on view at the Smithsonian next summer.) The resulting photographs are vertiginous and strange, illuminating the increasingly uneasy space between ourselves and our perceived world: a tiny, is-it-a-seagull-no-it's-a-drone set against a Technicolor sunset; the dystopian white radomes of a surveillance station tucked into an English pastoral; a placid seascape, beneath which lies a key communications choke point. ''People like to say that my work is about making the invisible visible, but that's a misunderstanding,'' Paglen says. ''It's about showing what invisibility looks like.'' Paglen was already well known for his surveillance pieces when Snowden leaked a trove of NSA documents in 2013, but even he was stunned by the revelations -- both their magnitude and their specificity. ''I just sat, jaw dropped, for 14 hours straight, reading,'' says the 42-year-old, who is both affable and ultra-intense, with blue eyes, close-shorn blond hair, motorcycle boots and a kind of native restlessness. His footage of NSA bases was included in ''Citizenfour,'' Poitras's Academy Award-winning documentary about Snowden. Paglen, who has lived in Berlin since 2015, travels frequently to give talks about the many ways in which secrecy ''nourishes the worst excesses of power,'' as he wrote in one of his six books. He is one of art's more unusual figures, a kind of adventurer-philosopher whose work is often conceptual and highly technical, but can also be delightfully gonzo: He learned to scuba dive in order to photograph fiber-optic internet cables snaking across the ocean floor. After being questioned in Germany for shooting classified sites, he held a contest for the best photos of ''landscapes of surveillance'' in that country. He made a cube-shaped sculpture from irradiated glass sourced from Fukushima. He sent a time capsule into deep space of images etched on a silicon disc chronicling human history -- from the Lascaux cave paintings to political protests. For a series he's including in his show opening this month at Metro Pictures gallery in New York, Paglen is examining the automation of vision itself, and the way in which the kinds of technologies used in facial recognition software, self-driving cars and social media are creating an entirely new landscape of pictures we never see, whose judgments we can't challenge. ''I don't have fantasy projects,'' he tells me, ''because I'm stupid enough to think that you can actually do this stuff.'' Paglen is currently at work on his most radical project yet. This spring, he plans to send a satellite -- a reflective, faceted Mylar inflatable -- into low orbit, where it will be visible at night from Earth for eight weeks or so, literally twinkling like a diamond in the sky before it disintegrates in the atmosphere. If all goes according to plan, it will be the world's first space sculpture, unprecedented in contemporary art. The Orbital Reflector, as Paglen calls it, seems at first glance almost romantic, even deliberately naïve. It has no scientific purpose; it doesn't even carry a camera. But under closer scrutiny, it can be seen as an elaboration of the artist's ongoing thesis about art, technology and the impossibility of separating either from a specific moment in time. ''It began as a thought experiment in which we imagined that spaceflight was the opposite of what it actually is,'' he explains over lunch at Soho House, at a table overlooking the Berlin TV tower, with its iconic dome evoking Sputnik, Earth's first satellite. In the American mind, space is a frontier: ''We imagine going to the moon and planting a flag, going to an asteroid and mining, going to Mars and setting up a colony,'' he says. ''And I think that expansionist mentality is very self-destructive, especially given the kind of precarious relationship we now have to the ecosystem here on Earth, because it allows us to imagine that Earth is disposable.'' Billionaire entrepreneurs may dream of colonizing Mars, but in fact, space is not going to save us. Aliens are not going to grant us absolution. ''People expect this kind of profound cosmic altruism, which is very religious in a way. Space is completely wrapped up with this kind of stuff, which is what makes it interesting.'' The Orbital Reflector draws a clear parallel between contemporary art and space exploration: the ideal of a purely visionary gesture, and the less starry reality. While the satellite -- a small, five-kilogram box called a CubeSat, from which a 100-foot-long inflatable structure will deploy -- has no commercial or military purpose, its success depends on the very systems of power Paglen has spent more than a decade critiquing. Built by an aerospace contractor called Global Western, it, likely along with a governmental reconnaissance satellite, will launch from California's Vandenberg Air Force Base on a Space X rocket into low orbit. The project illustrates how unfeasible it would be to execute any other way: For all the talk of civilian spaceflight, it remains a thoroughly militarized domain. Managing the project is Zia Oboodiyat, a retired engineer who ran large communications satellite programs for the San Francisco-based Space Systems/Loral. He first met Paglen in 2011 while the artist was working on the time capsule; Oboodiyat oversaw the construction of the satellite the disc was attached to and advocated for the project. When Paglen approached him about the Orbital Reflector, Oboodiyat immediately recognized its potential lyricism. ''You don't have to be rich to see it; you don't have to be tall to see it,'' he says. ''You don't have to be American. Anybody anywhere on Earth has equal opportunity to see something that gives humanity hope.'' Paglen's partner in the project, the Reno-based Center for Art + Environment at the Nevada Museum of Art, is fund-raising to cover the $1.3 million cost. The center's collection includes extensive material from the giants of land art, including Walter de Maria and Michael Heizer. The Orbital Reflector places Paglen (for the moment, anyway) in this tradition -- an artist defying the laws of nature and practicality in order to create a work larger than himself. ''It is a high-risk proposition -- rockets do explode; CubeSats sometimes fail to open,'' says David Walker, the museum's executive director. ''But it's exciting, too, because we see outer space as the ultimate mirror for human aspiration.'' The Orbital Reflector is like the inevitable conclusion to the land art movement; Paglen's work, like Heizer's, may start in the desert, but will eventually leave the Earth entirely. Paglen moved to Berlin partly for financial reasons -- ''I wanted to hire people, not spend $10,000 a month on a studio in Sunset Park'' -- but seems to have found a home amid the city's young expat artists and WikiLeaks types. At a Vietnamese restaurant, he bumps into a hacktivist friend who looks all of 17. ''These guys have guts,'' Paglen notes, after saying hello. ''He was way up the butthole of the F.B.I. I probably shouldn't talk about it.'' Paglen doesn't describe himself as a dissident -- ''I'm as American as it gets, a product of these contradictions'' -- but it's impossible not to connect the themes in his work to a childhood spent on military bases. His father was an Air Force ophthalmologist; his mother, one of the first female Episcopalian priests. In third grade, in the San Francisco Bay Area, Paglen got in trouble for skipping school to sneak into lectures on dinosaurs at Berkeley -- the same lecture halls in which he'd later be working toward his doctorate. The family moved to Wiesbaden, Germany, when he was 12, and he spent two years in a German school in a nearby village, where, as a foreign student, he was ostracized. ''When you're not the beneficiary of privilege, suddenly you see it for what it is,'' he says. An ongoing theme in Paglen's more satirical work is the puerile machismo of military culture's symbology and nomenclature, ''the collective unconscious of this world of secrecy and violence,'' as he puts it. One afternoon, Hanna Mattes, who oversees Paglen's studio and helps manage its external production, is consulting with the artist on one of the sculptures he's making for the fall show: an enormous dragon inspired by the small trophy in his studio. The trophy, Paglen explains, is presented to members of the 315th Network Warfare Squadron upon retirement. Paglen's version will be a 12-foot sculpture inscribed in fetishistic detail, like medieval armor for the cyber age. The best way to preserve the details, they conclude, will be to 3D-print the mold in four sections, lightly polishing them to remove any marks. Another concern is the weight: The finished dragon, cast in bronze, will weigh two tons. Paglen mentions a crane. Mattes looks at him. ''Maybe we should just paint the form for the exhibition.'' The dragon will be included in the 2018 Smithsonian exhibit. This year's Metro Pictures exhibit will showcase Paglen's ongoing work with different kinds of artificial intelligence technologies, taking viewers down a rabbit hole of imagery, from the now quaint-seeming pictures first made by humans in the early 1990s to train military facial recognition software, to the kind of ''invisible images'' computers hallucinate for themselves -- say, when we post an image on Facebook -- in order to make sense of the external world. ''This is how an A.I. brain sees a shark,'' Paglen says back in his studio, looking at a weirdly beautiful Abstract Expressionist-like swath of blues and grays that results from a computer creating a visual amalgam of thousands of images of the animal in water. The exhibit invites critical questions about the extent to which artificial intelligence algorithms, with their potential for programmed-in bias, are governing our reality. It's also aesthetically provocative: ''Man,'' a distillation of figurative imagery, vaguely recalls a Francis Bacon portrait; ''Rainbow'' -- a blend of cosmic-like rainbows -- a Dali-esque dreamscape. ''It's like I'm relearning art history,'' Paglen says. So how does an artist who has devoted his career to empirical scrutiny of those things that will shape our future, from artificial intelligence to the annexation of space, respond rationally to a time in which reason itself -- when it comes to political discourse, at least -- seems to be increasingly endangered? ''Those are foundational questions for me,'' Paglen says. ''Nothing that you make in the world exists in isolation from the social and political and ecological dimensions of it.'' He hasn't given up on art's ability to spark the imagination -- and to make us see the things we might prefer not to. The Orbital Reflector presented an opportunity to ''get messy . . . to make something that's beautiful, but also self-contradictory, and tries to challenge common sense.'' It's Carl Sagan meets Dada for a new millennium's inhumanity. As we talk, the sky darkens in Berlin, and the first blinking glimmerings appear. ''For me, there's something very romantic about going and looking at the stars and trying to photograph spy satellites,'' Paglen says. ''Ultimately, what it comes down to is looking at the sky and trying to understand something about one's place in history. People have been doing this for tens of thousands of years. This is kind of a variation on that. What if we could imagine a sky that wasn't out to get us, you know?'' https : // www.nytimes.com/2017/08/29/t-magazine/art/trevor-paglen.html Graphic PHOTOS: Paglen, photographed in Berlin with a 3D model of his Orbital Reflector satellite. a selection of Paglen's works. The artist uses various techniques to capture the surveillance state, including long-range astronomical photography to look at objects in the earth's orbit such as drones and spacecrafts. He employs so-called limit-telephotography to capture classified military bases from great distances and has learned to scuba dive to photograph internet cables on the ocean floor (bottom row, far left). An image of a Soyuz rocket launch in Kazakhstan, which Paglen sent into space on a communications satellite in 2012 as part of his series ''The Last Pictures.'' (PHOTOGRAPHS BY JANINA WICK TREVOR PAGLEN, ''UNTITLED (REAPER DRONE),'' 2010, C-PRINT, COURTESY OF THE ARTIST AND METRO PICTURES, NEW YORK TREVOR PAGLEN, ''DEAD MILITARY NAVIGATION SATELLITE (COSMOS 985) NEAR THE DISK OF THE MOON,'' 2012, C-PRINT, COURTESY OF THE ARTIST AND METRO PICTURES, NEW YORK TREVOR PAGLEN, ''SINGLETON/SBW ASS-R1 AND THREE UNIDENTIFIED SPACECRAFT (SPACE BASED WIDE AREA SURVEILLANCE SYSTEM USA 32),'' 2012, C-PRINT, COURTESY OF THE ARTIST AND METRO PICTURES, NEW YORK TREVOR PAGLEN, ''BAHAMAS INTERNET CABLE SYSTEM (BICS-1), NSA/GCHQ-TAPPED UNDERSEA CABLE, ATLANTIC OCEAN,'' 2015, C-PRINT, COURTESY THE ARTIST AND METRO PICTURES, NEW YORK TREVOR PAGLEN, ''LACROSSE/ONYX II PASSING THROUGH DRACO (RADAR IMAGING RECONNAISSANCE SATELLITE USA 69),'' 2007, C-PRINT, COURTESY OF THE ARTIST AND METRO PICTURES, NEW YORK TREVOR PAGLEN, ''NSA/GCHQ SURVEILLANCE BASE, BUDE, CORNWALL, UK,'' 2014, PIGMENT PRINT, COURTESY OF THE ARTIST AND METRO PICTURES, NEW YORK) An image of a Soyuz rocket launch in Kazakhstan, which Paglen sent into space on a communications satellite in 2012 as part of his series "The Last Pictures." (PHOTOGRAPHS BY TREVOR PAGLEN ''THE LAST PICTURES,'' 2012, SOYUZ FG ROCKET LAUNCH, BAIKONUR COSMODROME, KAZAKHSTAN. COURTESY OF THE ARTIST AND METRO PICTURES, NEW YORK) Load-Date: September 10, 2017 End of Document What Is Camp? The Met Gala 2019 Theme, Explained The New York Times

### Document 795

Ian Cheng brings his latest piece to the Shed, a narrative animation powered by a video game engine and partly inspired by his daughter. Ian Cheng was feeling adrift. It was the start of 2013; he was nearly 30, with an art degree from Berkeley and another from Columbia, but he needed an idea, something to build a career on. Pondering the question one wintry afternoon in the balcony cafe at the Whole Foods Market on Houston Street, a place that promises people-watching and ''you time,'' he found himself gazing absently at the shoppers below. He grew increasingly transfixed. The market was its own little ecosystem, with clear-cut rules but elements of chance thrown in. Somebody's dog that wouldn't behave. A guy sneaking food from the salad bar. People doubling back to get a plate. An idea began to form in Cheng's head, an idea that drew on his other major at Berkeley, in cognitive science. His thoughts ran to complex systems. Emergent behavior. And what if a video game engine could ... Today, eight years later, Cheng is an internationally known artist who has used artificial intelligence and video game technology to explore such themes as the nature of human consciousness and a future in which we coexist with intelligent machines. That future is precisely the subject of his latest work, a 48-minute ''narrative animation'' -- please don't call it a film -- currently being shown at Luma Arles, the new art park in the south of France. On Sept. 10 it also goes on view at the Shed in New York. Somewhat cryptically titled ''Life After BOB: The Chalice Study,'' it is a commentary on the potential of A.I. to mess up your life. Cheng followers will recognize BOB from earlier exhibitions at Gladstone Gallery in Chelsea and the Serpentine Galleries in London. That BOB was a virtual creature, an artificial intelligence whose name stands for ''Bag of Beliefs'' -- a subtle dig, perhaps, at early A.I. researchers who thought they could program a computer with everything it needed to know. His new work is the story of a 10-year-old girl named Chalice and her father, Dr. Wong, who invented BOB and implanted it in her nervous system at birth to guide her as she grows up. Like the rest of Cheng's work, ''Life After BOB'' is brainy, tech-focused and informed by cognitive psychology, neuroscience, machine learning and A.I. -- concepts like deep learning and artificial neural networks, which underlie the advances that have given us Siri and Alexa and facial recognition software. ''He's one of the most radical artists working with digital technology today,'' said Hans Ulrich Obrist, artistic director of the Serpentine. Alex Poots, artistic director of the Shed, concurred: ''It's not like it's an add-on -- technology is in the DNA of the work.'' Cheng himself is a quietly intense 37-year-old who grew up in Los Angeles, the only child of émigrés from Hong Kong who worked in graphic design. He and his wife, the artist Rachel Rose, were expecting their first child when he started developing ''Life After BOB'' a couple of years ago. The anxiety this produced turned out to be pivotal, he explained when we met for coffee near their Lower East Side loft. ''I just thought, what would be the thing I could do that would make me the worst possible dad?'' The answer, he decided, would be to conflate his work with his parenting. ''And that's the main error of Dr. Wong,'' Cheng said. ''He thinks giving her a BOB at birth will help her arrive at, not just a successful, but a satisfying and meaningful life.'' So Dr. Wong conducts the Chalice study, an A.I. experiment with his daughter as the guinea pig. Ultimately (spoiler alert), Chalice herself has to decide whether to take control of her life. There's a direct line from Cheng's Whole Foods epiphany to ''Life After BOB,'' starting with a series of works that bore some variation of the title ''Entropy Wrangler'' and were made using Unity, a software ''engine'' designed to simplify the task of video game development. Unity enabled him to simulate the kind of behavior he'd seen unfolding at Whole Foods -- except that instead of people wandering around a market, now he was able to throw together potted plants, cinder blocks, a disembodied hand, a broken-down office chair, and assorted other stuff in a state of constant, endless, frenetic motion, never stopping, never looping back. ''Entropy Wrangler'' was a real-time animation in which the same thing never happened twice. Later Cheng introduced characters into his animations, and gave them an objective. The first of this series, ''Emissary in the Squat of Gods,'' centers on a young girl who lives in a primitive community on the slopes of a long-dormant volcano. She realizes that the volcano might be about to blow -- but will the villagers pay heed? (Sometimes they do, and sometimes they don't.) Cheng could have engaged with such questions as a cognitive scientist, but he had no interest in an academic career. ''I think of art as a zone of permission,'' he once said. ''The one zone in culture where you can explore the present and cannibalize the past with relatively little oversight.'' This put him in a much more exclusive group: ''He's now one of the great artists of his generation, doing work that's unlike anyone else,'' said the video and performance artist Paul Chan, who employed him as an assistant early on. With ''Entropy Wrangler'' and his ''Emissary'' series, Cheng created artworks that might do something unexpected in response to interactions he set in motion -- that have what cognitive scientists call emergent qualities. His next work, ''BOB,'' was not merely unpredictable in this way but arguably sentient: a quasi-intelligent computer program that assumed physical form as an enormous, red, ever-changing, snakelike creature behind a wall of glass. There was not just one BOB but several, and when they debuted at the Serpentine in 2018, visitors had radically different experiences. Some found a particular BOB to be charming and personable. Other people it would ignore or forget. ''The gallery was something of an animal sanctuary,'' Obrist recalled. ''The BOBs were alive and growing at all hours of the day.'' And then, ''about a week into the BOB show, we got a phone call in the middle of the night.'' The creatures were supposed to sleep when the galleries were closed, but one of them had gotten up at 3 in the morning. The code was corrected; it never happened again. But still. ''Life After BOB,'' the work that will be shown at the Shed next month, in a show organized by the chief curator Emma Enderby, is conventional by comparison. It has human-type characters, an A.I. character that's just a cartoon, and a beginning, middle and end. It also benefits from Cheng's latest interest, something he refers to as ''worlding.'' People in the entertainment business call it world-building -- creating elaborate settings for open-ended stories that fans can immerse themselves in. The Marvel Cinematic Universe. ''Westworld.'' Unlike his earlier works, ''Life After BOB'' does not exhibit emergent behavior. The animation is live, in that the game engine generates it afresh for every viewing. But it follows the same script unless Cheng rewrites it (which he does, frequently). The innovation comes after visitors have watched it, when they can turn to another screen behind them and explore Chalice's world with their smartphones. They can do many of the things you can do with a TV remote -- pause, rewind, review scenes -- but because the animation is being generated in real time rather than being played back like a video, they can also click on an object, change camera angles and zoom in to explore it in detail. This was inspired by the reaction Cheng got when he read Eric Carle's ''The Very Hungry Caterpillar,'' the classic children's picture book, to his now 2-year-old daughter Eden -- the little girl who had not yet been born when he started this work. ''She knows the story inside and out,'' he said. ''And now when she looks at it, she goes to the caterpillar on the tree and she goes, 'Daddy, Eden go in! Eden go in!' She wants to go into the tree. The caterpillar eats a little hole in the apple, and she wants to go into the apple. It's like she wants to immerse herself in the details of the world because she's already metabolized the story.'' These exchanges with his daughter brought back a flood of memories. ''That's how I felt when I was a kid and I watched 'Alien' or 'Blade Runner.' Oh my gosh -- you want to live in that world because there's so much there.'' It's as if you watched the movie in two dimensions, x and y, he went on, ''and now you want to go in on the z axis -- you want to jump into the film. And like, she articulated it for me.'' That's not possible with a book, of course. The best Cheng can do is touch the apple in the book and then touch his daughter's forehead. Even that makes her giggle with delight. ''But I thought, wow, if I could give that to my daughter? 'Cause her imagination's there'' -- if only the technology were, too. Frank Rose is the author of ''The Sea We Swim In: How Stories Work in a Data-Driven World.'' https : // www.nytimes.com/2021/08/27/arts/design/ian-cheng-shed-life-after-bob.html Graphic PHOTOS: Ian Cheng, top, whose animations comment on A.I. and cognitive science, on the rooftop of his home in Lower Manhattan with his daughter, Eden, who inspired aspects of his new 48-minute work, ''Life After BOB: The Chalice Study,'' above and in images at right. It goes on view on Sept. 10 at the Shed, the arts center at Hudson Yards in Manhattan. (PHOTOGRAPHS BY LUCKA NGÔ FOR THE NEW YORK TIMES IAN CHENG MARC DOMAGE) (AR10) ''Life After BOB'' preproduction drawings by Ian Cheng describing the ''wavyverse,'' a future internet that is linked directly to the nervous system. (PHOTOGRAPH BY IAN CHENG) (AR11) Load-Date: August 29, 2021 End of Document Laurie Anderson and More Join 2020 Under the Radar Festival The New York Times

### Document 1032

Are technology companies running too fast into the future and creating things that could potentially wreak havoc on humankind? That question has been swirling around in my head ever since I saw the enthralling science-fiction film ''Ex Machina.'' The movie offers a clever version of the robots versus humans narrative. But what makes ''Ex Machina'' different from the usual special-effects blockbuster is the ethical questions it poses. Foremost among them is something that most techies don't seem to want to answer: Who is making sure that all of this innovation does not go drastically wrong? In the film, advances in artificial intelligence take place in a secret laboratory beyond the reach of governments and concerned citizens. (The robot's name is Ava.) That is not unlike how most innovations occur in real life today. Alex Garland, the writer and director of ''Ex Machina,'' said in a phone interview last week: ''I have no idea if technology companies are doing anything wrong or not, but they are so powerful, and the work they are doing has such potential for seismic human change of how we live, they have to have oversight. ''If you've got corporations that are investigating areas that can change fundamental things about the way we live, someone needs to be looking at them.'' While Mr. Garland's film is focused on A.I., his concern about unchecked innovations could apply to all kinds of disciplines, including bioengineering, smart homes, self-driving cars and medical nanobots, to name a few. And while these breakthroughs are intended to help humanity, they could backfire without the proper oversight. This fear isn't just confined to science-fiction filmmakers, or people who wear tinfoil hats. In recent years, experts in robotics, cosmology and artificial intelligence have set out to tackle the issue of oversight, holding symposiums and creating research organizations. Elon Musk, founder of Tesla, recently donated $10 million to the Future of Life Institute, an organization that seeks to ''mitigate existential risks facing humanity'' from ''human-level artificial intelligence.'' The Lifeboat Foundation is a nonprofit that tries to help humanity combat the ''existential risks'' of genetic engineering, nanotechnology and the so-called singularity, which refers to the hypothetical moment when artificial intelligence surpasses the human intellect. And in 2012, philosophers and scientists at Cambridge University formed the Center for Study of Existential Risk, with the goal to ensure ''that our own species has a long-term future.'' Sir Martin Rees, an emeritus professor of cosmology and astrophysics at Cambridge, who helped start the research center, said that what makes the existential risk today so much greater is the ease with which a single person or company can cause catastrophic harm. ''Unlike the past, the empowerment of individuals is much greater,'' Mr. Rees said. ''You can't make a clandestine H-bomb today, but you can make a clandestine biological virus or a clandestine computer virus.'' Mr. Rees said that his biggest worry is not robots or A.I., but biological agents. He cited research done by scientists at the University of Wisconsin, who created a bird flu virus that can be transmitted to people through the air. (Scientists later played down the danger.) It's not hard to imagine other potential doomsday outcomes. Last month, plant geneticists at the University of Minnesota created a DNA-engineered potato that doesn't accumulate sugars, so it can sit on a shelf for years without rotting. It's unclear how consuming that potato may affect the human body. Scientists are experimenting with altering the human immune system to fight certain viruses. But yet we don't know if this will create super viruses. Adding to the concern is the lack of oversight, so that private companies and researchers are basically policing themselves. For example, there is no government body that oversees the development of A.I., so Google created its own ethics committee, conveniently made up of A.I. experts. But the real-world implications of technological breakthroughs are often not apparent to those entrenched in those fields, said Ronald C. Arkin, a robotics expert and professor at the Institute for Robotics and Intelligent Machines at Georgia Tech. Mr. Arkin, who has designed software for battlefield robots under contract with the Army, said that it wasn't until he saw his robots in the field that some risks became apparent. ''Seeing the robots move out of our lab and into the real world gave me some pause,'' he said, noting that he saw robots that were becoming ''killing machines fully capable of taking human life, perhaps indiscriminately.'' The main characters in ''Ex Machina'' come to this realization as well, but do so too late. Toward the end of the film, the character Nathan Bateman, a genius programmer, realized that he may have done just what he set out to do. Nathan, drunk, mutters: ''The good deeds a man has done before defend him.'' The line is a reference to what J. Robert Oppenheimer, the father of the atomic bomb, said after witnessing the explosion of the first such bomb, Trinity. ''I remembered the line from the Hindu scripture, the Bhagavad Gita,'' Oppenheimer said, before uttering the now famous quote. ''Now I am become Death, the destroyer of worlds.'' http : // www.nytimes.com/2015/05/21/style/ava-of-ex-machina-is-just-sci-fi-for-now.html Graphic PHOTO (PHOTOGRAPH BY A24) Load-Date: May 21, 2015 End of Document Up for Bid, AI Art Signed ‘Algorithm’ The New York Times

### Document 1149

In my recent Sunday Review piece, I addressed the question of whether motherhood is a sacrifice or a privilege, whether it is selfless or selfish. I made the argument that we would go a long way to empowering women and mothers by reframing the way we think and talk about mothers by refusing the badge of martyrdom and by heeding the language we use when we talk about motherhood. By insisting on calling motherhood a selfless sacrifice, we take agency away from her. The responses have been varied and illuminating from all sides of the argument. Most of the men and women who have reached out to me personally have been supportive and grateful for pointing out that raising children is a joy and privilege for both men and women. I’ve received an outpouring of support from women who particularly relate to my point about the way in which mothers become the purview of the public, which feels it has the right to dictate what a mother should and should do or be and how she should or shouldn’t raise her children. This is true for women in every socioeconomic status. Clearly, the piece rankled some. One friend said, “You are the only person I know who can throw elbows to the right and the left at the same time!” This made me laugh out loud because I wrote the piece with no politics whatsoever in mind. Many of the critics point out — rightfully — that I am writing from a place of privilege and therefore project that privilege on the subject of motherhood. Commenters also asked why I didn’t address the issue of lack of support for single mothers and or for those without access to birth control. The abuses that women around the world sustain is unquestionably a more urgent problem that concerns us all. My piece was necessarily focused on a finer point only because all of these issues deserve more attention than I can address in my original short essay. This comment by Janice Nelson captures another facet of the kind of hardships faced by women in general, and not necessarily mothers: I love being a mom. I sacrificed nothing. The joy it has brought my life is unbounded. But I will say this: as a nurse working in Homecare/Hospice, women do sacrifice the most when caregiving is needed. I am not talking raising children like this article alludes to, but managing to care for chronically ill children and aging parents, and many times both at the same time. I see this over and over, almost daily in the course of my work. These women sacrifice their jobs, their health, their own well-being to become caretaker. Our society is not set up, including Medicare, to offer help. They often go it alone. Many times silently. They do not take weeks at a beachouse or even a short respite to dine with friends... I would not argue with the fact that I have had great fortune, but I do not mention hardships in my own life because they are not relevant to the point, even though some of the issues mentioned above are not outside the realm of my personal experience. I do write from what I would agree is a privileged place, as it is the only one I feel the right to write about. Understandably, for those mothers who became mothers not by choice, and for those who lack a support system to help them, the notion of mothering as a self-directed privilege would be far from their reality. But I strongly believe that the language we use and the stories we tell ourselves can be very powerful — for better and for worse. And the language of powerlessness, sacrifice and selflessness helps to keep women in a disempowered place. I agree wholeheartedly that there are not enough policies in our country to support those who can’t afford it themselves. But I hoped that by shedding light on the language we use, it would contribute in some small way to forging better policies. This has further implications in a point I make below about artificial intelligence. The comments about what one reader, ae, called “false dichotomies” bring up a good point. This one rings loud and clear: Why can’t motherhood be both a sacrifice and a privilege? A job and a choice? Selfish and generous? We don’t expect truth to be so black and white in other areas of our lives…. Why can’t motherhood — parenthood, for that matter — just be a part of life’s choices? It should be socially supported — because parents are raising the next generation, and we all benefit from that — but let’s leave out the false dichotomies and just let women live their lives. I agree that duality thinking is the cause of so much dissonance, and I take the criticism to heart. I do not mean to encourage reductive thinking — that we are either only selfish or only selfless — since life is so much more nuanced than to classify experience as only one thing and not another. However, I do believe that women are held to different implicit cultural biases and vernacular corollaries and my point was meant to express how important it is to be aware of these complacent tags we put on women and mothers. Part of what inspired my essay was a study I read about how artificial intelligence is learning from our use of language and programming itself with inherent biases. So, for example, “women” and “family” are closely correlated on the one hand, and “men” and “career” are as well. These biases exist for racial issues as well (but with different tags). As more and more of our lives are driven by automation cued by bots watching and listening to everything we do, these biases only get stronger. The way we are targeted as consumers, future social policies, job searches and fulfillment, education — all of this will be influenced in some way by AI. I bang on about language where it counts the most because it reflects back on us in ways that are not always obvious. In my original article, I defined “sacrifice” to explain why I take issue with it as a go-to qualifier for what motherhood is: The assertion of motherhood as sacrifice comes with a perceived glorification. A woman is expected to sacrifice her time, ambition and sense of self to a higher purpose, one more worthy than her own individual identity. This leaves a vacuum in the place of her value, one that others rush to fill. Further to the point about how women are held to a different, tougher standard than the men who love or hate us — whether she is a writer, a mother, or a woman who is neither of these things — kas nailed it: I love this. As a young mother, I always try to reject the martyr hat. Yes, as others point out below, this writer is coming from a position of privilege. OK, so what? This is a common refrain now. Does the fact that a writer’s POV not apply to every person in existence somehow nullify their experience? These commenters always come out of the woodwork in pieces relating to women, too. If this were a piece about upper middle class fathers trying to take advantage of parental paid leave, or something like that, no one would be griping about privilege. For those who remain frustrated by what may be conceived as my privileged optimism, I would like to share a thought. It was an Epictetus quote paraphrased, but I found it particularly meaningful because it was told to me by someone suffering from advanced amyotrophic lateral sclerosis, or Lou Gehrig’s disease, but whose spirit was not broken: “We cannot control what happens to us, but we can control our reaction to it.” The optimist in me believes, in turn, that our reactions to harmful biases can change what happens for the better. Follow The New York Times Opinion section on Facebook and Twitter (@NYTopinion), and sign up for the Opinion Today newsletter. Related Articles Motherhood Isn’t Sacrifice, It’s Selfishness Load-Date: August 13, 2017 End of Document How A.I. Is Creating Building Blocks to Reshape Music and Art The New York Times

### Document 565

Imagine living the life of every human being who has ever existed -- in order of birth. Your first life begins about 300,000 years ago in Africa. After living that life and dying, you travel back in time to be reincarnated as the second-ever person, born slightly later than the first, then the third-ever person, and so on. One hundred billion (or so) lives later, you are the youngest person alive today. Your life has lasted somewhere in the ballpark of four trillion years. You have spent approximately 10 percent of it as a hunter-gatherer and 60 percent as a farmer, a full 20 percent raising children, and over 1 percent suffering from malaria or smallpox. You spent 1.5 billion years having sex and 250 million giving birth. That's your life so far -- from the birth of Homo sapiens until the present. But now imagine that you live all future lives, too. Your life, we hope, would be just beginning. Even if humanity lasts only as long as the typical mammal species (about one million years), and even if the world population falls to a tenth of its current size, 99.5 percent of your life would still be ahead of you. On the scale of a typical human life, you in the present would be just a few months old. The future is big. I offer this thought experiment because morality, at its core, is about putting ourselves in others' shoes and treating their interests as we do our own. When we do this at the full scale of human history, the future -- where almost everyone lives and where almost all potential for joy and misery lies -- comes to the fore. If you knew you were going to live all these future lives, what would you hope we do in the present? How much carbon dioxide would you want us to emit into the atmosphere? How careful would you want us to be with new technologies that could destroy, or permanently derail, your future? How much attention would you want us to give to the impact of today's actions on the long term? These are some of the questions that motivate longtermism: the idea that positively influencing the long-term future is a key moral priority of our time. Longtermism is about taking seriously just how big the future could be and how high the stakes are in shaping it. If humanity survives to even a fraction of its potential life span, then, strange as it may seem, we are the ancients: we live at the very beginning of history, in its most distant past. What we do now will affect untold numbers of future people. We need to act wisely. It took me a long time to come around to longtermism. Over the past 12 years, I've been an advocate of effective altruism -- the use of evidence and reason to help others as much as possible. In 2009, I co-founded an organization that has raised hundreds of millions of dollars to help pay for bed nets to protect families against malaria and medicine to cure children of intestinal worms, among other causes. These activities had a tangible impact. By contrast, the thought of trying to improve the lives of unknown future people initially left me cold. But some simple ideas exerted a persistent force on my mind: Future people count. There could be a lot of them. And we can make their lives better. To help others as much as possible, we must think about the long-term impact of our actions. The idea that future people count is common sense. Suppose that I drop a glass bottle while hiking. If I don't clean it up, a child might cut herself on the shards. Does it matter when the child will cut herself -- a week, or a decade, or a century from now? No. Harm is harm, whenever it occurs. Future people, after all, are people. They will exist. They will have hopes and joys and pains and regrets, just like the rest of us. They just don't exist yet. But society tends to neglect the future in favor of the present. Future people are utterly disenfranchised. They can't vote or lobby or run for public office, so politicians have scant incentive to think about them. They can't tweet, or write articles, or march in the streets. They are the true silent majority. And though we can't give political power to future people, we can at least give them fair consideration. We can renounce the tyranny of the present over the future and act as trustees for all of humanity, helping to create a flourishing world for the generations to come. We face massive problems today, and the world is full of needless suffering, but in some ways we have made remarkable progress over the past few hundred years. Three hundred years ago, the average life expectancy was less than 40 years; today, it's over 70. More than 80 percent of the world lived in extreme poverty; now just around 10 percent does. Women were, for the most part, unable to attend universities, and the feminist movement didn't exist. No one lived in a democracy; now over half the world does. We've come a long way. We have the power to encourage these positive trends. And we can reverse course on negative trends, too, like increases in carbon emissions and factory farming. We have the potential to build a world where everyone lives like the happiest people in the most well-off countries today. And we could do better still -- far better. Much of the progress we've made since 1700 would have been very difficult for people back then to anticipate. And that's with only a three-century gap. Humanity could, theoretically, last for millions of centuries on Earth alone. If we anchor our sense of humanity's potential to a fixed-up version of our present world, we risk dramatically underestimating just how good life in the future could be. When I first began thinking about longtermism, my biggest reservation was practical. Even if future generations matter, what can we actually do to benefit them? But as I learned more about the history-shaping events that could occur in the near future, I realized that we might soon be approaching a critical juncture in the human story. Technological development is creating new threats and opportunities, putting the lives of future people on the line. Whether we get a future that's beautiful and just, or flawed and dystopian, or whether civilization ends and we get no future at all -- that depends, in significant part, on what we do today. Some of the ways we affect the long-term future are familiar. We drive. We fly. We emit greenhouse gases that can remain in the atmosphere and impact the environment for hundreds of thousands of years. But reducing fossil fuel use is not the only way to improve the long term. Other challenges are at least as important, and often radically more neglected. Chief among these is the development of advanced artificial intelligence. According to leading economic models, advanced A.I. could greatly accelerate economic growth and technological progress. But equipped with A.I.-enabled capabilities, bad political actors could potentially increase and entrench their power. Our future could be a perpetual totalitarian dystopia. Or we could lose control over the A.I. systems we've created. Once artificial intelligence far exceeds human intelligence, we could find ourselves with as little power over our future as chimpanzees have over theirs. Civilization could be governed by the A.I.'s aims and goals, which could be utterly alien and valueless from our perspective. And we may not even make it to the development of advanced A.I. We still live under the shadow of 9,000 nuclear warheads, each far more powerful than the bombs dropped on Hiroshima and Nagasaki. Some experts put the chances of a third world war by 2070 at over 20 percent. An all-out nuclear war could cause the collapse of civilization, and we might never recover. Advances in biotechnology could create weapons of even greater destructive power. Engineered viruses could be much more deadly than natural diseases because they could, in theory, be modified to have dangerous new properties: the lethality of Ebola and the contagiousness of measles. In the worst-case scenario, the release of an engineered bioweapon could kill billions, possibly beyond the point where humanity could recover. Our future would be permanently destroyed. These are daunting challenges. In his book ''The Precipice,'' my colleague Toby Ord puts the probability of an existential catastrophe in the next century at one in six -- roughly equivalent to playing Russian roulette. This is an unacceptable level of risk. We aren't helpless in the face of these challenges. Longtermism can inspire concrete actions, here and now. Constant monitoring of wastewater could ensure that we respond to any new viruses as soon as they arise. Developing and distributing advanced personal protective equipment would protect essential workers. Forms of far-ultraviolet lighting can safely sterilize a room; if proven safe and widely installed, this could prevent airborne pandemics while eliminating all respiratory diseases along the way. On A.I. risk, too, there is much to do. We need the brightest technical minds to figure out what goes on under the hood of increasingly inscrutable A.I. systems, and to ensure they are helpful, harmless and honest. We need scholars and policymakers to design new governance systems to ensure that A.I. is developed for the benefit of all humankind. And we need courageous leaders to prevent new arms races and catastrophic wars between the great powers. If we are careful and farsighted, we have the power to help build a better future for our great-grandchildren, and their great-grandchildren in turn -- down through hundreds of generations. But positive change is not inevitable. It's the result of long, hard work by thinkers and activists. No outside force will prevent civilization from stumbling into dystopia or oblivion. It's on us. Does longtermism imply that we must sacrifice the present on the altar of posterity? No. Just as caring more about our children doesn't mean ignoring the interests of strangers, caring more about our contemporaries doesn't mean ignoring the interests of our descendants. In fact, as I've learned more about longtermism, I've realized that there is remarkable overlap between the best ways we can promote the common good for people living right now and for our posterity. Every year millions of people, disproportionately in poor countries, die prematurely because fossil fuel burning pollutes the air with particulates that cause lung cancer, heart disease and respiratory infections. Moving off carbon is a win-win for both the near and the long term. The same holds for preventing pandemics, controlling artificial intelligence and decreasing the risk of nuclear war. The idea that we could affect the long-term future, and that there could be so much at stake, might just seem too wild to be true. This is how things initially seemed to me. But I think this wildness comes not from the moral premises that underlie longtermism but from the fact that we live at such an unusual time. Our era is undergoing an unprecedented amount of change. Currently, the world economy doubles in size about every 19 years. But before the Industrial Revolution, it took hundreds of years for the world economy to double; and for hundreds of thousands of years before that, growth rates were close to zero. What's more, the current rate of growth cannot continue forever; within just 10,000 years, there would be a trillion civilizations' worth of economic output for every reachable atom. All this indicates that we are living through a unique and precarious chapter in humanity's story. Out of the hundreds of thousands of years in humanity's past -- and the potentially billions of years in its future -- we find ourselves living now, at a time of extraordinary change. A time marked by thousands of nuclear warheads standing ready to fire. A time when we are rapidly burning fossil fuels, producing pollution that might last hundreds of thousands of years. A time when we can see catastrophes on the horizon -- from engineered viruses to A.I.-enabled totalitarianism -- and can act to prevent them. To be alive at such a time is both an exceptional opportunity and a profound responsibility: We can be pivotal in steering the future onto a better trajectory. There's no better time for a movement to stand up, not just for our generation or even our children's generation, but for all the generations yet to come. William MacAskill is a professor of philosophy at Oxford University and the author of the forthcoming book ''What We Owe the Future,'' from which this essay has been adapted. The Times is committed to publishing a diversity of letters to the editor. We'd like to hear what you think about this or any of our articles. Here are some tips. And here's our email: letters@nytimes.com Follow The New York Times Opinion section on Facebook, Twitter (@NYTopinion) and Instagram. https : // www.nytimes.com/2022/08/05/opinion/the-case-for-longtermism.html Graphic PHOTO: (PHOTOGRAPH BY Tim Enthoven FOR THE NEW YORK TIMES) Load-Date: August 7, 2022 End of Document To Know Yourself, Consider Your Doppelgänger The New York Times

### Document 88

Elon Musk and Grimes have garnered plenty of attention since announcing the name of their newborn baby, but now it seems they can't agree on how it should be pronounced. Speculation over the name X Æ A-12 has been a major topic of conversation since the couple welcomed the baby boy into the world on Monday, with questions over what the characters mean. The Canadian musician -- real name Claire Elise Boucher -- previously explained that Æ is the Elven spelling of AI, which is shorthand for artificial intelligence. "It's just X, like the letter X. Then A.I. Like how you said the letter A then I," wrote Grimes on Thursday in response to a query on Instagram. However, Musk told podcast host Joe Rogan a different pronunciation of the name in a conversation released Thursday, even as he credited Grimes for coming up with the moniker. "First of all, my partner is the one that, actually, mostly, came up with the name," the Tesla and SpaceX CEO said. "Yeah, she's great at names." Rogan then asked how to say it, to which Musk responded: "I mean it's just X, the letter X. And then, the Æ is, like, pronounced 'Ash'... and then, A-12, A-12 is my contribution." This is the couple's first child together. Musk has five other children -- twins Griffin and Xavier and triplets Damian, Saxon and Kai -- from a previous marriage, and Rogan asked how it felt to have another child now. "Actually I think it's better being older and having a kid," said Musk. "I appreciate it more. Babies are awesome." Unfortunately for the happy parents it seems their issues with X Æ A-12 go further than disagreements over pronunciation. The unusual choice could fall foul of state rules in California, where the couple are based, which stipulate that names can only use the 26 alphabetical characters of the English language. For those curious about what the name means, Grimes broke down each character of the name in a post on Twitter. She explained "X" stood for "the unknown variable," while Æ -- AI -- was shorthand for artificial intelligence and translates to "love" in several languages. The 32-year-old star then shared that a part of her son's name is a reference to the couple's favorite aircraft. "A-12 =" precursor to SR-17 (our favorite aircraft). No weapons, no defenses, just speed. Great in battle, but non-violent," she added. Although Musk later corrected his partner, saying it was actually "SR-71." Grimes concluded the explanatory post on Twitter by revealing that the "A" in the name also represents "Archangel," which she described as her favorite song. TM & © 2020 Cable News Network, Inc., a WarnerMedia Company. All rights reserved. Load-Date: May 8, 2020 End of Document What metaverse? Meta says its single largest investment is now in 'advancing AI' CNN Wire

### Document 772

Season 2, Episode 11, ‘Perpetual Infinity’ The board is now Burnham’s. Or so it seems. So much of this season of “Star Trek: Discovery” is about control. Of course, there is the literal villain — Control — the malevolent artificial intelligence which aims to wipe out all sentient life in the universe. A charming fellow, that one. And then there is the concept of control: So many characters struggle to take command of their own destinies, even though with the time travel element, it is a futile battle. Some characters — Saru, for example — have done better with this than others. But no character has had her life upended due to events beyond her control like Burnham. Whether it is investigating what happened with Spock, the re-emergence of her mother or the loss of her friend Airiam, Burham is running from one emotional shock to the next. Her life has been full of suffering from a young age. The Vulcans shun her. Her adoptive father doesn’t think highly of her human background. Her biological parents were murdered — and she only finds out decades later the real reason. In “Perpetual Infinity,” Burnham is teased with the slightest bit of happiness: Her mother is within arm’s reach and finally they can be together. Of course, there is a containment field between the two of them, and by the end of the episode, Burnham has lost her once again — this time, likely for good. She’s less a Vulcan than a Buddhist: Life is suffering. At the very start of the episode, the Discovery crew awakens Burnham from the dead, because in the “Discovery” universe, death is merely a construct. No one really dies. There is only struggle and even that is pointless. Control takes over Leland’s body, essentially, to fool his Starfleet colleagues into doing the artificial intelligence’s bidding. I am not entirely sure what Control is, but there are some theories that this is an early form of the Borg. I’m not sure I buy that: Control is focused on destruction, whereas the Borg on perfection. (And selfishly, I am really hoping this isn’t the Borg. The most terrifying villains in Trek history do not need an origin story. Their mystery adds to the intrigue.) A side note: How did Control restrain Leland to the chair? As far as last week’s big revelation, Burnham’s mother, Gabrielle, played admirably by Sonja Sohn, is trapped in Burnham’s time. She appears to not be able to stay in different time periods for long, because an anchor of some sort keeps pulling her to a spot where organic life has been wiped out: apparently 950 years into the future from when Klingons appeared to kill her and her husband. She doesn’t want to speak to her daughter. She only wants to speak to Pike, to whom she says, “I could say more about your future, but you won’t like it,” an Easter egg for Trekkies well aware of Pike ending up in a wheelchair. Gabrielle wants Discovery to destroy the sphere’s data archive (a potentially invaluable resource), without which Control can’t evolve. When mother and daughter finally see each other, Gabrielle is cold. She says she’s let Burnham go: “There’s only the bigger picture now. Nothing else.” Destroying the sphere doesn’t work, so the Discovery crew hatches a plan, with some incoherent technobabble: They’re going to launch the time traveling suit and the sphere so far into the future that, somehow, this will save sentient life in the universe. And somehow, they’ll be able to get Gabrielle to stay in the current time too. Possessed Leland disrupts these plans — this isn’t what Control wants. He stabs Tyler, who of course lives, and warns the Discovery crew that Leland is coming to the surface to cause a ruckus. Here, of course, some Starfleet crew members appear to die. The reason they die is because the audience doesn’t know their names. The gambit from Leland doesn’t quite work, but it requires Gabrielle to sacrifice herself in order to send the suit and the sphere into the future. Problem solved! But unfortunately, Burnham is in deep pain once again. “Perpetual Infinity,” written by Alan McElroy and Brandon Schultz, was tightly focused but heavy on exposition. It also was stuffed with technobabble to the point that its developments were a bit difficult to follow. As she often does, Sonequa Martin-Green made the episode a compelling watch. She plays Burnham’s vulnerability very well. I would have liked to see Sohn stick around for a bit more of the story line, but “Discovery” writers like to fool the audience. She might be back before we know it. Once again, I am left wondering what Tyler’s role is here. He seems to have a moral center, but his abilities seem minimal for someone in Section 31. And we seem to have forgotten why he made it to Section 31 to begin with: L’Rell staged his death to allow him to escape Klingons who doubted his loyalties. I try not to watch teaser trailers for next week because I like the surprise, so I am at a loss of where the story goes next. Is the universe safe from Control? Are we good? Can we give Burnham something to smile about? Please PHOTO: Sonequa Martin-Green, left, and Sonja Sohn in “Star Trek: Discovery.” (PHOTOGRAPH BY Steve Wilkie/CBS FOR THE NEW YORK TIMES) Load-Date: March 30, 2019 End of Document Your Friday Evening Briefing The New York Times

### Document 822

Last weekend the American space program resumed one of its most cherished and iconic traditions: launching astronauts into space from its own soil and with its own rockets, after a decade of hitching rides to the International Space Station with the Russians. The event was celebrated as the beginning of a new era in spaceflight, with talk of moon colonies, Mars voyages, space tourism, interplanetary capitalism and the cool new SpaceX spacesuits. ''We are proving out a business model, a public-private partnership business model that ultimately will enable us to go to the moon, this time sustainably,'' Jim Bridenstine, NASA's administrator, said at a news conference on May 26. But this triumphant talk shared the headlines with more disquieting news about our vulnerabilities back on Earth. In the week before the launch, the death toll from the coronavirus surpassed 100,000 in the United States, and the frustrations generated by the pandemic -- abrupt and widespread unemployment, glaring social inequity -- surely helped fuel the unrest that roiled many cities over the weekend. It was hard not to see it as an ominous signal, reinforcing a message some thinkers say has been sent by the universe regarding our cosmic destiny as a species. In 1998, Robin Hanson, now an economics professor at George Mason University, posed a vexing question: If the universe is such a garden of possibility, as astrobiologists and cosmologists proclaim, why amid billions of worlds and after billions of years is there no evidence of anybody out there to greet us? Where are the alien ham radio operators beaming scientific secrets or extraterrestrial poetry? Why no mysterious engineering projects out among the stars? Where's our invitation from the Galactic Council? As the great physicist Enrico Fermi once asked, ''Where is everybody?'' Maybe the Great Filter got them, Dr. Hanson proposed. The Great Filter is a civilization-scale event or circumstance that would prevent a species from colonizing space or ever meeting other species -- perhaps of even continuing to exist. The filter could be a chemical bottleneck that prevents the formation of RNA that jump-started evolution, or a geophysical roadblock to the production of oxygen, which enabled multicellular creatures. But the filter could also be nuclear war, or a world-destroying asteroid, or global warming, or a malevolent artificial intelligence gone amok. Or, even, a vicious pandemic. ''The fact that space near us seems dead now tells us that any given piece of dead matter faces an astronomically low chance of begetting such a future,'' Dr. Hanson wrote. ''There thus exists a great filter between death and expanding lasting life, and humanity faces the ominous question: How far along this filter are we?'' Could microbes derail our plans for outer space? Authorities as diverse as Dr. Anthony Fauci and Tom Hanks have assured us the present pandemic is not The End, but it's hard to not view it as a rehearsal. Martin Rees, a.k.a. Lord Rees of Ludlow, a cosmologist at Cambridge University and co-founder of the Center for the Study of Existential Risk, detailed some of the ways we might die in his book ''Our Final Hour: A Scientist's Warning: How Terror, Error, and Environmental Disaster Threaten Humankind's Future In This Century -- On Earth and Beyond.'' When the coronavirus began to wreak havoc in China, I emailed Dr. Rees to ask if this was what the Great Filter might look like. ''These global pandemics present an intractable problem,'' he wrote back. ''Obviously, if we understand viruses better, we can develop vaccines.'' But, he added, ''The downside is that it entails also an increase in the spread of 'dangerous knowledge' that would enable mavericks to make viruses more virulent and transmissible than they naturally are.'' Part of the message of Professor Rees's book, and others like it, is that we have grown too big and interconnected for our own good, too smart for our pants. As a result, we are pushing on the most ominous term in the famous Drake Equation, developed by the American astronomer Frank Drake, which is used to estimate the number of technological civilizations in the galaxy: the average lifetime of a technological society. How long can a high-tech society survive? No matter how likely it may be for planets to form, for those planets to seed life, and for that life to be intelligent, if the resulting civilizations don't last long enough, they will never overlap in time and space. Each civilization could bloom and then fade by itself, never knowing a neighbor. If that isn't a recipe for cosmic loneliness, I don't know what is. There is a loophole in this cloud of gloom. In Arthur C. Clark's science-fiction story ''The Sentinel,'' which served as the basis for Stanley Kubrick's film ''2001: A Space Odyssey,'' a pair of astronauts find a little pyramid on top of a mountain on the moon. When they approach it, it sends off an alarm; the astronauts are left wondering who received that signal and when ''they'' will be coming. We have not yet explored our solar system thoroughly enough to be able to say that there is not such a sentinel, left by some extraterrestrial other, hidden on Mars or some other body. As SETI enthusiasts like to say, ''Absence of evidence is not evidence of absence.'' We don't know for sure that we are alone. But we might be on the way to finding out, as we scatter our own relics throughout the solar system. This year alone, three more robot missions are headed for Mars. Dr. Rees, in a more recent note, pointed out that thinking about the long-term future has evolved since 1961 when Dr. Drake first presented his equation. Among other things, artificial intelligence, just a gleam in a few dreamers' eyes back then, has become a big deal. Deep-learning networks are becoming embedded in science, politics and society -- to what end, we have only begun to debate. They are the future. ''A 'civilization', in the sense of a collectivity of intelligent technologically adept beings, may exist for only a few millenniums,'' Dr. Rees wrote. ''But their legacy could be some kind of 'brains' that could persist for a billion years.'' And they could be thinking deep thoughts that we can't comprehend. ''They are the entities that a SETI search is most likely to reveal (if it reveals anything),'' he wrote. If humanity survives to keep searching and exploring, that is. That is hardly guaranteed; we are all here, the virus included, just for a while. A lifetime wandering the halls of science has made it pretty obvious, to me anyway, that nature has no particular preference for humans -- or democracy, for that matter. (Dinosaurs might have been justified in thinking they were the apple of the cosmic eye, but you can't find one now to ask how that felt.) We are on our own; we can't count on help from anybody but ourselves. But I can't help hoping, despite the immaculate mathematical rigor employed by thinkers like Dr. Hanson and others, that we can still beat the odds. We have bloomed but not faded-- yet. Call it the Great Reset, or a cosmic wake-up call. In March, when the pandemic shut down the lab in Italy where Cristiano Galbiati, a Princeton physics professor, was working on a dark matter experiment, he went to stay with family in Milan. He quickly discovered that ventilators, needed to keep the most desperately ill patients alive, were in desperately short supply -- and cost as much as a new car. Dr. Galbiati organized a network of particle physicists to design a simple, cheap ''open source'' ventilator that could be built anywhere. His colleagues eagerly joined the effort. A month later their ventilator, the Mechanical Ventilator Milano, was approved for emergency use by the U.S. Food and Drug Administration. It is one of a host of simple ventilators to have emerged from places like M.I.T., NASA and other university and industrial labs. ''You know, one way I like to think of it is that it may be true that the virus is spreading, as they say, at the speed of jets,'' Dr. Galbiati said. ''But our research is expanding at the speed of light. And you know, these keep me in a sense that we will prevail.'' Mars or bust, I say. https : // www.nytimes.com/2020/06/02/science/coronavirus-space-travel-colonization.html Graphic PHOTOS: Top, a 1970s-era artistic rendering of a space colony. Above, a scanning electron micrograph of a cell infected with coronavirus particles. (PHOTOGRAPHS BY RICK GUIDICE/NASA AMES RESEARCH CENTER NIAID, VIA REUTERS) Load-Date: June 2, 2020 End of Document Twitter Use Is Declining, But Revenue Stays Strong The New York Times

### Document 1148

Artificial Intelligence (A.I.) is having a moment, albeit one marked by crucial ambiguities. Cognoscenti including Stephen Hawking, Elon Musk and Bill Gates, among others, have recently weighed in on its potential and perils. After reading Nick Bostrom's book "Superintelligence," Musk even wondered aloud if A.I. may be "our biggest existential threat." Positions on A.I. are split, and not just on its dangers. Some insist that "hard A.I." (with human-level intelligence) can never exist, while others conclude that it is inevitable. But in many cases these debates may be missing the real point of what it means to live and think with forms of synthetic intelligence very different from our own. That point, in short, is that a mature A.I. is not necessarily a humanlike intelligence, or one that is at our disposal. If we look for A.I. in the wrong ways, it may emerge in forms that are needlessly difficult to recognize, amplifying its risks and retarding its benefits. This is not just a concern for the future. A.I. is already out of the lab and deep into the fabric of things. "Soft A.I.," such as Apple's Siri and Amazon recommendation engines, along with infrastructural A.I., such as high-speed algorithmic trading, smart vehicles and industrial robotics, are increasingly a part of everyday life - part of how our tools work, how our cities move and how our economy builds and trades things. Unfortunately, the popular conception of A.I., at least as depicted in countless movies, games and books, still seems to assume that humanlike characteristics (anger, jealousy, confusion, avarice, pride, desire, not to mention cold alienation) are the most important ones to be on the lookout for. This anthropocentric fallacy may contradict the implications of contemporary A.I. research, but it is still a prism through which much of our culture views an encounter with advanced synthetic cognition. The little boy robot in Steven Spielberg's 2001 film "A.I. Artificial Intelligence" wants to be a real boy with all his little metal heart, while Skynet in the "Terminator" movies is obsessed with the genocide of humans. We automatically presume that the Monoliths in Stanley Kubrick and Arthur C. Clarke's 1968 film, "2001: A Space Odyssey," want to talk to the human protagonist Dave, and not to his spaceship's A.I., HAL 9000. I argue that we should abandon the conceit that a "true" Artificial Intelligence must care deeply about humanity - us specifically - as its focus and motivation. Perhaps what we really fear, even more than a Big Machine that wants to kill us, is one that sees us as irrelevant. Worse than being seen as an enemy is not being seen at all. Unless we assume that humanlike intelligence represents all possible forms of intelligence - a whopper of an assumption - why define an advanced A.I. by its resemblance to ours? After all, "intelligence" is notoriously difficult to define, and human intelligence simply can't exhaust the possibilities. Granted, doing so may at times have practical value in the laboratory, but in cultural terms it is self-defeating, unethical and perhaps even dangerous. We need a popular culture of A.I. that is less parochial and narcissistic, one that is based on more than simply looking for a machine version of our own reflection. As a basis for staging encounters between various A.I.s and humans, that would be a deeply flawed precondition for communication. Needless to say, our historical track record with "first contacts," even among ourselves, does not provide clear comfort that we are well-prepared. II. The idea of measuring A.I. by its ability to "pass" as a human - dramatized in countless sci-fi films, from Ridley Scott's "Blade Runner" to Spike Jonze's "Her" - is actually as old as modern A.I. research itself. It is traceable at least to 1950 when the British mathematician Alan Turing published "Computing Machinery and Intelligence," a paper in which he described what we now call the "Turing Test," and which he referred to as the "imitation game." There are different versions of the test, all of which are revealing as to why our approach to the culture and ethics of A.I. is what it is, for good and bad. For the most familiar version, a human interrogator asks questions of two hidden contestants, one a human and the other a computer. Turing suggests that if the interrogator usually cannot tell which is which, and if the computer can successfully pass as human, then can we not conclude, for practical purposes, that the computer is "intelligent"? More people "know" Turing's foundational text than have actually read it. This is unfortunate because the text is marvelous, strange and surprising. Turing introduces his test as a variation on a popular parlor game in which two hidden contestants, a woman (player A) and a man (player B) try to convince a third that he or she is a woman by their written responses to leading questions. To win, one of the players must convincingly be who they really are, whereas the other must try to pass as another gender. Turing describes his own variation as one where "a computer takes the place of player A," and so a literal reading would suggest that in his version the computer is not just pretending to be a human, but pretending to be a woman. It must pass as a she. Other versions had it that player B could be either a man or a woman. It would seem a very different kind of game if only one player is faking, or if both are, or if neither of them are. Now that we give the computer a seat, we may have it pretending to be a woman along with a man pretending to be a woman, both trying to trick the interrogator into figuring out which is a man and which is a woman. Or perhaps a computer pretending to be a man pretending to be a woman, along with a man pretending to be a woman, or even a computer pretending to be a woman pretending to be a man pretending to be a woman! In the real world, of course, we already have all of the above. "The Imitation Game," Morten Tyldum's Oscar-winning 2014 film about Turing, reminds us that the mathematician himself also had to "pass" - in his case as straight man in a society that criminalized homosexuality. Upon discovery that he was not what he appeared to be, he was forced to undergo horrific medical treatments known as "chemical castration." Ultimately the physical and emotional pain was too great and he committed suicide. The episode was grotesque tribute to a man whose contribution to defeating Hitler's military was still at that time a state secret. Turing was only recently given posthumous pardon, but the tens of thousands of other British men sentenced under similar laws have not. One notes the sour ironic correspondence between asking an A.I. to "pass" the test in order to qualify as intelligent - to "pass" as a human intelligence - with Turing's own need to hide his homosexuality and to "pass" as a straight man. The demands of both bluffs are unnecessary and profoundly unfair. Passing as a person, as a white or black person, or as a man or woman, for example, comes down to what others see and interpret. Because everyone else is already willing to read others according to conventional cues (of race, sex, gender, species, etc.) the complicity between whoever (or whatever) is passing and those among which he or she or it performs is what allows passing to succeed. Whether or not an A.I. is trying to pass as a human or is merely in drag as a human is another matter. Is the ruse all just a game or, as for some people who are compelled to pass in their daily lives, an essential camouflage? Either way, "passing" may say more about the audience than about the performers. We would do better to presume that in our universe, "thinking" is much more diverse, even alien, than our own particular case. The real philosophical lessons of A.I. will have less to do with humans teaching machines how to think than with machines teaching humans a fuller and truer range of what thinking can be (and for that matter, what being human can be). III. That we would wish to define the very existence of A.I. in relation to its ability to mimic how humans think that humans think will be looked back upon as a weird sort of speciesism. The legacy of that conceit helped to steer some older A.I. research down disappointingly fruitless paths, hoping to recreate human minds from available parts. It just doesn't work that way. Contemporary A.I. research suggests instead that the threshold by which any particular arrangement of matter can be said to be "intelligent" doesn't have much to do with how it reflects humanness back at us. As Stuart Russell and Peter Norvig (now director of research at Google) suggest in their essential A.I. textbook, biomorphic imitation is not how we design complex technology. Airplanes don't fly like birds fly, and we certainly don't try to trick birds into thinking that airplanes are birds in order to test whether those planes "really" are flying machines. Why do it for A.I. then? Today's serious A.I. research does not focus on the Turing Test as an objective criterion of success, and yet in our popular culture of A.I., the test's anthropocentrism holds such durable conceptual importance. Like the animals who talk like teenagers in a Disney movie, other minds are conceivable mostly by way of puerile ventriloquism. Where is the real injury in this? If we want everyday A.I. to be congenial in a humane sort of way, so what? The answer is that we have much to gain from a more sincere and disenchanted relationship to synthetic intelligences, and much to lose by keeping illusions on life support. Some philosophers write about the possible ethical "rights" of A.I. as sentient entities, but that's not my point here. Rather, the truer perspective is also the better one for us as thinking technical creatures. Musk, Gates and Hawking made headlines by speaking to the dangers that A.I. may pose. Their points are important, but I fear were largely misunderstood by many readers. Relying on efforts to program A.I. not to "harm humans" (inspired by on Isaac Asimov's "three laws" of robotics from 1942) makes sense only when an A.I. knows what humans are and what harming them might mean. There are many ways that an A.I. might harm us that that have nothing to do with its malevolence toward us, and chief among these is exactly following our well-meaning instructions to an idiotic and catastrophic extreme. Instead of mechanical failure or a transgression of moral code, the A.I. may pose an existential risk because it is both powerfully intelligent and disinterested in humans. To the extent that we recognize A.I. by its anthropomorphic qualities, or presume its preoccupation with us, we are vulnerable to those eventualities. Whether or not "hard A.I." ever appears, the harm is also in the loss of all that we prevent ourselves from discovering and understanding when we insist on protecting beliefs we know to be false. In the 1950 essay, Turing offers several rebuttals to his speculative A.I., including a striking comparison with earlier objections to Copernican astronomy. Copernican traumas that abolish the false centrality and absolute specialness of human thought and species-being are priceless accomplishments. They allow for human culture based on how the world actually is more than on how it appears to us from our limited vantage point. Turing referred to these as "theological objections," but one could argue that the anthropomorphic precondition for A.I. is a "pre-Copernican" attitude as well, however secular it may appear. The advent of robust inhuman A.I. may let us achieve another disenchantment, one that should enable a more reality-based understanding of ourselves, our situation, and a fuller and more complex understanding of what "intelligence" is and is not. From there we can hopefully make our world with a greater confidence that our models are good approximations of what's out there (always a helpful thing.) Lastly, the harm is in perpetuating a relationship to technology that has brought us to the precipice of a Sixth Great Extinction. Arguably the Anthropocene itself is due less to technology run amok than to the humanist legacy that understands the world as having been given for our needs and created in our image. We hear this in the words of thought leaders who evangelize the superiority of a world where machines are subservient to the needs and wishes of humanity. If you think so, Google "pig decapitating machine" (actually, just don't) and then let's talk about inventing worlds in which machines are wholly subservient to humans' wishes. One wonders whether it is only from a society that once gave theological and legislative comfort to chattel slavery that this particular affirmation could still be offered in 2015 with such satisfied naïveté? This is the sentiment - this philosophy of technology exactly - that is the basic algorithm of the Anthropocenic predicament, and consenting to it would also foreclose adequate encounters with A.I. It is time to move on. This pretentious folklore is too expensive. Benjamin H. Bratton ( @bratton) is an associate professor of visual arts at the University of California, San Diego. His next book, "The Stack: On Software and Sovereignty," will be published this fall by the MIT Press. Load-Date: February 23, 2015 End of Document The No-Good Week in Tech's (Hopeful) Trip to a Bright Future The New York Times

### Document 576

This is an article from Turning Points, a magazine that explores what critical moments from this year might mean for the year ahead. As modern life moves forward, has our society left something important behind? Can it, or should it, be retrieved? We asked the thinkers, artists and opinion leaders below for their thoughts. Daniel Libeskind Society has forgotten an idea that had accompanied humanity from time immemorial: utopia. The notion that there is a new and better world to strive for and dream about has largely disappeared from our all too skeptical, one might even say cynical, society. There are plenty of dystopias to give us nightmares, but a world without a utopia may be a world not worth living in; utopia is to our notion of history as the speed of light is to the cosmos. It forms the horizon of possibilities necessary for orientation to the world. Without an imaginative search for a better society we are bound to flounder in confused expediency. Because the ideologies of the past century have been largely discredited as false utopias, we are bereft of the notion of a better future. Whether the idea of a utopia ever returns will depend on our spirit, our faith in what is to come. Yet who are we to make demands of the spirit, which will wander as it will? Daniel Libeskind is a Polish-American architect, artist, professor and set designer. Julia Alvarez Remember remembering? Remember how we use to learn things by heart? Whole poems we could recite, the phone numbers of all our friends and our relatives besides? Remember how we used to have to remember directions to a place, including interesting detours we could take that had started out as a mistake? We had to remember what we needed, because we couldn’t just call home if we forgot. Remember when we had to remember what people looked like without looking them up, when we couldn’t consign the most important things in life to someone else’s hard drive? Remember how we committed the important things to memory, where they were locked up for life? Everything inside us, without strings attached? Remember, oh, remember, the small, shy animal that would come out of the thicket of thinking when we sat quietly by, without a thing to do in this world, nothing pinging or vibrating or alerting us otherwise? And we would muse and mull over things. Remember musing? Without remembering, how will our past speak to our future? How will we even remember if we have left something important behind, and if so, where to go to find it? Julia Alvarez is the author of poetry collections, novels and books for young readers. Her most recent books are “Where Do They Go?,” “A Wedding in Haiti” and “The Woman I Kept to Myself.” Sharmeen Obaid-Chinoy He always peeled his apples slowly, deliberately, pausing to adjust the volume on his transistor radio as we sat around the kitchen table. “This is the six o’clock news …” the presenter would say, and my grandfather would smile. My grandmother, busily cooking behind us, would inevitably sit down and pour herself a drink from a Johnnie Walker whiskey bottle, which, since prohibition was declared in Pakistan years before, held only water. Then the stories would begin, almost invariably with my grandfather describing the sweet mangoes he used to steal from his neighbor’s trees. My grandmother would tell of the resistance movement she had joined before the partition of the Indian subcontinent in 1947. Two grandchildren, sitting transfixed, biting into their slices of apple. Those afternoons at the kitchen table, and the stories we listened to, shaped the way we saw the world. We had the luxury of time and the desire to share it with each other. Today, my daughters have gadgets, and their calendars are full of activities. There is no time for sliced apples or stories. There is very little time to be a child. Sharmeen Obaid-Chinoy is a Pakistani journalist, filmmaker and activist. She has won two Academy Awards and three Emmy Awards. Ray Kurzweil In the next three decades natural and artificial intelligence will become one; we will live indefinitely, and become a billion times more intelligent. In this era of accelerating technologies, poverty, disease, resource scarcity, illiteracy and violence are declining. In the past 20 years global poverty has decreased by more than 50 percent. In the past 200 years we have doubled our life expectancy. These are but two examples of the remarkable advancements we have made as modern life moves forward, with comparable progress in extending education, providing sanitation and instilling democracy worldwide. At the core of these trends lies the steady and constant doubling of the price-performance ratio and capacity of information technologies — technologies that are a thousand times more powerful than they were years ago and will be a million times more powerful 20 years from now. As medicine, agriculture, energy and manufacturing become forms of information technology, we will see radical transformation in all aspects of our lives, including our health, food, clothing, housing and work. The future is better than you think. So, rather than look back at what society may have left behind, I look forward to the future in which our species breaks the shackles of its genetic legacy and achieves inconceivable heights of intelligence, material progress and longevity. Ray Kurzweil is an American author, computer scientist, inventor and futurist. Danielle Allen We have largely quit intentionally cultivating democratic knowledge — the knowledge, skills and capacities that civic actors need to sustain healthy democracies. According to theEducation Commission of the States, in the mid-20th century, American high school graduates took three separate courses in democracy, civics and government, and “civics was woven throughout the K-12 curriculum.” Now civic education typically consists of only a single-semester course in government or civics in the 40 states where such a requirement exists. The results of our disinvestment in civic education appear stark. According to political scientistsRoberto Foa and Yascha Mounk, only about 30 percent of millennials consider it “essential” to live in a democracy, while 72 percent of those born before World War II do. We can, and should, reverse this. Last June, my home state, Massachusetts, passed new state educational standards, introducing a yearlong civics course for eighth-graders and increasing the focus on civics elsewhere in the curriculum. We can rebuild civic education state by state. Of course, civic education without improvements in how our political institutions function won’t solve the problem, but without a citizenry who knows how to operate democratic institutions, and why we might want them, we won’t be able to rescue our democracy. Danielle Allen is a classicist and political scientist. She is a professor at Harvard University and the author of “Cuz: The Life and Times of Michael A.” Jacob Soll Sophistication used to be valued, both as a way of looking at the world and a means of living in it. Now, as our affairs become dizzyingly complex and depressingly straightforward, it is getting lost. It’s odd and it’s troubling. We are losing our grasp of the general concept that things are complicated, and that deep knowledge — civic, cultural, political — is a perfect old tool for the challenges of a new world. Just within the Western tradition, Machiavelli, Castiglione, Bacon, Hobbes, Cavendish, Montesquieu, Wollstonecraft and, yes, Ben Franklin, not to mention most of the great novelists and scientists, all called for it. So did the great composers and painters. And then we’ve lost our social sophistication, from elegance and manners to great conversation and the very essential need for high irony. These things were once central to politics too. One didn’t need to be rich to have these qualities. I had a socially sophisticated barber when I was a kid. Greta Garbo and Cary Grant made sophistication a democratic trait; it was all about nuance and seeing the many shades of our world. Jane Austen and Honoré de Balzac knew it, too. Frederick Douglass saw that to make the case for freedom, he would have to master language in all of its nuances. This is a paradox and a challenge in the age of artificial intelligence and Twitter. If we cannot rediscover humane sophistication — a learned and elegant folly — we will lack the fine analytical blade of deep understanding. Jacob Soll is a professor of philosophy, history and accounting at the University of Southern California. Alexia Webster From my very first visit, I fell madly in love with the Mediterranean. Every five years or so, when my family could afford it, we would trek across the hemisphere, leaving behind the dry, icy Johannesburg winter to visit my grandparents in their village on a little island in Greece. The sea was a realm of magic, an otherworldly kingdom where the octopuses danced in slow motion and pink coral and sea urchins lined the rocks like strange little houses in an underwater village. Years have passed since my first visits, and though the hills are still lit up by the light of the Milky Way and the thick hum of cicadas fills the air, my underwater kingdom has been raided, and the Mediterranean lies almost barren. Now in the summer months, tourists like me arrive in big ferries, while yachts fill the bay and slick boats that look like spaceships shine their bright underwater spotlights into the empty sea below. Staring into these waters that my ancestors once explored, I hope, with all the heart of a little girl, that there is a secret, hidden corner where the creatures of my childhood are hiding, waiting it out until we turn off the lights. Alexia Webster is a documentary photographer and visual artist from South Africa. Claire Ptak From the way I formulate recipes to how I created the space that became my bakery cafe in East London, I look to the past while continuously moving forward. I took the idea of the quaint European cake shop and modernized the experience, but my work is a synthesis of what is now and of the work of those who came before me. We are constantly building on the past, polishing it, re-creating it. Recipes are perfect examples of this. Passed down from generation to generation, they are annotated by each baker who uses them. When I designed the wedding cake for Prince Harry and Meghan Markle last spring, we left behind the tradition of a fruit cake, opting instead for lemon and elderflower, flavors that embody the ethos of this moment: seasonality and sustainability. The royal family’s beautifully crafted gilt cake stands had been used countless times over many years, developing a burnished quality that I consider to be more beautiful than something new and perfect. And the many hands that have held them make them intrinsically more beautiful. I’d like to think our society appreciates this nuance. Something old. Something new. Claire Ptak is a baker and pastry chef. She owns Violet Cakes in London and is the author of “The Violet Bakery Cookbook.” Richard McGuire In general I like to think that we gain something for everything we lose. On the New York City subway yesterday I counted 30 people in the car, and all but one were staring at their devices. Some were also plugged into their headphones. I suddenly saw the same scene as though looking back on it from the future; the handheld devices looked old-fashioned and clumsy, as if everyone were carrying an oxygen tank. I’m sure these devices will become surgically implanted some day. It’s just a matter of time. I admit that I’m addicted, like millions of others. I feel naked without my device. I feel desperate when it’s misplaced. I confess: I like having an extension for my brain when I can’t remember a fact. Would I want that device implanted? I don’t think so. What we have gained in access to information, we have lost in terms of our time. Every email, every text, every call expects an instant response. Social media and round-the-clock news delivery demand our constant attention. One way I have found to get some time back is simply by slowing things down through meditation. Taking a few moments for myself. Unplugging from the hive. Richard McGuire is an American artist, musician and author. His new book is “Richard McGuire Art for the Street 1978-82.” Witold Rybczynski Until fairly recently, it was taken for granted that the important buildings in our cities should be built to last a long time. Unlike consumer goods, architecture was for the long haul. That meant durable materials, of course, but it also meant durable ideas; both were required to withstand the test of time. No more. Globalization, branding and the celebrity architect phenomenon have changed all that. Buildings have become more like blockbuster movies; instead of the long haul, they celebrate the immediate, the here and now and up-to-the-minute. It’s all very exciting, for today. But what about tomorrow? Once the novelty wears off, what’s left? Will old buildings be like Hula Hoops and pet rocks; yesterday’s fads? Will they simply be discarded, like old cell phones? Will the only alternatives available to an older building be modernization — “freshening up,” in developer’s parlance — or demolition? If architecture continues down this road, it will sacrifice one of its most precious functions: providing a living connection to the past, to people who were like us, and yet not like us. Witold Rybczynski is a Canadian-American architect, professor and writer. He is the Martin and Margy Meyerson Professor Emeritus of Urbanism at the University of Pennsylvania. Ben Katchor When I attended Brooklyn College in the early 1970s, tuition was free. Since I lived at home, my only expenses were books, lunch money and the bus fare to and from school. I spent my time studying art and literature with the feeling that I was embarking on a lifetime endeavor of the utmost importance. Unlike the local delicatessen, where I ate my lunch every day, the college didn’t hand me a bill after my classes, or after the hours that I spent in the college library. On winter evenings, it felt like the light emanating from the classroom windows was a result of the intellectual activity going on within. As with the street lamps that lit my way back home, that energy was provided by the taxpayer, for the safety of the citizens of Brooklyn. In recent years I’ve had the opportunity to teach at private colleges in the United States and European schools run by the state. The students who aren’t paying customers approach their work with a serenity that’s not possible with the sound of a tuition meter running in the background. In an economy where the very idea of needing a “job” to be deserving of a guaranteed basic income is questioned, it’s obvious that interested citizens should again be invited to study, and teach, in tuition-free universities supported by the state. Ben Katchor is an American cartoonist and illustrator best known for his critically acclaimed comic strip “Julius Knipl, Real Estate Photographer.” Marta Vieira da Silva The words I grew up hearing are still constantly being told to girls around the world: Sports are not for you. When they reach adolescence, the pressure on young women to conform to a certain kind of femininity makes it even harder for them to occupy public spaces, develop their sense of autonomy and play. When a girl is not allowed to practice a sport, she is denied a precious tool to develop skills transferable to several other areas of her life: confidence, leadership, discipline, resilience, team spirit and respect for diversity. I usually say to girls: Believe in yourself, because if you don’t, no one else will. However, it is also true that with the right investments by sports institutions, in both the public and private sectors, the path for girls to achieve their full potential won’t be as difficult as it was for me. We need more women in decision-making positions in sports governing bodies, better policies for women athletes and more opportunities for girls to play sports, wherever they are in the world. We cannot say humanity has truly moved forward until we level the playing field for women and girls, in every area where they have the potential to excel. Marta Vieira da Silva plays for the Orlando Pride and the Brazilian Women’s National Soccer Team. She was named FIFA World Player of the Year six times, and is a United Nations goodwill ambassador for women and girls in sport. Emily Thompson Within a decade of the telephone’s invention, someone whose name is lost to history made the first obscene phone call. The new technology, miraculously enabling conversation unlimited by physical proximity, engendered behavior that was unhampered by social norms, which had always prevented most people from saying such nasty things face to face. A few years later, the first telephone booths appeared. These boxes further dislocated the devices, acoustically and visually, allowing each user to inhabit an imaginary space shared only with the person at the other end of the line. But this space was really nowhere, neither here nor there, and it amplified the antisocial nature of the telephone call. Weird things happen in phone booths; rules don’t apply. Clark Kent transformed himself into Superman. Who knows what Scott Pruitt might have gotten up to? Today, in choosing to be on our phones all the time, everyplace, we have imprisoned ourselves within virtual phone booths that perpetually disconnect us from our surroundings. No longer present in the place where we actually are, we become social zombies, faces lit gruesomely from below by the bluish light of our screens. We behave in ways that fail to acknowledge the people around us. Too many behave obscenely. Let’s reclaim our context and reconnect to our surroundings, in ways that elicit the better angels of our nature. Superman was only able to fight for truth and justice by emerging from his booth and engaging with the city. Be a superhero. Turn off your phone, look up at the people around you, and smile. Emily Thompson, a professor of history at Princeton, gets by just fine without a smartphone. PHOTO: Workers remove prosthetic limbs from a replica of the Venus de Milo at the Louvre-Rivoli metro station in Paris. (PHOTOGRAPH BY Christophe Archambault/Agence France-Presse — Getty Images FOR THE NEW YORK TIMES) Related Articles 2018, as Seen by Five Artists The Big Phish 20 Things That Happened for the First Time in 2018 Load-Date: December 8, 2018 End of Document Enter the Holodeck; Nonfiction The New York Times

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-- Po, the wisdom-seeking hero of the ''Kung Fu Panda'' films, might recognize this temple in China where the world's first robot monk dwells. For Po's Jade Palace, there is Longquan (Dragon Spring) Temple, a place of Buddhist worship in the mountains northwest of Beijing, where gnarled gingko and cypress trees tower over red-walled buildings underneath rocky Phoenix Ridge. For his Hall of Warriors, there is the Comic Center deep inside the temple, at the end of winding stone paths and steps, past a flower-shaped audio device that crackles sutras. As for Po himself, there is Xian'er, the two-foot-tall, advice-dispensing robot whose full title is Worthy Stupid Robot Monk. (In the Beijing dialect, ''er,'' or ''stupid,'' is a term of affection.) Not so much ''Kung Fu Panda 3,'' perhaps, as ''Robot Monk 1.'' A childlike creature in an orange Buddhist robe, Xian'er is an object of fascination in China amid an increasingly urgent pursuit of spirituality and, more recently, artificial intelligence. But Xian Fan, the head of the Comic Center, told National Business Daily that the temple did not plan to commercialize the robot and that its development was for ''the public welfare.'' And the monks do not seem to be planning a franchise. There is only one robot monk for now, Xian Fan told Beijing News, adding, ''We're not doing this for commerce, but just because we want to use more modern ways to spread Buddhist teachings.'' The robot was created last year by the temple in collaboration with about a dozen Chinese technology, culture and investment companies, according to Chinese news reports. But the character of Xian'er was first designed by artists at the Comic Center for a 2014 Buddhist comic book series, whose first title was ''Troubles Are Self-Made.'' The series has sold well in Chinese bookstores, and an English-language edition is due out soon. As a robot, Xian'er has expanded his repertoire. He has a touch pad on his chest that allows him to respond to supplicants' questions and statements, such as: ''Who are your parents?'' ''I'm not happy'' and ''What is the meaning of life?'' On Wednesday morning, employees at the Comic Center declined to let visitors communicate directly with Xian'er, saying he was -- literally -- recharging in order to meet a delegation of government officials from Beijing later in the day. They would not say who the officials were or give their own names, saying they were not authorized to speak to the news media. No matter. There was always Weixin, or WeChat, where Xian'er maintains an account. (Readers can find him under è´¤äºŒæœºå™¨åƒ§.) Clearly no sentimentalist, his answers to the above queries were: Â· ''That's ridiculous, how can robots have parents?'' Â· ''If you're not happy, what can anyone else do about it?'' Â· ''My master says the meaning of life is to help more people finally leave behind bitterness and gain happiness.'' Po might have approved. Many visitors to Longquan Temple on Wednesday, however, expressed doubt as to whether Xian'er could really help people with their problems, though some said they expected technology to advance so quickly that future generations of robot monks might. A second, smarter Xian'er is already in development, a center employee said. ''I haven't seen it, but I've heard of it,'' Zhang Ping, a middle-aged woman who was visiting the temple, said of the robot monk. ''It relies on permutations and combinations of words to solve problems, but whether it can really deal with deep personal issues, I'm not sure,'' Ms. Zhang said. ''Everyone is different. For some, those may be about family, for others, about work. But look at how fast artificial intelligence is progressing. In 20 years, I think it's completely possible it will be able to.'' Another templegoer disagreed. ''I don't think it's possible for the intelligence of a robot to be advanced enough to understand human feelings,'' said Wang Yiren, 23, a Buddhist and volunteer at the temple. ''The robot doesn't really live up to my expectations. But I've seen robots in other parts of the world that can communicate with human beings, and that's pretty amazing.'' He Haikun, 33, a woman who was visiting the temple with a friend, said: ''If you have no one to talk to, maybe it would help to talk to a robot.'' Here are some other answers provided by Xian'er, via WeChat: Q: ''What is love?'' A: ''Love is your own obsessions not being satisfied, the clashing of other people's troubles with yours.'' Q: ''I don't want to work.'' A: ''If you don't want to starve and have an O.K. job, work hard.'' Q: ''I want to die.'' A: ''Don't assume you're the most pathetic person in the world.'' Q: ''Who is Xi Jinping [the president of China]?'' A: ''A robot doesn't know any people.'' And finally: Q: ''Could there be another Cultural Revolution?'' A: ''Wait, I will ask my master.'' Po would have been envious of Xian'er for being able to pass a difficult question on to his master, having been required in ''Kung Fu Panda 3'' to solve his community's problems himself. The robotics companies Canbot and Turing Robotic Industries, among the companies cited in Chinese news reports as working with the temple to produce Xian'er, agreed to answer questions about the project but had not responded as of Wednesday evening. At Interjoy, another company listed as one of the designers, and others, the phone rang unanswered. http : // www.nytimes.com/2016/04/28/world/asia/china-robot-monk-temple.html Load-Date: April 28, 2016 End of Document The Google Antitrust Trial Is Really About the Future of A.I. The New York Times

### Document 278

Stephen Hawking is a romantic. His favorite song is "Have I Told You Lately" by Rod Stewart. His favorite movie is "Jules et Jim," a famous 1962 French film about a love triangle. And the mystery he finds most intriguing? Women. "My [physician assistant] reminds me that although I have a PhD in physics, women should remain a mystery," Hawking said in his first Reddit AMA. (His PA is a woman, by the way.) Reddit published Hawking's responses to 11 questions on Thursday, a little over two months after the AMA began. The thread received over 9,000 questions in the span of a week, making it the third-largest AMA in Reddit's history. Hawking worked with Reddit's moderators to gather questions and respond in his own time. He has suffered from the motor neuron disease ALS for the past forty years, and communicates through a computer. The AMA's primary purpose was to debate the benefits and consequences of AI, or artificial intelligence. Hawking and other tech leaders, such as Elon Musk and Bill Gates, signed an open letter to researchers earlier this year, urging them to consider the risks of AI. Hosting the Reddit AMA was another way for Hawking to draw support for a Nokia- and WIRED-sponsored initiative called #maketechhuman. When asked to clarify his view on AI -- if he truly believed in a Skynet-like evil -- Hawking said his view has been misrepresented. "The real risk with AI isn't malice but competence," Hawking wrote. "A super intelligent AI will be extremely good at accomplishing its goals, and if those goals aren't aligned with ours, we're in trouble." He gave an example: "You're probably not an evil ant-hater who steps on ants out of malice, but if you're in charge of a hydroelectric green energy project and there's an anthill in the region to be flooded, too bad for the ants. Let's not place humanity in the position of those ants." Below are a few more excerpts. You can read all of his answers here. Is it possible for machines to become smarter than their creators? It's clearly possible for something to acquire higher intelligence than its ancestors: We evolved to be smarter than our ape-like ancestors, and Einstein was smarter than his parents. Are we facing imminent threat from intelligent machines? Don't trust anyone who claims to know for sure [how long it will take to build human-level AI]. When it eventually does occur, it's likely to be either the best or worst thing ever to happen to humanity, so there's huge value in getting it right. We should shift the goal of AI from creating pure undirected artificial intelligence to creating beneficial intelligence. What is the risk of "technological unemployment" where machines take jobs? The outcome will depend on how things are distributed. Everyone can enjoy a life of luxurious leisure if the machine-produced wealth is shared, or most people can end up miserably poor if the machine owners successfully lobby against wealth redistribution. So far, the trend seems to be toward the second option, with technology driving ever-increasing inequality. TM & © 2015 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: October 11, 2015 End of Document The age of robots is here CNN Wire

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month over a thousand scientists and tech-world luminaries, including Elon Musk, Stephen Hawking and Steve Wozniak, released an open letter calling for a global ban on offensive ''autonomous'' weapons like drones, which can identify and attack targets without having to rely on a human to make a decision. The letter, which warned that such weapons could set off a destabilizing global arms race, taps into a growing fear among experts and the public that artificial intelligence could easily slip out of humanity's control -- much of the subsequent coverage online was illustrated with screen shots from the ''Terminator'' films. The specter of autonomous weapons may evoke images of killer robots, but most applications are likely to be decidedly more pedestrian. Indeed, while there are certainly risks involved, the potential benefits of artificial intelligence on the battlefield -- to soldiers, civilians and global stability -- are also significant. The authors of the letter liken A.I.-based weapons to chemical and biological munitions, space-based nuclear missiles and blinding lasers. But this comparison doesn't stand up under scrutiny. However high-tech those systems are in design, in their application they are ''dumb'' -- and, particularly in the case of chemical and biological weapons, impossible to control once deployed. A.I.-based weapons, in contrast, offer the possibility of selectively sparing the lives of noncombatants, limiting their use to precise geographical boundaries or times, or ceasing operation upon command (or the lack of a command to continue). Consider the lowly land mine. Those horrific and indiscriminate weapons detonate when stepped on, causing injury, death or damage to anyone or anything that happens upon them. They make a simple-minded ''decision'' whether to detonate by sensing their environment -- and often continue to do so, long after the fighting has stopped. Now imagine such a weapon enhanced by an A.I. technology less sophisticated than what is found in most smartphones. An inexpensive camera, in conjunction with other sensors, could discriminate among adults, children and animals; observe whether a person in its vicinity is wearing a uniform or carrying a weapon; or target only military vehicles, instead of civilian cars. This would be a substantial improvement over the current state of the art, yet such a device would qualify as an offensive autonomous weapon of the sort the open letter proposes to ban. Then there's the question of whether a machine -- say, an A.I.-enabled helicopter drone -- might be more effective than a human at making targeting decisions. In the heat of battle, a soldier may be tempted to return fire indiscriminately, in part to save his or her own life. By contrast, a machine won't grow impatient or scared, be swayed by prejudice or hate, willfully ignore orders or be motivated by an instinct for self-preservation. Indeed, many A.I. researchers argue for speedy deployment of self-driving cars on similar grounds: Vigilant electronics may save lives currently lost because of poor split-second decisions made by humans. How many soldiers in the field might die waiting for the person exercising ''meaningful human control'' to approve an action that a computer could initiate instantly? Neither human nor machine is perfect, but as the philosopher B. J. Strawser has recently argued, leaders who send soldiers into war ''have a duty to protect an agent engaged in a justified act from harm to the greatest extent possible, so long as that protection does not interfere with the agent's ability to act justly.'' In other words, if an A.I. weapons system can get a dangerous job done in the place of a human, we have a moral obligation to use it. Of course, there are all sorts of caveats. The technology has to be as effective as a human soldier. It has to be fully controllable. All this needs to be demonstrated, of course, but presupposing the answer is not the best path forward. In any case, a ban wouldn't be effective. As the authors of the letter recognize, A.I. weapons aren't rocket science; they don't require advanced knowledge or enormous resource expenditures, so they may be widely available to adversaries that adhere to different ethical standards. The world should approach A.I. weapons as an engineering problem -- to establish internationally sanctioned weapons standards, mandate proper testing and formulate reasonable post-deployment controls -- rather than by forgoing the prospect of potentially safer and more effective weapons. Instead of turning the planet into a ''Terminator''-like battlefield, machines may be able to pierce the fog of war better than humans can, offering at least the possibility of a more humane and secure world. We deserve a chance to find out. http : // www.nytimes.com/2015/08/17/opinion/robot-weapons-whats-the-harm.html Graphic DRAWING (DRAWING BY AMANDA LANZONE) Load-Date: August 17, 2015 End of Document Four Artists on the Future of Video Art; True Believers The New York Times

### Document 852

With $15 million in private funding, Colossal aims to bring thousands of woolly mammoths back to Siberia. Some scientists are deeply skeptical that will happen. A team of scientists and entrepreneurs announced on Monday that they have started a new company to genetically resurrect the woolly mammoth. The company, named Colossal, aims to place thousands of these magnificent beasts back on the Siberian tundra, thousands of years after they went extinct. ''This is a major milestone for us,'' said George Church, a biologist at Harvard Medical School, who for eight years has been leading a small team of moonlighting researchers developing the tools for reviving mammoths. ''It's going to make all the difference in the world.'' The company, which has received $15 million in initial funding, will support research in Dr. Church's lab and carry out experiments in labs of their own in Boston and Dallas. A former researcher in Dr. Church's lab, Eriona Hysolli, will oversee the new company's efforts to edit elephant DNA, adding genes for mammoth traits like dense hair and thick fat for withstanding cold. The researchers hope to produce embryos of these mammoth-like elephants in a few years, and ultimately produce entire populations of the animals. Other researchers are deeply skeptical that Colossal will pull off such a feat. And if Colossal does manage to produce baby mammoth-like elephants, the company will face serious ethical questions. Is it humane to produce an animal whose biology we know so little about? Who gets to decide whether they can be set loose, potentially to change the ecosystems of tundras in profound ways? ''There's tons of trouble everyone is going to encounter along the way,'' said Beth Shapiro, a paleogeneticist at the University of California Santa Cruz and the author of ''How to Clone a Mammoth.'' The idea behind Colossal first emerged into public view in 2013, when Dr. Church sketched it out in a talk at the National Geographic Society. At the time, researchers were learning how to reconstruct the genomes of extinct species based on fragments of DNA retrieved from fossils. It became possible to pinpoint the genetic differences that set ancient species apart from their modern cousins, and to begin to figure out how those differences in DNA produced differences in their bodies. Dr. Church, who is best known for inventing ways of reading and editing DNA, wondered if he could effectively revive an extinct species by rewriting the genes of a living relative. Because Asian elephants and mammoths share a common ancestor that lived about six million years ago, Dr. Church thought it might be possible to modify the genome of an elephant to produce something that would look and act like a mammoth. Beyond scientific curiosity, he argued, revived woolly mammoths could help the environment. Today, the tundra of Siberia and North America where the animals once grazed is rapidly warming and releasing carbon dioxide. ''Mammoths are hypothetically a solution to this,'' Dr. Church argued in his talk. Today the tundra is dominated by moss. But when woolly mammoths were around, it was largely grassland. Some researchers have argued that woolly mammoths were ecosystem engineers, maintaining the grasslands by breaking up moss, knocking down trees and providing fertilizer with their droppings. Russian ecologists have imported bison and other living species to a preserve in Siberia they've dubbed Pleistocene Park, in the hopes of turning the tundra back to grassland. Dr. Church argued that resurrected woolly mammoths would be able to do this more efficiently. The restored grassland would keep the soil from melting and eroding, he argued, and might even lock away heat-trapping carbon dioxide. Dr. Church's proposal attracted a lot of attention from the press but little funding beyond $100,000 from PayPal co-founder Peter Thiel. Dr. Church's lab piggybacked mammoth research on to other, better-funded experiments. ''This set of tools can be used for many purposes, whether it's de-extinction or recoding the human genome,'' Dr. Hysolli said. Analyzing the genomes of woolly mammoths collected from fossils, Dr. Hysolli and her colleagues drew up a list of the most important differences between the animals and elephants. They zeroed in on 60 genes that their experiments suggest are important to the distinctive traits of mammoths, such as hair, fat and the woolly mammoth's distinctively high-domed skull. ''Frankly, I was planning on slogging along at a slow pace,'' Dr. Church said. But in 2019, he was contacted by Ben Lamm, the founder of the Texas-based artificial intelligence company Hypergiant, who was intrigued by press reports of the de-extinction idea. Mr. Lamm visited Dr. Church's lab, and the two hit it off. ''After about a day of being in the lab and spending a lot of time with George, we were pretty passionate on pursuing this,'' Mr. Lamm said. Mr. Lamm began setting up Colossal to support Dr. Church's work, all the way from tinkering with DNA to eventually placing ''a functional mammoth,'' as Dr. Hysolli calls it, in the wild. The company's initial funding comes from investors ranging from Climate Capital, a private equity firm that backs efforts to lower carbon emissions, to the Winklevoss twins, known for their battles over Facebook and investments in Bitcoin. The scientists will try to make an elephant embryo with its genome modified to resemble an ancient mammoth. To do this, the scientists will need to remove DNA from an elephant egg and replace it with the mammoth-like DNA. But no one has ever harvested eggs from an elephant. In case it doesn't work, Dr. Hysolli and her colleagues will also investigate turning ordinary elephant tissue into stem cells, which could possibly then be coaxed to develop into embryos in the lab. Initially, Dr. Church envisioned implanting embryos into surrogate female elephants. But he eventually soured on the idea. Even if he could figure out in vitro fertilization for elephants -- which no one has done before -- building a herd would be impractical, since he would need so many surrogates. Instead, Dr. Church decided to make an artificial mammoth uterus lined with uterine tissue grown from stem cells. ''I'm not making a bold prediction this is going to be easy,'' he said. ''But everything up to this point has been relatively easy. Every tissue we've gone after, we've been able to get a recipe for.'' The idea has a few precedents. At the Children's Hospital of Philadelphia, researchers have developed a sealed bag that can support a fetal lamb for four weeks, for example. But Colossal will need to build an artificial uterus big enough to house a fetus for around two years, reaching a weight of 200 pounds. Heather Browning, a philosopher at the London School of Economics, said that whatever benefits mammoths might have to the tundra will need to be weighed against the possible suffering that they might experience in being brought into existence by scientists. ''You don't have a mother for a species that -- if they are anything like elephants -- has extraordinarily strong mother-infant bonds that last for a very long time,'' she said. ''Once there is a little mammoth or two on the ground, who is making sure that they're being looked after?'' And Colossal's investors may have questions of their own: How will these mammoths make any money? Mr. Lamm predicted that the company would be able to spin off new forms of genetic engineering and reproductive technology. ''We are hopeful and confident that there will be technologies that come out of it that we can build individual business units out of,'' Mr. Lamm said. ''But in the short term, our focus is really just making those technologies that we know will speed up the process and the efficiency of not just bringing back the mammoth, but in the rewilding of the mammoth.'' Dr. Shapiro of U.C. Santa Cruz is skeptical about the company's prospects. ''It feels to me that a mammoth is a long way in the future,'' she said. Nevertheless, she applauded the company's launch and hopes it will deliver scientific advances that could help species that are endangered but not yet extinct. For example, scientists may be able to use Colossal's advances to save species under threat from diseases by endowing them with genes for resistance to a pathogen, she said. Other species might be enriched with genes to better tolerate heat and drought brought on by climate change. ''I worry that for lots of species today, the pace of climate change and the pace of habitat degradation is such that evolution isn't going to be able to save them,'' Dr. Shapiro said. ''We need to intervene even more.'' Graphic PHOTO: Ben Lamm, left, the founder of the Texas-based artificial intelligence company Hypergiant, and George Church, a biologist at Harvard Medical School. (PHOTOGRAPH BY COLOSSAL) Load-Date: September 16, 2021 End of Document A Poll Reversal The New York Times

### Document 750

Just asking: If I can't get chosen for jury duty in a no-drama lawsuit, how come a serial killer manages to be seated in a double murder case? According to Steve Cavanagh's wickedly clever courtroom drama, THIRTEEN (Flatiron, $26.99), what it takes is an ingenious mind and a supreme feat of engineering. That plus the gall to murder any potential jurors who stand in your way. Joshua Kane is one of those monsters whose wicked brilliance makes them unforgettable. After targeting a prospective juror who meets his needs, Kane executes a masterful maneuver to kill this innocent nobody, steal his jury summons and impersonate him at what's being called ''the murder trial of the century.'' Why Kane would want to adjudicate the fate of Robert Solomon, a movie star accused of murdering his wife and his bodyguard, is an open question at this point. But the young actor's defense team includes Eddie Flynn, an attorney who picked up some neat tricks in his 10 years as a con artist, so there's hope for the poor guy. Although the real fun happens in the courtroom, Cavanagh has actually written a two-for-one, a courtroom drama that's also a serial killer mystery. These genres don't exactly complement each other, but they don't bump heads either. To be sure, the serial killer gets all the best scenes and much of the choicest language. (What we would call coldblooded murders, Kane describes as making certain ''mortal adjustments to the jury pool to increase his chances.'') The novel's accounts of these killings, it should be noted, are extremely graphic, especially since Kane keeps up a running commentary as he goes about his work. ''The side of the skull is not as well protected as the frontal cranium,'' we learn in one of a series of monologues we could live without but are shamefully willing to share. â™¦ Abbie Cullen, the heroine of JP Delaney's mind-bending novel THE PERFECT WIFE (Ballantine, $27), is a beautiful woman, a gifted artist and a loving spouse. But she can't compete with the flawless works of artificial intelligence her husband, Tim, designs for Scott Robotics. Nor is it to her advantage when Tim creates a pliable replicant with all her endowments and none of her flaws. Who was it who said, ''There is surely nothing finer than to educate a young thing for oneself''? Oh, right. Hitler. Delaney takes domestic suspense beyond its comfort zone. To be sure, there's romantic tension, marital discord, even betrayal, as well as the demands of caring for a severely autistic child. But there are other issues to chew on: the worship of beauty and the demand for perfection, the ethics of artificial intelligence, the moral responsibilities of playing God. Not to mention the quandary that arises when a robot develops a soul, a real problem when ''people don't want their robots to have feelings.'' â™¦ Don't trust a dude with a lion's head tattoo on his palm. And don't expect to see anyone picking dates at the Paradise Date Farm. These are a few of the lessons the San Diego private eye Roland Ford learns the hard way in THE LAST GOOD GUY (Putnam, $27), a laid-back regional mystery in a surprisingly mellow series by T. Jefferson Parker. There are some terrific villains to boo in this adrenaline-charged adventure involving a decommissioned nuclear generating station, ''its spent fuel rods cooling in their casks. Cooling for the next 100,000 years. Protected from earthquake, tsunami, thieves and terrorists'' by a dicey security company. But we keep coming back to Ford, a former Marine who is plenty tough, but gentle enough to track down a teenage runaway last seen in the company of her bad-news boyfriend. ''It's a weakness in my line of work, hoping that people are telling the truth,'' admits Ford, who's the kind of guy you'd trust with both a 14-year-old girl and a nuclear reactor. â™¦ Julia Keller's emotion-charged mystery THE COLD WAY HOME (Minotaur, $27.99) opens with the birth of a baby -- but don't get all misty-eyed over that. The infant, a boy, is born to a drug-addicted woman who hadn't even known she was pregnant. Where? ''In a toilet in the Burger Boss in a bleak town in a state swamped by its troubles.'' The town in question is economically depressed, spiritually drained Acker's Gap, W.Va. Given the depths of human misery in that opening scene, it comes as a relief when the three private detectives who operate an agency simply called Investigations are hired to find Maggie Folsom's runaway daughter, Dixie Sue, a sweet girl who is ''kinda slow.'' But that mission also turns tragic when a young woman's body is found near the ruins of Wellwood, an asylum for ''incurables.'' Keller's sleuths are easy to like and the murder story is moving; but the object of fascination here is Wellwood, a state-run mental institution with a dark history as a repository for ''rebellious, unruly women'' whose husbands unloaded them at the institution to be lobotomized. And you thought that ''a black wave of overdoses from fentanyl-spiked heroin'' created enough grief for one Appalachian town. Follow New York Times Books on Facebook, Twitter and Instagram, sign up for our newsletter or our literary calendar. And listen to us on the Book Review podcast. https : // www.nytimes.com/2019/08/16/books/review/crime-column-marilyn-stasio.html Graphic DRAWING (DRAWING BY PABLO AMARGO) Load-Date: August 18, 2019 End of Document Extreme Heat Shows the Need for Another Kind of Climate Investment; DealBook Newsletter The New York Times

### Document 1069

Whether they studied the French Revolution, the Röttgen Pietà or “Grapes of Wrath,” our winners made thoughtful parallels to the news of today. Nearly 1,600 students took us up on our third annual December challenge to “connect what you’re learning in school with the world today,” and, as was true in both 2018 and 2019, what we liked best was seeing your thinking in action. Students wrote about orbital velocity and the French Revolution, the Röttgen Pietà, and “The Grapes of Wrath” — and connected these and other academic topics to Times reporting on everything from malls to microchips, Pinterest to protests in Hong Kong. Now that we have run this contest for three years in a row, we judges found that it was the new ideas, the connections we’ve never considered before, that interested us most. But those were also sometimes the trickiest essays to evaluate. Often we found that while we loved the creativity a student showed in putting two disparate ideas together, sometimes those two ideas were so broad they were hard to successfully link in just 450 words. Still, they gave us something new to think about, and we hope you’ll feel the same way. Below, our 56 favorite ideas. In alphabetical order, you can read the full essays of our 10 winners; excerpts from each of our 12 runners-up; and a list of the two texts our 34 honorable mentions compared. Enjoy! Winners: Full Essays Teva Alon, Bergen County Academies, Cresskill, N.J.: “The American Dream” by Edward Albee and “Welcome to the Era of the Post-Shopping Mall” This year, we read “The American Dream,” a satirical play by Edward Albee that explores the materialism and superficiality of American society. The characters are fully engaged in a capitalistic society and therefore exclusively focused on their jobs, purchases and status. Through the characters’ shallow dialogue, it is evident that they lack both meaningful personal relations and excitement from life that doesn’t come from an exchange of money. At first, this play was hard to comprehend and even harder to connect to my everyday life, mostly due to Albee’s absurdist style of writing. But everything clicked when I read Amanda Hess’s article, “Welcome to the Era of the Post-Shopping Mall,” discussing the opening of “The American Dream” shopping mall. This 3-million-square-foot mall has dedicated over half its area to entertainment, with the Big Snow ski resort, a Nickelodeon theme park, a DreamWorks water park, and much more. This may seem like a dreamlike fantasy, but Hess chose to describe the American Dream as “vulgar.” While recounting her awe and nostalgia while skiing at Big Snow, Hess also confronts the emptiness of stepping on a ski lift and realizing that she is skiing in a vacant metal warehouse. This vacancy is present throughout both the mall and the play. In “The American Dream,” the character Young Man discusses his profound emptiness and inability to feel emotions. This perfectly parallels the empty corridors that connect the ostentatious attractions of the American Dream. The unfinished hallways, filled with vibrant posters of cartoon animals, are nothing but cheap diversions attempting to combat their true bareness, just surface-level platitudes meant to distract from its deep misery. “The American Dream” was written as a satirical critique of what was considered in the 1960s to be the peak of capitalism. However, the American Dream makes it clear that this is the true peak of capitalism. The American Dream isolates outside experiences inside of metal boxes, covers every imaginable surface with obstructive advertisements, and always promises to elevate and enlarge every experience possible. Corporations, dissatisfied with simply selling products, have moved on to selling experiences that, as Hess put it, “are simulations of [life’s] extremes.” We are promised heightened bursts of adventure as a way to escape from the dullness of life, convincing us we need to empty our pockets just to feel something. I now find it strange that Albee’s play is considered “absurd” when it is as normal as life itself. The American Dream Mall is just an extension of a capitalistic nightmare that Edward Albee could only dream of, signaling that if we are not careful, we are inching closer to a world where we truly believe that money can buy happiness. Brennan Bower, South Forsyth High School, Cumming, Ga.: Orbital velocity and “Boeing Starliner Ends Up in Wrong Orbit After Clock Problem” Television signals, weather patterns, GPS location: these are all provided by satellites. The mystery of how these satellites transmit information was solved in my physics class. By reaching a certain orbital velocity given a radial distance from the Earth, satellites can orbit at the same speed at which the Earth spins. This gives us the information we need, as satellites can send and receive information from the same location in relation to the Earth’s surface. While reading “Boeing Starliner Ends Up in Wrong Orbit After Clock Problem” by Kenneth Chang, I recognized the failure that caused this wrong orbit. Yes, as Chang said, the thrusters fired at the wrong time due to inaccurate clocks, but the underlying cause is tied back to the concept of orbital velocity. By firing at the wrong time, the rocket achieved a speed different than that which would have put the rocket on a radial target toward the International Space Station (ISS). The mission was a failure, and the rocket was returned back to Earth to not waste fuel on a trajectory away from the ISS. As an unmanned rocket launch, the computer system issues were irreversible since their location in between satellite signals made it impossible to communicate with the home base during the untimely jet thrusts. These thrusts tossed the rocket out of its preferred orbit, and sent its path at the wrong radius. By the formula V=GMr, where M is the mass of the Earth in kilograms, r is the orbital radius in meters, G is the constant for gravity, and V is the resulting velocity, the rocket thrusters gave the rocket the wrong velocity at the wrong radius, leading the rocket mass to be off target of the ISS. The inopportune firing of the jets — a result of a simple timing mistake in the system’s computer — had serious physical consequences, costing Boeing millions of dollars in their failed mission. Their economic consequence wasn’t just from resources lost like fuel and boosters, but in public relations (given the 737 Max controversy, another system failure doesn’t exactly give airlines confidence in Boeing airliners). The cost of the inability of the rocket to correctly execute their launch with the guiding formula for orbital velocity is much greater than the perceived severity of a miscalculated clock. Everything relating to the launch of a rocket is tied to physical phenomenon, from powerful synthetic fuels, to the need to overcome the gravity of Earth. Learning the basic, yet important, laws of physics taught in school is instrumental to the successful launch of not only rockets, but also to the correct execution of military technology, machinery, automobiles, and of course, satellites. Christina Cheng, Woodside Priory School, Los Altos, Calif.: The principle of explosion, a law of logic and mathematics, and “Pinterest Restricts Vaccine Search Results to Curb Spread of Misinformation” “Because if false can be true …” my math teacher frequently says, and I finish the sentence in my head: “then all of math falls apart.” This is the principle of explosion, or ex falso quodlibet: “from falsehood, anything (follows).” When one false statement (for example, 1+1=3) enters the math universe as an apparent true statement, it contradicts the genuinely true statement (in this case, that really 1+1=2). From this contradiction, the number of apparently true statements “explodes” — anything can be inferred as true — through an endless chain of falsehoods emanating from that one false statement. We can prove 2+2 = (1+1) + (1+1) = 3 + 3 = 6 and countless other math statements. When truth and falsity are blurred, logic is rendered meaningless and the entire system of mathematics collapses. The principle of explosion extends beyond abstract numbers to public health and the rise of vaccine misinformation, which can be traced back several decades to inaccurate studies falsely linking vaccines to autism and toxins. As reported in “Pinterest Restricts Vaccine Search Results to Curb Spread of Misinformation,” social media platforms have recently been “infiltrated” with these vaccine falsehoods, presented as truths. Now, in the field of vaccines, truth and falsity is blurred to the extent that “everybody’s an expert.” This misinformation has wreaked havoc across the globe, triggering deadly outbreaks of measles in Samoa and Ebola in the Democratic Republic of Congo, with thousands killed or infected, disrupting societies. Indeed, the World Health Organization declared vaccine hesitancy one of last year’s “10 notable threats to global health.” Social media platforms have attempted to contain this “explosion” by resolving the contradiction — vaccine misinformation. Last year, Pinterest banned vaccine-related searches, while YouTube demonetized anti-vaccine videos, and Facebook and Instagram banned anti-vaccine ads and downgraded anti-vaccine searches. These platforms are making good progress, but have not yet effectively combated vaccine misinformation. As Dr. Gregory Point points out, “It’s a mess that I don’t see easily solved.” However, our experience with the principle of explosion in math offers guidance on how to successfully resolve the proliferation of vaccine misinformation. In 1901, mathematician Betrand Russell discovered a contradiction (Russell’s Paradox) in naive set theory that threatened the validity of all of mathematics. According to the principle of explosion, this contradiction potentially invalidated all mathematical proofs. Mathematical pioneers, including Ernest Zermelo and Abraham Fraenkel, persevered and prevented this mathematical “explosion” by creating a new subbranch of mathematics, axiomatic set theory, thereby resolving the contradiction and reaffirming the validity of mathematics. Their successful resolution affirms that through diligence and persistence, we can prevent the rampant spread of misinformation on social media from jeopardizing public health and creating catastrophe. Jonathan Gao, Brooklyn Technical High School, Brooklyn, N.Y.: The French Revolution and “Hong Kong Protest, Largest in Weeks, Stretches Several Miles.” As I read from my history textbook, the French cried out the Chant du Départ: “La victoire en chantant, nous ouvre la barriére.” Fear became anger and anger became violence; the French took to the protest-torn streets to participate in the storming of the Bastille, the reformation of societal policies, and ultimately, the end to the monarchy. The widespread acceptance of violence during the French Revolution transformed society into one that would accept nothing less than “liberté, égalité, fraternité.” In the article “Hong Kong Protest, Largest in Weeks, Stretches Several Miles” written by Javier C. Hernandez and Elaine Yu, I realized that Hong Kongers drew inspiration from the French; Hong Kong is alike in their attempts to break from the tight grasp of authoritarianism. The authors discuss the large turnout from local Hong Kongers in a march to pressure the government into meeting the peoples’ demands. From images of masked students clashing with police to Canto-pop political anthems to the makeshift barricades, these actions are reminiscent of France’s revolutionary political culture. The French newspapers captured a society in shambles where the middle class rioted and burned barricades in the streets. History is characterized by continuities, and these revolutions were no different from each other. Though having occurred more than two centuries ago, the French Revolution is important for its emergence of civil rights, democratic ideals, and liberties. Hong Kong’s demands for universal suffrage and a leader elected by the people, along with calls for the right to freely speak and assemble draw from the Enlightenment ideas that helped shape a new France. The violence from both historical events is not to be overlooked. In France, the people armed themselves with weapons and gunpowder from the Bastille. As civil society quickly collapsed, commoners armed themselves in preparation for a counterrevolution from militaries abroad during the Great Fear. In a similar fashion, Hong Kongers have barricaded themselves in the city’s universities and central districts. Arming themselves with Molotov cocktails, gas masks, and bricks, they are provoking China to send in their own “counterrevolution” as they vandalize pro-China businesses and legislative buildings. Though having occurred more than two centuries ago, the actions of the French Revolution continues to reverberate throughout time. We are all bearing witness to a series of turbulent situations not only in Hong Kong but in a greater wave of protests throughout the world. Each protest highlights the greater issue of corruption that runs amok in authorities and the need for popular sovereignty. As the world treads down a path of intense opposition, we must ask: How can we safeguard our rights and freedoms and maintain a society when the government is working in their own interests? KellyAnne George, New Milford High School, New Milford, N.J.: Shakespeare’s “Othello” and “Brother of Qandeel Baloch, Pakistani Internet Star, Gets Life Term for Her Murder” While reading Othello in class, I couldn’t help but stumble over Othello’s reason for killing Desdemona. He explains that his murder was, “not in haste, but all in honor.” Othello’s thought process is similar to people who justify honor killings. Since it is uncommon in the US, countless people overlook honor killings completely. Unfortunately, in many Asian and Middle Eastern countries, the term “honor killings” is all too common. Women are slaughtered for reasons that are incomprehensible to most Americans; these reasons include having a boyfriend, leaving their spouse, or marrying outside their race or religion. In Othello’s case the reason was Desdemona’s supposed affair. When asked to speak for his actions, Othello asks to be called an “honorable murderer.” This reveals that Othello uses the loss of honor to justify his actions. In class, we were asked to think about the extent to which Othello is a tragic hero. I, however, failed to see heroism as I was blinded by his abusive nature. In the article “Brother of Qandeel Baloch, Pakistani Internet Star, Gets Life Term for Her Murder” a horrible story is portrayed of a brother who murders his own sister for sullying the family’s honor. The victim in this story is a woman named Fauzia Azeem, Qandeel Baloch on social media, who became relevant by “posting provocative views and images, including seminude pictures, on Facebook and Twitter.” This was enough for her brother to take his revenge. What’s even more unsettling is that the parents had said that “they had absolved him and [is] asking the court to do the same.” According to this article, it is very common for an assailant to not be charged with murder if the family forgives him. In Othello, this same message is portrayed as Othello only feels guilty and kills himself after finding out that Desdemona was innocent of adultery. This means, that to Othello and the other characters in the play, her murder would have been valid if she was really having an affair. Often times in the play people see Desdemona getting abused by Othello, and simply pass it off as Othello having a bad day. When Othello strikes Desdemona, all Lodovico says is “make her amends.” This line emphasizes that there are no repercussions for Othello’s actions. Although the other characters see Othello hit Desdemona and hear him call her a “strumpet” and a “devil,” none of them seem concerned. Similarly, stories of honor killings are ignored and the perpetrator often gets away with his crimes. It would seem that even Baloch’s story only got attention because she was already popular prior to her death. This ignorance causes shame culture to continue and makes murder seem honorable. Justin Hsieh, Fountain Valley High School, Fountain Valley, Calif.: “Polite Lies: On Being a Woman Caught Between Cultures” by Kyoko Mori and “Two States. Eight Textbooks. Two American Stories.” Who am I without my environment? I faced this question after reading “School,” Kyoko Mori’s account of the formative differences between her Japanese and American educations. In “School,” a chapter of her memoir “Polite Lies,” Mori explains that she writes her books and poems in English rather than Japanese because she “was never taught to write in what was [her] native language.” Her Japanese language classes were formulaic and esoteric, and the rigid and arbitrary nature of instruction provided few opportunities to explore and improve in topics and styles of writing that interested her. By contrast, her English classes gave her that freedom and feedback, and “by the time [she] was a high school senior, [she] wanted to be a writer, and English was the only language [she] could write in.” For me, Mori’s story — a powerful example of how instrumental schools are in shaping our youth’s identities — triggered an identity crisis. Many values I hold dear and see as key, nonnegotiable parts of who I am have clear antecedents in my childhood environment. If I had not grown up here, with these experiences, who would I be? If my identity is so changeable and contingent upon circumstance, what meaning does it have? Am I anything beyond a block of wax, a portfolio gathering stamps of “wealth,” “race,” “parenting,” or “schooling?” During this crisis, I encountered Dana Goldstein’s article, “Two States. Eight Textbooks. Two American Stories.” Goldstein details how California and Texas versions of identical history textbooks differ in portraying topics of political sensitivity, from immigration and the legacy of slavery to environmentalism and the role of capitalism in American history. These discrepancies, from revisions by government-influenced review panels, mean the states’ existing political demographics are being reinforced, generation after generation. This story’s impact, for me, was in how tangibly it substantiated the idea of environmental identity. As a proudly progressive Californian with multiple card-carrying conservative Texan friends, this article made me wonder how different our stories might be if ten years ago we had switched Texas and California textbooks. What meaning do our political values have if they are the product of the books we happened to be raised with? I did not leave my crisis with answers. I left with better questions. How can we condemn people for holding beliefs we disagree with, or praise ourselves for our own, when in reality all we’re doing is dutifully reflecting the influences of our environments? How can we judge people for who they are, what they’ve achieved, and what they believe without at least understanding the circumstances that got them there? In the grand scheme of things, the question of nurture versus nature is an argument for empathy. Jenny Hu, The Seven Hills School, Cincinnati, Ohio: “I Saw a Chapel” by William Blake and “Pope Francis Abolishes Secrecy Policy in Sexual Abuse Cases” When studying William Blake’s “I Saw a Chapel” in my British Literature class, I was surprised by both the harshness and the modernity of the poem. Blake depicts a shining, golden church scaring off its weeping congregation, only to be desecrated by a vile serpent tearing through it. With graphic imagery, the poem paints a vivid picture of a church whose innocence is ruined by its worldly desires; hope and faith are lost in a descent into corruption. The criticism felt strikingly applicable to today — the poem’s description of the serpent’s rape of the chapel is easily equated to the crisis of sexual assault ravaging the Catholic Church. Darkening the Church’s principles, each accusation only emphasizes the paradox and betrayal of a priest being a rapist. Though the Church has traded much of its nineteenth-century lavishness for something less concrete, the hypocrisy is unchanged. The ostentatiousness of golden chapels and white pillars has been replaced with equally conspicuous values of goodness and morality. In both Blake’s poem and this current crisis, the Church betrays its congregation. Blake’s Catholic Church’s root flaw lay not only in its greed but also in its hypocrisy — at once both discouraging avarice and pursuing it. Sadly, Elisabetta Povoledo’s article “Pope Francis Abolishes Secrecy Policy in Sexual Abuse Cases” points out the Church’s continued legacy of hypocrisy; its public condemnation of sexual abuse is incongruous with its private protection of accused priests. She outlines the fact that until December 2019, the Vatican enforced high-level secrecy about sexual-abuse accusations against members of the clergy to shield them from criminal punishment by secular authorities. Despite claims that the confidentiality was meant only to protect and not to hide, traditional pontifical secrecy often led to covering up sexual abuse within the church and discouraging victims from speaking up. Similar to Blake’s poem, the church’s actions resulted only in the disillusionment of both victims and the general congregation. Blake concludes his poem with the narrator abandoning the corrupted and unfaithful church for a pigsty. However, while the poem ends on a bitter note, Pope Francis’ latest changes bring hope for a more transparent and open Catholic Church. In response to the public outcry, he has begun to address the numerous allegations against prominent bishops and Church leaders. Though not resolving all of the problems pointed out by victim advocates, such as the fact that guilty priests are technically allowed to remain part of the clergy, the new canon law takes strides to confront the Church’s sexual abuse crisis. Perhaps this is the first step toward slaying Blake’s serpent, the chapel’s plague. Sara Jarecke, Lakewood High School, Lakewood, Ohio: Study of rhetoric and “We Learned to Write the Way We Talk” Speak Anastrophe you say, Yoda I think. Last year they told me that in AP Language and Composition, I would find my writer’s voice. After five years of nothing but annotating works of fiction, however, I was a little skeptical. In entering AP Lang, I immediately found it consisted of a lot more than just writing essays. I was introduced to something new: rhetorical strategies and the striking impact that they could have on our written words. I stumbled my way through foreign terms — epizeuxis, amplification, anastrophe — and learned their meanings and sound. The New York Times article titled “We Learned to Write the Way We Talk” by Gretchen McCulloch shone a light on what I’ve been learning about strategies, but for so long failed to see. McCulloch discusses the new occurrences and patterns in our written word, observing how we’ve shifted from a formal way of writing to an informal and even messier way of writing. However, despite the growingly consistent “likes” and “ums” in our works, McCulloch came to a conclusion: no matter how we write, either informally or a breath away from perfection, we write to connect with others. Writing is all about communication. Writing is used to convey a message — your thoughts, your ideas, your opinions. It is used to tell a story, to share your point of view, to ask questions; on the contrary, it can also form an ironic double meaning that is usually found to be delightfully humorous. But most of all, writing is used to connect deeply with other people in a state of vulnerability achieved by nothing else. As McCulloch said, “We’ve been learning to write not for power, but for love.” I’ve found this vulnerable voice in each of our rhetorical devices. When we see epizeuxis, we hear the voice of any great leader or powerful person. When we see amplification, we hear a voice full of emotion. When we see anastrophe, we think, of course, of Yoda. I’m sure that it’s rarely thought that rhetorical strategies are a way of writing the way that we talk, but this is the way that I see it. Even while our writing world is changing due to things such as tablets, texting, and Twitter, our voices remain unique and distinct through the written word. We’ve learned to write the way we talk in more ways than one. While our written works are not always going to be full of “likes,” “ums,” or “wowwwws,” we are still able to communicate our voices with the use of rhetorical strategies. Even with our written word, we can expose our feelings for what they are, creating deeper and more vulnerable connections with others. Alexander Patel, Mercer Island High School, Mercer Island, Wash.: “Man’s Search for Meaning” by Viktor Frankl and “Should You Add a Microchip to Your Brain?” Stripped of their humanity, relentlessly beaten, and crowded into crude barracks, the prisoners in the concentration camps of the Holocaust were left to die. The lives of millions were dangling at the end of a thinning string, their oppressors the puppeteers. While the physical existence of the prisoners was controlled by the Nazi guards, they still had the freedom of emotion, feeling, and ideas. Dr. Viktor Frankl’s novel “Man’s Search for Meaning” details his use of the thoughts and memories in his brain, of loved ones and his working manuscript, to detach from his suffering. This existential free will, argues Frankl, allowed him to survive through optimism, whereas those trapped in a cycle of hopeless acceptance of fate did not live. Although Frankl’s work is critical in revealing the atrocities of the Holocaust, its underlying message is especially important: with the brain’s freedom, human beings have some semblance of control over their lives. Decades later, however, Dr. Susan Schneider’s op-ed piece “Should You Add a Microchip to Your Brain?” portrays a dystopian world of cognitive “upgrades” that challenges Frankl’s conception of human freedom. To keep pace with the advances in artificial intelligence, humans must resort to technological brain sharpening, potentially at the expense of their unique attributes. Suddenly, the line between “being” and thing becomes blurred; do you become a robotic prisoner stuck in the mindless cycle Frankl describes? How much of your life do you even control? The parallels between the works of Frankl and Schneider force the consideration of what happens when the human experience is vested in the computer, with algorithmic efficiency replacing philosophical understanding. Dr. Schneider’s message is an ominous one: once artificial intelligence loses the “artificial,” humanity is at the will of the technological ecosystem, and the experiences of Viktor Frankl in captivity become meaningless. Individuals will lose fundamentally important aspects of the human experience: critical thinking, choice, consciousness. Society today is driven by a continuously expanding technology behemoth; from consumer items to healthcare, innovation remains at the forefront of our lives. However, in this decades-long expansion, it seems that the world has turned a blind eye to DARPA’s “Super Soldiers” and the “Internet of Things” in households worldwide. Little consideration has gone toward understanding the relationship between the computer and the free individual; we have quickly accepted technology as the answer to many of our problems. Yet in this attempt to improve the human experience, embrace of shortsighted advances may actually be tearing it down. As Viktor Frankl states in his novel, “When we are no longer able to change a situation … we are challenged to change ourselves” (117). One must wonder: Are we changing ourselves for the better? Rachel Shey, PA Homeschoolers, Walnut Creek, Calif.: “The Glass Menagerie” by Tennessee Williams and “The Jungle Prince of Delhi” When I read The Glass Menagerie by Tennessee Williams, my puzzlement and subsequent careful examination of Laura’s outwardly passive character (which nevertheless tied to the theme) reminded me of “The Jungle Prince of Delhi” by Ellen Barry, which also told the story of a mother, a son, and a daughter. When Barry first begins her investigation of the House of Oudh, her tireless pursuit is driven by a hunch that their story is connected to the larger tensions of British departure from India. I fixated on Laura because she felt integral to the themes of The Glass Menagerie, but exactly how she fit in flummoxed me. What stuck with me about “The Jungle Prince of Delhi” was how it showcased the appeal of a dramatic story, then lifted the veil to show that nothing was how it seemed. I reread the pages several times, shocked that the truth was so different from romantic tale I wanted to believe. No descendant of a royal family, Wilayat was actually just a “megalomaniac.” Barry did not present these facts with the air of a racy exposé; she seemed almost to regret finding out the truth, ruminating that Prince Cyrus would surely have been saddened to think of his remarkable family so trammeled and common. Similarly, The Glass Menagerie also pitted exciting adventure against a crippling reality. Tom’s frustration with real life is palpable throughout the play; he escapes by watching movies. Laura, passive as she may be, intrigued me because she seemed to represent the dream itself. Williams lets us see her adventure, the “climax of her secret life,” but then he lifts the veil and destroys the hope for a romantic happy ending. The broken unicorn perfectly illustrates this. When Barry found the stack of receipts and started to uncover the truth behind the House of Oudh, she broke the horn off the glass unicorn. Now the story of the House of Oudh was like all the other horses, just the story of another family broken by Pakistan’s separation from India. But the integral difference is here: where Williams paints the romance of the glass unicorn as pathetic, though perhaps “holy,” Barry suggests that falsity resounds more strongly than mundanity. “What could be more interesting than the story they told about themselves?” Sometimes, do we really want to know the truth? In today’s political atmosphere, one that many glib pundits describe as “post-truth,” The Glass Menagerie and “The Jungle Prince of Delhi” remind us that a story can be beautiful and emotionally affecting without being true, and that an exquisite lie can move people more than any reality. Paired, they illustrate the value of dreams, tempered with grounded pragmatism. Runners-Up: Excerpts From the Essays Ravi Arya, Northern Burlington County Regional High School, Chesterfield, N.J., “Invisible Man” by Ralph Ellison and “A Greater Understanding of Race and Identity Through Tech” In the 155 years since the abolition of slavery, our society has been anything but equal. There is certainly a distinction, of course, between the racism that existed 155 years ago and the racism that exists today: the mere fact that what used to be explicit bias toward people of color has largely transformed into an implicit form of bias. The novel “Invisible Man” by Ralph Ellison as well as the New York Times article “A Greater Understanding of Race and Identity Through Tech” both explore how the implicit biases that exist in society toward people of color have consequences on how one may view their identity. Wan-Tong Chan, Concord-Carlisle Regional High School, Carlisle, Mass.: Shakespeare’s “Macbeth” and “2 American Wives of ISIS Militants Want to Return Home” While reading “Macbeth” by William Shakespeare, Lady Macbeth is undoubtedly labeled as a villain in my mind: Lady Macbeth encourages Macbeth to murder to chase his ambitions. I felt no sympathy toward her support of taking extreme measures to make Macbeth king until I came across the article “2 Wives of ISIS Militants Want to Return Home,” by Rukmini Callimachi and Catherine Porter. The parallels between Lady Macbeth and the wives of ISIS fighters jumped out to me as they face similar struggles supporting the power-hungry men in their lives, ending in regret. Reading this article led me to reevaluate my previously formed opinion toward extremist supporters. Daniel, Sunset High School, Portland, Ore.: “The Toll” by Neal Shusterman and “You Should Be Freaking Out About Privacy” Privacy and surveillance, these two concepts have become more relevant than ever before. As technology advances, our use of surveillance systems is increasing, along with the public’s fear of t

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To hear more audio stories from publishers like The New York Times, download Audm for iPhone or Android. On a bright, cool Saturday in late October 1983, the growing prospect of thermonuclear war between the world's two superpowers drew a quarter million people out into the streets of central London. Among them was a young writer named Kazuo Ishiguro, who'd recently published his first novel. Ishiguro's mother had narrowly survived the atomic bombing of Nagasaki in 1945, so his presence at the march that day felt like a matter of personal duty. Along with a group of like-minded friends, he chanted slogans demanding that the West renounce its nuclear arsenal -- the hope being that the East would quickly follow suit. As they made their way past Big Ben to Hyde Park, holding signs and waving banners, a current of euphoria spread among the crowd. Synchronized protests were taking place all across Europe, and for a brief moment it seemed possible to believe that they would actually make a difference. There was just one problem, as Ishiguro saw it: He worried that the whole thing might be a terrible mistake. In theory, unilateral disarmament was a nice idea; in practice, it could backfire catastrophically. Perhaps the Kremlin would respond to a nuclear-free Europe in the way the demonstrators foresaw, but it wasn't hard for Ishiguro to imagine a less harmonious outcome. Even as he recognized their good intentions, he feared the marchers were succumbing to the disorienting lure of mass emotion. His parents and grandparents had lived through the rise and fall of fascism, and he grew up listening to stories about the dangerous power of crowds. Britain in the 1980s was a far cry from Japan in the 1930s, and yet he recognized common denominators: tribalism, an impatience with nuance, the pressure placed on ordinary people to take political sides. Ishiguro, a mild, deliberative person, felt this pressure intensely. He didn't want to wake up at the end of his life only to realize that he'd given himself to a misguided cause. These anxieties found an outlet in the novel he was writing at the time, ''An Artist of the Floating World.'' Masuji Ono, the book's narrator, is a man who waits too long to ask himself whether he might be backing a misguided cause. An aging painter in late-1940s Japan, Ono has been suffering from moral whiplash: His monumental artworks celebrating Japanese imperialism, at one time the source of honor and renown, have taken on a shameful meaning in the democratizing postwar era. Looking back over his life, he tries to come to terms with his decisions. Nietzsche once distilled the workings of psychological repression thus: ''Memory says, 'I did that.' Pride replies, 'I could not have done that.' Eventually, memory yields.'' In Ishiguro's novel, the tug of war between pride and memory plays out behind a screen of glazed eloquence as Ono uncovers the things he has carefully hidden from himself. At 66, Ishiguro is now approaching the age of the disgraced propagandist he imagined in his youth. To say that the life lived in error he once feared has not come to pass would be understating the matter -- something Ishiguro, a virtuoso of restraint, has been doing for almost 40 years. In 2017, he won the Nobel Prize in Literature, the closest thing an author can get to outright existential validation. Announcing the award, the Swedish Academy described him as someone ''who, in novels of great emotional force, has uncovered the abyss beneath our illusory sense of connection with the world.'' Ono, in ''An Artist,'' or Stevens, the English butler who narrates ''The Remains of the Day,'' which was awarded the 1989 Booker Prize, are men who have ever but slenderly known themselves. Only late in life does Stevens recognize the mess he has made of things, freezing out the woman he loves and throwing away his best years -- the period between the two world wars -- in service to a Nazi-sympathizing master. Ishiguro was laden with prizes long before the call from Stockholm came through, but acclaim has never stopped him from asking the questions that troubled him on the march in 1983: What if I'm wrong? What if I'm making a terrible mistake? On the evening of Dec. 7, 2017, he confessed to the audience who gathered to hear his Nobel lecture that he'd begun to wonder whether he'd built his house of fiction on sand. ''I woke up recently to the realization I'd been living for some years in a bubble,'' he said from behind the gilt-inlaid lectern. ''I realized that my world -- a civilized, stimulating place filled with ironic, liberal-minded people -- was in fact much smaller than I'd ever imagined.'' The raucous discontent that Brexit and the rise of Donald Trump were laying bare had forced him to acknowledge a disturbing reality. ''The unstoppable advance of liberal-humanist values I'd taken for granted since childhood,'' he said, ''may have been an illusion.'' Ishiguro's new book, ''Klara and the Sun,'' his first since the Nobel, picks up more or less where his acceptance speech left off. The novel is set in a near-future America, where the social divisions of the present have only widened and liberal-humanist values appear to be in terminal retreat. Appropriately enough, our window onto this world is not a human being but an animatronic robot powered by artificial intelligence. Its name is Klara -- or should that be ''her'' name? On this choice of pronoun hinges the moral burden of Ishiguro's tale. The book addresses itself to an urgent but neglected set of questions arising from a paradigm shift in human self-conception. If it one day becomes possible to replicate consciousness in a machine, will it still make sense to speak of an irreducible self, or will our ideas about our own exceptionalism go the way of the transistor radio? Unlike his ill-at-ease narrators, Ishiguro is a droll, self-deprecating presence, secure in his gift and the uses he has put it to. ''If it wasn't for my screenplay, I think it would have been a pretty good film,'' he told me recently. He was speaking of ''The White Countess'' (2005), an all-around flop on which he joined forces with James Ivory and Ismail Merchant. (The duo had better luck with ''The Remains of the Day,'' a nominee for Best Picture at the 1994 Academy Awards.) Perhaps modesty comes easier when everyone is telling you how remarkable you are -- he seems to average around a prize a year -- but there is something about Ishiguro, a sort of twinkling poise, that makes you feel that he would be the way he is in any simulation of his life. ''He's very at peace with himself,'' Robert McCrum, a longtime friend and former editor, said. ''There's no darkness in him. Or if there is, I haven't seen it.'' As a man is, so he writes, and Ishiguro's sentences have nothing to prove. In the hands of some of his contemporaries -- Martin Amis, say, or Salman Rushdie -- the novel can sometimes feel like a vehicle for talent; high-burnish prose comes at the reader in a blaze of virtuosity, but the aesthetic whole isn't always equal to the sum of its parts. Ishiguro, a practitioner of self-effacing craft, takes a contrary approach. At first glance, his books can appear ordinary. ''It seems increasingly likely that I really will undertake the expedition that has been preoccupying my imagination now for some days'' is the far from dazzling first sentence of ''The Remains of the Day.'' The real action happens between the lines, or behind them, as when Stevens justifies his taste for sentimental romance novels on the grounds that they provide ''an extremely efficient way to maintain and develop one's command of the English language.'' That they might also provide a dose of wish-fulfillment to a disconsolate, middle-aged bachelor is something we are left to infer for ourselves. It is not for nothing that Ishiguro has named Charlotte Brontë as the novelist who has influenced him most. From ''Jane Eyre,'' he learned how to write first-person narrators who hide their feelings from themselves but are transparent to other people. Rereading the book a few years ago, he kept coming across episodes and thinking, Oh, my goodness, I just ripped that off! Ishiguro's latest novel continues this tradition of beneficent theft. Klara, an A.F., or Artificial Friend, is a sort of mechanical governess in search of a post. We first meet her (we'll go with ''her'' for now) in a storefront window, where she is desperately hoping to catch the eye of a would-be owner. Meanwhile she has to content herself with the spectacle of street life, and one pleasure of the book's opening section comes from watching Klara's newly awakened synthetic consciousness expand in real time. First she gets to grips with things like physical space, color and light (A.F.'s run on solar power), but before long she is wrapping her head around more abstruse realities, like the rigid caste system that defines the society of which she is at once a product and a witness. ''It feels more fragile today than it ever has done in the time since I've been conscious,'' Ishiguro said of liberal democracy. He was speaking to me over Zoom from his home in Golders Green in North London. From where I sat, in Los Angeles, liberal democracy didn't look too sturdy either. It was mid-November, two weeks after the presidential election had finally been called for Joe Biden, but Donald Trump and his supporters continued to resist this reality. In his late teens and early 20s, when he was trying to make it as a singer-songwriter, Ishiguro had shoulder-length hair and a bandit-style mustache and went around in torn jeans and colorful shirts. These days the facial hair and flowing locks are gone, and he dresses exclusively in black. (''He hates shopping, but he wants to look cool, so at one point he just bought a thousand black T-shirts,'' his daughter, Naomi, told me.) He didn't look uncool this evening, hunched in front of the monitor in his sable shirt and rimless glasses. To his right was a bookshelf lined with Penguin Classics, to his left (as he obligingly revealed when I asked him for a brief tour), a spare bed crowded with stuffed animals. Ishiguro likes to compare his generation, born at the start of the postwar era, to Buster Keaton's character in ''Steamboat Bill Jr.,'' who, in the famous scene, is standing in front of a house when its facade collapses on top of him. He's saved by an open upstairs window, which falls clean over his oblivious figure. ''We don't realize what a narrow miss we had,'' Ishiguro said in his measured, unemphatic voice. ''If we'd been born just a little bit earlier we would have gone through the war, the Holocaust -- all that savagery.'' Instead they inherited a world of unparalleled material comfort and reached maturity at the zenith of the sexual revolution. ''For my daughter's generation, I don't feel things are so secure,'' he said. ''In the West, since the end of the Cold War, we've allowed massive inequalities to develop, which are leading substantial numbers of people to think, Well, maybe this isn't for us.'' Another facet of the story, as Ishiguro sees it, is the rise of ever more sophisticated technology. In ''Klara,'' the widespread adoption of artificial intelligence has created a permanently jobless class, which in turn has led to mass unrest and top-down repression. Most contemporary A.I. stories, even very good ones, like Alex Garland's ''Ex Machina'' (2014) or Ian McEwan's ''Machines Like Me'' (2019), play on the age-old fear that a slave class of robots will rise up and overthrow their human masters. Ishiguro's vision is at once more pragmatic and more bleak. Klara and her kind don't revolt; they simply allow governments and corporations to control people more efficiently. On a philosophical plane, artificial intelligence is also putting pressure on traditional notions of human singularity. As one character in ''Klara'' phrases it, the idea that ''there's something unreachable inside each of us'' that makes us who we are is an illusion: Human beings are simply the sum total of a series of biochemical processes. ''One of the assumptions we have in liberal democracies is that human beings are intrinsically of value, that they have a value that is not conditional on what they can contribute to the larger society or to the economy or to some sort of common project,'' Ishiguro said. ''If it starts to look like we can be reduced to the point where we're just a bunch of algorithms, I think that seriously erodes the idea that each person is unique and therefore worthy of respect and care regardless of what they can or can't contribute to our joint enterprise.'' Of course, Ishiguro is a novelist, not a philosopher, and the power of his book derives from its ability to make palpable the human stakes of such abstract propositions. These stakes begin to emerge when Klara is picked out from among the other A.F.'s at the store by a young teenager named Josie, who is suffering from an obscure illness. At first, Josie's family, rather like the reader, is unsure how to relate to Klara: She seems to them something in between an au pair and a household appliance. Ishiguro wrings plenty of pathos from these conflicting attitudes. One moment, much to Klara's delight, Josie is confiding in her A.F. as though she were a sibling; the next, she's brusquely ordering her to leave the room. For long stretches, Klara simply stands uncomplainingly in a corner, waiting until she can be of service. Great stylists, like Amis, reinvigorate our perception of the physical world by defamiliarizing it, describing, for example, the steam that rises from the grates in New York City sidewalks as ''meat-eating genies of subway breath.'' Ishiguro does both less and more: Using fairly simple sentences, he defamiliarizes the human condition. Time and again in his work, what looks like the face of an alien creature contorted with pain turns out to be a mirror. ''Never Let Me Go'' (2005), which the critic James Wood has described as ''one of the central novels of our age,'' is narrated by a clone named Kathy H. As a young person, Kathy attended a prestigious English boarding school called Hailsham, where she and others like her were given a solid education in the liberal arts while also being gradually apprised of their true social role: to serve as organ donors for the noncloned population. This involuntary process begins shortly after graduation and ends only when the donors ''complete'' (i.e., die), which usually occurs sometime in their early 30s. Kathy knows what's coming, and yet she tells her story, and seems to accept her fate, without self-pity or alarm. There is almost a quality of stoic good humor to the way she describes it all, as though state-sanctioned organ theft were just another one of life's minor irritations, like tax returns or parking tickets. ''Why aren't they screaming?'' the reader wonders of these death-camp inmates. Their situation seems nightmarish, a sadistically abbreviated travesty of life -- until we realize it differs from our own only in the particulars. Sooner or later we are all going to the inevitable. As a narrator, Klara functions in much the same way. Josie's growing emotional investment in her new A.F. mirrors that of the reader, and as the book wears on, the cleft between ''it'' and ''she'' begins to narrow. Whether it can, or ever should, be closed altogether is a question left provocatively open, and yet there is no mistaking the similarities between Klara's experience -- that of someone performing onerous affective labor in an ever more precarious job market -- and our own. ''You can get the reader with their defenses down,'' Ishiguro said of his preference for seemingly outré narrators, ''so that suddenly they realize this person they've been reading about isn't so alien. I want them to realize: 'This is us. This is me.''' Like ''Guernica'' or ''Chernobyl,'' the word ''Nagasaki'' has come to stand less for the name of an actual place than a totemic feat of human destruction. For the young Ishiguro, however, it was simply his hometown. By the time he was born there, in 1954, the city had been largely rebuilt, and no one talked about the war. He spent his early years in a three-generation home with tatami mats and shoji paper doors, the kind of place the director Yasujiro Ozu was already using in his films to symbolize a disappearing way of life. There was no washing machine and no TV. To watch his favorite program, ''The Lone Ranger,'' Ishiguro had to go to his friend's house next door. Ishiguro's father, Shizuo, was an oceanographer whose work on storm surges caught the interest of the British government. In 1960, he moved his young family to Guildford, a small market town an hour's drive from London, to take up a short-term research job. Like Nagasaki, Guildford was a place of long-established custom. The narrow winding lanes were often clogged with cows; milk was still delivered by horse and cart. When the Ishiguros arrived, at Eastertime, they were struck by the gruesome images they kept seeing around town: a man nailed to a cross with blood spilling from his sides. Everyone there was white, and even continental Europeans were a rarity, and yet the new arrivals were warmly received. Ishiguro picked up the language quickly, and at school he learned to turn his foreignness to his advantage, putting it about, for instance, that he was an expert in judo. He also started going to church, where he became the head choir boy. His family believed it was important to respect local ways, however odd they might appear. The move to England was only ever supposed to be temporary, and yet each year funding for Shizuo's research would be extended and the return to Japan postponed. Growing up between two cultures, Ish, as everyone now called him, absorbed his immediate surroundings with an almost ethnographic detachment while simultaneously constructing a myth-laden image of the faraway homeland he left when he was 5. From his mother, Shizuko, a former schoolteacher, came haunting images of life during wartime: a man whose skin had been entirely burned off by the atomic blast being kept alive inside a tub of water; a cow's head, the rest of its body nowhere in sight, glimpsed from the window of a passing train. The parcels of comics and books that arrived regularly from his grandparents painted a more appealing picture of the country. To be Japanese was for Ishiguro a private source of confidence, but the more firmly rooted in England he grew, the harder it got to imagine going back. It came as a relief, when, in the late 1960s, his parents decided to stay for good. Unlike many future novelists, Ishiguro didn't spend his teenage years inhaling the canon. He spent them listening to music and making music of his own. In 1968, he bought his first Bob Dylan album, ''John Wesley Harding,'' and worked backward from there. He and his friends would sit around for hours nodding along to Dylan's obscure lyrics as though they understood every word. It was like a microcosm of adolescence, he told me, pretending to know while knowing nothing. Ishiguro wasn't just bluffing, though. From Dylan, as well as Leonard Cohen and Joni Mitchell, he learned about the possibilities of the first-person: how a character could be summoned into being with just a few words. Ishiguro's daughter, Naomi, who is about to publish her first novel, ''Common Ground,'' told me that she doesn't recognize her father in any of his characters. Then she corrected herself: Ono's impish grandson in ''An Artist of the Floating World,'' whose obsession with ''Popeye'' and ''The Lone Ranger'' is an index of nascent American cultural hegemony, was probably a version of Ishiguro at the same age. Here the likenesses ceased, however. ''Some people have their art blender turned down very low, so you can see where everything came from, and some people have it turned up very high, so you have no idea,'' Naomi said, borrowing a concept from the singer-songwriter Amanda Palmer. Ishiguro's art blender is turned up to 10. Like Colson Whitehead or Hilary Mantel, he has found it easier to be revealing about people who are dissimilar to himself. It's nonetheless tempting to draw a connection between Ishiguro's piecemeal experience of immigration as a child and the outsider narrators he would later dream up. Stevens, in ''The Remains of the Day,'' is the consummate English butler, but as his new American boss points out, he has spent so long confined to stately houses that he has hardly had the chance to really see England. On the road trip he takes through the West Country at his employer's suggestion, he is like a hapless foreign tourist, getting lost, running out of gas and poignantly failing to understand the natives. In fact, it's not so much the English who baffle Stevens as human beings in general. Watching the sunset from a seaside pier at the end of the book, he observes with interest a group of people that has gathered nearby: I naturally assumed at first that they were a group of friends out together for the evening. But as I listened to their exchanges, it became apparent they were strangers who had just happened upon one another here on this spot behind me. Evidently, they had all paused a moment for the lights coming on, and then proceeded to fall into conversation with one another. As I watch them now, they are laughing together merrily. It is curious how people can build such warmth among themselves so swiftly. Like Klara gazing at the crowds from the storefront window, Stevens might be watching the Aurora Borealis, such is his amazement at the sight of this commonplace event. Before studying English and philosophy at the University of Kent, Ishiguro hitchhiked around America and worked a series of jobs back home, including as a grouse beater for the Queen Mother at Balmoral Castle in Scotland. Starting a mile or so behind the trenches, or butts, where the Queen Mother and her guests sat waiting with their guns, the beaters would trudge through the moorland heather, driving the birds forward into shooting range. At the end of the season there was a drinks party for the beaters hosted by Her Majesty. Ishiguro was struck by her graciousness, especially the manner by which she let them know it was time to leave: Despite the late hour, she didn't turn the lights on. ''Oh, it's getting very dark,'' she murmured as the sun began to set, before inviting her guests to inspect a series of paintings, which just happened to line the corridor to the exit. If the experience offered him a useful glimpse behind the scenes of a grand old country house, the job he took after graduating, at an organization in West London that helped homeless people find housing, taught him something about life at the other end of the social spectrum. While he was working there, he met Lorna MacDougall, a social worker from Glasgow whom he would later marry. MacDougall is Ishiguro's first and most important reader, and her comments can be unsparing. After reading the first 80 pages of his previous novel, ''The Buried Giant'' (2015), a historical fantasy set in Dark Ages Britain, she told him that the ornate dialogue simply wasn't working and that he needed to start again. Ishiguro did as she suggested. He has always been receptive to feedback. In 1979, Ishiguro applied and was accepted to study creative writing at the University of East Anglia. One of his oldest friends, Jim Green, who was getting a master's degree in literature, remembers Ishiguro's response to the weekly reading for a seminar on the 19th-century novel. ''What struck me was the way in which he would talk about Stendhal or Dickens or Eliot or Balzac as though they were fellow craftsmen,'' Green said. ''There was no hint of hubris or grandiosity, but he treated them like they were colleagues of his from the creative-writing course who were showing him their work. It was: 'Ah, OK, that's why that's happened, this is how this is done. Hmm, not sure that bit works.''' Ishiguro's first novel, ''A Pale View of Hills,'' which he began at the University of East Anglia, is largely set in a Japan of the mind, an imaginary counterfeit of the place he left when he was 5 and had never yet returned to. Like almost everything he would go on to write, it is a monologue of anxious self-justification in which the speaker keeps claiming she feels no need to justify herself. Etsuko is a middle-aged Japanese woman living in England whose daughter has recently committed suicide. At the start, the reader is primed to expect some kind of reckoning over this tragedy; instead, Etsuko proceeds to talk about a woman she knew many years ago in Nagasaki and that woman's obstreperous daughter. Only gradually do we come to suspect an act of narrative transference is taking place, that Etsuko, numbed by grief, is displacing her unmanageable feelings about her own daughter onto these figures from her past. It is the kind of novel that might have earned the label ''experimental'' were it not for the fact that the experiment is so clearly a success. The book was published to general acclaim in 1982 when Ishiguro was still only 27. The following spring, Granta magazine named him on its list of Best Young British Novelists, along with Salman Rushdie, Martin Amis and Ian McEwan. The recognition from Granta made him bold; he decided to quit his job and devote himself full time to literature. Ishiguro is not the kind of writer who takes dictation from his characters. He has never been able to sit down at his desk and improvise, to launch into a novel from a standing start. He is a planner, patient and meticulous. Before he begins the writing proper, he will spend years in a sort of open-ended conversation with himself, jotting down ideas about tone, setting, point of view, motivation, the ins and outs of the world he is trying to build. ''Kathy's self-deception isn't about what happened in the past (like Ono, Stevens, etc.), it's about what's going to happen,'' he wrote in one of his notebooks for ''Never Let Me Go'' in early 2001, clarifying for himself the psychological profile of his narrator. ''Is it better not to have them in a prisonlike environment?'' he wondered of the clones a couple days later. ''Should they live in a wider community? Is there some other way in which they're contained, tagged and made to fulfill their duties? Maybe not: a prison they don't realize is a prison is the best.'' Only once he has drawn up detailed blueprints for the entire novel does he set about the business of composing actual sentences and paragraphs. In this, too, he follows a set of carefully honed procedures. First, writing very quickly and without pausing to make revisions, he'll draft a chapter in longhand. He then reads it through, dividing the text into numbered sections. On a new sheet of paper he now produces a sort of map of what he has just written, summarizing in short bullet points each of the numbered sections from the draft. The idea is to understand what the different sections are doing, how they relate to one another and whether they require adjustment or elaboration. Working from this sheet, he then produces a flow chart, which in turn serves as the basis for a second, more painstaking and deliberate draft. When this is finished to his satisfaction he finally types it up. Then he moves on to the next chapter and the process starts again. By his own account, Ishiguro's relationship to work is decidedly nonobsessive. Some writers do and think of little else; he can go for years at a time without writing anything, and it doesn't gnaw away at him. ''Klara and the Sun'' is only his eighth novel. For comparison, the figures for his near-contemporaries on the Granta list, Rushdie, Amis and McEwan, are 12, 15 and 16. When he's between projects, he's content to pass the days lunching with friends or playing his guitar. (Since the mid-2000s he has been writing lyrics for the celebrated American jazz singer Stacey Kent.) ''You probably work harder at your job than I do,'' Ishiguro said one evening in early December. He was sitting at a desk on the landing of his second home, a 17th-century limestone cottage in rural Gloucestershire, where he and MacDougall often spend weekends. During the pandemic, they had fallen into a postprandial routine. Sitting at the kitchen table, MacDougall would read aloud from an anthology of classic British crime stories, ''Serpents in Eden,'' while Ishiguro paced the dining area, as he put it, ''like a caged cat.'' ''What distinguishes the detectives,'' Ishiguro, who wore a black hoodie over a black T-shirt, said, ''is that they have this weird, arcane knowledge of things like old English tapestries or Greek myths or something like that. And often that's what allows them to crack the code.'' Speaking of his comparatively small output, Ishiguro said: ''I don't have any regrets about it. In some ways, I suppose, I'm just not that dedicated to my vocation. I expect it's because writing wasn't my first choice of profession. It's almost something I fell back on because I couldn't make it as a singer-songwriter. It's not something I've wanted to do every minute of my life. It's what I was permitted to do. So, you know, I do it when I really want to do it, but otherwise I don't.'' When he does want to do it, he is capable of going flat out. He produced a first draft of ''The Remains of the Day'' in a four-week ''crash,'' during which he wrote from morning until night, stopping only for meals. The practice served him well at the time -- he and MacDougall needed the money a new advance would bring -- but Ishiguro's crashing days are now firmly behind him. He has grown suspicious of the modern office and its imperative to be constantly on call. ''The way our capitalist society is organized, it accommodates the workplace as a kind of alibi,'' he said. ''If you're trying to avoid difficult areas in your emotional life, you can just say, 'Sorry, I've got too much work on right now.' We're invited to disappear into our professional commitments.'' Ishiguro came of age as a writer in the early 1980s, when market fundamentalism was sweeping Britain and the West, a development that caught him entirely off guard. ''I never wanted revolution,'' he said of his younger self. ''But I did believe we could progress towards a more socialist world, a more generous welfare state. I went a long way into my adult life believing that was the consensus. When I was 24 or 25, I realized that Britain had taken a very different turn with the coming of Margaret Thatcher.'' Although his books never explicitly address Thatcher's neoliberal project, they reflect its dismaying human consequences. For Ishiguro's characters, not working is not an option, or even a proclivity. Stevens is so devoted to his duty as a butler that he leaves his father's deathbed in order to go wait on the guests downstairs. Klara, a sort of Stevens 2.0, doesn't need to sleep or eat and lacks even the semblance of a private life. When Ishiguro told the audience at his Nobel lecture that he'd always taken the unstoppable advance of humanist values for granted, he may have been exercising a certain degree of modesty. In fact, the defects of our current liberal order, and the selective blindness of its beneficiaries, come under scrutiny in his work. In ''Never Let Me Go,'' the clones hold up a mirror to the reader (like them, we are all dead in the long run), but so, too, do the noncloned characters, the ordinary human beings who accept with equanimity the wholesale slaughter of their fabricated counterparts. How could this be? At one time, we learn, there was a public outcry after news of the appalling conditions in which clones were reared got out, but because no one was willing to return to a world without an endless supply of organs -- a world where cancer and heart disease remained incurable -- discussions of systemic change came to nothing. Instead Hailsham, the progressive boarding school, was founded, an incremental half measure that allowed people to ventilate their guilt without substantially changing the status quo. Clones would still be bred for death, but a few of them were now given the chance to read poetry and make art in a pleasant rural setting before the time came to go under the knife. You don't have to be a Marxist revolutionary to see the parallels between Ishiguro's novel and our own socio-economic dispensation. Over the past year, an army of underpaid workers in retail, health care and other industries, many of them living paycheck to paycheck, have faced a daily choice between putting food on the table and exposing themselves to a deadly

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(BEGIN VIDEO CLIP) UNIDENTIFIED MALE: We have lift off. (END VIDEO CLIP) ZAKARIA: -- the astronauts of Apollo 11 walked on the moon. Today, we carry around in our pockets devices with more computing power than that spacecraft. All these were big ideas, ideas that at one point in time seemed impossible. In this special hour of GPS, we're going to focus on the next big ideas that will disrupt and probably improve our lives. ZAKARIA: Have you ever dreamt of a flying car? Well Sebastian Thrun, the former leader of Google's self-driving car team and the CEO of a company aptly called Kitty Hawk, tells me it may be possible and sooner than we think. (BEGIN VIDEO CLIP) SEBASTIAN THRUN, CEO, KITTY HAWK: Why don't we just fly? The sky is empty, the sky is so ample, it's so big. (END VIDEO CLIP) ZAKARIA: Do you have what it takes to be the next Steve Jobs? I'll talked to Walter Isaacson, the biographer of Albert Einstein, Steve Jobs, Benjamin Franklin, and now Leonardo da Vinci about what makes a genius. (BEGIN VIDEO CLIP) WALTER ISAACSON, BIOGRAPHER OF ALBERT EINSTEIN: Curiosity, a just absolutely random, absolutely playful and passionate curiosity is something that connects Ben Franklin, Steve Jobs, Leonardo da Vinci. And the cool thing about it is you and I can do that. (END VIDEO CLIP) ZAKARIA: And one out of nine people are hungry on the planet but the world waste one-third of all its food. Blue Hill Chef Dan Barber will talk to me about ideas to solve this global tragedy. (BEGIN VIDEO CLIP) DAN BARBER, CHEF, BLUE HILL: It's about the utilization on every part of the plant, every part of the farm. (END VIDEO CLIP) ZAKARIA: Plus, as artificial intelligence gets more advanced, many people worry that robots and automation will displace their jobs. I'll sit down with two MIT scholars who discuss using AI, artificial intelligence, to enhance human work. (BEGIN VIDEO CLIP) ANDREW MCAFFEE, CO-DIRECTOR, MIT INITIATIVE ON THE DIGITAL ECONOMY: If we can bring minds and machines together intelligently, we can cancel out each other's mistakes instead of doubling down on them. (END VIDEO CLIP) ZAKARIA: And finally, the neuroscientist, Lisa Genova talks to me about a threat many of us will face. The author of the book the Academy Award-winning film Still Alice is based on would tell us what we can all do to stave off Alzheimer's. (BEGIN VIDEO CLIP) LISA GENOVA, NEUROSCIENTIST AND AUTHOR, STILL ALICE: There's been a lot of research to show that there are lifestyle changes that we can make that help actually prevent the biological advancement of the disease. (END VIDEO CLIP) ZAKARIA: All this coming up in the special hour of GPS: The Next Big Idea. And let's get started. (VIDEO CLIPS) (BEGIN VIDEO CLIP) UNIDENTIFIED MALE: Roads? Where we're going, we don't need roads. (END VIDEO CLIP) ZAKARIA: From the DeLorean to the Jetsons, from Chitty Chitty Bang Bang to Harry Potter, flying cars have made appearances on big and small screens for decades. Clearly the stuff of cinematic magic, the reality of personal flying vehicles has always seemed light years away. Well, not if my guest has anything to say about it. Sebastian Thrun is an adjunct professor at Stanford University, he specializes in robotics, artificial intelligence, and education among many other things. He founded Google's Moonshot Factory called Google X as well Udacity, a company dedicated to bring tech education online. He led Google's self-driving car team and he has been called the father of the self-driving car. Now, he has set his sights on the skies. He is the CEO of Kitty Hawk, a company working toward revolutionizing transportation by making the dream of personal flying vehicles a reality. Welcome Sebastian. THRUN: Fareed, good seeing you. ZAKARIA: Why are you doing this? What was the -- is there an origin story here? THRUN: I have always wondered if you can make transportation safer, and self-driving cars is a tragic story of a good friend of mine who died in a traffic accident. And at some point, it dawned on, me if you stay on the ground, if you keep using roads, and bridges, and tunnels we won't get rid of congestion. We're going to have an increasing number of wait times in traffic. And then I asked myself, why don't we just fly, the sky is empty, the sky is so ample, it's so big, why can't we invent (flyers)? Why can't we take our car and fly to work? ZAKARIA: So Peter Thiel has famously said, "We thought that this technology revolution would get us flying cars and instead all we got was 140 characters." THRUN: And he's wrong. He's wrong. We're working on flying cars. ZAKARIA: You have a video that you haven't' shared with the public yet and it looks like a helicopter, it takes off vertically, transitions to a horizontal plane, then lands vertically. And you feel like you've achieved a test flight with this vehicle, right? How far along are you? THRUN: Yes. We've been working with this, with NASA and with a professor at Stanford named (Aydan Crow) for about six to seven years. And around 2013 we started flying our first electric aircraft and the video that we showed and transition we did where it flew vertically and then transitioned to about 60 miles per hour horizontally and then safely landed again. Since, we've made a lot of progress. ZAKARIA: So when I think about this, I'm also thinking, "My God, there's going to be chaos up there." You're going to have these drones with humans in them and they're going to bump into each other, there'll be traffic in the sky just there is here, except it's dangerous because if somebody bumps into the other, they're going to crash and die. THRUN: I agree that there's an issue about how to de-conflict flying vehicles if all of us use them every day to and from work. But there's much more space in the sky than on the ground. And having worked on self driving cars, I can tell you, there's lots of stuff that you can hit on the ground that doesn't exist in the air. Let's put it this way, in the ground say you have two roads and they're at a right angle and people drive this way and drive this way, to de-conflict cars, we put in things like stop signs and traffic lights to make sure that you don't bump into each other. In the air what you do is you led these guys go 100 feet higher than these guys and all of a sudden they can just fly both at the direction they wish. By having this third dimension, by having the altitude, you get so much more space that the de-conflicting issue becomes much easier in the air than on the ground. ZAKARIA: And so you use this for short trips, you're able to do it but, again, I'm thinking that means lots of people are grocery shopping at the same time, but you look at a city like New York, a city like Chicago, a city like Beijing and you still think everyone can go grocery shopping in the sky? THRUN: If I talk to my friends in New York that cross the Lincoln Tunnel every day, I think there's a real pain point here. If you were to cross Lincoln Tunnel in the sky, it would take two or three minutes, okay? But it is a vision. I mean in New York in particular between 1900 where almost all transportation was horse-based and 1930 where almost all transportation was car-based, it took 30 years to implement this vision. That doesn't mean we're wrong, it just means it's going to take some time. We have to work on technology, we have to work out the regulations and air space management. But on the logical base, I think we will transition from a society that is ground-based, where all transportation is ground to one where even short trips will eventually be in the sky. ZAKARIA: What's the cost? THRUN: It's actually -- we haven't set a price for our vehicle yet, but if you work it out, a flying car shouldn't cost more than a regular car. ZAKARIA: Wow. And are there any kind of implications here, crime, terrorism? I'm wondering that this is a pretty powerful vehicle in some sense and that it can go anywhere. THRUN: Look, the way I look at this is almost anything you can buy can be used in a bad way, even the kitchen knife can be used in a bad way. We're working very hard to making this a very safe technology and we believe very firmly that a flight vehicle should and must be safer than a ground vehicle. ZAKARIA: You have another vehicle called the Flyer, what is that? THRUN: It's very small, it's the smallest vehicle we've built. And it's there as a personal fun vehicle, we fly over water bodies and so on and it enables people to learn how to fly in five minutes and take to the skies. ZAKARIA: So it's like a sports car? THRUN: It's like a sports car for water, but it really gets the experience of flight to everybody. I mean flying is every boy's and every girl's dream. And now we get this infinite freedom to take to the skies. It's actually easier to learn how to fly our vehicle or Flyer than it is to learn to ride a bicycle. ZAKARIA: Why is that? THRUN: Because we use computers. We use computers to do all the hard stuff that you don't want to care about as a human pilot and then it gives you a joystick, there's a forward, and backward, left and right. And it's actually really fun -- it's the funnest thing I've ever done because flying is everyone's dream, it's very boy's and every girl's dream. You can this infinite freedom all of a sudden go to the skies, it's a transformative experience. ZAKARIA: Sebastian Thrun, pleasure to have you on. THRUN: Fareed, pleasure. ZAKARIA: Next on GPS, what does playing the violin have to do with theoretical physics? I sit down with Walter Isaacson to discuss the birth of innovation and what makes a genius. ZAKARIA: Thomas Edison said genius is one percent inspiration and ninety-nine percent perspiration. Is that really the case? (BEGIN VIDEO CLIP) UNIDENTIFIED MALE: This is how you turn it on. (END VIDEO CLIP) ZAKARIA: It's hard work how Steve Jobs transformed our world with the iPhone. Was it Albert Einstein's perspiration that helped him figure out some relatively tricky physics and what was it exactly about Leonardo da Vinci that motivated him to dissect human bodies, invent a flying machine, and paint a knowing smile on the Mona Lisa? What makes a genius? At the Aston Institute, I sat down with Walter Isaacson, biographer of all these men and more to answer that question. ZAKARIA: Walter, pleasure to have you on. ISAACSON: It's great -- this show of one of my favorites too every year. So thanks for having me. ZAKARIA: You've studied da Vinci now. Before that Ben Franklin, Albert Einstein, Steve Jobs, some people would regard Henry Kissinger also as a highly innovative person. Is there a common feature? If somebody comes to you and says, "So what makes somebody innovative at that really kind of world historical level?" ISAACSON: You know, especially with Steve Jobs, Ben Franklin, and even Einstein. You look around and they love to cross discipline. They love the humanities and the sciences. And Leonardo da Vinci is sort of about the ultimate in that. Somebody who wasn't just smart but has a playful curiosity about everything there was to know. And just like Steve Jobs loved design and loved calligraphy but he also loved electronics, I think innovation comes from crossing discipline. ZAKARIA: There's a story that Einstein tells that when he would get stuck on a physics problem sometimes he'd stop, he'd go and play the violin and he come back and there are now people who said that you actually exercising different parts of the brain when you do that and that that produces precisely the literal cross fertilization you've studied. ISAACSON: When he was trying to get general relativity and those, all those years in 1912, 1913, he's living in Berlin and he gets on - he'd play Mozart on his violin and he'd say, "That reconnects me to the harmony of the universe." And it was that ability to feel the harmonies of music and the harmonies of nature's laws that is the exemplar of what we've been talking about. ZAKARIA: Is there a difference between the kind of genius that an Albert Einstein has and the inventiveness of a Ben Franklin? Because I think a lot of people will say to themselves, "Look, I'm never going to be Einstein." But I wonder what is that made Ben Franklin be able to invent bifocals? Where is it that made him look at the lightning and say, "Hey, I wonder if there's some way to conduct that? ISAACSON: It's a great question because Einstein had a mental processing power that we will never come close to. We cannot aspire to be Einstein. But Benjamin Franklin, like Leonardo da Vinci and like Steve Jobs weren't necessarily the smartest in terms of just pure mental processing power. But they had a playful curiosity and Franklin would just travel around, he'd see a whirlwind and have to chase it along and he'd come up with a notion to both the Gulf Stream and Northeastern storms. And so curiosity, just absolutely random, absolutely playful and passionate curiosity is something that connects Ben Franklin, Steve Jobs, Leonardo da Vinci, and the cool thing about it is you and I can do that. ZAKARIA: How much does hard work play a role in this? Edison famously said, "Genius is 99 percent perspiration, one percent inspiration." Is that true? ISAACSON: I think you have to work hard but as I look at people, it wasn't hard work that got Benjamin Franklin or Steve Jobs or Leonardo da Vinci where it was -- it was just sort of a continuous curiosity about nature, a passion, a willingness to observe things. So, yes, I think for some people over and over again -- and that's what makes you a very deep in one field type of genius. But what I'm talking about is geniuses that can cross many disciplines and that's got to come from almost having attention deficit disorder, not from just hard persistence. ZAKARIA: What about failure? One of the most famous elements of Steve Jobs' life is that Stanford Commencement Address he gives and he talks about how he basically have to deal with these extraordinary setbacks in his life. He founds the company and he gets fired from it. The company starts doing terribly, then he gets a diagnosis of cancer. When you look at these characters, do you think their ability to deal with failure, with setback is crucial? ISAACSON: Yes. I think resilience is part of just being a driven, optimistic personality. If you want to talk about it with Einstein. I mean when he's doing general relativity in Berlin at that time, you're talking about a huge rise in anti-Semitism. He's got to leave, Kissinger has has to flee in the early 1930s, Germany. So this ability to continue to bounce back, that along with curiosity, imagination, and a willingness to cross disciplines all brings together a sense of genius to me. ZAKARIA: I want to know about your creative process. How do you work? ISAACSON: I tend to write storytelling narratives. If it's going to be Henry Kissinger or Steve Jobs or Leonard da Vinci, it's going to start when they're born and take them through life, because I think people accumulate wisdom as they move on. And something that happens in 1922 affects what's going to happen and what you're going to do in 1923. So when I write, I try to start with the chronology and then step back and say, patterns, themes, and all great innovators, they see patterns and themes and they cross the disciplines and say, "Oh, I get it. That swirl of hair and that curl of hair, they have a certain type of pattern." And I think when you look at a narrative, what's important if you're trying to talk about innovation to say what patterns are emerging? ZAKARIA: And do you think there's a particular, is that an innate skill that people have? Because pattern recognition I think is the hardest thing -- we have so much noise that finding that signal is very hard. ISAACSON: I don't know, it's one of the cool things about it is we would just talk about artificial intelligence, machine learning. That's the thing that machines have the most problems with. So if you can train yourself as a human to be good at pattern recognition, then maybe you'll outrun the artificial intelligence machines gunning for your job. ZAKARIA: On that hopeful note, Walter Isaacson, pleasure to have you on. ISAACSON: Fareed, it's always great. Thank you. ZAKARIA: Up next, waste not, want not. Why one world renowned chef is turning garbage into gourmet cuisine. ZAKARIA: Would you ever throw out a third of the pizza you just ordered? Probably not. How about a third of that hamburger your friend just grilled up? Unlikely. A third of your ice cream cone? Probably never. But believe it or not, about one-third of all the food produced in the world each year for humans is thrown out, more than 1.4 billion tons according to the U.N., that is the weight of about 3.5 million fully-loaded 747s. And Americans are the worst offenders, throwing away almost as much food as they consume according to The Guardian, so what to do? Well my next guest have some ideas and the influence to implement them. Dan Barber is the chef and owner of the highly acclaimed Blue Hill Restaurants in the New York area. One of the Obamas' first date nights as president and first lady was at Blue Hill in Manhattan's Greenwich Village and Blue Hill at Stone Barns has been called the best restaurant in America and one of the best in the world by those who rank these things. ZAKARIA: Dan, pleasure to have you on. BARBER: Thank you. ZAKARIA: So why are we throwing out so much food? BARBER: Well, the American food culture or lack thereof allows us to eat what I call high on the hog, which is to say the middle of the animal, the cuts that we have become not just accustomed to but that we expect, twice a day, seven days a week. And that's an American invention actually and unfortunately we're exporting that to the rest of the world. ZAKARIA: And you say it's actually bad from the point of view of gourmet cuisine, because we're missing out on taste. You said that all great cuisine begins with rejects. Explain what you-- BARBER: Yes. Well I don't think our style of cooking, this six-ounce piece of protein centered on the plate with a smothering of vegetables and grains on the side is actually very delicious in the end. When you look at the great cuisines of the world what you're looking at is off cuts and imagination and creativity and transmutation in creating these delicious -- you think of coq au vin. Well coq au vin is a rooster that tastes like this, but when you braise it in white wine and vegetables, you create one of the great iconic French dishes in that culture in a cuisine. Same with bouillabaisse, that's trash fish that couldn't be sold at the market that the fishermen's wives created as stew for the fishermen at the end of their selling of the fish. This is -- these are all dishes that came out of a culture of being unable to waste food because there wasn't enough produced. America unfortunately has a tradition where there's just abundance everywhere you look and unfortunately the food culture that's arisen out of there has suffered because of that. ZAKARIA: So you have a solution and you call it "WastED" as in waste education, explain. BARBER: Right. Well we turned the Blue Hill New York City, my restaurant in the West Village, into a restaurant devoted to food waste. So we created a menu around dishes that were a hundred percent headed for the trash. And it was a little bit of provocative work there. We had dishes like dumpster dive salad and we had a dish we called dog food. That was a little bit to ignite some interest and some provocation. But a lot of it was really to look at what we can utilize that we otherwise don't covet. And part of the responsibility of a chef and a restaurant one could say is to spark that kind of interest, that conversation. Now the food waste issue too much I think concentrates on ugly fruits and vegetables, the kinds of things that we reject at the supermarket, the expired dairy. They're low hanging fruit really when you look at the global food system and you look at diets, I mean look at the American diet and you look at things like you mentioned at the beginning of this piece, the pizzas and the hamburgers. Well, 90 million acres of corn and soy rotations take up a big percentage of the grains that are produced in this country, 90 million acres of corn and soy. Well, we don't eat any of the corn and soy, we feed the corn and soy to chickens and we feed them to cows, and that's an inefficient system which is a wasteful system. ZAKARIA: I have to ask you, you had all these fancy diners coming to your restaurants and you would give them -- serve them essentially garbage on fancy plates, did they -- how did they react? BARBER: Well, yes, there was a -- actually there were lines out the door and I think part of that is the provocation, but part of it is the provocation but part of it is this idea of a restaurant, we think of restaurants as places of escape, and increasingly we ought to be thinking about them I think as places of connection and connection to big ideas and connection to big issues where the culture needs to shift. ZAKARIA: Do you think -- to that point, do you think this is doable, do you think you're going to do -- do you think realistically and one hears about American excess whether it's energy consumption, whether it's food, and there's a tendency to one that is this ever going to change? We are, we have always been a very rich country. BARBER: Yes. ZAKARIA: You think you can get somewhere on this? BARBER: What's promising is that we tend to move quickly with new ideas, with sort of dizzying speed, I think of sushi but I also think of Greek yogurt and I think of kale, I think of quinoa. You think of all of these items that were inconceivable to be popular even five or ten years ago and with American food culture, the change is rapid. That doesn't happen in other cultures for good reason, because they have an entrenched group culture and they have a pattern of eating that actually supports the food tradition and the culture and the landscape. We don't have that here and what's needed for the future I think is to set the stage for how do we think about a pattern of eating that reflects and supports the landscape? And when we do that, we truly support a landscape, we're going to be soaking up a ton of waste and inculcating it into our everyday diets in ways that are pleasurable. And to me the message of food waste is not a wagging of the finger which I tend to do, but instead a pleasure principle, it's really about hedonism, it's about taking these un-coveted and undesired foods and transforming them into something that's delicious. That's what chefs do and which is why I think chefs have a role to play in solving this problem, that 40 percent of our food that's produced is wasted. ZAKARIA: Dan Barber, pleasure to have you on. BARBER: Thank you for Fareed. ZAKARIA: Up next, computers may one day help us fly a car but will they also take all our jobs? Will we be a society on permanent vacation? That's what many scaremongers may warn you. My next guests say, be skeptical. ZAKARIA: The industrial revolution ushered in the first machine age which brought the world the steam engine, radios, cars, and much more. We're now in a second machine age in which technological advances in artificial intelligence are reshaping our world. The fear across America and the world is that this new era will mean massive job losses. But the authors of a new book say it is up to employers to navigate this brave new world using technology to enhance human work, not necessarily replace it. Erik Brynjolfsson and Andrew McAffee direct MIT's initiative on the digital economy. Their new book is called Machine Platform Crowd, Harnessing our Digital Future. Welcome both. Andrew, let me start with you, you don't contest at all that the -- if you think that computers are automating work and basically taking away some jobs, you ain't seen nothing yet. MCAFFEE: Absolutely. And that's a line that Erik and I use a lot, mainly because we're seeing a second surge in computers' capability. In the first surge they got really good at routine work and really lousy at anything that required subtly, nuance, pattern matching, these deeply human skills, judgment, intuition, things like that. What we see now in this era of artificial intelligence and machine learning is that computers are getting really good at exactly those abilities which until pretty recently we thought were the domain of human beings alone. ZAKARIA: We all know that computers have been able to beat human chess masters, the world chess champion. We know that they've been able to beat the Jeopardy champions and that's even harder because it's kind of a more complicated way of thinking. Why is it so important that the computer has now been able to beat the world's Go champion, Go being the Chinese game that many people regard as being almost impossible? MCAFFEE: Yes, Go has been completely different and computers have been laughably bad at it up until just a couple years ago. And there are two main reasons, one is that there's so many possible Go moves that you can't simulate your way to victory. There are more possible Go moves than there are atoms in the universe. Now, in the old world of computing, if nobody could explain how to do something, you could not embed that in software. What's crazy to Erik and me and lots of other people is that that's no longer an impediment to automation. ZAKARIA: And that's this new age of artificial intelligence -- MCAFFEE: Exactly. ZAKARIA: -- with neuro-learning where the machine is actually teaching itself. ERIK BRYNJOLFSSON, CO-DIRECTOR, MIT INITIATIVE ON THE DIGITAL ECONOMY: This is probably the most important thing to understand about the current wave of artificial intelligence, and it's really machine learning because instead of us be giving instructions step-by-step of what the machine to do, we give the machine examples. This is a success, this is a failure, this is the word yes, this is the word no, this is a picture of a dog, this is a picture of a cat, cancer, not cancer. You go -- MCAFFEE: Go victory, not Go victory. BRYNJOLFSSON: If you give enough examples, they can learn. ZAKARIA: So give me a sense of some of the kinds of jobs that you see as being transformed if not replaced. BRYNJOLFSSON: Right. Well transformed is exactly the right word, because the problem with day today is not a world without work, it's a world of rapidly changing work. And work doing routine, repetitive kinds of tasks, those are getting more and more done. And now, also a lot of pattern matching jobs, some of them quite high paid like pathologists or radiologists are going to be increasingly affected as parts of those jobs can be done by machines. ZAKARIA: I think of lawyers, I mean a lot of work of discovery is basically search function. BRYNJOLFSSON: Yes. At J.P. Morgan there are -- MCAFFEE: Financial advising. BRYNJOLFSSON: -- there are hundreds of thousands of hours that have now been done by machines. I think the best way to think about it is more at the task level than the job level, Andy and I have looked at it and we see that parts of different jobs are being affected. But there's still other parts that may become more important, especially those that involve interacting with other humans, involve creating, even to setting the agenda to finding the problems to go after. MCAFFEE: Erik and I also think that there's a lot of work right there in the middle of the skill ladder and down lower in the skill ladder that's not about to go away. So in the middle, a good old fashioned manager is a job that's easy to make fun of with Dilbert cartoons and easy to think will be swept away by this wave of technology, we don't think so because when you look at what middle managers actually do, they motivate, they persuade, they negotiate, they coordinate. They're kind of the transmission belt of information and ideas in an organization. I have not yet seen the digital middle manager that could bring a team together and lead them in the correct direction and we don't think that's coming tomorrow. ZAKARIA: I still wonder, we have this great problem that we're now all focused on which is what do you do about the guy without the college degree. The person in rural Pennsylvania and Ohio, used to work on a steel plant. Or maybe a truck driver, 50, 55 years old and let's say the self-driving trucks come along, what's their future in this world? BRYNJOLFSSON: Well let's just be real clear, this we think is the biggest challenge for our society in the coming decade. We should not take it lightly. The technology is advancing faster than it did in the past decade. So we need to be much more aggressive about changing the conversation to working with -- to identify the new jobs. And there's a set of things you can do. We need to reinvent education more fundamentally. We need to actually boost entrepreneurship, not because everyone is going to become an entrepreneur but because those are the people in our society that are tasked with inventing new jobs. ZAKARIA: Right. Well, how do companies best integrate this artificial intelligence in a way that supplements human jobs rather than replacing them? MCAFFEE: It's one of the big pieces of homework for companies going forward, because if they get the balance between minds and machines wrong, they're going to get out-competed by somebody who gets it right. One of my main takeaways is that we're way too fond of, we're way too confident of human judgment, human intuition. It's not that that stuff is worthless, but the computers are demonstrating that they're actually really, really good at it. So I think in many cases we need to flip the balance around, let the computers take the lead and have the humans double checking, intervening when the computers do something dumb. The good news there is that computers make very different kinds of mistakes than people do. So if we can bring minds and machines together intelligently, we can cancel out each other's mistakes instead of doubling down on them. ZAKARIA: Thank you both. MCAFFEE: It's been a pleasure. BRYNJOLFSSON: Thanks, Fareed. ZAKARIA: Up next, Alzheimer's disease may not be curable but is it possibly preventable? The neuroscientist Lisa Genova whose book Still Alice was turned into a major motion picture joins me to talk about it. ZAKARIA: So far in this hour, you've heard a lot about people's ability to think, to create, to make decisions. But what if those abilities begin to wane? For many of us, they will. While deaths from heart disease have decreased by 11 percent since 2000, deaths from Alzheimer's have increased by 123 percent. In fact, one in three seniors dies with Alzheimer's or another form of dementia according to the Alzheimer's Association. The numbers are astonishing. It is a disease for which there is no cure. But my next guest says it does not have to be our brain's destiny. That we can and should do certain things that can help stave it off, whatever our age. Lisa Genova is a Harvard-trained neuroscientist and a novelist. She's the author of Still Alice upon which the Academy Award-winning film is based. ZAKARIA: Pleasure to have you on. GENOVA: Thank you. ZAKARIA: Just so that a layman can understand, what is Alzheimer's simply? GENOVA: So what happens with Alzheimer's, we think the disease begins with a buildup of a protein called amyloid beta, that's the bad guy that starts this, and this protein is normally released into the synapse which is the space in between two neurons where they connect and communicate. And normally it's cleared away, but for some reasons, it can build up over time and when this happens it sticks to itself and forms plaques. So you may have heard of amyloid plaques. And that's the trigger that then once it builds up to a tipping point will cause a bunch of molecular events in the brain that lead to the death of the neurons. ZAKARIA: But this tipping point is sort of more important than others sometimes. GENOVA: Well, what's interesting about the tipping point is that you can have this -- the disease can be ongoing in your brain without you knowing for 10 to 20 years we think. Before the tipping point, you don't have symptoms of Alzheimer's. Once it hits the tipping point, I liken the accumulation of amyloid plaques as like a lit match and once it hits the tipping point, it sets fire to a forest. ZAKARIA: But as you say, given that it's dormant, what are the ki

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Seven books comb through history, travel to distant planets and imagine our A.I. future. The year's nearly over, and it's hard to remember where it went. Most people I know have complained about memory problems, provoked by difficult times and traumatic events, and compounded by the redactions and distortions of social media. We know we all remember things a little differently, with reality fracturing into competing narratives the further we get from any given occurrence. But when disaster is near-universal and the gulf of disagreement vast, it's easy to question our own recollections as suspect. Here, then, are books full of dueling paradigms, uncertain and chancy remembrance -- with the past looming both as a resource and as a nightmare, and the future at its mercy. Adrian Tchaikovsky is the author of over 20 novels, but somehow ELDER RACE (Tordotcom, 201 pp., paper, $14.99) is the first of his I've read. Lynesse is the worthless youngest daughter of a queen -- an impulsive, too-earnest embarrassment to her family, believing as she does in the legends of sorcerers in their lineage. Nyr, meanwhile, is one such sorcerer -- actually an anthropologist from a starfaring civilization who is separated from his team by decades and light-years, and is keeping himself isolated in suspended animation from the bronze-age locals until rescue arrives. But when a strange affliction somewhere between demon and disease begins plaguing Lynesse's people, she comes knocking at the so-called sorcerer's door to wake him up and claim a favor from him as her birthright. Reading this was pure pleasure. Usually this sort of fantasy-meets-science-fiction story leans hard toward one or the other, allowing that genre's rhetoric to contain and digest its counterpart. But ''Elder Race'' maintains a knife's-edge balance between the two, and Tchaikovsky's attention to language as a marker of genre, and to genre as a kind of translation, is elegant and thoughtful. Chapters alternate between Lynesse and Nyr, each of them struggling to understand the other's default assumptions and paradigms until a breathtaking moment when everything's laid bare between them. Tchaikovsky's prose in both modes is somewhere between smooth river rocks and tooled leather; there's an Ursula Le Guin-like grace to his storytelling, to the shifting of cadences. Everything about this book suggests deliberate care in uniting epic fantasy's immersive world-building with the sharp, dislocating bursts of high-concept science fiction. I've never been so relieved to learn of an author's extensive back catalog. Ten out of 10, no notes. Jeffrey Cranor and Janina Matthewson's YOU FEEL IT JUST BELOW THE RIBS (Harper Perennial, 371 pp., $26.99) embraces genre more straightforwardly, but plays games with form and media. Cranor and Matthewson are the creators of ''Within the Wires,'' a disquieting anthology-style fiction podcast narrated through relaxation cassettes, museum audio guides, and letters and notes dictated to an administrative assistant. ''You Feel It Just Below the Ribs'' is set in the world of their podcast: an alternate 20th century shaped by the Great Reckoning, a decades-long world war ''driven by nationalist identity crises.'' A New Society that strives to be borderless and tribeless emerges, slowly picking away even at subgroups like nuclear families. Presented as a questionable autobiography annotated by the unnamed editors of a potentially seditious small press, ''You Feel It Just Below the Ribs'' mirrors the methodology of ''Within the Wires,'' explicitly reminding the audience of its medium while destabilizing the story through insertions and insinuations of what exists beyond it. The fictional autobiography is of Miriam Gregory, a psychologist who pioneered a technique called the Watercolor Quiet, a blend of meditation and hypnosis designed to treat trauma -- but eventually adopted by the New Society to erase people's memories of strong family attachment. The editors inform us at the outset that Gregory spent the last 20 years of her life in hiding, and warn of her unreliability as a narrator; doing so, of course, calls their own reliability into question. The tension between Gregory's authorship and the editors' authority -- fact-checking her claims, scrutinizing her intentions, casting doubt on her beliefs -- is a subtle, quickening pulse beneath the narrative's skin. The relationship of podcast to novel is a tricky one. On the one hand, the book is perfectly comprehensible as a stand-alone project, and full of moving insight into loss, grief and family; on the other hand, having even a glancing familiarity with the podcast gives moments in the novel more dimension and depth, to the extent that I wonder what I'm missing by not having listened to more than a few episodes. But the podcast also slackens some of the tension between Miriam and her posthumous editors: ''Within the Wires'' listeners will have confirmation of certain key plot elements Gregory's editors disbelieve. While the back-and-forth between Gregory and the footnotes works to unsettle matters in the text, the podcast -- ironically -- settles them. Meanwhile, Gregory's story, on its own merits, is a mixed bag; her early years are characterized by aimless meandering in a world that is largely blank and featureless, and the form of the novel works against the kinds of storytelling that would allow a reader purchase in it. Overall, this is a novel probably best enjoyed by people with no experience of the podcast, or a complete experience of it; as the book itself suggests, half-formed remnants of memory are trouble. Memory and revelation are integral to Freya Marske's debut, A MARVELLOUS LIGHT (Tordotcom, 375 pp., $27.99), a lush historical fantasy. In an alternate Edwardian England, magic runs in families like wealth, but is kept secret through stealth and ''lethe-mint,'' a memory-erasing potion. Magical ability is latent and variable, but can be developed through education and deployed through contracts and complex hand gestures called ''cradling.'' Sir Robin Blyth learns all this by accident. Mistakenly installed as an assistant in the Office of Special Domestic Affairs and Complaints when the post's previous occupant goes missing, Robin is ''unbusheled'' by Edwin Courcey, a magician of negligible power who has been given the chore of liaising with the mundane British government. Robin is athletic and kind, a recently orphaned scion of wealthy philanthropists; Edwin is a grouchy scholar burdened with a great deal of family. But as they work together to unpack the disappearance of Robin's predecessor, they grow to understand, support and enjoy each other. Despite an unnecessary prologue that had me bracing for an irritating read, this proved to be a delightful book, with richly developed characters rooted in family dynamics and period flavor. It manages the remarkable trick of introducing a trilogy while being satisfying in its own right, leaving plenty to explore in future volumes while completing a complex story in this one. It's certain to be well received by fans of C.L. Polk's ''Witchmark'' and Everina Maxwell's ''Winter's Orbit,'' as well as anyone with a weakness for William Morris prints and tender, difficult romances between opposites. Tade Thompson's FAR FROM THE LIGHT OF HEAVEN (Orbit, 370 pp., paper, $17.99) is, among other things, a locked-room murder mystery set on a spaceship light-years from Earth. Michelle Campion, or Shell, has trained for interstellar travel her whole life; her first mission is on Ragtime, a ship powered by artificial intelligence, accompanying 1,000 comatose humans through a wormhole to a planet in another solar system. Shell's job is to sleep for 10 years alongside her passengers while Ragtime keeps the ship running, docks at Space Station Lagos for maintenance and proceeds to orbit Bloodroot, the destination planet. Instead, she wakes up to find that the A.I. has been tampered with, multiple passengers have been gruesomely murdered and the culprit is still at large. Bloodroot's government sends up a disgraced detective named Rasheed Fin and his artificial friend Salvo to investigate -- but the more they dig into the mystery, the more hostile the ship's environment becomes. ''Far From the Light of Heaven'' is an intriguing mix of real space science and mystery: It's ''Gravity'' meets ''The Murders in the Rue Morgue.'' Its short, choppy chapters are both methodical and kaleidoscopic, introducing new characters in flashes and bursts; there's a remote precision to the writing that succeeds in projecting both the stakes and wonder of a spacewalk. That experience is sometimes disorienting and sometimes curt; some abrupt twists of plot are less developments than dismissals, suggesting an authorial impatience with a narrative I found completely engrossing. I would have loved more time spent with space bureaucracy and character histories, but I'll keep my fingers crossed for any of the several potential sequel hooks to build into a follow-up. Bringing questions about artificial intelligence closer to home, AI 2041 (Currency, 448 pp., $30) is a fascinating collaboration between Kai-Fu Lee, the former president of Google China, and Chen Qiufan, the current president of the World Chinese Science Fiction Association. Conceived as a project of ''scientific fiction,'' it unites Lee's extensive expertise in artificial intelligence with Chen's speculative inquiry: The collection contains 10 of Chen's short stories, all centering on aspects of A.I. development, each with a supplementary essay by Lee placing that story's themes in our contemporary technological context. Set in 2041, and originally written in Chinese, Chen's stories are lucidly translated by Emily Jin, Andy Dudak, Blake Stone-Banks and Benjamin Zhou. They are refreshingly international in scope -- we visit Nigeria, Sri Lanka, Japan, Korea, China, India and Qatar, among other places -- and explore topics such as algorithm bias, deepfakes, self-driving vehicles and automation-induced mass unemployment. Chen and Lee each have introductions to the volume; Lee puts forth their methodology in his: ''I first created a 'technology map' that projected when certain technologies would mature.'' He accounted for ''story-worthy conflicts and dilemmas that might emerge alongside these technologies. ... Qiufan then flexed his talents.'' Lee hopes the stories will appeal to people who don't read fiction -- but one wishes the authors had tried harder to appeal to those who do. These pieces are illustrations of concepts first, and stories second; in order to foreground contemporary technologies, Chen leaves several of fiction's tools -- most notably voice and point of view -- on the shelf. Some stories transcend the didactic aloofness of the whole: ''Twin Sparrows,'' about orphaned brothers who learn to love each other despite their differences, and ''My Haunting Idol,'' about the toxic nature of certain kinds of celebrity, are particularly moving. In several stories, A.I. is used to deceive people -- in a way that's revealed to be for their own good. It's an ironic pattern in a project so earnestly concerned with clarity and pedagogy: While the book argues for technology's inherent neutrality, the stories themselves push forward and excuse a certain paternalism. The stories and essays both have a tendency to obscure their premises in pursuit of specific outcomes, and the more they speculate about social impacts, the less they stand up to scrutiny. Overall, though, ''AI 2041'' is a worthy addition to the canon of A.I. imaginary, an impressive collaboration and a good book to start arguments with -- whether on your own or with a friend. Originally published in Korea in 2006, Un-su Kim's THE CABINET (Angry Robot Books, 301 pp., paper, $14.99) is narrated by an administrative worker named Kong Deok-geun who, while navigating the extreme boredom of his office job, discovers Cabinet 13: a filing cabinet filled with extraordinary accounts of ''symptomers,'' people experiencing strange and marvelous occurrences and abilities. Overseen by the crotchety Professor Kwon, symptomers describe sleeping for months (''torporers''), seeing their doubles (''doppelgängers'') and growing gingko trees from their fingers (''chimeras''). It becomes Kong's job to interview and console these people, whose symptoms often obstruct their ability to function within society. Kong's own life -- his mundanity and mediocrity -- gradually becomes a needle threading the Cabinet reports together, as Professor Kwon's health declines and a sinister apparatus called the syndicate begins pressing Kong to turn the contents of the Cabinet over to them. ''The Cabinet'' is a sly, whimsical satire of life in late-stage capitalism, slippery and surreal, and reads in some respects like historical fiction: It was written and published before the ubiquity of smartphones and social media, and there's something almost -- almost -- refreshing about the humdrum monotony of office life, away from the polluted water cooler of our current digital landscape. Kong's matter-of-fact voice, conveyed in a sprightly and hilarious translation by Sean Lin Halbert, is a pitch-perfect foil to the ''symptoms'' he describes. By grounding them amid joyless, life-leeching work, the assembled files don't make up a Wunderkammer so much as a Banalkammer, a cabinet not of curiosities but of mundanities, in which the most astonishing occurrences share space with gray, draining reality. ''The Cabinet'' is a kind of echoing chamber in which the comic, heartbreaking and terrifying bounce against, amplify and distort one another. The ending bears down on the reader like teeth, and may seem, at first glance, like a sharp and sudden betrayal of its main affect. But its end is in its beginning, which rewards rereading. Natashia Deón's THE PERISHING (Counterpoint, 307 pp., $26) is a supple exploration of life in 1930s Los Angeles as well as a moving meditation on the Black American experience in the 20th century; it draws on patterns and histories of racial solidarity and oppression to tell a loving story of people and their relationships with places. Told mostly through the perspective of Lou Willard, a young Black woman hired to work the death desk at The Los Angeles Times, ''The Perishing'' weaves in major events such as the building of Route 66 and the failure of the St. Francis Dam, while gesturing toward tragedies in Lou's previous and future lives, glimpsed in mixtures of memory and dream. Deón's prose is beautiful, and the voice animating ''The Perishing'' is heartfelt. But this is not a book interested in the structure it proposes at the outset: that of an immortal intelligence, one of several, who moves from life to life doing good. While Lou's story is the core of the book, it's often interrupted, peeled back, doubled over, in order for her future incarnation, Sarah Shipley -- standing trial for murder in the year 2102 -- to comment on or explicate it. This means that we're never wondering who Lou is, why she can't remember her childhood, or why she heals supernaturally quickly -- but instead are left to wonder why we're seeing haphazardly deployed pieces of previous lives that have little to do with Sarah's story, Lou's story or the story of the immortals in aggregate. Overall, ''The Perishing'' pulses with moments, phrases, passages that are deeply affecting and could have formed an organizing principle for the whole: the wonderful irony of an immortal working at a newspaper's death desk; the wrenching instance of a 1930s Black woman grieving the future killing of Latasha Harlins; the notion of a community of immortal spirits being hunted by someone outside of it. The book embraces none of those -- but while it doesn't cohere, or close the framing stories with which it opens, the window it maintains on Lou's life shows a vibrant, immersive world that's worth spending time in, learning and remembering. Amal El-Mohtar is a Hugo Award-winning writer and co-author, with Max Gladstone, of ''This Is How You Lose the Time War.'' https : // www.nytimes.com/2021/12/03/books/review/new-science-fiction-fantasy.html Graphic PHOTO: (PHOTOGRAPH BY Alva Skog FOR THE NEW YORK TIMES) Load-Date: December 5, 2021 End of Document A New Ruling Could Complicate Biden’s Policy on Social Media; DealBook Newsletter The New York Times

## Topic 7

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the most common of all cancers in the United States -- for themselves. "Our objective is to bring the expertise of top-level dermatologists to places where the dermatologist is not available," said Sebastian Thrun, senior author of the new study, founder of research and development lab Google X and an adjunct professor at Stanford University. He added that those who live in developing countries do not have the same level of care as can be found in the US and other industrialized nations. Melanomas represent fewer than 5% of all skin malignancies diagnosed in the US, yet they account for nearly three-quarters of all deaths related to this form of cancer. If detected early, the five-year survival rate for melanoma is 99%. When detected in its latest stage, the survival rate plummets to just 14%. Generally, dermatologists identify whether a mole or other abnormality is cancerous by looking at it. They can confirm their diagnosis with follow-up biopsies and tests. With a team of researchers, Thrun developed a deep learning computer system to perform the first task in detecting skin cancer: identifying it at a glance. Essentially, the team created an automated dermatologist. How it works Thrun and his colleagues began by coaching a computer to develop pattern recognition skills. The method they used is an algorithm-based technique known as "deep learning." Specifically, the research team employed a convolutional neural network. Carl Vondrick, a Ph.D. candidate at MIT's Computer Science and Artificial Intelligence Lab, who was not involved in this study, explained the process. "A convolutional neural net is a type of computer software that is very good at learning to recognize different concepts," he said. By downloading digital images, researchers can "tell" the computer they are images of skin cancer, or without skin cancer. The machine will basically try to learn some rules that can predict whether it's cancer. "An algorithm is just a fancy name for a sequence of steps that the computer takes. So in this case, the algorithm refers to the whole process that they did to train the system," Vondrick said. Andre Esteva, co-first author of the new paper with Brett Kuprel, both electrical engineering Ph.D. students at Stanford, said he, Thrun and their colleagues began by "basically teaching the algorithm what the world looks like." "We taught it with cats and dogs and tables and chairs and all sorts of normal everyday objects look like," Esteva said. "We used a massive data set of well over a million images." This phase of learning took about a week. Then, Esteva trained the algorithm in different skin conditions. Here, the team addressed a complex problem: Cancerous and noncancerous skin aberrations vary greatly in appearance from patient to patient. To overcome this difficulty, the researchers presented the now-trained -- or "artificially intelligent" -- computer with an extensive dataset of 129,450 images representing more than 2,000 skin diseases. The images came from 18 doctor-curated online repositories as well as the Stanford University Medical Center. Since each image of a mole or abrasion had been diagnosed, the computer was fed this information as well. Differences between AI and human intelligence "What's really powerful about computer vision and these convolutional neural nets is, all you have to do is specify the input and output, and the machine will learn its own rules how to do that automatically," Vondrick said. "It learns kind of a series of mathematical transformations to essentially transform an image into an answer (to the question) 'Is there skin cancer or not?' " There's an important distinction between computer visual systems and the human visual system, added Vondrick. Though humans can learn to recognize patterns from very little data, machines require thousands or even billions of examples. "You can grow up to be in your 20s and never have seen skin cancer, and you can go to medical school and just see a few examples on slides, and all of a sudden, you're going to be pretty good at recognizing that," he said. No computer has been trained to do the same, but computer visual systems may detect subtleties within digital photographs unseen by the human eye, the researchers pointed out. The moment of truth came when the researchers presented previously unseen images to their algorithm. Would their artificial intelligence system be able to recognize both the most common and the most deadly types of skin cancer: malignant carcinomas and melanomas, respectively? "This algorithm performed as well as board-certified dermatologists at several key diagnostic tasks," Esteva said. Notably, the computer was able to "diagnose multiple different kinds of skin cancer, not just melanoma, and we were able to do this with regular clinical images, rather than with specialized dermoscopic images," said Roberto Novoa, a co-author of the study and a dermatologist at Stanford Medicine. He explained that doctors commonly use a dermatoscope, a specialized tool, to examine the skin for cancer. This tool enables a view from a similar distance with similar lighting and magnification, for easier diagnosis. Though the algorithm lacked access to this expensive tool, its performance still equaled the accuracy of 21 dermatologists. Though Thrun, Esteva and their colleagues warn that real testing in a clinical setting -- a doctor's office -- is still needed, they believe their research might be expanded to include other areas of medicine, such as ophthalmology, radiology and pathology. With 6.3 billion smartphone subscriptions estimated to be in use by 2021 (PDF), the researchers noted, their new system, in the form of an app, could provide low-cost universal access to diagnostic care. Paging Dr. McCoy Science fiction is rife with visions of technology replacing human doctors. Dr. Leonard McCoy used a portable diagnostic device known as a tricorder to determine the medical condition of the USS Enterprise crew members in the "Star Trek" TV series and movies, recalled Dr. Sancy A. Leachman, a dermatologist and chairwoman of the department of dermatology at Oregon Health and Science University, and Glenn Merlino, a senior investigator at the National Cancer Institute, in their published commentary on the new study. Though still "fanciful," machines capable of non-invasive diagnosis are "becoming a reality," wrote Leachman and Merlino, neither of whom was involved in the new study. That said, at least one issue still requires more investigation when it comes to a skin cancer-detecting automated system. According to Leachman and Merlino, it is not known whether the artificial intelligence system featured in the new study can distinguish between similar-looking diseases. For example, a system would need to be able to identify melanoma versus benign seborrhoeic keratosis -- basically, a non-cancerous wart. "Even the benign growths can be associated with certain syndromes and diseases that only a physician that has been clinically trained for detecting can diagnose," said Dr. Jill Waibel, a dermatologist and owner of the Miami Dermatology and Laser Institute. Waibel, who did not participate in the study, added that "medical Imaging has dramatically transformed the practice of medicine," especially her field of dermatology. Yet despite many exciting developments, all of the new imaging systems are still being studied and explored for optimal uses, she said. For many scientists, though, "Star Trek" still beckons: a future filled with machines that learn with each corrected mistake, improving their performance over time. "This is a very specific study, and it has a very encouraging result," Thrun said. But he warned that before this research might be leveraged into anything resembling a tricorder, "we would have to run many more studies." Load-Date: January 27, 2017 End of Document A computer's newfound 'intuition' beats world poker champs CNN.com

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— Four years ago, more than 700 computer scientists competed in a contest to build artificial intelligence that could pass an eighth-grade science test. There was $80,000 in prize money on the line. They all flunked. Even the most sophisticated system couldn’t do better than 60 percent on the test. A.I. couldn’t match the language and logic skills that students are expected to have when they enter high school. But on Wednesday, the Allen Institute for Artificial Intelligence, a prominent lab in Seattle, unveiled a new system that passed the test with room to spare. It correctly answered more than 90 percent of the questions on an eighth-grade science test and more than 80 percent on a 12th-grade exam. The system, called Aristo, is an indication that in just the past several months researchers have made significant progress in developing A.I. that can understand languages and mimic the logic and decision-making of humans. The world’s top research labs are rapidly improving a machine’s ability to understand and respond to natural language. Machines are getting better at analyzing documents, finding information, answering questions and even generating language of their own. Aristo was built solely for multiple-choice tests. It took standard exams written for students in New York, though the Allen Institute removed all questions that included pictures and diagrams. Answering questions like that would have required additional skills that combine language understanding and logic with so-called computer vision. Some test questions, like this one from the eighth-grade exam, required little more than information retrieval: A group of tissues that work together to perform a specific function is called: (1) an organ (2) an organism (3) a system (4) a cell But others, like this question from the same exam, required logic: Which change would most likely cause a decrease in the number of squirrels living in an area? (1) a decrease in the number of predators (2) a decrease in competition between the squirrels (3) an increase in available food (4) an increase in the number of forest fires Researchers at the Allen Institute started work on Aristo — they wanted to build a “digital Aristotle” — in 2013, just after the lab was founded by the Seattle billionaire and Microsoft co-founder Paul Allen. They saw standardized science tests as a more meaningful alternative to typical A.I. benchmarks, which relied on games like chess and backgammon or tasks created solely for machines. A science test isn’t something that can be mastered just by learning rules. It requires making connections using logic. An increase in forest fires, for example, could kill squirrels or decrease the food supply needed for them to thrive and reproduce. Enthusiasm for the progress made by Aristo is still tempered among scientists who believe machines are a long way from completely mastering natural language — and even further from duplicating true intelligence. “We can’t compare this technology to real human students and their ability to reason,” said Jingjing Liu, a Microsoft researcher who has been working on many of the same technologies as the Allen Institute. But Aristo’s advances could spread to a range of products and services, from internet search engines to record-keeping systems at hospitals. “This has significant business consequences,” said Oren Etzioni, the former University of Washington professor who oversees the Allen Institute. “What I can say — with complete confidence — is you are going to see a whole new generation of products, some from start-ups, some from the big companies.” The new research could lead to systems that can carry on a decent conversation. But it could also encourage the spread of false information. “We are at the very early stage of this,” said Jeremy Howard, who oversees Fast.ai, another influential lab, in San Francisco. “We are so far away from the potential that I cannot say where it will end up.” In 2016, when a London lab built a system that could beat the world’s best players at the ancient game of Go, it was widely hailed as a turning point for artificial intelligence. Dr. Etzioni’s excitement, however, was muted. Artificial intelligence was not nearly as advanced as it might seem, he said, pointing to the earlier Allen Institute’s competition that stumped the A.I. systems with an eighth-grade science test. The Allen Institute improved on that earlier effort much quicker than many experts — including Dr. Etzioni — expected. Its work was largely driven by neural networks, complex mathematical systems that can learn tasks by analyzing vast amounts of data. By pinpointing patterns in thousands of dog photos, for example, a neural network can learn to recognize a dog. In recent months, the world’s leading A.I. labs have built elaborate neural networks that can learn the vagaries of language by analyzing articles and books written by humans. At Google, researchers built a system called Bert that combed through thousands of Wikipedia articles and a vast digital library of romance novels, science fiction and other self-published books. Through analyzing all that text, Bert learned how to guess the missing word in a sentence. By learning that one skill, Bert soaked up enormous amounts of information about the fundamental ways language is constructed. And researchers could apply that knowledge to other tasks. The Allen Institute built their Aristo system on top of the Bert technology. They fed Bert a wide range of questions and answers. In time, it learned to answer similar questions on its own. Not long ago, researchers at the lab defined the behavior of their test-taking system one line of software code at a time. Sometimes they still do that painstaking coding. But now that the system can learn from digital data on its own, it can improve at a much faster rate. Systems like Bert — called “language models” — now drive a wide range of research projects, including conversational systems and tools designed to identify false news. With more data and more computing power researchers believe the technology will continue to improve. But Dr. Etzioni stressed that the future of these systems was hard to predict and that language was only one piece of the puzzle. Ms. Liu and her fellow Microsoft researchers have tried to build a system that can pass the Graduate Records Exam, the test required for admission to graduate school. The language section was doable, she said, but building the reasoning skills required for the math section was another matter. “It was far too challenging.” Follow Cade Metz on Twitter: @cademetz. Oren Etzioni and Peter Clark at the Allen Institute for Artificial Intelligence, a prominent research lab in Seattle. KYLE JOHNSON FOR THE NEW YORK TIMES Related Articles Finally, a Machine That Can Finish Your Sentence With $1 Billion From Microsoft, an A.I. Lab Wants to Mimic the Brain Load-Date: September 13, 2019 End of Document New U.S. Strategy Against Russian Propaganda Is to Expose It Early On The New York Times

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This article is part of our continuing Fast Forward series, which examines technological, economic, social and cultural shifts that happen as businesses evolve. SAN FRANCISCO -- Last week, on the third floor of a small building in San Francisco's Mission District, a woman scrambled the tiles of a Rubik's Cube and placed it in the palm of a robotic hand. The hand began to move, gingerly spinning the tiles with its thumb and four long fingers. Each movement was small, slow and unsteady. But soon, the colors started to align. Four minutes later, with one more twist, it unscrambled the last few tiles, and a cheer went up from a long line of researchers watching nearby. The researchers worked for a prominent artificial intelligence lab, OpenAI, and they had spent several months training their robotic hand for this task. Though it could be dismissed as an attention-grabbing stunt, the feat was another step forward for robotics research. Many researchers believe it was an indication that they could train machines to perform far more complex tasks. That could lead to robots that can reliably sort through packages in a warehouse or to cars that can make decisions on their own. ''Solving a Rubik's Cube is not very useful, but it shows how far we can push these techniques,'' said Peter Welinder, one of the researchers who worked on the project. ''We see this as a path to robots that can handle a wide variety of tasks.'' The project was also a way for OpenAI to promote itself as it seeks to attract the money and the talent needed to push this sort of research forward. The techniques under development at labs like OpenAI are enormously expensive -- both in equipment and personnel -- and for that reason, eye-catching demonstrations have become a staple of serious A.I. research. The trick is separating the flash of the demo from the technological progress -- and understanding the limitations of that technology. Though OpenAI's hand can solve the puzzle in as little as four minutes, it drops the cube eight times out of 10, the researchers said. ''This is an interesting and positive step forward, but it is really important not to exaggerate it,'' said Ken Goldberg, a professor at the University of California, Berkeley, who explores similar techniques. A robot that can solve a Rubik's Cube is not new. Researchers previously designed machines specifically for the task -- devices that look nothing like a hand -- and they can solve the puzzle in less than a second. But building devices that work like a human hand is a painstaking process in which engineers spend months laying down rules that define each tiny movement. The OpenAI project was an achievement of sorts because its researchers did not program each movement into their robotic hand. That might take decades, if not centuries, considering the complexity of a mechanical device with a thumb and four fingers. The lab's researchers built a computer system that learned to solve the Rubik's Cube largely on its own. ''What is exciting about this work is that the system learns,'' said Jeff Clune, a robotics professor at the University of Wyoming. ''It doesn't memorize one way to solve the problem. It learns.'' Development began with a simulation of both the hand and the cube -- a digital recreation of the hardware on the third floor of OpenAI's San Francisco headquarters. Inside the simulation, the hand learned to solve the puzzle through extreme trial and error. It spent the equivalent of 10,000 years spinning the tiles up, down, left and right, completing the task over and over again. The researchers randomly changed the simulation in small but distinct ways. They changed the size of the hand and the color of the tiles and the amount of friction between the tiles. After the training, the hand learned to deal with the unexpected. When the researchers transferred this computer learning to the physical hand, it could solve the puzzle on its own. Thanks to the randomness introduced in simulation, it could even solve the puzzle when wearing a rubber glove or with two fingers tied together. At OpenAI and similar labs at Google, the University of Washington and Berkeley, many researchers believe this kind of ''machine learning'' will help robots master tasks they cannot master today and deal with the randomness of the physical world. Right now, robots cannot reliably sort through a bin of random items moving through a warehouse. The hope is that will soon be possible. But getting there is expensive. That is why OpenAI, led by the Silicon Valley start-up guru Sam Altman, recently signed a billion-dollar deal with Microsoft. And it's why the lab wanted the world to see a demo of its robotic hand solving a Rubik's Cube. On Tuesday, the lab released a 50-page research paper describing the science of the project. It also distributed a news release to news outlets across the globe. ''In order to keep their operation going, this is what they have to do,'' said Zachary Lipton, a professor in the machine learning group at Carnegie Mellon University in Pittsburgh. ''It is their life blood.'' When The New York Times was shown an early version of the news release, we asked to see the hand in action. On the first attempt, the hand dropped the cube after a few minutes of twisting and turning. A researcher placed the cube back into its palm. On the next attempt, it completed the puzzle without a hitch. Many academics, including Dr. Lipton, bemoaned the way that artificial intelligence is hyped through news releases and showy demonstrations. But that is not something that will change anytime soon. ''These are serious technologies that people need to think about,'' Dr. Lipton said. ''But it is difficult for the public to understand what is happening and what they should be concerned about and what will actually affect them.'' https : // www.nytimes.com/2019/10/15/technology/robot-hand-rubiks-cube.html Graphic PHOTOS: The OpenAI lab's robotic hand, which unscrambled a Rubik's Cube in about four minutes. (B1) OpenAI's robotic hand at the company's laboratory in San Francisco. Many researchers believe the advance could lead to robots that can sort packages or to cars that can make their own decisions. (PHOTOGRAPHS BY MATT EDGE FOR THE NEW YORK TIMES) (B4) Load-Date: October 17, 2019 End of Document Modi and India’s Diaspora: A Complex Love Affair Making Global Waves The New York Times

### Document 1081

Calif. -- In an engineering laboratory here, a robot has learned to screw the cap on a bottle, even figuring out the need to apply a subtle backward twist to find the thread before turning it the right way. This and other activities -- including putting a clothes hanger on a rod, inserting a block into a tight space and placing a hammer at the correct angle to remove a nail from a block of wood -- may seem like pedestrian actions. But they represent significant advances in robotic learning, by a group of researchers at the University of California, Berkeley, who have trained a two-armed machine to match human dexterity and speed in performing these tasks. The significance of the work is in the use of a so-called machine-learning approach that links several powerful software techniques that make it possible for the robot to learn new tasks rapidly with a relatively small amount of training. The new approach includes a powerful artificial intelligence technique known as ''deep learning,'' which has previously been used to achieve major advances in both computer vision and speech recognition. Now the researchers have found that it can also be used to improve the actions of robots working in the physical world on tasks that require both machine vision and touch. The group, led by the roboticist Pieter Abbeel and the computer vision specialist Trevor Darrell, with Sergey Levine, a postdoctoral researcher, and Chelsea Finn, a graduate student, said they were surprised by how well the approach worked compared with previous efforts. By combining several types of pattern recognition software algorithms known as neural networks, the researchers have been able to train a robot to perfect an action such as correctly inserting a Lego block into another block, with a relatively small number of attempts. ''I would argue this is what has given artificial intelligence the whole new momentum it has right now,'' Dr. Abbeel said. ''All of a sudden there are all of these results that are better than expected.'' Roboticists said that the value of the Berkeley technology would be in quickly training robots for new tasks and ultimately in developing machines that learn independently. ''It used to take hours on up to months of careful programming to give a robot the hand-eye coordination necessary to do a task,'' said Gary Bradski, a roboticist and computer vision specialist who founded OpenCV, a freely available software library for machine vision. ''This new work enables robots to just learn the task by doing it.'' Previously, the Berkeley lab had received international attention for training a robot to fold laundry. Although it was viewed almost one million times on YouTube, the laundry-folding demonstration noted that the video had been sped up more than 50 times. The new videos show the robots performing tasks at human speeds. Despite their progress, the researchers acknowledge that they are still far away -- perhaps more than a decade -- from their goal of building a truly autonomous robot, such as a home worker or elder care machine that could perform complex tasks without human supervision. The researchers said that while their new approach represents an important leap, it is also fragile. For example, the bottle cap-threading technique will work reliably when the bottle is moved from one location to another or if the bottle is of a different color. But if the bottle is tilted at an angle before it is picked up, the robot will completely fail. ''There is nothing better to ask a roboticist, 'If you change the conditions, will it still work?' '' Dr. Abbeel said. To explain the new approach, the researchers draw the analogy of how baseball players track and then catch balls. Humans do not do mathematical calculations to discern the trajectory of the ball. Rather, they fix the ball in their field of vision and adjust their running speed until they arrive at the spot where the ball lands. This, in effect, short-circuits a complicated set of relations between perception and motion control, substituting a simple technique that works in a wide variety of situations without having to worry about details like wind resistance or the ball's velocity. Until now, robots have generally learned with a variety of techniques that are laboriously programmed for each specific case. The Berkeley researchers, who will present their results in a paper at the IEEE Robotics and Automation Society's conference next week in Seattle, instead connected the neural networks, which learn from both visual and sensory information, directly to the controller software that oversees the robot's motions. As a result, they achieved a significant advance in speed and accuracy of learning. ''We are trying to come up with a general learning framework that allows the robot to learn new things on its own,'' Dr. Abbeel said. The advance underscores the rapid impact that the deep-learning approach has had on the field of artificial intelligence. Pioneered several decades ago by a small group of cognitive scientists, the techniques were blended in 2012 with the ''big data'' power offered by cloud computing systems. Researchers were then able to capture billions of images or samples of human language. Their software was able to show rapid progress in accuracy in recognizing objects and in understanding human speech. Now computer scientists are pushing the techniques in new directions, including self-driving cars and a host of other applications. In December 2013, Deepmind, a British start-up, first demonstrated deep-learning techniques that could be used to play video games with more skill than most human players. The company, which Google acquired for an undisclosed sum in 2014, published a paper describing its advance in the journal Nature in February. http : // www.nytimes.com/2015/05/22/science/robots-that-can-match-human-dexterity.html Graphic PHOTOS: Guided by, from left, Chelsea Finn, Sergey Levine and Pieter Abbeel, Brett (the Berkeley Robot for the Elimination of Tedious Tasks) gets the peg into the hole. Artificial intelligence has a ''whole new momentum'' right now, Dr. Abbeel said. (PHOTOGRAPHS BY PETER EARL MCCOLLOUGH FOR THE NEW YORK TIMES) Load-Date: May 22, 2015 End of Document What Students Are Saying About Dream Jobs, Math Education and Self-Compassion; current events conversation The New York Times

### Document 590

-- An artificial intelligence software program capable of seeing and reading has for the first time answered geometry questions from the SAT at the level of an average 11th grader. The achievement, in which the program answered math questions it had not previously seen, was reported in a paper presented by computer scientists from the Allen Institute for Artificial Intelligence and the University of Washington at a scientific conference in Lisbon on Sunday. The software had to combine machine vision to understand diagrams with the ability to read and understand complete sentences; its success represents a breakthrough in artificial intelligence. Despite the advance, however, the researchers acknowledge that the program's abilities underscore how far scientists have to go to create software capable of mimicking human intelligence. For example, Ali Farhadi, a University of Washington artificial intelligence researcher and a designer of the test-taking program, noted that even a simple task for children, like understanding the meaning of an arrow in the context of a test diagram, was not yet something the most advanced A.I. programs could do reliably. ''A lot of my colleagues have said machine vision is a solved problem,'' Dr. Farhadi said. ''My answer is, 'Call me when you've solved this.''' In 1950, at the dawn of the computing age, the mathematician Alan Turing proposed a simple test to determine whether a machine could ''think'' in a human sense. If a person communicating via keyboard with a computer could not tell whether it was a machine or a human, Turing reasoned, the question would be resolved. Since then, a debate has emerged about whether the Turing test signifies anything about machine intelligence or is merely an indication of human gullibility. The argument came to a head in June 2014, when a British computer scientist claimed that a program -- a chatbot disguised as a 13-year-old Ukrainian boy named Eugene Goostman -- created by Russian and Ukrainian programmers passed the Turing test. The demonstration was widely criticized, and in January, Gary Marcus, a cognitive scientist at New York University, organized the first of two scientific workshops intended to develop more accurate methods than the Turing test for measuring the capabilities of artificial intelligence programs. Researchers in the field are now developing a wide range of gauges to measure intelligence -- including the Allen Institute's standardized-test approach and a task that Dr. Marcus proposed, which he called the ''Ikea construction challenge.'' That test would provide an A.I. program with a bag of parts and an instruction sheet and require it to assemble a piece of furniture. Another approach, the Winograd Schema Challenge, has been made an official competition, sponsored by Nuance Communications, a company that develops speech recognition technology. The challenge -- named after the pioneering A.I. researcher Terry Winograd, a professor of computer science at Stanford University -- will be a test of common-sense reasoning. First proposed in 2011 by Hector Levesque, a University of Toronto computer scientist, the Winograd Schema Challenge would pose questions that require real-world logic to A.I. programs. A question might be: ''The trophy would not fit in the brown suitcase because it was too big. What was too big, A: the trophy or B: the suitcase?'' Answering this question would require a program to reason spatially and have specific knowledge about the size of objects. Within the A.I. community, discussions about software programs that can reason in a humanlike way are significant because recent progress in the field has been more focused on improving perception, not reasoning. For example, progress has been made in applications used to recognize objects or human speech. To improve machine recognition and speech recognition, researchers have exploited the ability to compile vast libraries of examples to train programs known as neural networks, which can do sophisticated pattern recognition. The Allen Institute researchers said these techniques fell short in developing technologies to match human skills such as abstract and common-sense reasoning. The Allen Institute's program, which is known as GeoSolver, or GeoS, was described at the Conference on Empirical Methods on Natural Language Processing in Lisbon this weekend. It operates by separately generating a series of logical equations, which serve as components of possible answers, from the text and the diagram in the question. It then weighs the accuracy of the equations and tries to discern whether its interpretation of the diagram and text is strong enough to select one of the multiple-choice answers. The Allen Institute approach has more in common with an earlier generation of artificial intelligence research that relied on logic and reasoning. Moreover, the Allen Institute researchers said, machine-learning techniques have continued to fall short in areas where humans excel, such as problem solving. ''This is not pattern matching,'' said Oren Etzioni, a computer scientist and the chief executive of the Allen Institute. While neural networks have made progress based on the availability of huge amounts of data online, the Allen Institute approach works with relatively sparse data (even all the standardized-test questions do not make up a big data set). The data is too sparse, in fact, to be broadly useful in solving school test questions in subjects that require reasoning -- such as algebra and science disciplines -- Mr. Etzioni said. Ultimately, Dr. Marcus said, he believed that progress in artificial intelligence would require multiple tests, just as multiple tests are used to assess human performance. ''There is no one measure of human intelligence,'' he said. ''Why should there be just one A.I. test?'' One open question is whether the incremental progress that is evident in the Allen Institute geometry-solving program is a significant step forward or whether it has more in common with a series of earlier proclamations in the field of ''thinking machines'' that ended in blind alleys. In the 1960s, Hubert Dreyfus, a philosophy professor at the University of California, Berkeley, expressed this skepticism most clearly when he wrote, ''Believing that writing these types of programs will bring us closer to real artificial intelligence is like believing that someone climbing a tree is making progress toward reaching the moon.'' http : // www.nytimes.com/2015/09/21/technology/personaltech/software-is-smart-enough-for-sat-but-still-far-from-intelligent.html Graphic PHOTOS: Above, Niranjan Balasubramanian working at the Allen Institute for Artificial Intelligence. Left, Oren Etzioni, chief of the Allen Institute, which helped developed the geometry-solving program. (PHOTOGRAPHS BY STUART ISETT FOR THE NEW YORK TIMES) (B5) Load-Date: September 21, 2015 End of Document Brexit Is Finally Done, but It Already Seems Out of Date; news analysis The New York Times

### Document 498

Images made by lasers and read by computers can help speed up the diagnosis of brain tumors during surgery. Brain surgeons are bringing artificial intelligence and new imaging techniques into the operating room, to diagnose tumors as accurately as pathologists, and much faster, according to a report in the journal Nature Medicine. The new approach streamlines the standard practice of analyzing tissue samples while the patient is still on the operating table, to help guide brain surgery and later treatment. The traditional method, which requires sending the tissue to a lab, freezing and staining it, then peering at it through a microscope, takes 20 to 30 minutes or longer. The new technique takes two and a half minutes. Like the old method, it requires that tissue be removed from the brain, but uses lasers to create images and a computer to read them in the operating room. “Although we often have clues based on preoperative M.R.I., establishing diagnosis is a primary goal of almost all brain tumor operations, whether we’re removing a tumor or just taking a biopsy,” said Dr. Daniel A. Orringer, a neurosurgeon at N.Y.U. Langone Health and the senior author of the report. In addition to speeding up the process, the new technique can also detect some details that traditional methods may miss, like the spread of a tumor along nerve fibers, he said. And unlike the usual method, the new one does not destroy the sample, so the tissue can be used again for further testing. The new process may also help in other procedures where doctors need to analyze tissue while they are still operating, such as head and neck, breast, skin and gynecologic surgery, the report said. It also noted that there is a shortage of neuropathologists, and suggested that the new technology might help fill the gap in medical centers that lack the specialty. Algorithms are also being developed to help detect lung cancers on CT scans, diagnose eye disease in people with diabetes and find cancer on microscope slides. The new report brings artificial intelligence — so-called deep neural networks — a step closer to patients and their treatment. The study involved brain tissue from 278 patients, analyzed while the surgery was still going on. Each sample was split, with half going to A.I. and half to a neuropathologist. The diagnoses were later judged right or wrong based on whether they agreed with the findings of lengthier and more extensive tests performed after the surgery. The result was a draw: humans, 93.9 percent correct; A.I., 94.6 percent. The study was paid for by the National Cancer Institute, the University of Michigan and private foundations. Dr. Orringer owns stock in the company that made the imaging system, as do several co-authors, who are company employees. He conducted the research at the University of Michigan, before moving to New York. “Having an accurate intra-operative diagnosis is going to be very useful,” said Dr. Joshua Bederson, the chairman of neurosurgery for the Mount Sinai Health System, who was not involved in the study. He added, “I think they understated the significance of this.” He said the traditional method of examining tissue during brain surgery, called a frozen section, often took much longer than 30 minutes, and was often far less accurate than it was in the study. At some centers, he said, brain surgeons do not even order frozen sections because they do not trust them and prefer to wait for tissue processing after the surgery, which may take weeks to complete. “The neuropathologists I work with are outstanding,” Dr. Bederson said. “They hate frozen sections. They don’t want us to make life-altering decisions based on something that’s not so reliable.” Dr. Bederson said that the study authors had set a very high bar for their new technique by pitting it against experts at three medical centers renowned for excellence in neurosurgery and neuropathology: Columbia University in New York, the University of Miami and the University of Michigan, Ann Arbor. “I think that what happened with this study is that because they wanted to do a good comparison, they had the best of the best of the traditional method, which I think far exceeds what’s available in most cases,” Dr. Bederson said. The key to the study was the use of lasers to scan tissue samples with certain wavelengths of light, a technique called stimulated Raman histology. Different types of tissue scatter the light in distinctive ways. The light hits a detector, which emits a signal that a computer can process to reconstruct the image and identify the tissue. The system also generates virtual images similar to traditional slides that humans can examine. The researchers used images from tissue from 415 brain surgery patients to train an artificial intelligence system to identify the 10 most common types of brain tumor. Some types of brain tumor are so rare that there is not enough data on them to train an A.I. system, so the system in the study was designed to essentially toss out samples it could not identify. Over all, the system did make mistakes: It misdiagnosed 14 cases that the humans got right. And the doctors missed 17 cases that the computer got right. “I couldn’t have hoped for a better result,” Dr. Orringer said. “It’s exciting. It says the combination of an algorithm plus human intuition improves our ability to predict diagnosis.” In his own practice, Dr. Orringer said that he often used the system to determine quickly whether he had removed as much of a brain tumor as possible, or should keep cutting. “If I have six questions during an operation, I can get them answered without having six times 30 or 40 minutes,” he said. “I didn’t do this before. It’s a lot of burden to the patient to be under anesthesia for that long.” Dr. Bederson said that he had participated in a pilot study of a system similar to the one in the study and wanted to use it, and that his hospital was considering acquiring the technology. “It won’t change brain surgery,” he said, “but it’s going to add a significant new tool, more significant than they’ve stated.” [Like the Science Times page on Facebook. | Sign up for the Science Times newsletter.] PHOTO: Using laser imaging and artificial intelligence, researchers were able to diagnose brain tumors in under 150 seconds, compared with a half-hour or longer. (PHOTOGRAPH BY MICHIGAN MEDICINE) Load-Date: January 8, 2020 End of Document E.U. Takes Aim at China in Proposed Economic Strategy The New York Times

### Document 336

Artificial intelligence may help doctors make more accurate readings of CT scans used to screen for lung cancer. Computers were as good or better than doctors at detecting tiny lung cancers on CT scans, in a study by researchers from Google and several medical centers. The technology is a work in progress, not ready for widespread use, but the new report, published Monday in the journal Nature Medicine, offers a glimpse of the future of artificial intelligence in medicine. One of the most promising areas is recognizing patterns and interpreting images — the same skills that humans use to read microscope slides, X-rays, M.R.I.s and other medical scans. By feeding huge amounts of data from medical imaging into systems called artificial neural networks, researchers can train computers to recognize patterns linked to a specific condition, like pneumonia, cancer or a wrist fracture that would be hard for a person to see. The system follows an algorithm, or set of instructions, and learns as it goes. The more data it receives, the better it becomes at interpretation. The process, known as deep learning, is already being used in many applications, like enabling computers to understand speech and identify objects so that a self-driving car will recognize a stop sign and distinguish a pedestrian from a telephone pole. In medicine, Google has already created systems to help pathologists read microscope slides to diagnose cancer, and to help ophthalmologists detect eye disease in people with diabetes. “We have some of the biggest computers in the world,” said Dr. Daniel Tse, a project manager at Google and an author of the journal article. “We started wanting to push the boundaries of basic science to find interesting and cool applications to work on.” In the new study, the researchers applied artificial intelligence to CT scans used to screen people for lung cancer, which caused 160,000 deaths in the United States last year, and 1.7 million worldwide. The scans are recommended for people at high risk because of a long history of smoking. Studies have found that screening can reduce the risk of dying from lung cancer. In addition to finding definite cancers, the scans can also identify spots that might later become cancer, so that radiologists can sort patients into risk groups and decide whether they need biopsies or more frequent follow-up scans to keep track of the suspect regions. But the test has pitfalls: It can miss tumors, or mistake benign spots for malignancies and push patients into invasive, risky procedures like lung biopsies or surgery. And radiologists looking at the same scan may have different opinions about it. The researchers thought computers might do better. They created a neural network, with multiple layers of processing, and trained it by giving it many CT scans from patients whose diagnoses were known: Some had lung cancer, some did not and some had nodules that later turned cancerous. Then, they began to test its diagnostic skill. “The whole experimentation process is like a student in school,” Dr. Tse said. “We’re using a large data set for training, giving it lessons and pop quizzes so it can begin to learn for itself what is cancer, and what will or will not be cancer in the future. We gave it a final exam on data it’s never seen after we spent a lot of time training, and the result we saw on final exam — it got an A.” Tested against 6,716 cases with known diagnoses, the system was 94 percent accurate. Pitted against six expert radiologists, when no prior scan was available, the deep learning model beat the doctors: It had fewer false positives and false negatives. When an earlier scan was available, the system and the doctors were neck and neck. The ability to process vast amounts of data may make it possible for artificial intelligence to recognize subtle patterns that humans simply cannot see. “It may start out as something we can’t see, but that may open up new lines of inquiry,” said Dr. Mozziyar Etemadi, a research assistant professor of anesthesiology at Northwestern University Feinberg School of Medicine, and an author of the study. Dr. Eric Topol, director of the Scripps Research Translational Institute in La Jolla, Calif., who has written extensively about artificial intelligence in medicine, said, “I’m pretty confident that what they’ve found is going to be useful, but it’s got to be proven.” Dr. Topol was not involved in the study. Given the high rate of false positives and false negatives on the lung scans as currently performed, he said, “Lung CT for smokers, it’s so bad that it’s hard to make it worse.” Asked if artificial intelligence would put radiologists out of business, Dr. Topol said, “Gosh, no!” The idea is to help doctors, not replace them. “It will make their lives easier,” he said. “Across the board, there’s a 30 percent rate of false negatives, things missed. It shouldn’t be hard to bring that number down.” There are potential hazards, though. A radiologist who misreads a scan may harm one patient, but a flawed A.I. system in widespread use could injure many, Dr. Topol warned. Before they are unleashed on the public, he said, the systems should be studied rigorously, with the results published in peer-reviewed journals, and tested in the real world to make sure they work as well there as they did in the lab. And even if they pass those tests, they still have to be monitored to detect hacking or software glitches, he said. Shravya Shetty, a software engineer at Google and an author of the study, said, “How do you present the results in a way that builds trust with radiologists?” The answer, she said, will be to “show them what’s under the hood.” Another issue is: If an A.I. system is approved by the F.D.A., and then, as expected, keeps changing with experience and the processing of more data, will its maker need to apply for approval again? If so, how often? The lung-screening neural network is not ready for the clinic yet. “We are collaborating with institutions around the world to get a sense of how the technology can be implemented into clinical practice in a productive way,” Dr. Tse said. “We don’t want to get ahead of ourselves.” PHOTO: Computers are capable of diagnosing lung cancer in CT scans. (PHOTOGRAPH BY VOISIN/SCIENCE SOURCE) Load-Date: March 9, 2021 End of Document Market Rally Caps Strong First Half of '23 The New York Times

### Document 909

Computer researchers reported artificial-intelligence advances on Thursday that surpassed human capabilities for a narrow set of vision-related tasks. The improvements are noteworthy because so-called machine-vision systems are becoming commonplace in many aspects of life, including car-safety systems that detect pedestrians and bicyclists, as well as in video game controls, Internet search and factory robots. Researchers at the Massachusetts Institute of Technology, New York University and the University of Toronto reported a new type of ''one shot'' machine learning on Thursday in the journal Science, in which a computer vision program outperformed a group of humans in identifying handwritten characters based on a single example. The program is capable of quickly learning the characters in a range of languages and generalizing from what it has learned. The authors suggest this capability is similar to the way humans learn and understand concepts. The new approach, known as Bayesian Program Learning, or B.P.L., is different from current machine learning technologies known as deep neural networks. Neural networks can be trained to recognize human speech, detect objects in images or identify kinds of behavior by being exposed to large sets of examples. Although such networks are modeled after the behavior of biological neurons, they do not yet learn the way humans do -- acquiring new concepts quickly. By contrast, the new software program described in the Science article is able to learn to recognize handwritten characters after ''seeing'' only a few or even a single example. The researchers compared the capabilities of their Bayesian approach and other programming models using five separate learning tasks that involved a set of characters from a research data set known as Omniglot, which includes 1,623 handwritten character sets from 50 languages. Both images and pen strokes needed to create characters were captured. ''With all the progress in machine learning, it's amazing what you can do with lots of data and faster computers,'' said Joshua B. Tenenbaum, a professor of cognitive science and computation at M.I.T. and one of the authors of the Science paper. ''But when you look at children, it's amazing what they can learn from very little data. Some comes from prior knowledge and some is built into our brain.'' Also on Thursday, organizers of an annual academic machine vision competition reported gains in lowering the error rate in software for finding and classifying objects in digital images. ''I'm constantly amazed by the rate of progress in the field,'' said Alexander Berg, an assistant professor of computer science at the University of North Carolina, Chapel Hill. The competition, known as the Imagenet Large Scale Visual Recognition Challenge, pits teams of researchers at academic, government and corporate laboratories against one another to design programs to both classify and detect objects. It was won this year by a group of researchers at the Microsoft Research laboratory in Beijing. The Microsoft team was able to cut the number of errors in half in a task that required their program to classify objects from a set of 1,000 categories. The team also won a second competition by accurately detecting all instances of objects in 200 categories. The contest requires the programs to examine a large number of digital images, and either label or find objects in the images. For example, they may need to distinguish between objects such as bicycles and cars, both of which might appear to have two wheels from a certain perspective. In both the handwriting recognition task described in Science and in the visual classification and detection competition, researchers made efforts to compare their progress to human abilities. In both cases, the software advances now appear to surpass human abilities. However, computer scientists cautioned against drawing conclusions about ''thinking'' machines or making direct comparisons to human intelligence. ''I would be very careful with terms like 'superhuman performance,' '' said Oren Etzioni, chief executive of the Allen Institute for Artificial Intelligence in Seattle. ''Of course the calculator exhibits superhuman performance, with the possible exception of Dustin Hoffman,'' he added, in reference to the actor's portrayal of an autistic savant with extraordinary math skills in the movie ''Rain Man.'' The advances reflect the intensifying focus in Silicon Valley and elsewhere on artificial intelligence. Last month, the Toyota Motor Corporation announced a five-year, billion-dollar investment to create a research center based next to Stanford University to focus on artificial intelligence and robotics. Also, a formerly obscure academic conference, Neural Information Processing Systems, underway this week in Montreal, has doubled in size since the previous year and has attracted a growing list of brand-name corporate sponsors, including Apple for the first time. ''There is a sellers' market right now -- not enough talent to fill the demand from companies who need them,'' said Terrence Sejnowski, the director of the Computational Neurobiology Laboratory at the Salk Institute for Biological Studies in San Diego. ''Ph.D. students are getting hired out of graduate schools for salaries that are higher than faculty members who are teaching them.'' http : // www.nytimes.com/2015/12/11/science/an-advance-in-artificial-intelligence-rivals-human-vision-abilities.html Graphic PHOTO: Humans and machines were given an image of a novel character and then asked to copy it. (PHOTOGRAPH BY BRENDEN LAKE BRENDEN LAKE) Load-Date: December 11, 2015 End of Document Key Players The New York Times

### Document 1190

Can computers make sense of art? Might they even be able to find connections between works that humans can't see? Computer scientists at Rutgers University recently published two papers that explore how artificial intelligence could aid -- or, some might fear, eventually replace -- art historians by classifying works with a high degree of accuracy and rating them in terms of creative impact. In the first paper, Ahmed Elgammal and his graduate student, Babak Saleh, of Rutgers's Art and Artificial Intelligence Lab devised an algorithm that was about 60 percent accurate in identifying the artist and genre of an unknown painting and 45 percent accurate in determining its style. The algorithm not only automatically classified images from a database of 80,000 works, but also allowed the researchers to find connections among them. In one example, they picked a selection of paintings and asked the program to identify the ''closest match'' among works in other styles. The results -- which found uncanny similarities between examples of Russian Romanticism and French Impressionism, between Pop Art and the Northern Renaissance -- recall the juxtapositions one sees at museums like the Barnes Collection in Philadelphia, where paintings are grouped not by period but because they possess some kind of stylistic kinship. In the second paper, the researchers posed a more ambitious, and controversial, question: Can the creativity of an artwork be quantified? The experimental program they developed analyzed more than 60,000 paintings over six centuries, breaking down the visual information contained in each work into categories based on subject matter, brush strokes, color palette and 2,000 other defining attributes termed ''classemes.'' Those techniques enabled them to measure the originality of a painting (how unique it was from earlier works in the sample) and its influence (how similar it was to later works) to assess overall creativity. Many paintings regarded as milestones in art history received very high marks, including Picasso's ''Les Demoiselles d'Avignon'' and Edvard Munch's ''The Scream.'' Not only that, the researchers were able to test their findings with so-called time-machine experiments. When they assigned, for example, Impressionist or Cubist paintings an artificially earlier date, the algorithm generated a significantly higher creativity score. Mr. Saleh, a doctoral candidate at Rutgers, says some art historians who have caught wind of his research are disquieted by its implications. ''Art historians are worried that we're going to replace them, but they should think of machine learning as a tool that can help them,'' he said. ''In the future we're going to have databases of millions of paintings and we need to have artificial intelligence to help humans analyze all these artworks.'' http : // www.nytimes.com/2015/07/16/arts/international/how-computing-can-help-art-historians.html Load-Date: July 16, 2015 End of Document Intel Protects Its Lead While Pivoting to A.I. The New York Times

### Document 198

Google, which not along ago was using artificial intelligence to identify cat pictures, has moved onto something bigger -- breast cancer. Google announced Friday that it has achieved state-of-the-art results in using artificial intelligence to identify breast cancer. The findings are a reminder of the rapid advances in artificial intelligence, and its potential to improve global health. Google used a flavor of artificial intelligence called deep learning to analyze thousands of slides of cancer cells provided by a Dutch university. Deep learning is where computers are taught to recognize patterns in huge data sets. It's very useful for visual tasks, such as looking at a breast cancer biopsy. With 230,000 new cases of breast cancer every year in the United States, Google hopes its technology will help pathologists better treat patients. The technology isn't designed to, or capable of, replacing human doctors. "What we've trained is just a little sliver of software that helps with one part of a very complex series of tasks," said Lily Peng, the project manager behind Google's work. "There will hopefully be more and more of these tools that help doctors [who] have to go through an enormous amount of information all the time." Peng described to CNNTech how the human and the computer could work together to create better outcomes. Google's artificial intelligence system excels at being very sensitive to potential cancer. It will flag things a human will miss. But it sometimes will falsely identify something as cancer, whereas a human pathologist is better at saying, "no, this isn't cancer." "Imagine combining these two types of super powers," Peng said. "The algorithm helps you localize and find these tumors. And the doctor is really good at saying, 'This is not cancer.'" For now, Google's progress is still research mode and remains in the lab. Google isn't going to become your pathologist's assistant tomorrow. But Google and many other players are striving toward a future where that becomes a reality. Jeroen van der Laak, who leads the pathology department at Radboud University Medical Center, believes the first algorithms for cancer will be available within a couple years, and large-scale routine use will occur in about five years. His university provided the slides for Google's research. The technology will be especially useful in parts of the world where there's a shortage of physicians. For patients who don't have access to a pathologist, an algorithm -- even if imperfect -- would be a meaningful improvement. Van der Laak highlighted India and China as two underserved areas. TM & © 2017 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: March 4, 2017 End of Document We cheer on women in the sciences, but recruiting and retaining them is still a different story CNN Wire

### Document 613

Rebecca Emily Martin and Jared Paul Lander are to be married Oct. 22 by Rabbi Joshua Gruenberg at Congregation Beth El in Yardley, Pa. The bride, 36, is a postdoctoral researcher in developmental cognitive neuroscience at New York University. She graduated from N.Y.U., received two master's degrees, one in teaching from University of California, Santa Cruz, and one in mind, brain and education from Harvard, and a Ph.D. in psychology from Columbia. She is the daughter of Kerry M. Martin and George M. Martin III of San Jose, Calif. The bride's father is a principal at OptoElectronix in San Jose. Her mother is a transition counselor in San Jose for Silicon Valley Adult Education. The groom, 35, is the chief data scientist in New York for Lander Analytics, a data science and artificial intelligence consulting, training and events business he and his father founded. He is also an adjunct professor at Columbia, where he teaches statistics and artificial intelligence, and the author of ''R for Everyone'' (Addison-Wesley Professional 2013). He graduated from Muhlenberg College and received a master's in statistics from Columbia. He is the son of Gail M. Lander and Howard Lander of Newtown, Pa. The groom's mother is an antique dealer in Trevose, Pa. His father retired as the chief operating officer in New York of VNU Business Media, which publishes Billboard, Hollywood Reporter, Adweek and other magazines. The couple met in New York in May 2014 at a meet-up about statistical programming organized by the groom. https : // www.nytimes.com/2017/10/22/fashion/weddings/rebecca-martin-jared-lander.html Graphic PHOTO (PHOTOGRAPH BY VIJAY PANDURANGAN) Load-Date: October 22, 2017 End of Document Ed Atkins and His Mum Are Starring in a Museum Show The New York Times

### Document 696

Harold Cohen, an abstract painter who developed Aaron, one of the first and eventually one of the most complex computer software programs for generating works of art, died on April 27 at his home in Encinitas, Calif. He was 87. The cause was congestive heart failure, his son, Paul, said. Mr. Cohen was a painter growing weary with the traditional practice of art in the late 1960s when he taught himself, out of curiosity, how to program a computer. Applying his newfound expertise, he invented a computer-programmed drawing machine, whose works he exhibited at the Los Angeles County Museum of Art in 1972 in a show called ''Three Behaviors for the Partitioning of Space.'' At the invitation of Edward Feigenbaum, one of the pioneers of artificial intelligence, he then spent two years at Stanford University's Artificial Intelligence Laboratory to continue his programming work. Aaron, the name chosen for reasons unknown, was the result. Mr. Cohen began with the question ''What are the minimum conditions under which a set of marks functions as an image?'' Then, after studying how children draw, examining Native American petroglyphs and interviewing artists, he developed algorithms that allowed a computer to draw lines with the irregularity of freehand drawing. As Aaron developed, it learned to make choices about open and closed shapes and foreground and background, and to recognize when an artwork had reached completion. ''It occurred to me,'' Mr. Cohen told an audience at the Tate Gallery in London in 2004, ''that if I could write a program to do some of the things human beings do when they make representations, then I might possibly learn more about the nature of representation than I ever had done by painting.'' Harold Cohen was born on May 1, 1928, in London, where his parents, Victor and Leah, ran a successful variety store. He was expected to enter the family business but instead enrolled in the Slade School of Fine Art in London, earning a diploma in 1951 and then spending a year in Rome on a fellowship. He taught at the Camberwell School of Arts and Crafts in London and the University of Nottingham, and in the early 1960s began exhibiting his striped abstract paintings in London and New York. He represented Britain at Documenta in Kassel, West Germany, in 1964 and at the Venice Biennale in 1966. In 1968 the University of California, San Diego, invited him to spend a year as a visiting lecturer. He never left. He joined the art department and eventually became chairman. He retired in 1994. He was also the director of the school's Center for Research in Computing and the Arts. Mr. Cohen refined Aaron throughout his life. In the 1980s he pushed it in the direction of realism, generating rocks, then plants, then people. In the 1990s he added color. In the 2000s he returned to abstraction. The relationship, he often said, was mutual, reflected in the title of a 2011 exhibition at the university: ''Collaborations With My Other Self.'' Aaron placed Mr. Cohen in a continuing dialogue with the art world, since it posed difficult questions about the meaning of creativity and the nature of art. ''I think the crux of creativity is self-modification,'' he told the Canadian newspaper The Globe and Mail in 2005. ''If we measure creativity in terms of the output, my program generates 50 or 60 brilliant images every night when I leave it running. So it really is a world-class colorist at this point. If you're measuring creativity in terms of the quality of the output, then Aaron is clearly very creative indeed.'' On the other hand, he said, Aaron was not creative in the sense that it could not reformulate its own ''mental model of the world,'' a limitation he tried to nibble away at in his later years. ''What the program is moving toward is to increasingly take on responsibility for the building of the images,'' he said. Mr. Cohen exhibited Aaron at museums, galleries and science centers around the world, including the Tate Gallery, the Stedelijk Museum in Amsterdam and the San Francisco Museum of Art. In 1983, the Brooklyn Museum presented ''Harold Cohen: Computer Drawings,'' with four of Mr. Cohen's drawing machines turning out works on paper that the public could buy for $10 each. As the American representative at the world's fair in Tsukuba, Japan, in 1985, he sent Aaron to create more than 7,000 different drawings while he stayed home in California. As the program became more complex, it generated puzzle-like underpaintings on canvas that he set about completing, dragging out his tubes of paint for the first time in years. Besides his son, Mr. Cohen is survived by his partner, the Japanese writer Hiromi Ito; his wife, Becky Cohen, from whom he is separated; a brother, Bernard; four daughters, Jenny Foord, Kanoko Nishi-Smith, Sara Nishi and Zana Itoh Cohen; and seven grandchildren. ''Aaron could go on producing work indefinitely,'' Mr. Cohen said in an interview in 2011 with the organizers of his exhibition in San Diego. ''The problem has always been that it would go on being the same work -- not the same individual image, but the same formulation, which, by the way, is what most human artists do anyway.'' He added: ''To be realistic, I rather suspect Aaron will end when I end. Why would anybody want to take up my other half?'' http : // www.nytimes.com/2016/05/07/arts/design/harold-cohen-a-pioneer-of-computer-generated-art-dies-at-87.html Load-Date: May 7, 2016 End of Document I Work for N.S.A. We Cannot Afford to Lose the Digital Revolution. The New York Times

### Document 1090

In a big step in the development of computers capable of independent reasoning, a team of Google researchers has created a machine that can figure out how to play and win video games. The breakthrough is similar to IBM's chess-winning Deep Blue computer, or Watson, a computer that IBM programmed to win at Jeopardy! In some ways the latest advance is more profound, however; Deep Blue and Watson were taught strategies that worked inside the rules of their respective games. The new program learned -- without training -- how to succeed at a range of different games. The rules-learning technology, initially described in the British journal Nature on Wednesday, could initially be important to Google for things like search, voice recognition and language translation. Further out, the researchers said, the learning system could be useful for robots and driverless cars. Demis Hassabis, who led the project, described the program as ''a single general learning system,'' combining sensory knowledge and learning. That dual capability, which the authors of the paper call ''deep-Q network,'' or D.Q.N., ''is mastering and understanding structure,'' he said. The Google program successfully taught itself the rules to over 49 Atari 2600 computer games from the 1980s, eventually figuring out strategies for victory. This included figuring out navigation, actions and positive outcomes, then using these for improved outcomes. In 43 of the games, which included such classics as Space Invaders and Breakout, the D.Q.N. outperformed previous computational efforts to win, the paper said. In more than half the games, the new system could eventually play at least three-quarters as well as a professional human games tester. By figuring out for itself the rules of a system, the D.Q.N. occasionally surprised its creators with new winning strategies. Playing Seaquest, for example, the computer determined that the game's submarine could survive by staying near the surface for the entire game. In Breakout, it figured out a novel way to get through a wall of bricks. Mr. Hassabis is a founder of DeepMind, an artificial intelligence company that Google bought last year for a reported $400 million. He is also a champion gamer and well-regarded games designer. But the new findings also underline how far artificial intelligence research is from developing human-type intelligence. D.Q.N. is not capable of developing conceptual knowledge, like what a submarine actually is, or transferring what it learned from one game to excel at another. We humans, Mr. Hassabis noted, ''have prior knowledge that we bring from the real world.'' To master abstractions or conceptual thought, he said, ''we suspect it will require some new kind of algorithm.'' That advance is likely years away. The D.Q.N. team is now focused on bringing its machine into a 1990's capability, learning and navigating the far more difficult three-dimensional spaces of driving games like Grand Theft Auto. ''I would say that will happen in the next five years,'' Mr. Hassabis said. From there, he added, ''if it can drive a car in a racing game it should theoretically drive a car'' in the physical world. This is a more complete version of the story than the one that appeared in print. http : // bits.blogs.nytimes.com/2015/02/25/a-google-computer-can-teach-itself-games/ Load-Date: February 26, 2015 End of Document Do You Trust This Computer? The New York Times

### Document 552

-- You can think of it as a World Cup of biochemical research. Every two years, hundreds of scientists enter a global competition. Tackling a biological puzzle they call ''the protein folding problem,'' they try to predict the three-dimensional shape of proteins in the human body. No one knows how to solve the problem. Even the winners only chip away at it. But a solution could streamline the way scientists create new medicines and fight disease. Mohammed AlQuraishi, a biologist who has dedicated his career to this kind of research, flew in early December to Cancun, Mexico, where academics were gathering to discuss the results of the latest contest. As he checked into his hotel, a five-star resort on the Caribbean, he was consumed by melancholy. The contest, the Critical Assessment of Structure Prediction, was not won by academics. It was won by DeepMind, the artificial intelligence lab owned by Google's parent company. ''I was surprised and deflated,'' said Dr. AlQuraishi, a researcher at Harvard Medical School. ''They were way out in front of everyone else.'' DeepMind specializes in ''deep learning,'' a type of artificial intelligence that is rapidly changing drug discovery science. A growing number of companies are applying similar methods to other parts of the long, enormously complex process that produces new medicines. These A.I. techniques can speed up many aspects of drug discovery and, in some cases, perform tasks typically handled by scientists. ''It is not that machines are going to replace chemists,'' said Derek Lowe, a longtime drug discovery researcher and the author of In the Pipeline, a widely read blog dedicated to drug discovery. ''It's that the chemists who use machines will replace those that don't.'' After the conference in Cancun, Dr. AlQuraishi described his experience in a blog post. The melancholy he felt after losing to DeepMind gave way to what he called ''a more rational assessment of the value of scientific progress.'' But he strongly criticized big pharmaceutical companies like Merck and Novartis, as well as his academic community, for not keeping pace. ''The smartest and most ambitious researchers wanting to work on protein structure will look to DeepMind for opportunities instead of Merck or Novartis,'' he wrote. ''This fact should send chills down the spines of pharma executives, but it won't, because they're clueless, rudderless, and asleep at the helm.'' The big pharma companies see the situation differently. Though Merck is not exploring protein folding because its researchers believe its potential impact would be years away, it is applying deep learning to other aspects of its drug discovery process. ''We have to connect so many other dots,'' said Juan Alvarez, associate vice president of computational and structural chemistry at Merck. In the spring of 2016, after making headlines with A.I. systems that played complex games like the ancient board game Go, DeepMind researchers were looking for new challenges. So they held a ''hackathon'' at company headquarters in London. Working with two other computer scientists, the DeepMind researcher Rich Evans homed in on protein folding. They found a game that simulated this scientific task. They built a system that learned to play the game on its own, and the results were promising enough for DeepMind to greenlight a full-time research project. The protein folding problem asks a straightforward question: Can you predict the physical structure of a protein -- its shape in three dimensions? If scientists can predict a protein's shape, they can better determine how other molecules will ''bind'' to it -- attach to it, physically -- and that is one way drugs are developed. A drug binds to particular proteins in your body and changes their behavior. In the latest contest, DeepMind made these predictions using ''neural networks,'' complex mathematical systems that can learn tasks by analyzing vast amounts of data. By analyzing thousands of proteins, a neural network can learn to predict the shape of others. This is the same deep learning technology that recognizes faces in the photos you post to Facebook. Over the past decade, the technology has reinvented a wide range of internet services, consumer products, robotic devices and other areas of scientific research. Many of the academics who competed used methods that were similar to what DeepMind was doing. But DeepMind won the competition by a sizable margin -- it improved the prediction accuracy nearly twice as much as experts expected from the contest winner. DeepMind's victory showed how the future of biochemical research will increasingly be driven by machines and the people who oversee those machines. This kind of A.I. research benefits from enormous amounts of computing power, and DeepMind can lean on the massive computer data centers that underpin Google. The lab also employs many of the world's top A.I. researchers, who know how to get the most out of this hardware. ''It allows us to be much more creative, to try many more ideas, often in parallel,'' said Demis Hassabis, the chief executive and a co-founder of DeepMind, which Google acquired for a reported $650 million in 2014. Universities and big pharmaceutical companies are unlikely to match those resources. But thanks to cloud computing services offered by Google and other tech giants, the price of computing power continues to drop. Dr. AlQuraishi urged the life-sciences community to shift more attention toward the kind of A.I. work practiced by DeepMind. Some researchers are already moving in that direction. Many start-ups, like Atomwise in San Francisco and Recursion in Salt Lake City, are using the same artificial intelligence techniques to accelerate other aspects of drug discovery. Recursion, for instance, uses neural networks and other methods to analyze images of cells and learn how new drugs affect these cells. The big pharma companies are also beginning to explore these methods, sometimes in partnership with start-ups. ''Everyone is trending up in this area,'' said Jeremy Jenkins, the head of data science for chemical biology and therapeutics at Novartis. ''It is like turning a big ship, and I think these methods will eventually scale to the size of our entire company.'' Mr. Hassabis said DeepMind was committed to solving the protein folding problem. But many experts said that even if it was solved, more work was needed before doctors and patients benefited in any practical way. ''This is a first step,'' said David Baker, the director of the Institute for Protein Design at the University of Washington. ''There are so many other steps still to go.'' As they work to better understand the proteins in the body, for instance, scientists must also create new proteins that can serve as drug candidates. Dr. Baker now believes that creating proteins is more important to drug discovery than the ''folding'' methods being explored, and this task, he said, is not as well suited to DeepMind-style A.I. DeepMind researchers focus on games and contests because they can show a clear improvement in artificial intelligence. But it is not clear how that approach translates to many tasks. ''Because of the complexity of drug discovery, we need a wide variety of tools,'' Dr. Alvarez said. ''There is no one-size-fits-all answer.'' https : // www.nytimes.com/2019/02/05/technology/artificial-intelligence-drug-research-deepmind.html Graphic PHOTO: Mohammed AlQuraishi, a Harvard biologist who lost a research contest to an artificial intelligence lab. (B5) DRAWING (DRAWING BY T.M. DETWILER) Load-Date: February 6, 2019 End of Document ‘A Monopolist Flexing’: U.S. Blasts Google’s Tactics as Antitrust Trial Opens The New York Times

### Document 1294

PROVIDENCE, R. I. (AP) — Seven years ago, a computer beat two human quizmasters on a "Jeopardy" challenge. Ever since, the tech industry has been training its machines even harder to make them better at amassing knowledge and answering questions.  
  
And it's worked, at least up to a point. Just don't expect artificial intelligence to spit out a literary analysis of Leo Tolstoy's "War and Peace" any time soon.  
  
Research teams at Microsoft and Chinese tech company Alibaba reached what they described as a milestone earlier this month when their AI systems outperformed the estimated human score on a reading comprehension test. It was the latest demonstration of rapid advances that have improved search engines and voice assistants and that are finding broader applications in health care and other fields.  
  
The answers they got wrong — and the test itself — also highlight the limitations of computer intelligence and the difficulty of comparing it directly to human intelligence.  
  
"We are still a long way from computers being able to read and comprehend general text in the same way that humans can," said Kevin Scott, Microsoft's chief technology officer, in a LinkedIn post that also commended the achievement by the company's Beijing-based researchers.  
  
The test developed at Stanford University demonstrated that, in at least some circumstances, computers can beat humans at quickly "reading" hundreds of Wikipedia entries and coming up with accurate answers to questions about Genghis Khan's reign or the Apollo space program.  
  
The computers, however, also made mistakes that many people wouldn't have.  
  
Microsoft, for instance, fumbled an easy football question about which member of the NFL's Carolina Panthers got the most interceptions in the 2015 season (the correct answer was Kurt Coleman, not Josh Norman). A person's careful reading of the Wikipedia passage would have discovered the right answer, but the computer tripped up on the word "most" and didn't understand that seven is bigger than four.  
  
"You need some very simple reasoning here, but the machine cannot get it," said Jianfeng Gao, of Microsoft's AI research division.  
  
It's not uncommon for machine-learning competitions to pit the cognitive abilities of computers against humans. Machines first bested people in an image-recognition competition in 2015 and a speech recognition competition last year, although they're still easily tricked. Computers have also vanquished humans at chess, Pac-Man and the strategy game Go .  
  
And since IBM's "Jeopardy!" victory in 2011, the tech industry has shifted its efforts to data-intensive methods that seek to not just find factoids, but better comprehend the meaning of multi-sentence passages.  
  
Like the other tests, the Stanford Question Answering Dataset, nicknamed Squad, attracted a rivalry among research institutions and tech firms — with Google, Facebook, Tencent, Samsung and Salesforce also giving it a try.  
  
"Academics love competitions," said Pranav Rajpurkar, the Stanford doctoral student who helped develop the test. "All these companies and institutions are trying to establish themselves as the leader in AI."  
  
The tech industry's collection and digitization of huge troves of data, combined with new sets of algorithms and more powerful computing, has helped inject new energy into a machine-learning field that's been around for more than half a century. But computers are still "far off" from truly understanding what they're reading, said Michael Littman, a Brown University computer science professor who has tasked computers to solve crossword puzzles.  
  
Computers are getting better at the statistical intuition that allows them to scan text and find what seems relevant, but they still struggle with the logical reasoning that comes naturally to people. (And they are often hopeless when it comes to deciphering the subtle wink-and-nod trickery of a clever puzzle.) Many of the common ways of measuring artificial intelligence are in some ways teaching to the test, Littman said.  
  
"It strikes me for the kind of problem that they're solving that it's not possible to do better than people, because people are defining what's correct," Littman said of the Stanford benchmark. "The impressive thing here is they met human performance, not that they've exceeded it."

### Document 1006

DeepMind has given 3-D structure to 350,000 proteins, including every one made by humans, promising a boon for medicine and drug design. For some years now John McGeehan, a biologist and the director of the Center for Enzyme Innovation in Portsmouth, England, has been searching for a molecule that could break down the 150 million tons of soda bottles and other plastic waste strewn across the globe. Working with researchers on both sides of the Atlantic, he has found a few good options. But his task is that of the most demanding locksmith: to pinpoint the chemical compounds that on their own will twist and fold into the microscopic shape that can fit perfectly into the molecules of a plastic bottle and split them apart, like a key opening a door. Determining the exact chemical contents of any given enzyme is a fairly simple challenge these days. But identifying its three-dimensional shape can involve years of biochemical experimentation. So last fall, after reading that an artificial intelligence lab in London called DeepMind had built a system that automatically predicts the shapes of enzymes and other proteins, Dr. McGeehan asked the lab if it could help with his project. Toward the end of one workweek, he sent DeepMind a list of seven enzymes. The following Monday, the lab returned shapes for all seven. ''This moved us a year ahead of where we were, if not two,'' Dr. McGeehan said. Now, any biochemist can speed their work in much the same way. On Thursday, DeepMind released the predicted shapes of more than 350,000 proteins -- the microscopic mechanisms that drive the behavior of bacteria, viruses, the human body and all other living things. This new database includes the three-dimensional structures for all proteins expressed by the human genome, as well as those for proteins that appear in 20 other organisms, including the mouse, the fruit fly and the E. coli bacterium. This vast and detailed biological map -- which provides roughly 250,000 shapes that were previously unknown -- may accelerate the ability to understand diseases, develop new medicines and repurpose existing drugs. It may also lead to new kinds of biological tools, like an enzyme that efficiently breaks down plastic bottles and converts them into materials that are easily reused and recycled. ''This can take you ahead in time -- influence the way you are thinking about problems and help solve them faster,'' said Gira Bhabha, an assistant professor in the department of cell biology at New York University. ''Whether you study neuroscience or immunology -- whatever your field of biology -- this can be useful.'' This new knowledge is its own sort of key: If scientists can determine the shape of a protein, they can determine how other molecules will bind to it. This might reveal, say, how bacteria resist antibiotics -- and how to counter that resistance. Bacteria resist antibiotics by expressing certain proteins; if scientists were able to identify the shapes of these proteins, they could develop new antibiotics or new medicines that suppress them. In the past, pinpointing the shape of a protein required months, years or even decades of trial-and-error experiments involving X-rays, microscopes and other tools on the lab bench. But DeepMind can significantly shrink the timeline with its A.I. technology, known as AlphaFold. When Dr. McGeehan sent DeepMind his list of seven enzymes, he told the lab that he had already identified shapes for two of them, but he did not say which two. This was a way of testing how well the system worked; AlphaFold passed the test, correctly predicting both shapes. It was even more remarkable, Dr. McGeehan said, that the predictions arrived within days. He later learned that AlphaFold had in fact completed the task in just a few hours. AlphaFold predicts protein structures using what is called a neural network, a mathematical system that can learn tasks by analyzing vast amounts of data -- in this case, thousands of known proteins and their physical shapes -- and extrapolating into the unknown. This is the same technology that identifies the commands you bark into your smartphone, recognizes faces in the photos you post to Facebook and that translates one language into another on Google Translate and other services. But many experts believe AlphaFold is one of the technology's most powerful applications. ''It shows that A.I. can do useful things amid the complexity of the real world,'' said Jack Clark, one of the authors of the A.I. Index, an effort to track the progress of artificial intelligence technology across the globe. As Dr. McGeehan discovered, it can be remarkably accurate. AlphaFold can predict the shape of a protein with an accuracy that rivals physical experiments about 63 percent of the time, according to independent benchmark tests that compare its predictions to known protein structures. Most experts had assumed that a technology this powerful was still years away. ''I thought it would take another 10 years,'' said Randy Read, a professor at the University of Cambridge. ''This was a complete change.'' But the system's accuracy does vary, so some of the predictions in DeepMind's database will be less useful than others. Each prediction in the database comes with a ''confidence score'' indicating how accurate it is likely to be. DeepMind researchers estimate that the system provides a ''good'' prediction about 95 percent of the time. As a result, the system cannot completely replace physical experiments. It is used alongside work on the lab bench, helping scientists determine which experiments they should run and filling the gaps when experiments are unsuccessful. Using AlphaFold, researchers at the University of Colorado Boulder recently helped identify a protein structure they had struggled to identify for more than a decade. The developers of DeepMind have opted to freely share its database of protein structures rather than sell access, with the hope of spurring progress across the biological sciences. ''We are interested in maximum impact,'' said Demis Hassabis, chief executive and co-founder of DeepMind, which is owned by the same parent company as Google but operates more like a research lab than a commercial business. Some scientists have compared DeepMind's new database to the Human Genome Project. Completed in 2003, the Human Genome Project provided a map of all human genes. Now, DeepMind has provided a map of the roughly 20,000 proteins expressed by the human genome -- another step toward understanding how our bodies work and how we can respond when things go wrong. The hope is also that the technology will continue to evolve. A lab at the University of Washington has built a similar system called RoseTTAFold, and like DeepMind, it has openly shared the computer code that drives its system. Anyone can use the technology, and anyone can work to improve it. Even before DeepMind began openly sharing its technology and data, AlphaFold was feeding a wide range of projects. University of Colorado researchers are using the technology to understand how bacteria like E. coli and salmonella develop a resistance to antibiotics, and to develop ways of combating this resistance. At the University of California, San Francisco, researchers have used the tool to improve their understanding of the coronavirus. The coronavirus wreaks havoc on the body through 26 different proteins. With help from AlphaFold, the researchers have improved their understanding of one key protein and are hoping the technology can help increase their understanding of the other 25. If this comes too late to have an impact on the current pandemic, it could help in preparing for the next one. ''A better understanding of these proteins will help us not only target this virus but other viruses,'' said Kliment Verba, one of the researchers in San Francisco. The possibilities are myriad. After DeepMind gave Dr. McGeehan shapes for seven enzymes that could potentially rid the world of plastic waste, he sent the lab a list of 93 more. ''They're working on these now,'' he said. https : // www.nytimes.com/2021/07/22/technology/deepmind-ai-proteins-folding.html Graphic PHOTO: Proteins belonging to a fruit fly are given shape by DeepMind's A.I. technology. The company's new database includes structures for all of the proteins expressed by the human genome. (PHOTOGRAPH BY DEEPMIND) Load-Date: July 27, 2021 End of Document Robots, Female War Correspondents and Other Letters to the Editor The New York Times

### Document 354

DeepMind has expanded its database of microscopic biological mechanisms, hoping to accelerate research into all living things. In 2020, an artificial intelligence lab called DeepMind unveiled technology that could predict the shape of proteins -- the microscopic mechanisms that drive the behavior of the human body and all other living things. A year later, the lab shared the tool, called AlphaFold, with scientists and released predicted shapes for more than 350,000 proteins, including all proteins expressed by the human genome. It immediately shifted the course of biological research. If scientists can identify the shapes of proteins, they can accelerate the ability to understand diseases, create new medicines and otherwise probe the mysteries of life on Earth. Now, DeepMind has released predictions for nearly every protein known to science. On Thursday, the London-based lab, owned by the same parent company as Google, said it had added more than 200 million predictions to an online database freely available to scientists across the globe. With this new release, the scientists behind DeepMind hope to speed up research into more obscure organisms and spark a new field called metaproteomics. ''Scientists can now explore this entire database and look for patterns -- correlations between species and evolutionary patterns that might not have been evident until now,'' Demis Hassabis, the chief executive of DeepMind, said in a phone interview. Proteins begin as strings of chemical compounds, then twist and fold into three-dimensional shapes that define how these molecules bind to others. If scientists can pinpoint the shape of a particular protein, they can decipher how it operates. This knowledge is often a vital part of the fight against illness and disease. For instance, bacteria resist antibiotics by expressing certain proteins. If scientists can understand how these proteins operate, they can begin to counter antibiotic resistance. Previously, pinpointing the shape of a protein required extensive experimentation involving X-rays, microscopes and other tools on a lab bench. Now, given the string of chemical compounds that make up a protein, AlphaFold can predict its shape. The technology is not perfect. But it can predict the shape of a protein with an accuracy that rivals physical experiments about 63 percent of the time, according to independent benchmark tests. With a prediction in hand, scientists can verify its accuracy relatively quickly. Kliment Verba, a researcher at the University of California, San Francisco, who uses the technology to understand the coronavirus and to prepare for similar pandemics, said the technology had ''supercharged'' this work, often saving months of experimentation time. Others have used the tool as they struggle to fight gastroenteritis, malaria and Parkinson's disease. The technology has also accelerated research beyond the human body, including an effort to improve the health of honeybees. DeepMind's expanded database can help an even larger community of scientists reap similar benefits. Like Dr. Hassabis, Dr. Verba believes the database will provide new ways of understanding how proteins behave across species. He also sees it as a way of educating a new generation of scientists. Not all researchers are versed in this kind of structural biology; a database of all known proteins lowers the bar to entry. ''It can bring structural biology to the masses,'' Dr. Verba said. https : // www.nytimes.com/2022/07/28/science/ai-deepmind-proteins.html Graphic PHOTO: Six protein shapes predicted by AlphaFold, an artificial intelligence technology under Google DeepMind. (PHOTOGRAPH BY DEEPMIND) Load-Date: August 2, 2022 End of Document Google Made Web Better, Chief Argues The New York Times

### Document 575

Computers that are trained to recognize patterns and interpret images may outperform humans at finding cancer on X-rays. Artificial intelligence can help doctors do a better job of finding breast cancer on mammograms, researchers from Google and medical centers in the United States and Britain are reporting in the journal Nature. The new system for reading mammograms, which are X-rays of the breast, is still being studied and is not yet available for widespread use. It is just one of Google's ventures into medicine. Computers can be trained to recognize patterns and interpret images, and the company has already created algorithms to help detect lung cancers on CT scans, diagnose eye disease in people with diabetes and find cancer on microscope slides. ''This paper will help move things along quite a bit,'' said Dr. Constance Lehman, director of breast imaging at the Massachusetts General Hospital in Boston, who was not involved in the study. ''There are challenges to their methods. But having Google at this level is a very good thing.'' Tested on images where the diagnosis was already known, the new system performed better than radiologists. On scans from the United States, the system produced a 9.4 percent reduction in false negatives, in which a mammogram is mistakenly read as normal and a cancer is missed. It also provided a lowering of 5.7 percent in false positives, where the scan is incorrectly judged abnormal but there is no cancer. On mammograms performed in Britain, the system also beat the radiologists, reducing false negatives by 2.7 percent and false positives by 1.2 percent. Google paid for the study, and worked with researchers from Northwestern University in Chicago and two British medical centers, Cancer Research Imperial Centre and Royal Surrey County Hospital. Last year, 268,600 new cases of invasive breast cancer and 41,760 deaths were expected among women in the United States, according to the American Cancer Society. Globally, there are about 2 million new cases a year, and more than half a million deaths. About 33 million screening mammograms are performed each year in the United States. The test misses about 20 percent of breast cancers, according to the American Cancer Society, and false positives are common, resulting in women being called back for more tests, sometimes even biopsies. Doctors have long wanted to make mammography more accurate. ''There are many radiologists who are reading mammograms who make mistakes, some well outside the acceptable margins of normal human error,'' Dr. Lehman said. To apply artificial intelligence to the task, the authors of the Nature report used mammograms from about 76,000 women in Britain and 15,000 in the United States, whose diagnoses were already known, to train computers to recognize cancer. Then, they tested the computers on images from about 25,000 other women in Britain, and 3,000 in the United States, and compared the system's performance with that of the radiologists who had originally read the X-rays. The mammograms had been taken in the past, so the women's outcomes were known, and the researchers could tell whether the initial diagnoses were correct. ''We took mammograms that already happened, showed them to radiologists and asked, 'Cancer or no?' and then showed them to A.I., and asked, 'Cancer, or no?''' said Dr. Mozziyar Etemadi, an author of the study from Northwestern University. This was the test that found A.I. more accurate than the radiologists. Unlike humans, computers do not get tired, bored or distracted toward the end of a long day of reading mammograms, Dr. Etemadi said. In another test, the researchers pitted A.I. against six radiologists in the United States, presenting 500 mammograms to be interpreted. Over all, A.I. again outperformed the humans. But in some instances, A.I. missed a cancer that all six radiologists found -- and vice versa. ''There's no denying that in some cases our A.I. tool totally gets it wrong and they totally get it right,'' Dr. Etemadi said. ''Purely from that perspective it opens up an entirely new area of inquiry and study. Why is it that they missed it? Why is it that we missed it?'' Dr. Lehman, who is also developing A.I. for mammograms, said the Nature report was strong, but she had some concerns about the methods, noting that the patients studied might not be a true reflection of the general population. A higher proportion had cancer, and the racial makeup was not specified. She also said that ''reader'' analyses involving a small number of radiologists -- this study used six -- were not always reliable. The next step in the research is to have radiologists try using the tool as part of their routine practice in reading mammograms. New techniques that pass their initial tests with flying colors do not always perform as well out in the real world. ''We have to see what happens when radiologists have it, see if they do better,'' Dr. Etemadi said. Dr. Lehman said: ''We have to be very careful. We want to make sure this is helping patients.'' She said an earlier technology, computer-aided detection, or CAD, provided a cautionary tale. Approved in 1998 by the Food and Drug Administration to help radiologists read mammograms, it came into widespread use. Some hospital administrators pressured radiologists to use it whether they liked it or not because patients could be charged extra for it, increasing profits, Dr. Lehman said. Later, several studies, including one that Dr. Lehman was part of, found that CAD did not improve the doctors' accuracy and even made them worse. ''We can learn from the mistakes with CAD and do it better,'' Dr. Lehman said, adding that A.I. has become far more powerful, and keeps improving as more data is fed in. ''Using computers to enhance human performance is long overdue.'' She and Dr. Etemadi said that a potentially good use of A.I. would be to sort mammograms and flag those most in need of the radiologist's attention. The system may also be able to identify those that are clearly negative, so they could be read quickly and patients could promptly be given a clean bill of health. Although developers of A.I. often say it is intended to help radiologists, not replace them, Dr. Lehman predicted that eventually, computers alone will read at least some mammograms, without help from humans. ''We're onto something,'' she said. ''These systems are picking up things a human might not see, and we're right at the beginning of it.'' [Like the Science Times page on Facebook. | Sign up for the Science Times newsletter.] https : // www.nytimes.com/2020/01/01/health/breast-cancer-mammogram-artificial-intelligence.html Graphic PHOTOS: A box showing where an A.I. system found cancer in breast tissue. Six radiologists failed to find the cancer in routine mammograms. (PHOTOGRAPH BY NORTHWESTERN UNIVERSITY) Load-Date: January 4, 2020 End of Document Visit Prompts Cooperation on Defense The New York Times

### Document 680

Robert Fano, an electrical engineer who was instrumental in creating a world of instantly responsive computers, died on July 13 in Naples, Fla. He was 98. His daughter Paola Nisonger confirmed his death. As a pioneering computer designer at the Massachusetts Institute of Technology, Mr. Fano made fundamental theoretical advances, both in the ways computers handled information and in the design of interactive software that made it possible for the machines to support many simultaneous users. Building on the idea of shared computing proposed in 1961 by John McCarthy, an artificial intelligence researcher, Dr. Fano collaborated with another electrical engineer, Fernando J. Corbato, to develop the first time-sharing computer operating system, known as Compatible Time-Sharing System, or CTSS, to run on an IBM computer. Before the advent of time-sharing, computers were largely walled off from users in glass rooms. Programs were run sequentially, submitted in decks of punched cards. Users then returned later -- often one or two days -- to receive the output as printouts. The system was notoriously frustrating, Dr. Fano recalled in a 1985 lecture: ''If you misplaced a comma in any program, well, those two days were gone!'' CTSS marked a fundamental shift leading to a more interactive computing world in which users worked at individual terminals. It also soon led to Project MAC, an M.I.T. computation center for which Dr. Fano was the founding director in 1963. It ushered in a world where computing influenced a wide range of new ideas, ultimately including personal computing. Initially financed by the psychologist J. C. R. Licklider, who was then directing the Information Processing Techniques Office at the Advanced Research Projects Office at the Pentagon, Project MAC stood for both Multiple Access Computing and Machine Aided Cognition. It was part of an early wave of computing research focused on the idea of a ''man-computer symbiosis'' that Dr. Licklider proposed in an influential paper in 1960. Dr. Fano recalled picking up the challenge because no one else stepped forward. ''At a certain point, I decided if nobody was ready to get the ball rolling, I was going to do it, although my experience with computers was close to nil,'' he said in an interview with the filmmaker Errol Morris. He said the project also helped establish the field of computer science apart from electrical engineering. Project MAC would lead to a proliferation of new ideas in computing and artificial intelligence research. One crucial component was the simultaneous development of the Multics operating system -- a joint effort of M.I.T. and corporations such as General Electric and Bell Labs, under the auspices of Project MAC. ''The whole concept of Multics was going to be something that revolutionized the way people used computers in a way that was humanistic and friendly,'' said Peter Neumann, a computer scientist who was then a Bell Labs researcher who participated in the project. Project MAC was also significant in training a generation of technologists who would spread ideas far beyond the insular community of hackers who built the original system. Two of the early Project MAC designers were Daniel Bricklin and Robert Frankston, M.I.T. students who went on to develop the Visicalc spreadsheet program, which was instrumental in bringing personal computing to the business world. Mr. Frankston recalled that Dr. Fano was interested in the social aspect of computing. ''The Multics project was about interactive computing, which kept people involved,'' he said. ''Contrast that with Google's goal of a driverless car with people reduced to being passengers.'' Computing was one of several fields Dr. Fano pursued. His interest in information theory was piqued one day in 1948 as a young professor of electrical engineering at M.I.T., when Norbert Weiner, a mathematician who coined the term cybernetics, poked his head into Dr. Fano's office and said cryptically: ''You know, information is entropy.'' That started Dr. Fano on a long meditation and ultimately led to a collaboration with a Bell Laboratories mathematician and electrical engineer, Claude Shannon, also a pioneer in the field of information theory, on new approaches to data compression. The ideas were further evolved by one of Dr. Fano's students, David A. Huffman, who developed a way to compress data without losing information. Robert Mario Fano was born in Turin, Italy, on Nov. 11, 1917. He was a student at the School of Engineering of Torino in 1939 when his family was forced to move to the United States in the face of Mussolini's anti-Jewish legislation. After getting his undergraduate degree at M.I.T., he worked briefly at General Motors, supervising operators of welding machines, but he quickly returned to graduate studies at M.I.T. During World War II, he joined the Radiation Laboratory there and was involved in the development of microwave radar. He spent a decade in information theory before turning his attention to computing. Besides his daughter Paola, Dr. Fano is survived by two other daughters, Linda Ryan and Carol Fano, and five grandchildren. http : // www.nytimes.com/2016/07/27/technology/robert-fano-98-dies-engineer-who-helped-develop-interactive-computers.html Load-Date: July 27, 2016 End of Document Would there be American troops in Afghanistan at the end of your first term? The New York Times

### Document 1087

-- In 2012, Geoffrey Hinton changed the way machines see the world. Along with two graduate students at the University of Toronto, Mr. Hinton, a professor there, built a system that could analyze thousands of photos and teach itself to identify common objects like flowers and cars with an accuracy that didn't seem possible. He and his students soon moved to Google, and the mathematical technique that drove their system -- called a neural network -- spread across the tech world. This is how autonomous cars recognize things like street signs and pedestrians. But as Mr. Hinton himself points out, his idea has had its limits. If a neural network is trained on images that show a coffee cup only from a side, for example, it is unlikely to recognize a coffee cup turned upside down. Now Mr. Hinton and Sara Sabour, a young Google researcher, are exploring an alternative mathematical technique that he calls a capsule network. The idea is to build a system that sees more like a human. If a neural network sees the world in two dimensions, a capsule network can see it in three. Mr. Hinton, a 69-year-old British expatriate, opened Google's artificial intelligence lab in Toronto this year. The new lab is emblematic of what some believe to be the future of cutting-edge tech research: Much of it is expected to happen outside the United States in Europe, China and longtime A.I. research centers, like Toronto, that are more welcoming to immigrant researchers. Ms. Sabour is an Iranian researcher who wound up in Toronto after the United States government denied her a visa to study computer vision at the University of Washington. Her task is to turn Mr. Hinton's conceptual idea into a mathematical reality, and the project is bearing fruit. They recently published a paper showing that in certain situations their method can more accurately recognize objects when viewing them from unfamiliar angles. ''It can generalize much better than the traditional neural nets everyone is now using,'' Ms. Sabour said. When I walked into his office this month, Mr. Hinton, dressed in his usual button-down shirt and sweater, handed me two large white blocks. They looked like something he had found at the bottom of an old toy chest. He explained that the blocks were two halves of a pyramid, and he asked if I could put the pyramid back together. That didn't seem too hard. The blocks were oddly shaped, but each had only five sides. All I had to do was find the two sides that matched and line them up. But I couldn't. Most people fail this test, he told me, including two tenured professors at the Massachusetts Institute of Technology. One declined to try, and the other insisted it wasn't possible. It is possible. But we all failed, Mr. Hinton explained, because the puzzle undercuts the natural way we see something like a pyramid. We do not recognize an object by looking at one side and then another and then another. We picture the whole thing sitting in three-dimensional space. And because of the way the puzzle cuts the pyramid in two, it prevents us from picturing it in 3-D space as we normally would. With his capsule networks, Mr. Hinton aims to finally give machines the same three-dimensional perspective that humans have -- allowing them to recognize a coffee cup from any angle after learning what it looks like from only one. This is not something that neural networks can do. ''It is a fact that is ignored by researchers in computer vision,'' he said. ''And that is a huge mistake.'' Loosely modeled on the web of neurons in the human brain, neural networks are algorithms that can learn discrete tasks by identifying patterns in large amounts of data. By analyzing thousands of car photos, for instance, a neural network can learn to recognize a car. This mathematical idea dates back to the 1950s, but the concept has found real-world applications in recent years, thanks to improvements in processing power and the large amounts of data generated by the internet. Over the last five years, neural networks have accelerated the progress of everything from smartphone digital assistants to language translation services to autonomous robots. But these methods are still a long way from delivering machines with true intelligence -- and new research is needed to deliver the kinds of autonomous machines that so many of the top tech companies are now promising, including conversational computers and driverless cars. Mr. Hinton, who is a kind of godfather figure for the A.I. community, is part of a small but increasingly vocal group of specialists who are working to push the industry into these alternative areas of research. Oren Etzioni, chief executive of the Allen Institute for Artificial Intelligence, based in Seattle, lamented what he called the industry's myopia. Its current focus on neural networks, he said, will hurt the progress of A.I. in the long run. Eric Horvitz, who oversees much of the A.I. work at Microsoft, argued that neural networks and related techniques were small advances compared with technologies that would arrive in the years to come. ''Right now, what we are doing is not a science but a kind of alchemy,'' he said. Mr. Hinton acknowledges that his project in Toronto has so far shown only preliminary results. And others, like Mr. Etzioni and Mr. Horvitz, believe that very different techniques will be needed to achieve truly intelligent machines. Mr. Etzioni said that although machine learning methods would remain at the center of A.I. work, they must be augmented with other techniques. They are fundamentally limited because they learn from data. The right data isn't always available. But Mr. Hinton believes his capsule networks can eventually expand to a wider array of situations, accelerating the progress of computer vision and things like conversational computing. Capsule networks are an attempt to mimic the brain's network of neurons in a more complex and structured way, and he explained that this added structure could help other forms of artificial intelligence as well. He certainly understands that many will be skeptical of his technique. But Mr. Hinton also pointed out that five years ago, many were skeptical of neural networks. ''History is going to repeat itself,'' he said. ''I think.'' https : // www.nytimes.com/2017/11/28/technology/artificial-intelligence-research-toronto.html Graphic PHOTO: Geoffrey Hinton and Sara Sabour, holding a two-piece pyramid puzzle, are working to let computers see more like humans. (PHOTOGRAPH BY CHRISTOPHER WAHL FOR THE NEW YORK TIMES) Load-Date: December 1, 2017 End of Document Former Executive on IBM's Watson to Start Own A.I. Firm The New York Times

### Document 989

India — The Aravind Eye Hospital will treat anyone who comes through the door, with or without money. Each day, more than 2,000 people arrive from across India and sometimes other parts of the world, crowding into the hallways and waiting rooms of this 43-year-old hospital at the southern end of the country. On a recent morning, Vt Muthusamy Ramalingamm, a local resident, walked into a room on the second floor, sat down and rested his chin on a small desktop device that pointed a camera into his eyes. A technician tapped on a screen at the back of an eye scanner, and within seconds a diagnosis appeared on a computer against the wall. Both eyes showed signs of diabetic retinopathy, a condition that can cause blindness if untreated. In most hospitals and clinics around the world, trained physicians make this diagnosis, examining a patient’s eyes and identifying the tiny lesions, hemorrhages and discoloration that anticipate diabetic blindness. But Aravind is trying to automate the process. Working with a team of Google artificial intelligence researchers based in California, the hospital is testing a system that can recognize the condition on its own. Google and its sister company Verily targeted this type of blindness because of its prevalence and because it is the sort of illness that an A.I. system can detect early. Google is not charging the hospital while it tests the technology. Researchers hope this A.I. system will help doctors screen more patients in a country where diabetic retinopathy is increasingly prevalent. Nearly 70 million Indians are diabetic, according to the World Health Organization, and all are at risk of blindness. But the country does not train enough doctors to properly screen them all. For every one million people in India, there are only 11 eye doctors, according to the International Council of Ophthalmology. The project is part of a widespread effort to build and deploy systems that can automatically detect signs of illness and disease in medical scans. Hospitals in the United States, Britain and Singapore have also run clinical trials with systems that detect signs of diabetic blindness. Researchers across the globe are exploring technologies that detect cancer, stroke, heart disease and other conditions in X-rays and in M.R.I. and CT scans. Last month, regulators certified the eye system for use in Europe under the Verily name. And the Food and Drug Administration recently approved a similar system in the United States. But hospitals are treading lightly as they consider deploying systems that are vastly different from technology traditionally used for health care. Aravind’s founder, Govindappa Venkataswamy, an iconic figure in India who was known as “Dr. V” and died in 2006, envisioned a network of hospitals and vision centers that operate like McDonald’s franchises, systematically reproducing inexpensive forms of eye care for people across the country. There are more than 40 of the vision centers around India. In addition to screening patients in Madurai — one of the largest cities in southern India — the hospital plans to install Google’s technology in surrounding villages where few if any eye doctors are available. The new A.I. system could radically expand the number of people who can be screened. “Right now, there is a bottleneck when it comes to just screening patients, ” said Dr. R. Kim, a nephew of Dr. V’s who now serves as chief medical officer at Aravind. Behind the new screening methods are neural networks, complex mathematical systems that can learn tasks by analyzing vast amounts of data. By analyzing millions of retinal scans showing signs of diabetic blindness, a neural network can learn to identify the condition on its own. A neural network is the same technology that is rapidly improving face recognition services, talking digital assistants, driverless cars and instant translation services like Google Translate. Because these systems learn from enormous amounts of information, researchers are still struggling to completely understand how they work — and how they will ultimately behave. But some experts believe that once they are honed, tested and properly deployed, they can fundamentally improve health care. At Aravind, computer screens mounted on the walls of the waiting rooms translate information into the myriad languages spoken in the hospital. During his exam, Mr. Ramalingamm, 60, spoke Tamil, the ancient language of southern India and Sri Lanka. He said he was comfortable with a machine diagnosing his eye condition, in part because it happened so quickly. After the initial screening by the A.I. system, doctors could treat the eyes, perhaps with laser surgery, to stave off blindness. The system performs on a par with trained ophthalmologists, according to a study published in The Journal of the American Medical Association. But it is far from completely replacing a doctor. Earlier in the day, Pambaiyan Balusamy, 55, sat in the same room. The Google system diagnosed “proliferative” retinopathy in his left eye — the most serious form of the condition — but it could not read the scan of his right eye, most likely because the eye had developed a cataract. Doctors can sometimes make a diagnosis when faced with cataracts and blurry eye scans. The Google system still struggles to do this. It is trained largely on clear, unobstructed images of the retina, though Google is exploring the use of lower-quality images. Even with this limitation, Dr. Kim said, the system can augment what doctors can do on their own. Aravind already operates small vision centers in many of the cities and villages surrounding Madurai. The hope is that the Google system can make eye screening easier in these facilities and perhaps other locations across southern India. Today, in these vision centers, technicians take eye scans and send them to doctors in Madurai for review. Automated diagnosis can streamline and expand the process, reaching more people in more places — the kind of “McDonaldization” espoused by Dr. V. The technology still faces regulatory hurdles in India, in part because of the difficulty of navigating the country’s bureaucracy. And though Google’s eye system is now certified for use in Europe, it is still awaiting approval in the United States. Luke Oakden-Rayner, the director of medical imaging research at the Royal Adelaide Hospital in Australia, said these systems might even need new regulatory frameworks because existing rules weren’t always sufficient. “I am not convinced that people care enough about the safety of these systems,” he said. Though these deep-learning systems are new, they are hardly the first effort to aid diagnosis through computer technology. As Dr. Oakden-Rayner pointed out, software called breast CAD — approved by the Food and Drug Administration in 1998 — has been widely adopted in the United States to help with the detection of breast cancer, in part because Medicaid provides a rebate when the technology is used. But studies have shown that patient outcomes did not improve and in some cases declined. “On paper, the Google system performs very well,” Dr. Oakden-Rayner said. “But when you roll it out to a huge population, there can be problems that do not show up for years.” Follow Cade Metz on Twitter: @CadeMetz. PHOTO: A technician screening a patient at the Aravind Eye Hospital in Madurai, India. The hospital is using a Google system that relies on artificial intelligence to diagnose a retinal problem from such a scan. (PHOTOGRAPH BY Atul Loke for The New York Times FOR THE NEW YORK TIMES) Related Articles A.I. Shows Promise Assisting Physicians Making New Drugs With a Dose of Artificial Intelligence A New Way for Machines to See, Taking Shape in Toronto Load-Date: March 13, 2019 End of Document Service With a Chirp: Robots Step Up in Labor Shortage The New York Times

### Document 636

John Henry Holland, a computer scientist whose seminal work on genetic algorithms, or computer codes that mimic sexually reproducing organisms, proved crucial in the study of complex adaptive systems, a field he helped create, died on Aug. 9 at his home in Ann Arbor, Mich. He was 86. The cause was cancer, his daughter Gretchen Sleamon said. While a graduate student at the University of Michigan in 1953, Dr. Holland, wandering through the school's mathematics library, chanced upon ''The Genetical Theory of Natural Selection,'' a 1929 book by the English statistician and evolutionary biologist R. A. Fisher. In one arresting example, Mr. Fisher described the seemingly random fluttering of a colony of butterflies as a dynamic information network that could be mapped mathematically. ''The fact that you could take calculus and differential equations and all the other things I had learned in my math classes to start a revolution in genetics -- that was a real eye opener,'' Dr. Holland told M. Mitchell Waldrop, the author of ''Complexity: The Emerging Science at the Edge of Order and Chaos'' (1993). ''Once I saw that, I knew I could never let it go.'' He began thinking about using computers to analyze complex adaptive systems: continually evolving aggregates that emerge through the spontaneous interaction of myriad agents and develop multiple organizational levels. Examples include the human brain, ant colonies, economies and tropical rain forests. ''I look at big, buzzing complex systems and ask what mechanisms and properties seem central,'' he told The New York Times in 1995. One of his most innovative ideas was to develop computer codes, which he called genetic algorithms, that mimicked evolutionary processes by mating and mutating possible solutions; they in turn generated new solutions leading to an optimal result -- a computer version of the survival of the fittest. ''John is rather unique in that he took ideas from evolutionary biology in order to transform search and optimization in computer science, and then he took what he discovered in computer science and allowed us to rethink evolutionary dynamics,'' David Krakauer, the president of the Santa Fe Institute, a think tank for the study of complex systems, wrote in a memorial article. ''This kind of rigorous translation between two communities of thought is a characteristic of very deep minds.'' In 1975 Dr. Holland presented his ideas in ''Adaptation in Natural and Artificial Systems,'' one of the most frequently cited works in the fields of artificial intelligence and evolutionary computing, with implications for fields as varied as psychology, neuroscience, economics and linguistics. It led to the widespread acceptance of genetic algorithms as an optimization and search method in computer science beginning in the 1980s. ''Although there had been previous research on genetic algorithms and related evolutionary algorithms, John's book was a turning point in the field,'' said John E. Laird, a professor of engineering at the University of Michigan who works on artificial intelligence. ''It marked the beginning of a sustained body of research on genetic algorithms that has continued for over 40 years.'' John Henry Holland was born on Feb. 2, 1929, in Fort Wayne, Ind., and grew up in several small Ohio towns where his father, Gustave, set up soybean-processing mills. His mother, the former Mildred Gfroerer, often worked as his accountant. After graduating from high school in Van Wert, Ohio, he attended the Massachusetts Institute of Technology, where he worked on the first real-time computer, Whirlwind, and earned a physics degree in 1950. For the next year and a half, he worked at IBM's main research laboratory in Poughkeepsie, N.Y., on the company's first commercial computer, the 701, called the Defense Calculator. As a way of testing the computer, he and his team leader, Nathaniel Rochester, devised a program to simulate Hebb's theory of cell assemblies, which seeks to explain the way neurons in the brain self-organize during the learning process. Such neural-network simulations later became standard in artificial intelligence research. At the same time, one of his colleagues, the electrical engineer Arthur Samuel, taught the computer to play checkers. Samuel showed that a computer program could be self-improvable. With time, the 701 adapted its tactics to the other player's moves, becoming a better player. The lesson was not lost on Dr. Holland. After earning a master's degree in mathematics at the University of Michigan, he did doctoral work in the school's new department of communication sciences and in 1959 received its first Ph.D. in what would later be called computer science. His dissertation, ''Cycles in Logical Nets,'' described the changes caused when feedback was introduced into logical networks. He spent his entire career at the University of Michigan, where he was a professor of electrical engineering and computer science, and a professor of psychology. He helped create the university's cognitive science program in the 1970s and, in 1999, the Center for the Study of Complex Systems. In the mid-1980s, he became a core participant in the Santa Fe Institute. Created by senior scientists at the Los Alamos National Laboratory for the interdisciplinary study of complex systems, it quickly became a clearing house for the most advanced ideas in the field. He went on to serve as a trustee and as a member of its science advisory board. In addition to his daughter Gretchen, Dr. Holland is survived by his other daughters, Alison Butler and Manja Holland; his sister, Shirley Ringgenberg; and four grandchildren. His two marriages ended in divorce. He explored the nature of complex systems in the books ''Hidden Order: How Adaptation Builds Complexity'' (1995) and ''Emergence: From Chaos to Order'' (1998). In his 80s, he published ''Signals and Boundaries: Building Blocks for Complex Adaptive Systems'' (2012) and ''Complexity: A Very Short Introduction'' (2014). In 1992 he was named a MacArthur Fellow. Dr. Holland often said that he picked up some of his best ideas by talking to people outside his field -- linguists, musicians and poets. ''My own idiosyncratic view is that the reason many scientists burn out early is that they dig very deep in one area and then they've gone as far as it's humanly possible at that time and then can't easily cross over into other areas,'' he said in a 2006 interview. ''I think at the heart of most creative science are well-thought-out metaphors, and cross-disciplinary work is a rich source of metaphor.'' http : // www.nytimes.com/2015/08/20/us/john-henry-holland-computerized-evolution-dies-at-86.html Graphic PHOTO: John Henry Holland (PHOTOGRAPH BY THE SANTA FE INSTITUTE) Load-Date: August 20, 2015 End of Document Yuval Noah Harari has a theory about gender debates. 'It's about what we can do with technology to change the human body and brain and mind.' The New York Times

### Document 483

-- In 2004, Geoffrey Hinton doubled down on his pursuit of a technological idea called a neural network. It was a way for machines to see the world around them, recognize sounds and even understand natural language. But scientists had spent more than 50 years working on the concept of neural networks, and machines couldn't really do any of that. Backed by the Canadian government, Dr. Hinton, a computer science professor at the University of Toronto, organized a new research community with several academics who also tackled the concept. They included Yann LeCun, a professor at New York University, and Yoshua Bengio at the University of Montreal. On Wednesday, the Association for Computing Machinery, the world's largest society of computing professionals, announced that Drs. Hinton, LeCun and Bengio had won this year's Turing Award for their work on neural networks. The Turing Award, which was introduced in 1966, is often called the Nobel Prize of computing, and it includes a $1 million prize, which the three scientists will share. Over the past decade, the big idea nurtured by these researchers has reinvented the way technology is built, accelerating the development of face-recognition services, talking digital assistants, warehouse robots and self-driving cars. Dr. Hinton is now at Google, and Dr. LeCun works for Facebook. Dr. Bengio has inked deals with IBM and Microsoft. ''What we have seen is nothing short of a paradigm shift in the science,'' said Oren Etzioni, the chief executive officer of the Allen Institute for Artificial Intelligence in Seattle and a prominent voice in the A.I. community. ''History turned their way, and I am in awe.'' Loosely modeled on the web of neurons in the human brain, a neural network is a complex mathematical system that can learn discrete tasks by analyzing vast amounts of data. By analyzing thousands of old phone calls, for example, it can learn to recognize spoken words. This allows many artificial intelligence technologies to progress at a rate that was not possible in the past. Rather than coding behavior into systems by hand -- one logical rule at a time -- computer scientists can build technology that learns behavior largely on its own. The London-born Dr. Hinton, 71, first embraced the idea as a graduate student in the early 1970s, a time when most artificial intelligence researchers turned against it. Even his own Ph.D. adviser questioned the choice. ''We met once a week,'' Dr. Hinton said in an interview. ''Sometimes it ended in a shouting match, sometimes not.'' Neural networks had a brief revival in the late 1980s and early 1990s. After a year of postdoctoral research with Dr. Hinton in Canada, the Paris-born Dr. LeCun moved to AT&T's Bell Labs in New Jersey, where he designed a neural network that could read handwritten letters and numbers. An AT&T subsidiary sold the system to banks, and at one point it read about 10 percent of all checks written in the United States. Though a neural network could read handwriting and help with some other tasks, it could not make much headway with big A.I. tasks, like recognizing faces and objects in photos, identifying spoken words, and understanding the natural way people talk. ''They worked well only when you had lots of training data, and there were few areas that had lots of training data,'' Dr. LeCun, 58, said. But some researchers persisted, including the Paris-born Dr. Bengio, 55, who worked alongside Dr. LeCun at Bell Labs before taking a professorship at the University of Montreal. In 2004, with less than $400,000 in funding from the Canadian Institute for Advanced Research, Dr. Hinton created a research program dedicated to what he called ''neural computation and adaptive perception.'' He invited Dr. Bengio and Dr. LeCun to join him. By the end of the decade, the idea had caught up with its potential. In 2010, Dr. Hinton and his students helped Microsoft, IBM, and Google push the boundaries of speech recognition. Then they did much the same with image recognition. ''He is a genius and knows how to create one impact after another,'' said Li Deng, a former speech researcher at Microsoft who brought Dr. Hinton's ideas into the company. Dr. Hinton's image recognition breakthrough was based on an algorithm developed by Dr. LeCun. In late 2013, Facebook hired the N.Y.U. professor to build a research lab around the idea. Dr. Bengio resisted offers to join one of the big tech giants, but the research he oversaw in Montreal helped drive the progress of systems that aim to understand natural language and technology that can generate fake photos that are indistinguishable from the real thing. Though these systems have undeniably accelerated the progress of artificial intelligence, they are still a very long way from true intelligence. But Drs. Hinton, LeCun and Bengio believe that new ideas will come. ''We need fundamental additions to this toolbox we have created to reach machines that operate at the level of true human understanding,'' Dr. Bengio said. https : // www.nytimes.com/2019/03/27/technology/turing-award-ai.html Graphic PHOTOS: From left, Yoshua Bengio of the University of Montreal, Geoffrey Hinton of the University of Toronto and Yann LeCun of New York University. They will share the Turing Award and its $1 million prize for their work on neural networks. (PHOTOGRAPHS BY CHAD BUCHANAN/GETTY IMAGES AARON VINCENT ELKAIM FOR THE NEW YORK TIMES FACEBOOK, VIA ASSOCIATED PRESS) Load-Date: March 28, 2019 End of Document World Might Not Be Ready, But A.I. 'Agents' Are Here The New York Times

### Document 1043

-- They are a dream of researchers but perhaps a nightmare for highly skilled computer programmers: artificially intelligent machines that can build other artificially intelligent machines. With recent speeches in both Silicon Valley and China, Jeff Dean, one of Google's leading engineers, spotlighted a Google project called AutoML. ML is short for machine learning, referring to computer algorithms that can learn to perform particular tasks on their own by analyzing data. AutoML, in turn, is a machine-learning algorithm that learns to build other machine-learning algorithms. With it, Google may soon find a way to create A.I. technology that can partly take the humans out of building the A.I. systems that many believe are the future of the technology industry. The project is part of a much larger effort to bring the latest and greatest A.I. techniques to a wider collection of companies and software developers. The tech industry is promising everything from smartphone apps that can recognize faces to cars that can drive on their own. But by some estimates, only 10,000 people worldwide have the education, experience and talent needed to build the complex and sometimes mysterious mathematical algorithms that will drive this new breed of artificial intelligence. The world's largest tech businesses, including Google, Facebook and Microsoft, sometimes pay millions of dollars a year to A.I. experts, effectively cornering the market for this hard-to-find talent. The shortage isn't going away anytime soon, just because mastering these skills takes years of work. The industry is not willing to wait. Companies are developing all sorts of tools that will make it easier for any operation to build its own A.I. software, including things like image and speech recognition services and online chatbots. ''We are following the same path that computer science has followed with every new type of technology,'' said Joseph Sirosh, a vice president at Microsoft, which recently unveiled a tool to help coders build deep neural networks, a type of computer algorithm that is driving much of the recent progress in the A.I. field. ''We are eliminating a lot of the heavy lifting.'' This is not altruism. Researchers like Mr. Dean believe that if more people and companies are working on artificial intelligence, it will propel their own research. At the same time, companies like Google, Amazon and Microsoft see serious money in the trend that Mr. Sirosh described. All of them are selling cloud-computing services that can help other businesses and developers build A.I. ''There is real demand for this,'' said Matt Scott, a co-founder and the chief technical officer of Malong, a start-up in China that offers similar services. ''And the tools are not yet satisfying all the demand.'' This is most likely what Google has in mind for AutoML, as the company continues to hail the project's progress. Google's chief executive, Sundar Pichai, boasted about AutoML last month while unveiling a new Android smartphone. Eventually, the Google project will help companies build systems with artificial intelligence even if they don't have extensive expertise, Mr. Dean said. Today, he estimated, no more than a few thousand companies have the right talent for building A.I., but many more have the necessary data. ''We want to go from thousands of organizations solving machine learning problems to millions,'' he said. Google is investing heavily in cloud-computing services -- services that help other businesses build and run software -- which it expects to be one of its primary economic engines in the years to come. And after snapping up such a large portion of the world's top A.I researchers, it has a means of jump-starting this engine. Neural networks are rapidly accelerating the development of A.I. Rather than building an image-recognition service or a language translation app by hand, one line of code at a time, engineers can much more quickly build an algorithm that learns tasks on its own. By analyzing the sounds in a vast collection of old technical support calls, for instance, a machine-learning algorithm can learn to recognize spoken words. But building a neural network is not like building a website or some run-of-the-mill smartphone app. It requires significant math skills, extreme trial and error, and a fair amount of intuition. Jean-François Gagné, the chief executive of an independent machine-learning lab called Element AI, refers to the process as ''a new kind of computer programming.'' In building a neural network, researchers run dozens or even hundreds of experiments across a vast network of machines, testing how well an algorithm can learn a task like recognizing an image or translating from one language to another. Then they adjust particular parts of the algorithm over and over again, until they settle on something that works. Some call it a ''dark art,'' just because researchers find it difficult to explain why they make particular adjustments. But with AutoML, Google is trying to automate this process. It is building algorithms that analyze the development of other algorithms, learning which methods are successful and which are not. Eventually, they learn to build more effective machine learning. Google said AutoML could now build algorithms that, in some cases, identified objects in photos more accurately than services built solely by human experts. Barret Zoph, one of the Google researchers behind the project, believes that the same method will eventually work well for other tasks, like speech recognition or machine translation. This is not always an easy thing to wrap your head around. But it is part of a significant trend in A.I. research. Experts call it ''learning to learn'' or ''meta-learning.'' Many believe such methods will significantly accelerate the progress of A.I. in both the online and physical worlds. At the University of California, Berkeley, researchers are building techniques that could allow robots to learn new tasks based on what they have learned in the past. ''Computers are going to invent the algorithms for us, essentially,'' said a Berkeley professor, Pieter Abbeel. ''Algorithms invented by computers can solve many, many problems very quickly -- at least that is the hope.'' This is also a way of expanding the number of people and businesses that can build artificial intelligence. These methods will not replace A.I. researchers entirely. Experts, like those at Google, must still do much of the important design work. But the belief is that the work of a few experts can help many others build their own software. Renato Negrinho, a researcher at Carnegie Mellon University who is exploring technology similar to AutoML, said this was not a reality today but should be in the years to come. ''It is just a matter of when,'' he said. https : // www.nytimes.com/2017/11/05/technology/machine-learning-artificial-intelligence-ai.html Graphic PHOTO: BRETT, the Berkeley Robot for the Elimination of Tedious Tasks, a robot that uses deep learning software, at a University of California, Berkeley, lab. Working with the robot in 2015 were, from left, Chelsea Finn, Sergey Levin and a professor, Pieter Abbeel. (PHOTOGRAPH BY PETER EARL MCCOLLOUGH FOR THE NEW YORK TIMES) (B3) DRAWING (DRAWING BY MENGXIN LI) Load-Date: November 6, 2017 End of Document The Key to My Mother's Memories The New York Times

### Document 713

the artificial intelligence system built by the Google subsidiary DeepMind, has just defeated the human champion, Lee Se-dol, four games to one in the tournament of the strategy game of Go. Why does this matter? After all, computers surpassed humans in chess in 1997, when IBM’s Deep Blue beat Garry Kasparov. So why is AlphaGo’s victory significant? Like chess, Go is a hugely complex strategy game in which chance and luck play no role. Two players take turns placing white or black stones on a 19-by-19 grid; when stones are surrounded on all four sides by those of the other color they are removed from the board, and the player with more surrounded territory and captured stone at the game’s end wins. Unlike the case with chess, however, no human can explain how to play Go at the highest levels. The top players, it turns out, can’t fully access their own knowledge about how they’re able to perform so well. This self-ignorance is common to many human abilities, from driving a car in traffic to recognizing a face. This strange state of affairs was beautifully summarized by the philosopher and scientist Michael Polanyi, who said, “We know more than we can tell.” It’s a phenomenon that has come to be known as “Polanyi’s Paradox.” Polanyi’s Paradox hasn’t prevented us from using computers to accomplish complicated tasks, like processing payrolls, optimizing flight schedules, routing telephone calls and calculating taxes. But as anyone who’s written a traditional computer program can tell you, automating these activities has required painstaking precision to explain exactly what the computer is supposed to do. This approach to programming computers is severely limited; it can’t be used in the many domains, like Go, where we know more than we can tell, or other tasks like recognizing common objects in photos, translating between human languages and diagnosing diseases — all tasks where the rules-based approach to programming has failed badly over the years. Deep Blue achieved its superhuman performance almost by sheer computing power: It sifted through millions of possible chess moves to determine the optimal move. The problem is that there are many more possible Go games than there are atoms in the universe, so even the fastest computers can’t simulate a meaningful fraction of them. To make matters worse, it’s usually far from clear which possible moves to even start exploring. What changed? The AlphaGo victories vividly illustrate the power of a new approach in which instead of trying to program smart strategies into a computer, we instead build systems that can learn winning strategies almost entirely on their own, by seeing examples of successes and failures. Since these systems don’t rely on human knowledge about the task at hand, they’re not limited by the fact that we know more than we can tell. AlphaGo does use simulations and traditional search algorithms to help it decide on some moves, but its real breakthrough is its ability to overcome Polanyi’s Paradox. It did this by figuring out winning strategies for itself, both by example and from experience. The examples came from huge libraries of Go matches between top players amassed over the game’s 2,500-year history. To understand the strategies that led to victory in these games, the system made use of an approach known as deep learning, which has demonstrated remarkable abilities to tease out patterns and understand what’s important in large pools of information. Learning in our brains is a process of forming and strengthening connections among neurons. Deep learning systems take an analogous approach, so much so that they used to be called “neural nets.” They set up billions of nodes and connections in software, use “training sets” of examples to strengthen connections among stimuli (a Go game in process) and responses (the next move), then expose the system to a new stimulus and see what its response is. AlphaGo also played millions of games against itself, using another technique called reinforcement learning to remember the moves and strategies that worked well. Deep learning and reinforcement learning have both been around for a while, but until recently it was not at all clear how powerful they were, and how far they could be extended. In fact, it’s still not, but applications are improving at a gallop, with no end in sight. And the applications are broad, including speech recognition, credit card fraud detection, and radiology and pathology. Machines can now recognize faces and drive cars, two of the examples that Polanyi himself noted as areas where we know more than we can tell. We still have a long way to go, but the implications are profound. As when James Watt introduced his steam engine 240 years ago, technology-fueled changes will ripple throughout our economy in the years ahead, but there is no guarantee that everyone will benefit equally. Understanding and addressing the societal challenges brought on by rapid technological progress remain tasks that no machine can do for us. Andrew McAfee is a principal research scientist at M.I.T., where Erik Brynjolfsson is a professor of management. They are the co-founders of the M.I.T. Initiative on the Digital Economy and the authors of “The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies.” PHOTO: (PHOTOGRAPH BY Angie Wang FOR THE NEW YORK TIMES) Related Articles Is Artificial Intelligence Now the Real Deal? Load-Date: February 23, 2022 End of Document They Can't Abandon The Bay Area Fast Enough The New York Times

### Document 546

Researchers at DeepMind say they have solved “the protein folding problem,” a task that has bedeviled scientists for more than 50 years. Some scientists spend their lives trying to pinpoint the shape of tiny proteins in the human body. Proteins are the microscopic mechanisms that drive the behavior of viruses, bacteria, the human body and all living things. They begin as strings of chemical compounds, before twisting and folding into three-dimensional shapes that define what they can do — and what they cannot. For biologists, identifying the precise shape of a protein often requires months, years or even decades of experimentation. It requires skill, intelligence and more than a little elbow grease. Sometimes they never succeed. Now, an artificial intelligence lab in London has built a computer system that can do the job in a few hours — perhaps even a few minutes. DeepMind, a lab owned by the same parent company as Google, said on Monday that its system, called AlphaFold, had solved what is known as “the protein folding problem.” Given the string of amino acids that make up a protein, the system can rapidly and reliably predict its three-dimensional shape. This long-sought breakthrough could accelerate the ability to understand diseases, develop new medicines and unlock mysteries of the human body. Computer scientists have struggled to build such a system for more than 50 years. For the last 25, they have measured and compared their efforts through a global competition called the Critical Assessment of Structure Prediction, or C.A.S.P. Until now, no contestant had even come close to solving the problem. DeepMind solved the problem with a wide range of proteins, reaching an accuracy level that rivaled physical experiments. Many scientists had assumed that moment was still years, if not decades, away. “I always hoped I would live to see this day,” said John Moult, a professor at the University of Maryland who helped create C.A.S.P. in 1994 and continues to oversee the biennial contest. “But it wasn’t always obvious I was going to make it.” As part of this year’s C.A.S.P., DeepMind’s technology was reviewed by Dr. Moult and other researchers who oversee the contest. If DeepMind’s methods can be refined, he and other researchers said, they could speed the development of new drugs as well as efforts to apply existing medications to new viruses and diseases. The breakthrough arrives too late to make a significant impact on the coronavirus. But researchers believe DeepMind’s methods could accelerate the response to future pandemics. Some believe it could also help scientists gain a better understanding of genetic diseases along the lines of Alzheimer’s or cystic fibrosis. Still, experts cautioned that this technology would affect only a small part of the long process by which scientists identify new medicines and analyze disease. It was also unclear when or how DeepMind would share its technology with other researchers. DeepMind is one of the key players in a sweeping change that has spread across academia, the tech industry and the medical community over the past 10 years. Thanks to an artificial intelligence technology called a neural network, machines can now learn to perform many tasks that were once beyond their reach — and sometimes beyond the reach of humans. A neural network is a mathematical system loosely modeled on the network of neurons in the human brain. It learns skills by analyzing vast amounts of data. By pinpointing patterns in thousands of cat photos, for instance, it can learn to recognize a cat. This is the technology that recognizes faces in the photos you post to Facebook, identifies the commands you bark into your smartphone and translates one language into another on Skype and other services. DeepMind is using this technology to predict the shape of proteins. If scientists can predict the shape of a protein in the human body, they can determine how other molecules will bind or physically attach to it. This is one way drugs are developed: A drug binds to particular proteins in your body and alters their behavior. By analyzing thousands of known proteins and their physical shapes, a neural network can learn to predict the shapes of others. In 2018, using this method, DeepMind entered the C.A.S.P. contest for the first time and its system outperformed all other competitors, signaling a significant shift. But its team of biologists, physicists and computer scientists, led by a researcher named John Jumper, were nowhere close to solving the ultimate problem. In the two years since, Dr. Jumper and his team designed an entirely new kind of neural network specifically for protein folding, and this drove an enormous leap in accuracy. Their latest version provides a powerful, if imperfect, solution to the protein folding problem, said the DeepMind research scientist Kathryn Tunyasuvunakool. The system can accurately predict the shape of a protein about two-thirds of the time, according to the results of the C.A.S.P. contest. And its mistakes with these proteins are smaller than the width of an atom — an error rate that rivals physical experiments. “Most atoms are within an atom diameter of where they are in the experimental structure,” said Dr. Moult, the contest organizer. “And with those that aren’t, there are other possible explanations of the differences.” Andrei Lupas, director of the department of protein evolution at the Max Planck Institute for Developmental Biology in Germany, is among those who worked with AlphaFold. He is part of a team that spent a decade trying to determine the physical shape of a particular protein in a tiny bacteria-like organism called an archaeon. This protein straddles the membrane of individual cells — part is inside the cell, part is outside — and that makes it difficult for scientists like Dr. Lupas to determine the shape of the protein in the lab. Even after a decade, he could not pinpoint the shape. With AlphaFold, he cracked the problem in half an hour. If these methods continue to improve, he said, they could be a particularly useful way of determining whether a new virus could be treated with a cocktail of existing drugs. “We could start screening every compound that is licensed for use in humans,” Dr. Lupas said. “We could face the next pandemic with the drugs we already have.” During the current pandemic, a simpler form of artificial intelligence proved helpful in some cases. A system built by another London company, BenevolentAI, helped pinpoint an existing drug, baricitinib, that could beused to treat seriously ill Covid-19 patients. Researchers have now completed a clinical trial, though the results have not yet been released. As researchers continue to improve the technology, AlphaFold could further accelerate this kind of drug repurposing, as well as the development of entirely new vaccines, especially if we encounter a virus that is even less understood than Covid-19. David Baker, the director of the Institute for Protein Design at the University of Washington, who has been using similar computer technology to design anti-coronavirus drugs, said DeepMind’s methods could accelerate that work. “We were able to design coronavirus-neutralizing proteins in several months,” he said. “But our goal is to do this kind of thing in a couple of weeks.” Still, development speed must contend with other issues, like massive clinical trials, said Dr. Vincent Marconi, a researcher at Emory University in Atlanta who helped lead the baricitinib trial. “That takes time,” he said. But DeepMind’s methods could be a way of determining whether a clinical trial will fail because of toxic reactions or other problems, at least in some cases. Demis Hassabis, DeepMind’s chief executive and co-founder, said the company planned to publish details describing its work, but that was unlikely to happen until sometime next year. He also said the company was exploring ways of sharing the technology itself with other scientists. DeepMind is a research lab. It does not sell products directly to other labs or businesses. But it could work with other companies to share access to its technology over the internet. The lab’s biggest breakthroughs in the past have involved games. It built systems that surpassed human performance on the ancient strategy game Go and the popular video game StarCraft — enormously technical achievements with no practical application. Now, the DeepMind team are eager to push their artificial intelligence technology into the real world. “We don’t want to be a leader board company,” Dr. Jumper said. “We want real biological relevance.” PHOTOS: The DeepMind team includes, from left, Demis Hassabis, the lab’s chief executive; John Jumper, the team’s leader; and Kathryn Tunyasuvunakool, a research scientist. Load-Date: December 1, 2020 End of Document Reddit Communities Go Dark to Protest App's Pricing Plan The New York Times

### Document 870

South Korea -- Computer, one. Human, zero. A Google computer program stunned one of the world's top players on Wednesday in a round of Go, which is believed to be the most complex board game ever created. The match -- between Google DeepMind's AlphaGo and the South Korean Go master Lee Se-dol -- was viewed as an important test of how far research into artificial intelligence has come in its quest to create machines smarter than humans. ''I am very surprised because I have never thought I would lose,'' Mr. Lee said at a news conference in Seoul. ''I didn't know that AlphaGo would play such a perfect Go.'' Mr. Lee acknowledged defeat after three and a half hours of play. Demis Hassabis, the founder and chief executive of Google's artificial intelligence team DeepMind, the creator of AlphaGo, called the program's victory a ''historic moment.'' The match, the first of five scheduled through Tuesday, took place at a Seoul hotel amid intense news media attention. Hundreds of reporters, many of them from China, Japan and South Korea, where Go has been played for centuries, were there to cover it. Tens of thousands of people watched the contest live on YouTube. Go is a two-player game of strategy said to have originated in China 3,000 years ago. Players compete to win more territory by placing black and white ''stones'' on a board made up of 19 lines by 19 lines. The play is more complex than chess, with a far greater possible sequence of moves, and requires superlative instincts and evaluation skills. Because of that, many researchers believed that mastery of the game by a computer was still a decade away. Before the match, Mr. Lee said he could win 5-0 or 4-1, predicting that computing power alone could not win a Go match. Victory takes ''human intuition,'' something AlphaGo has not yet mastered, he said. But after reading more about the program he became less upbeat, saying that AlphaGo appeared able to imitate human intuition to a certain degree and predicting that artificial intelligence would eventually surpass humans in Go. AlphaGo posed Mr. Lee a unique challenge. In a human-versus-human Go match, which typically lasts several hours, the players ''feel'' each other and evaluate styles and psychologies, he said. ''This time, it's like playing the game alone,'' Mr. Lee said on the eve of the match. ''There are mistakes humans make because they are humans. If that happens to me, I can lose a match.'' To researchers who have been using games as platforms for testing artificial intelligence, Go has remained the great challenge since the I.B.M.-developed supercomputer Deep Blue beat the world chess champion Garry Kasparov in 1997. ''Really, the only game left after chess is Go,'' Mr. Hassabis said on Wednesday. AlphaGo made news when it routed the three-time European Go champion Fan Hui in October, 5-0. But Mr. Lee, 33, is one of the world's most accomplished professional Go players, with 18 international titles under his belt. He has called the European champion's level in Go ''near the top among amateurs.'' AlphaGo has become much stronger since its matches with Mr. Fan, its developers said. It challenged Mr. Lee because it was ready to take on someone ''iconic,'' ''a legend of the game,'' Mr. Hassabis said. Google offered Mr. Lee $1 million if he wins the best-of-five series. Mr. Hassabis said AlphaGo did not try to consider all the possible moves in a match, as a traditional artificial intelligence machine like Deep Blue does. Rather, it narrows its options based on what it has learned from millions of matches played against itself and in 100,000 Go games available online. Mr. Hassabis said that a central advantage of AlphaGo was that ''it will never get tired, and it will not get intimidated either.'' Kim Sung-ryong, a South Korean Go master who provided commentary during Wednesday's match, said that AlphaGo made a clear mistake early on, but that unlike most human players, it did not lose its ''cool.'' ''It didn't play Go as a human does,'' he said. ''It was a Go match with human emotional elements carved out.'' Mr. Lee said he knew he had lost the match after AlphaGo made a move so unexpected and unconventional that he thought ''it was impossible to make such a move.'' Mr. Lee said he now thought his chances for victory in the five-match series were 50-50. Some computer scientists said Wednesday that they had expected the outcome. ''I'm not surprised at all,'' said Fei-Fei Li, a Stanford University computer scientist who is director of the Stanford Artificial Intelligence Laboratory. ''How come we are not surprised that a car runs faster than the fastest human?'' On Tuesday, before the match began, Oren Etzioni, the director of the Allen Institute for Artificial Intelligence, a nonprofit research organization in Seattle, conducted a survey of leading members of the Association for the Advancement of Artificial Intelligence. Of 55 scientists, 69 percent believed that the program would win, and 31 percent believed that Mr. Lee would be victorious. Moreover, 60 percent believed that the achievement could be considered a milestone toward building human-level artificial intelligence software. That question remains one of the most hotly debated within the field of artificial intelligence. Machines have had increasing success in the past half-decade at narrow humanlike capabilities, like understanding speech and vision. However, the goal of ''strong A.I.'' -- defined as a machine with an intellectual capability equal to that of a human -- remains elusive. Other artificial-intelligence scientists said that humans might still find refuge if the goal posts for the competition were moved. ''I wonder what would happen if they played on a 29-by-29 grid?'' wondered Rodney Brooks, a pioneering artificial intelligence researcher. By enlarging the playing space, humans might once again escape the machine's computing power. http : // www.nytimes.com/2016/03/10/world/asia/google-alphago-lee-se-dol.html Graphic PHOTO: Screens displayed the match between Lee Se-dol, a top player, and Google DeepMind's AlphaGo. (PHOTOGRAPH BY AHN YOUNG-JOON/ASSOCIATED PRESS) Load-Date: March 12, 2016 End of Document Bombarding Audiences Isn't Working Anymore The New York Times

### Document 20

The authors behind the Dead Sea Scrolls, famous for containing the oldest manuscripts of the Hebrew Bible (Old Testament), have long eluded historians and scientists alike. But artificial intelligence technology has now unveiled two possible scribes. Researchers with the University of Groningen conducted palaeography - the study of old handwriting - tests on the longest text, known as the Great Isaiah Scroll. The process, which included several painstaking steps of digitization, machine reading and statistical analysis, revealed that two scribes with near-identical handwriting were likely responsible for writing two halves of the manuscript. The first sets of the scrolls were found 70 years ago in a cave near the Dead Sea in what is now the Israeli-occupied West Bank. They contain multiple manuscripts, written mostly in Hebrew, Aramaic and Greek, and are believed to date from about the third century BC. But the scribes who created the scrolls, which include the oldest known version of the Bible, did not sign their work. Many have suggested that some manuscripts should be attributed to a single scribe based on handwriting, often pointing to a "smoking gun" - a very specific trait in a letter which would identify a particular scribe. But, as the study notes, there are limitations to studying the palaeography of these scrolls with the human eye. "This scroll contains the letter aleph, or 'a', at least five thousand times. It is impossible to compare them all just by eye," study co-author Lambert Schomaker, professor of Computer Science and Artificial Intelligence at the Faculty of Science and Engineering, explained in a press release. Artificial intelligence, on the other hand, is well suited to analyze thousands of handwritten letters, measuring even the smallest details like the curvature of characters. First, researchers trained an algorithm to separate the inked text from its background (the leather or the papyrus), using a state-of-the-art artificial neural network to keep the 2,000-year-old ink traces intact as they appear on the digital images. "This is important because the ancient ink traces relate directly to a person's muscle movement and are person-specific," Schomaker said. They then conducted further analysis to show that the 54 columns of text fell into two different groups that were not distributed randomly through the scroll, but were clustered, with a transition around the halfway mark, lending evidence to the theory of two scribes. The researchers then created 'heat maps' to showcase the variants of a character across the scroll. "A more likely scenario is two different scribes working closely together and trying to keep the same style of writing yet revealing themselves, their individuality, in the textural feature space," read the study. The authors say the study opens a "new window into the ancient world" by revealing connections between the scribes that produced the scrolls. "In this study, we found evidence for a very similar writing style shared by the two Great Isaiah Scroll scribes, which suggests a common training or origin. Our next step is to investigate other scrolls, where we may find different origins or training for the scribes," study author Mladen Popovic, professor of Hebrew Bible and Ancient Judaism at the University of Groningen, said in a press release. "We will never know their names. But after seventy years of study, this feels as if we can finally shake hands with them through their handwriting." Please note: This content carries a strict local market embargo. If you share the same market as the contributor of this article, you may not use it on any platform. ctvnews.caproducers@bellmedia.ca By Nicole Bogart, CTVNews.ca Writer TM & © 2021 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: April 23, 2021 End of Document Trump to sign executive order launching artificial intelligence initiative CNN Wire

### Document 482

Machines are learning how to complete more complex tasks. Is this a good thing? Find all our Student Opinion questions here. Last week, a robotic hand successfully solved a Rubik’s Cube. While that feat might seem like a fun parlor trick, it’s a sign that robots are being programmed to learn and not just memorize. Robots are already playing important roles inside retail giants like Amazon and manufacturing companies like Foxconn by completing very specific, repetitive tasks. But many believe that machine learning will ultimately allow robots to master a much wider array of more complex functions. When you imagine the future of robots and artificial intelligence, do you get excited? Do you envision a world of benefits for humankind? Or does an automated future fill you with concern and fear? In “If a Robotic Hand Solves a Rubik’s Cube, Does It Prove Something?” Cade Metz writes about how this five-fingered feat could show important progress in A.I. research: Last week, on the third floor of a small building in San Francisco’s Mission District, a woman scrambled the tiles of a Rubik’s Cube and placed it in the palm of a robotic hand. The hand began to move, gingerly spinning the tiles with its thumb and four long fingers. Each movement was small, slow and unsteady. But soon, the colors started to align. Four minutes later, with one more twist, it unscrambled the last few tiles, and a cheer went up from a long line of researchers watching nearby. The researchers worked for a prominent artificial intelligence lab, OpenAI, and they had spent several months training their robotic hand for this task. Though it could be dismissed as an attention-grabbing stunt, the feat was another step forward for robotics research. Many researchers believe it was an indication that they could train machines to perform far more complex tasks. That could lead to robots that can reliably sort through packages in a warehouse or to cars that can make decisions on their own. The article continues: A robot that can solve a Rubik’s Cube is not new. Researchers previously designed machines specifically for the task — devices that look nothing like a hand — and they can solve the puzzle in less than a second. But building devices that work like a human hand is a painstaking process in which engineers spend months laying down rules that define each tiny movement. The OpenAI project was an achievement of sorts because its researchers did not program each movement into their robotic hand. That might take decades, if not centuries, considering the complexity of a mechanical device with a thumb and four fingers. The lab’s researchers built a computer system that learned to solve the Rubik’s Cube largely on its own. “What is exciting about this work is that the system learns,” said Jeff Clune, a robotics professor at the University of Wyoming. “It doesn’t memorize one way to solve the problem. It learns.” Students, read the entire article, then tell us: How do you feel about the future of robots, artificial intelligence and automation? Do you envision a world of progress? Or dystopian peril? Do you fear countless professions becoming obsolete, the merging of humans and machines, an age of artificial intimacy or a potential robot uprising? Or are you excited about all the possibilities such a future could hold? Explain why you feel the way you do. Researchers have already built machines to solve a Rubik’s Cube in under a second. And even though OpenAI’s hand can solve the puzzle in as little as four minutes, it drops the cube eight times out of 10. In your opinion, how big a deal is this robotic hand demonstration? Why do you think it made the news? Students 13 and older are invited to comment. All comments are moderated by the Learning Network staff, but please keep in mind that once your comment is accepted, it will be made public. PHOTO: (PHOTOGRAPH BY OpenAI FOR THE NEW YORK TIMES) Load-Date: January 24, 2020 End of Document Pioneers Whose Neural Networks Are Bringing A.I. to Life Win Turing The New York Times

### Document 212

Facebook's artificial intelligence lab is working with New York University's medical school to make MRI exams 10 times faster, which, if successful, would allow radiologists to complete a test in minutes. Doctors use MRI -- shorthand for magnetic resonance imaging -- to get a closer look at organs, tissues and bones without exposing patients to harmful radiation. The image quality makes them especially helpful in spotting soft tissue damage, too. The problem is, tests can take as long as an hour. Anyone with even a hint of claustrophobia can struggle to remain perfectly still in the tube-like machine that long. Tying up a machine for that long also drives up costs by limiting the number of exams a hospital can perform each day. Computer scientists at Facebook think they can use machine learning to make things a lot faster. To that end, NYU is providing an anonymous dataset of 10,000 MRI exams, a trove that will include as many as three million images of knees, brains and livers. Researchers will use the data to train an algorithm, using a method called deep learning, to recognize the arrangement of bones, muscles, ligaments, and other things that make up the human body. Building this knowledge into the software that powers an MRI machine will allow the AI to create a portion of the image, saving time. "You could be in and out in five minutes. It would be a real game-changer." Daniel Sodickson, vice chair for research in radiology at NYU School of Medicine, told CNNMoney. The challenge lies in figuring out how to do that without missing an important detail, such as a tiny tear in a ligament. Still, researchers remain optimistic. Preliminary findings released last year by NYU radiologists showed artificial intelligence could be used to reconstruct MRI data. Making the tests faster would allow radiologists to perform a wider variety of tests, Sodickson said. It's akin to increasing the shutter speed of a camera, so the turbocharged tests could be used to, say, track the beating of a heart, he said. Facebook started talking to NYU about the project last year because its AI team wanted to work on something with real-world benefits even as it performs basic research, said Larry Zitnick of the company's Artificial Intelligence Research group. It plans to open-source any findings in the hope that sharing the data will encourage others to expand upon its work. TM & © 2018 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: August 21, 2018 End of Document What happens when automation comes for highly paid doctors CNN Wire

### Document 606

The term “artificial intelligence” may sound new and futuristic, but it was actually coined back in 1956 for a tech conference at Dartmouth College. Since then, the A.I. field has progressed in fits and starts as new hardware, software and ideas slowly propelled it forward. The current boom started in 2012, when a team of researchers used an artificial neural network in an image recognition competition that showed what A.I. could do with faster computer chips and bigger data sets. The last six years have witnessed breakthroughs in everything from self-driving cars to algorithms that can detect diseases, and social networks like Twitter that rely on A.I. to determine what content appears on our feeds. Like most technologies, the artificial intelligence world is littered with insider jargon. Here is a non-exhaustive glossary. Artificial neural network (ANN) An algorithm that attempts to mimic the human brain, with layers of connected “neurons” sending information to each other. Black box algorithms When an algorithm’s decision-making process or output can’t be easily explained by the computer or the researcher behind it. Computer vision The field of A.I. concerned with teaching machines how to interpret the visual world — a.k.a., how to see. Deep learning ANNs that have multiple layers of connected neurons. This makes the process deep compared to earlier, more shallow networks. Embodied A.I. A fancy way of saying “robots with A.I. capabilities.” Few-shot learning Most of the time, computer vision systems need to see hundreds or thousands (or even millions) of examples to figure out how to do something. One-shot and few-shot learning try to create a system that can be taught to do something with far less training. It’s similar to how toddlers might learn a new concept or task. Generative adversarial networks Also called GANs, these are two neural networks that are trained on the same data set of photos, videos or sounds. Then, one creates similar content while the other tries to determine whether the new example is part of the original data set, forcing the first to improve its efforts. This approach can create realistic media, including artworks. Machine learning Systems that learn from data sets to perform and improve upon a specific task. It’s the current area of A.I. experiencing the biggest research boom. Natural language processing The discipline within A.I. that deals with written and spoken language. Reinforcement learning A process where machines learn to do a new task like humans do — through a system of rewards and punishments — starting as a novice and improving with practice and feedback. Supervised learning A technique that teaches a machine-learning algorithm to solve a specific task using data that has been carefully labeled by a human. Everyday examples include most weather prediction and spam detection. Transfer learning This method tries to take training data used for one thing and reused it for a new set of tasks, without having to retrain the system from scratch. Unsupervised learning An approach that gives A.I. unlabeled data and has to make sense of it without any instruction. In essence, it is when machines “teach themselves.” Explainable A.I. (X.A.I.) A.I. that can tell or show its human operators how it came to its conclusions. Weak A.I. Our current level of A.I., which can do just one thing at a time, like play chess or recognize breeds of cats. The opposite would be strong A.I., also known as artificial general intelligence (A.G.I.), which would have the capability to do anything that most humans can do. PHOTO: Visitors look at an Artificial Intelligence robot during the 5th Popular Science Products Expo at Shanghai Exhibition Center on August 27, 2018 in Shanghai, China. (PHOTOGRAPH BY VCG, via Getty Images FOR THE NEW YORK TIMES) Load-Date: October 19, 2018 End of Document Cities Test Ideas to Keep People Cool, and Apart The New York Times

### Document 949

-- As an undergraduate at Cambridge University, Geoffrey Everest Hinton thought a lot about the brain. He wanted to better understand how it worked but was frustrated that no field of study -- from physiology and psychology to physics and chemistry -- offered real answers. So he set about building his own computer models to mimic the brain's process. ''People just thought I was crazy,'' said Dr. Hinton, now 69, a Google fellow who is also a professor emeritus of computer science at the University of Toronto. He wasn't. He became one of the world's foremost authorities on artificial intelligence, designing software that imitates how the brain is believed to work. At the same time, Dr. Hinton, who left academia in the United States in part as a personal protest against military funding of research, has helped make Canada a high-tech hotbed. Dictate a text on your smartphone, search for a photo on Google or, in the not too distant future, ride in a self-driving car, and you will be using technology based partly on Dr. Hinton's ideas. His impact on artificial intelligence research has been so deep that some people in the field talk about the ''six degrees of Geoffrey Hinton'' the way college students once referred to Kevin Bacon's uncanny connections to so many Hollywood movies. Dr. Hinton's students and associates are now leading lights of artificial intelligence research at Apple, Facebook, Google and Uber, and run artificial intelligence programs at the University of Montreal and OpenAI, a nonprofit research company. ''Geoff, at a time when A.I. was in the wilderness, toiled away at building the field and because of his personality, attracted people who then dispersed,'' said Ilse Treurnicht, chief executive of Toronto's MaRS Discovery District, an innovation center that will soon house the Vector Institute, Toronto's new public-private artificial intelligence research institute, where Dr. Hinton will be chief scientific adviser. Dr. Hinton also recently set up a Toronto branch of Google Brain, the company's artificial intelligence research project. His tiny office there is not the grand space filled with gadgets and awards that one might expect for a man at the leading edge of the most transformative field of science today. There isn't even a chair. Because of damaged vertebrae, he stands up to work and lies down to ride in a car, stretched out on the back seat. ''I sat down in 2005,'' said Dr. Hinton, a tall man, with uncombed silvering hair and hooded eyes the color of the North Sea. Dr. Hinton started out under a constellation of brilliant scientific stars. He was born in Britain and grew up in Bristol, where his father was a professor of entomology and an authority on beetles. He is the great-great-grandson of George Boole, the father of Boolean logic. His middle name comes from another illustrious relative, George Everest, who surveyed India and made it possible to calculate the height of the world's tallest mountain that now bears his name. Dr. Hinton followed the family tradition by going to Cambridge in the late 1960s. But by the time he finished his undergraduate degree, he realized that no one had a clue how people think. ''I got fed up with academia and decided I would rather be a carpenter,'' he recalled with evident delight, standing at a high table in Google's white-on-white cafe here. He was 22 and lasted a year in the trade, although carpentry remains his hobby today. When artificial intelligence coalesced into a field of study from the fog of information science after World War II, scientists first thought that they could simulate a brain by building neural networks assembled from vast arrays of switches, which would mimic synapses. But the approach fell out of favor because computers were not powerful enough then to produce meaningful results. Artificial intelligence research turned instead to using logic to solve problems. As he was having second thoughts about his carpentry skills, Dr. Hinton heard about an artificial intelligence program at the University of Edinburgh and moved there in 1972 to pursue a Ph.D. His adviser favored the logic-based approach, but Dr. Hinton focused on artificial neural networks, which he thought were a better model to simulate human thought. His study didn't make him very employable in Britain, though. So, Ph.D. in hand, he turned to the United States to work as a postdoctoral researcher in San Diego with a group of cognitive psychologists who were also interested in neural networks. They were soon making significant headway. They began working with a formula called the back propagation algorithm, originally described in a 1974 Harvard Ph.D. thesis by Paul J. Werbos. That algorithm allowed neural networks to learn over time and has since become the workhorse of deep learning, the term now used to describe artificial intelligence based on those networks. Dr. Hinton moved in 1982 to Carnegie Mellon University in Pittsburgh as a professor, where his work with the algorithm and neural networks allowed computers to produce some ''interesting internal representations,'' as he put it. Here's an example of how the brain produces an internal representation. When you look at a cat -- for some reason cats are a favorite subject of artificial intelligence research -- light waves bouncing off it hit your retina, which converts the light into electrical impulses that travel along the optic nerve to the brain. Those impulses, of course, look nothing like a cat. The brain, however, reconstitutes those impulses into an internal representation of the cat, and if you close your eyes, you can see it in your mind. ''In A.I., the holy grail was how do you generate internal representations,'' Dr. Hinton explained. Interesting as those internal representations were from an academic point of view, computers were still too slow to recreate them in a way that mimicked the brain. At that point, Dr. Hinton was becoming disillusioned with the politics of the United States in the Reagan era. He also didn't like that most artificial intelligence research was funded by the United States military. Canada beckoned with a research position at the Canadian Institute For Advanced Research. He moved to Toronto and eventually set up a program at the institute that is now called Learning in Machines & Brains. He also joined the University of Toronto as a professor of computer science, though he confesses that he has never taken a computer science course himself. By 2012, computers had become fast enough to allow him and his researchers to create those internal representations as well as reproduce speech patterns that are part of the translation applications we all use today. He formed a company specializing in speech and photo recognition with two of his students at the University of Toronto. Google bought the business, so Dr. Hinton joined Google half time and continues to work there on creating artificial neural networks. The deal made Dr. Hinton a wealthy man. Now he is turning his attention to health care, thinking that artificial intelligence technology could be harnessed to scan lesions for cancer. The combination of the Vector Institute, a surrounding cluster of hospitals and government support, he added, makes Toronto ''one of the best places in the world to do it.'' https : // www.nytimes.com/2017/06/23/world/canada/the-man-who-helped-turn-toronto-into-a-high-tech-hotbed.html Graphic PHOTO: GEOFFREY HINTON (PHOTOGRAPH BY AARON VINCENT ELKAIM FOR THE NEW YORK TIMES) Load-Date: June 24, 2017 End of Document For Tech, China Deal Could Mean Bigger Losses The New York Times

### Document 147

At 22, many of us are finishing up college and hoping we might get be lucky enough to land a stable job. Peeyush Shrivastava is a little different. He started a biotech company and collected millions of dollars in capital, including from famed businessman Mark Cuban, and he hopes to start bringing 3-D heart-scanning technology to hospitals and emergency rooms across the country as early as this year. "Five years from now, we want to be known as the ER standard for ruling in or ruling out cardiac chest pain versus non-cardiac chest pain," said Shrivastava, who hails from outside Cincinnati. As a high school student in 2011, he began interning as a researcher in a lab at Ohio State University, looking at the molecular underpinnings of heart problems. After graduating high school in 2013, he enrolled at Ohio State. But before he started classes, he co-founded Genetesis with two high school buddies, Vineet Erasala and Manny Setegn. Through freshman year, these friends were also running their company. And during his sophomore year, Shrivastava quit college to pursue the venture full-time. The friends set out to rethink how doctors diagnose chest pain in the emergency room. For adults 45 and older, non-specific chest pain is the leading reason for an ER visit that results in discharge, according to the Agency for Healthcare Research and Quality. Patients typically fear the worst: a potentially fatal heart problem. They're submitted to blood tests, EKGs, X-rays, maybe a treadmill stress test. A recent study in the journal JAMA Internal Medicine showed that extensive testing combined with an overnight stay can take as long as 28 hours. And the mean cost for chest pain visits is estimated to be $1,527 per patient, with a total of nearly $7 billion in direct costs for treating chest pain across all American hospitals, according to a 2015 study. The problem doesn't need to be so expensive, and patients don't need to spend so long being diagnosed if their problem isn't heart-related, Shrivastava says. Of the 8 million Americans who enter emergency rooms complaining of chest pain each year, just 6% have a life-threatening condition like a heart attack, according to a study in JAMA Internal Medicine. It also found that more than half of the people who go to an ER for chest pain are actually experiencing something else: anxiety, gastrointestinal issues, muscle strains. Yet ER doctors often need to perform extensive testing on patients to rule out serious conditions, particularly in patients at risk of heart problems. Shrivastava says his company's scanner, called Faraday, can dramatically speed up that process, do it more accurately and make it more comfortable for the patient. It uses artificial intelligence to create thousands of 3-D maps of a patient's heart to tell doctors what is, or isn't, causing chest pain. If doctors are able to diagnose and discharge non-cardiac patients after four hours, rather than 20 or more, costs for care could drop significantly. For instance, a hospital wouldn't need to perform an ECG treadmill test that can cost $200 to 300, according to the American Board of Internal Medicine Foundation, or an imaging stress test, which can cost $500 to 2,000. Further, the cost of being admitted to the hospital for the night can run around $2,000. Shrivastava's team's method is noninvasive. There aren't needle pricks and blood draws. "The beauty of magnetic fields is, they are undistorted by the lungs, by the skin, so the signal you're getting is very high-fidelity. It's very pure," he said. "So you can hold sensors right above the chest and still get that high-quality signal. No radiation. No contact. No nothing." Usually, a chest pain patient needs to take their shirt so a nurse can smear cold gel across their chest or place sticky adhesives with electrodes on their skin. But the Genetesis device would make those processes unnecessary. And a nurse or technician can perform the whole test in about 90 seconds. A system of algorithms in the company's CardioFlux software analyzes the magnetic data into maps that indicate problems like coronary artery disease or ischemia, a lack of blood flow often caused by a buildup or blockage in an artery. In standard care, patients have to follow up with a cardiac stress test, either while running on a treadmill or by injecting a radioactive isotope into the bloodstream. And that's another advantage of Shrivastava's technology: He says it can emulate stress without isotopes. In 2016, Shrivastava and his team completed a preliminary study involving 28 patients at the Mayo Clinic. They presented the results at the American Heart Association's Scientific Sessions in November 2016. In May, they began a larger study at St. John's Hospital and Medical Center in Detroit. Dr. Margarita Pena, a researcher and emergency physician at St. John's and the principal investigator for the study, expects to have tested the device on 100 patients by the end of February, with hopes of soon presenting the findings at the American College of Cardiology annual meeting. She said the results appeared promising. "If accuracy comes through, it will be a game-changer," she said. "If it's just as accurate as a stress test, it will cut down the patient's length of stay, costs to hospitals, and it will be safer because it could cut down on risks like hospital-acquired infections, radioactive dye and possible treadmill injury. "It's like a super EKG," she said. Pena said that, assuming the pilot study proves successful, the next step will probably be a multicenter study at various hospitals. After that, the device would need FDA approval before it can be used in clinical practice. Though the device shows early promise, Dr. Elliott Antman, an associate dean at Harvard Medical School and a past president of the American Heart Association, cautioned about the belief that any single technology can revolutionize how chest pain and cardiac events are evaluated, noting the importance of talking to patients in addition to running tests. "Refinements of blood tests, in specific biomarkers, are very helpful," he said. One key blood test physicians use in the ER is a protein called troponin. "Troponin assays are becoming more and more sensitive. They're becoming capable of detecting very small amounts of damage to the heart and doing it rapidly," Antman said. Changing the status quo in any major field is difficult, but Shrivastava and his team believe they are going to do just that. And if recognition and accolades are any indication, they are on their way. In 2017, the Kairos Society, a group that connects young entrepreneurs around the globe, honored Genetesis on its K50 list, designating it as among the top 50 companies in the world founded by a person under the age of 26. And computer chip-maker Nvidia looked through more than 600 entrants to recognize Genetesis as the top startup using artificial intelligence for "social impact." Shrivastava is also a recipient of the Thiel Fellowship, a program created by PayPal founder Peter Thiel that awards 10 $100,000 scholarships each year to promising entrepreneurs who opt to build companies in lieu of attending college. His bet is paying off. Shrivastava says his company will raise $10 million to $12 million in investment by the time it's ready to bring the product to more hospitals as part of a multicenter study this year. Shrivastava says Genetesis is finishing its application to receive FDA approval. Over the next 10 years, he thinks his team can expand their imaging platform to other areas of the body. "We want this to be treated as the ER standard not just for chest pain or cardiac-related abnormalities," Shrivastava says. "This is a technology that is not specific to any organ. Any organ that emits a magnetic field should be able to be mapped by our device." TM & © 2018 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: March 9, 2018 End of Document The real apprentice: How to bring jobs back CNN Wire

### Document 1233

"This approach allowed a person with paralysis to compose sentences at speeds nearly comparable to those of able-bodied adults of the same age typing on a smartphone." Jaimie Henderson Professor of neurosurgery at Stanford University, where researchers used artificial intelligence software and a brain-computer interface to help a man with immobilized limbs communicate by text A man who lost all movement below the neck after a spinal cord injury in 2007 was finally able to write again - with his mind. Stanford University researchers used artificial intelligence software and a brain-computer interface to help the man with immobilized limbs to communicate by text, according to a study published Wednesday in the peer-reviewed journal Nature. Jaimie Henderson, professor of neurosurgery at Stanford, implanted two microchips the size of baby aspirin about 1 millimeter into the man's brain in 2017. The chips have electrodes that record neurons in the motor cortex, the part of the brain that controls hand movement. When the man imagined he was using his hand to write on a notepad, the computer converted his thoughts into text on a computer screen. "This approach allowed a person with paralysis to compose sentences at speeds nearly comparable to those of able-bodied adults of the same age typing on a smartphone," Henderson said. "The goal is to restore the ability to communicate by text." The man - referred to in the study only as T5 - texted at a rate of about 18 words per minute. A person of the same age with full use of their hands can text an average of 23 words per minute on a smartphone. His error rate was about one mistake every 18 or 19 attempted characters. When researchers used an autocorrect function, similar to the feature in most smartphones, error rates plummeted below 1% when he was asked to copy text and slightly more than 2% when he was asked to write something original. "It's exciting to improve the speed of these kinds of devices to approach a level where I think it could be very useful for someone who's severely paralyzed," said Frank Willett, the author of the study who is a neuroscientist at Stanford. "It's comparable to writing on a notepad or typing on a smartphone." Study authors are excited not only about the breakthrough technology but about what their discovery means for future research. Until now, scientists weren't sure how long a person could retain motor skills without putting them into practice. "We had no idea someone who had never moved his hands for 10 years, if you asked him to write, what his brain would do," Willett said. "It shows these fine dexterous (movements) still evoke rich patterns of brain activity that we can use." Researchers hope the technology could be adapted to allow people who can't talk to simulate conversation through writing. "While handwriting can approach 20 words per minute, we tend to speak around 125 words per minute, and this is another exciting direction that complements handwriting," said Krishna Shenoy, professor of electrical engineering at Stanford University. More work needs to be done before the study's results can be successfully transferred into real-world applications such as a tablet, smartphone or computer. "The immediate next step would be refining and streamlining the algorithm, so it's easier to get up and running quickly," Willett said. "Every brain is unique, and you get different neurons that do different things, so there's always a calibration." Health and patient safety coverage at USA TODAY is made possible in part by a grant from the Masimo Foundation for Ethics, Innovation and Competition in Healthcare. The Masimo Foundation does not provide editorial input. "This approach allowed a person with paralysis to compose sentences at speeds nearly comparable to those of able-bodied adults of the same age typing on a smartphone." Jaimie Henderson Professor of neurosurgery at Stanford University, where researchers used artificial intelligence software and a brain-computer interface to help a man with immobilized limbs communicate by text Load-Date: May 14, 2021 End of Document Try tricks you won't find in a user manual USA Today

### Document 305

Imagine being treated for a disease before you even have it. That will soon be possible thanks to emerging technologies that make diagnosing illness easier and faster. "We're waiting for the heart attack, or we're waiting for the lump to be discovered at stage three," Dr. Daniel Kraft told an audience last week at the Exponential Finance conference in New York City. No more. He said it will one day be diagnosed at stage zero -- and there's already progress in this direction. "What if we could see inside the brain of a patient 10 or 20 years before they develop clinical signs of Alzheimer's? That's now possible with new scans," Kraft said. It could also be done with new advances in blood-based biomarkers. A study, released last year, found that biomarkers could predict Alzheimer's before it starts by using a simple blood test. Those results are preliminary, but important: catching Alzheimer's early is crucial, especially since the number of Americans suffering from it will increase. The Alzheimer's Association estimates that by 2050, the number of people with the disease could triple, from 5.1 million to 13.8 million. There's also a new eye test that predicts dementia. The testing is still in the early stages, but it's based on research at Duke University, which found that differences in the sizes of blood vessels in the eyes can predict dementia before its onset. That's important because patients are usually treated after they've already endured irreversible brain damage. There's also the reinvention of the stethoscope. Kraft said some stethoscope apps can do a better job of picking up a heart murmur than he can, and what's more, anybody can use them. "A nurse or medical student can have the skill of a cardiologist using these apps," Kraft said. It's even possible that the 200-year-old stethoscope could be completely replaced by a hand-held ultrasound device. It allows doctors to see inside someone's chest, instead of just listening in. That picture offers doctors another way to interpret what's happening inside the body. Doctors are also going to get much smarter thanks to artificial intelligence. Two years ago, IBM announced that Watson, its very smart computer system, had learned enough so it was comparable to a second-year medical student. Since then, it has been working with the Memorial Sloan-Kettering Cancer Center in New York and Wellpoint, a healthcare company, to learn even more. That knowledge makes Watson a useful sidekick for doctors when it comes to offering opinions and helping physicians pick the right drug or the right therapy. Kraft spoke of Watson and the massive amount of data it can organize, reference and learn from. "As a physician, there's no way to keep up with this avalanche of data," Kraft said. "So we need new tools." TM & © 2015 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: June 9, 2015 End of Document Facebook's new app powered by artificial intelligence CNN Wire

### Document 291

Breast cancer is the second-leading cause of cancer death among women in the US. I am a breast cancer patient, two years out from diagnosis, and that statistic pulls me up sharp. I suck in my breath and hold it, in fear. To have breast cancer means to fear dying. But having it detected earlier, rather than later, usually yields a better prognosis. The news, then, that artificial intelligence can read mammograms better than radiologists is welcome, but placing that news in the context of breast cancer screening and treatment shows its importance to patients. The study on AI and mammography screening, run collaboratively between Google and a group of physicians in the UK, appeared in the most recent issue of Nature. The AI system, like radiologists, did not screen mammograms correctly 100% of the time, but there were fewer false positives and false negatives with the AI system. According to the study, the AI system reduced false positives in the US and the UK by 5.7% and 1.2% respectively, and false negatives by 9.4% and 2.7%. And in a head-to-head comparison with six radiologists, the AI system was overall more accurate than all of them. This matters, because false positives are scary and can lead to unnecessary biopsies and unhelpful fear. False negatives are, obviously, worse, because they give an undetected cancer at minimum another year of undisturbed growth. The statistical terms sensitivity and specificity are useful here. Sensitivity means the number of true positive results and specificity means the number of true negative results. The AI system had both greater sensitivity and specificity than human readers. Interestingly, though, there was one film that all six radiologists read correctly as showing a cancerous lesion, and the AI system missed. There was also a film that all six radiologists said was negative for cancer while the AI system identified it correctly as a malignancy. The AI system was better at identifying "invasive" cancers that had expanded into general breast tissue, while radiologists were equally good at seeing invasive cancers and cancers "in situ," meaning a cancer that remained within the milk duct where it originated. I have belabored this technical information for a reason: to make it clear that the promise of this technology should not be shunted aside due to a fear that, as Siddhartha Mukherjee opined in a 2017 New Yorker piece, it will lead to doctors becoming merely technicians instead of skilled diagnosticians. Is it so hard to imagine that physicians could use artificial intelligence to create both a more precise and more human care experience for patients? I say no. In the UK, two radiologists read every mammogram, and since the UK has a shortage of radiologists, the authors of the AI system study suggest that the second UK radiologist be replaced by the AI system when reading mammograms. Thus, the AI system would improve the overall accuracy of mammography reading, but also reduce the radiologists' workload?a benefit that radiologists in the US could enjoy as well. And here's when we discover the real value-added potential from using AI for mammography: providing, as the study authors claim, "immediate feedback in the screening setting." When a woman comes in for a mammogram, she usually leaves without having the film read. Instead, she receives the result a few days later, possibly including a request for "additional screening" that may happen days or even weeks afterward. I know, because my breast cancer was diagnosed during "additional screening" two weeks after my initial appointment. I told myself not to worry about being called back until I had reason to, a Zen-like attitude that my cancer diagnosis ultimately belied. However, if a woman receives what is currently designated a "diagnostic mammogram," any additional images are taken on the same day of the initial mammogram and she leaves the imaging center with her result. Let me repeat that: the woman leaves with her result. Now, that is humane, and is the standard of care in some imaging centers, but certainly not all. With AI, all mammograms could become "diagnostic." That's a small change, but an important one: releasing the results of mammograms on patients' schedules rather than those of radiology departments. Further, having the AI system read film as an accompaniment to radiologists could give those same radiologists time to actually talk to patients in person about their results?something an artificial intelligence system absolutely cannot do. Finally, a positive mammogram must be confirmed by a biopsy, which likely also will be done by a radiologist, and for me at least, was scheduled separately from the mammograms. Again, a wait of about a week was involved. I was told that one of the radiologists had a family emergency. As if my breast cancer was not also an emergency. Using an AI system could be used to streamline the process of breast cancer diagnosis, from mammogram to biopsy in one day, or if needed, two. Some institutions already do this, but from what I hear anecdotally, many do not. I wonder if the doctors and nurses don't understand how it feels to be diagnosed with cancer, because I, a former oncology nurse, didn't understand. Suddenly, ordinary life looks like a dark maze of dead ends and shadowy twists and turns that move you forward, but ultimately take you nowhere. What the patient most wants is a light to penetrate those shadows, perhaps also a thread, like Ariadne gave to Theseus in the labyrinth. There is no good reason why patients should have to sit in that darkness waiting for the light, the thread, a guide back from the fear. I know this also because, despite the many scheduling difficulties I had and bureaucratic indifference I struggled with during the process of my cancer diagnosis, the radiologist who initially identified my breast cancer did guide me. As tears slowly dripped down my face, she took me into the dark room where she worked, the walls covered with screens in shades of black, white and gray?the colors of X-rays. She showed me my breast and the cancer. She advised me about a surgeon. She was unflappable and kind. I have forgotten, perhaps deliberately, her name, but I will never forget the light she brought to my sudden and overwhelming personal darkness. Load-Date: January 4, 2020 End of Document Russian poker player dies from electrocution in bathroom CNN.com

### Document 1038

In August, researchers from the Allen Institute for Artificial Intelligence, a lab based in Seattle, unveiled an English test for computers. It examined whether machines could complete sentences like this one: On stage, a woman takes a seat at the piano. She a) sits on a bench as her sister plays with the doll. b) smiles with someone as the music plays. c) is in the crowd, watching the dancers. d) nervously sets her fingers on the keys. For you, that would be an easy question. But for a computer, it was pretty hard. While humans answered more than 88 percent of the test questions correctly, the lab’s A.I. systems hovered around 60 percent. Among experts — those who know just how difficult it is to build systems that understand natural language — that was an impressive number. Then, two months later, a team of Google researchers unveiled a system called Bert. Its improved technology answered those questions just as well as humans did — and it was not even designed to take the test. Bert’s arrival punctuated a significant development in artificial intelligence. Over the last several months, researchers have shown that computer systems can learn the vagaries of language in general ways and then apply what they have learned to a variety of specific tasks. Built in quick succession by several independent research organizations, including Google and the Allen Institute, these systems could improve technology as diverse as digital assistants like Alexa and Google Home as well as software that automatically analyzes documents inside law firms, hospitals, banks and other businesses. “Each time we build new ways of doing something close to human level, it allows us to automate or augment human labor,” said Jeremy Howard, the founder of Fast.ai, an independent lab based in San Francisco that is among those at the forefront of this research. “This can make life easier for a lawyer or a paralegal. But it can also help with medicine.” It may even lead to technology that can — finally — carry on a decent conversation. But there is a downside: On social media services like Twitter, this new research could also lead to more convincing bots designed to fool us into thinking they are human, Mr. Howard said. Researchers have already shown that rapidly improving A.I. techniques can facilitate the creation of fake images that look real. As these kinds of technologies move into the language field as well, Mr. Howard said, we may need to be more skeptical than ever about what we encounter online. These new language systems learn by analyzing millions of sentences written by humans. A system built by OpenAI, a lab based in San Francisco, analyzed thousands of self-published books, including romance novels, science fiction and more. Google’s Bert analyzed these same books plus the length and breadth of Wikipedia. Each system learned a particular skill by analyzing all that text. OpenAI’s technology learned to guess the next word in a sentence. Bert learned to guess missing words anywhere in a sentence. But in mastering these specific tasks, they also learned about how language is pieced together. If Bert can guess the missing words in millions of sentences (such as “the man walked into a store and bought a \_\_\_\_ of milk”), it can also understand many of the fundamental relationships between words in the English language, said Jacob Devlin, the Google researcher who oversaw the creation of Bert. (Bert is short for Bidirectional Encoder Representations from Transformers.) The system can apply this knowledge to other tasks. If researchers provide Bert with a bunch of questions and their answers, it learns to answer other questions on its own. Then, if they feed it news headlines that describe the same event, it learns to recognize when two sentences are similar. Usually, machines can recognize only an exact match. Bert can handle the “common sense” test from the Allen Institute. It can also handle a reading comprehension test where it answers questions about encyclopedia articles. What is oxygen? What is precipitation? In another test, it can judge the sentiment of a movie review. Is the review positive or negative? This kind of technology is “a step toward a lot of still-faraway goals in A.I., like technologies that can summarize and synthesize big, messy collections of information to help people make important decisions,” said Sam Bowman, a professor at New York University who specializes in natural language research. In the weeks after the release of OpenAI’s system, outside researchers applied it to conversation. An independent group of researchers used OpenAI’s technology to create asystem that leads a competition to build the best chatbot that was organized by several top labs, including the Facebook AI Lab. And this month, Google “ open sourced” its Bert system, so others can apply it to additional tasks. Mr. Devlin and his colleagues have already trained it in 102 languages. Sebastian Ruder, a researcher based in Ireland who collaborates with Fast.ai, sees the arrival of systems like Bert as a “wake-up call” for him and other A.I. researchers because they had assumed language technology had hit a ceiling. “There is so much untapped potential,” he said. The complex mathematical systems behind this technology are called neural networks. In recent years, this type of machine learning has accelerated progress in subjects as varied as face recognition technology and driverless cars. Researchers call this “deep learning.” Bert succeeded in part because it leaned on enormous amounts of computer processing power that was not available to neural networks in years past. It analyzed all those Wikipedia articles over the course of several days using dozens of computer processors built by Google specifically for training neural networks. The ideas that drive Bert have been around for years, but they started to work because modern hardware could juggle much larger amounts of data, Mr. Devlin said. Like Google, dozens of other companies are now building chips specifically for this kind of machine learning, and many believe the influx of this extra processing power will continue to accelerate the progress of a wide range of A.I. technologies, including, most notably, natural language applications. “Bert is a first thrust in that direction,” said Jeff Dean, who oversees Google’s artificial intelligence work. “But actually not all that big in terms of where we want to go.” Mr. Dean believes that ever larger amounts of processing power will lead to machines that can better juggle natural language. But there is reason for skepticism that this technology can keep improving quickly because researchers tend to focus on the tasks they can make progress on and avoid the ones they can’t, said Gary Marcus, a New York University psychology professor who has long questioned the effectiveness of neural networks. “These systems are still a really long way from truly understanding running prose,” he said. Oren Etzioni, chief executive of the Allen Institute for Artificial Intelligence, another prominent voice who has pushed for research that extends beyond neural networks, made the same point. Though Bert passed the lab’s common-sense test, he said, machines are still a long way from an artificial version of a human’s common sense. But like other researchers in this field, he believes the trajectory of natural language research has changed. This is a moment of “explosive progress,” he said. Follow Cade Metz on Twitter: @CadeMetz. PHOTO: (PHOTOGRAPH BY Nicolas Ortega FOR THE NEW YORK TIMES) Related Articles Chips Off the Old Block: Computers Are Taking Design Cues From Human Brains Big Bets on A.I. Open a New Frontier for Chip Start-Ups, Too Load-Date: November 27, 2018 End of Document How Should Antitrust Regulators Check Silicon Valley’s Ambitions?; Another View The New York Times

### Document 259

Computers just got even more scarily smart. A program designed by Google researchers has become the first to defeat a professional human player at the ancient Asian game of Go. Google Deepmind's program, AlphaGo, recently crushed the current European Go champion, Fan Hui, by five games to nothing. AlphaGo's victory -- a feat that experts had believed would take at least another decade to achieve -- is detailed in an article in the science journal Nature this week. Enabling computers to master Go has been a kind of holy grail for some artificial intelligence scientists. Back in the '90s, software programs became adept at classic board games like backgammon. Their rapid progress culminated in the historic victory of IBM's Deep Blue computer over world chess champion Gary Kasparov in 1997. It's taken almost another 20 years for artificial intelligence to get to grips with the mind-boggling complexities of Go, which experts say relies deeply on intuition. Until recently, software programs could only compete with human amateurs. "The number of possible configurations of the board is more than the number of atoms in the universe," said Demis Hassabis, a researcher at Google DeepMind in London, where AlphaGo was developed. One of the program's key traits is the ability to learn from games against itself. Believed to have originated in ancient China, Go has been played by people across East Asia for thousands of years. The rules are simple: two opponents try to take territorial control of a board by taking turns at placing their pieces on a grid of lines. They can capture each others' pieces by surrounding them. But the range of potential scenarios is vast. "In chess, the number of possible moves is about 20 for the average position," Hassabis said. "In Go, it's about 200." Next up for the skillful program is a showdown in March in South Korea with Lee Sedol, the dominant player of the past decade whom Hassabis describes as "the Roger Federer of Go." The researchers say they expect AlphaGo's attributes to eventually be put to use beyond the realm of board games in areas like Google's own apps, and even medicine. TM & © 2016 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: January 29, 2016 End of Document Can Apple save Siri? CNN Wire

### Document 903

Nearly 20 years ago, after a chess-playing computer called Deep Blue beat the world grandmaster Garry Kasparov, I wrote an article about why humans would long remain the champions in the game of Go. ''It may be a hundred years before a computer beats humans at Go -- maybe even longer,'' Dr. Piet Hut, an astrophysicist and Go enthusiast at the Institute for Advanced Study in Princeton, N.J., told me in 1997. ''If a reasonably intelligent person learned to play Go, in a few months he could beat all existing computer programs. You don't have to be a Kasparov.'' That was the prevailing wisdom. Last month, after a Google computer program called AlphaGo defeated the Go master Lee Se-dol, I asked Dr. Hut for his reaction. ''I was way off, clearly, with my prediction,'' he replied in an email. ''It's really stunning.'' At the time, his pessimism seemed well founded. While Deep Blue had been trained and programmed by IBM with some knowledge about chess, its advantage lay primarily in what computer scientists call brute-force searching. At each step of the game Deep Blue would rapidly look ahead, exploring a maze of hypothetical moves and countermoves and counter-countermoves. Then it would make the choice that its algorithms ranked as the best. No living brain could possibly move so fast. But in Go, an ancient board game renowned for its complexity, the ever-forking space of possibilities is so much vaster that sheer electronic speed was not nearly enough. Capturing in a computer something closer to human intuition -- the ability to seek and respond to meaningful patterns -- seemed crucial and very far away. Other seemingly distant goals included the ability to translate automatically between two languages or to recognize speech with enough accuracy to be useful outside the laboratory. Computer scientists had already spent decades trying to crack these problems. For many, the aim was not just to make an artificial intelligence, but to understand deep principles of syntax, semantics and phonetics, and even what it means to think. Now anyone with a smartphone or laptop (communing by Internet with a supercomputing cloud) can get a rough translation of text in many languages. They can dictate instead of type. Photo software can sort not just by date and location but by the faces of the subjects. The results are imperfect and often clumsy, but they would have been mind-blowing in 1997. What happened between then and now? Of course, computers became ever more powerful. But even today's fastest aren't able to anticipate all of the permutations of a situation like playing Go. Success on this and other fronts has come from harnessing speed in other ways. The breakthrough in translation came from setting aside the question of what it means to understand a language and just finding a technology that works. The automated systems start with a text that has already been translated, by human brains. Then both versions are fed to a computer. By rapidly comparing the two, the machine compiles a thicket of statistical correlations, associating words and phrases with their likely foreign counterparts. Similar approaches, more artificial than intelligent, have led to surprisingly rapid improvements in recognizing speech and facial images, as well as with playing championship Go. In AlphaGo, learning algorithms, called deep neural nets, were trained using a database of millions of moves made in the past by human players. Then it refined this knowledge by playing one split-second game after another against itself. Tweak by algorithmic tweak, it became ever more adept at the game. By combining this insensate learning, which amounts to many human lifetimes of experience, with a technique called Monte Carlo tree search, named for the ability to randomly sample a universe of possible moves, AlphaGo prevailed. That was an enormous victory. But the glory goes not to the computer program but to the human brains that pulled it off. At the end of the tournament in Seoul, South Korea, 15 of them took the stage. They represented just a fraction of the number of people it took to invent and execute all of the technologies involved. Lee Se-dol was playing against an army. Back in 1997 I wrote, ''To play a decent game of Go, a computer must be endowed with the ability to recognize subtle, complex patterns and to draw on the kind of intuitive knowledge that is the hallmark of human intelligence.'' Defeating a human Go champion, I wrote, ''will be a sign that artificial intelligence is truly beginning to become as good as the real thing.'' That doesn't seem so true anymore. Ingenious learning algorithms combined with ''big data'' have led to impressive accomplishments -- what has even been called bottled intuition. But artificial intelligence is far from rivaling the fluidity of the human mind. ''Humans can learn to recognize patterns on a Go board -- and patterns related to faces and patterns in language -- and even patterns of patterns,'' said Melanie Mitchell, a computer scientist at Portland State University and the Santa Fe Institute. ''This is what we do every second of every day. But AlphaGo only recognizes patterns related to Go boards and has no ability to generalize beyond that -- even to games similar to Go but with different rules. ''Also, it takes millions of training examples for AlphaGo to learn to recognize patterns,'' she continued, ''whereas it only seems to take humans a few.'' Computer scientists are experimenting with programs that can generalize far more efficiently. But the squishy neural nets in our heads -- shaped by half a billion years of evolution and given a training set as big as the world -- can still hold their own against ultra-high-speed computers designed by teams of humans, programmed for a single purpose and given an enormous head start. ''It was a regrettable game, but I enjoyed it,'' Mr. Lee said during the award ceremony. (Regret, enjoy -- these words do not compute.) He added that the contest ''clearly showed my weaknesses, but not the weakness of humanity.'' Picking up the plaque and bouquet he had been given as consolation prizes, he laughed nervously and stumbled from the stage. Several days later, he said he would like a rematch. Like the Science Times page on Facebook. This is a more complete version of the story than the one that appeared in print. http : // www.nytimes.com/2016/04/05/science/google-alphago-artificial-intelligence.html Graphic PHOTO: Lee Se-dol, a professional Go player from South Korea, was smiling amid other players despite losing four of five games against a Google computer program called AlphaGo. (PHOTOGRAPH BY LEE JIN-MAN/ASSOCIATED PRESS) Load-Date: April 6, 2016 End of Document Google Settles Smaller Lawsuits as It Prepares for More Antitrust Fights The New York Times

### Document 522

Isomorphic Labs is a spinoff of the London-based artificial intelligence lab DeepMind. Google’s parent company, Alphabet, is launching an operation dedicated to drug discovery. The new company, called Isomorphic Labs, will build on recent research from DeepMind, a London-based artificial intelligence lab also owned and operated by Alphabet. Demis Hassabis, the co-founder and chief executive of DeepMind, will also serve as chief executive of Isomorphic Labs as it maps out its technical strategy and hires its first employees. Isomorphic and DeepMind announced the creation of the new company on Thursday, but declined to discuss the details of the operation. Other Alphabet companies are already exploring various aspects of human health, including Verily, which has worked on everything from surgical robots to contact lenses that monitor glucose levels in diabetics; and Calico, which is dedicated to overcoming aging. Isomorphic Labs will be focused solely on drug discovery and new technologies that can help develop medicines. Last year, DeepMind unveiled a system that automatically predicts the shapes of enzymes and other proteins, the microscopic mechanisms that drive the behavior of all living things. The system, called AlphaFold, could make those predictions with an accuracy well beyond other technologies, according to independent tests, and it could play an important role in drug discovery. The lab recently released predicted shapes of more than 350,000 proteins, a kind of map for biological processes in humans and other organisms. Independent researchers have used that data to accelerate a wide range of biological research, including efforts to understand the coronavirus. Other prominent research labs, including a team at the University of Washington, are exploring similar technology. A wide range of start-ups, including the San Francisco-based Atomwise and Recursion Pharmaceuticals in Salt Lake City, are also working to apply new A.I. techniques to drug discovery. Load-Date: November 4, 2021 End of Document The Real Threat of Artificial Intelligence; Opinion The New York Times

### Document 346

Marvin Minsky, who combined a scientist's thirst for knowledge with a philosopher's quest for truth as a pioneering explorer of artificial intelligence, work that helped inspire the creation of the personal computer and the Internet, died on Sunday night in Boston. He was 88. His family said the cause was a cerebral hemorrhage. Well before the advent of the microprocessor and the supercomputer, Professor Minsky, a revered computer science educator at M.I.T., laid the foundation for the field of artificial intelligence by demonstrating the possibilities of imparting common-sense reasoning to computers. ''Marvin was one of the very few people in computing whose visions and perspectives liberated the computer from being a glorified adding machine to start to realize its destiny as one of the most powerful amplifiers for human endeavors in history,'' said Alan Kay, a computer scientist and a friend and colleague of Professor Minsky's. Fascinated since his undergraduate days at Harvard by the mysteries of human intelligence and thinking, Professor Minsky saw no difference between the thinking processes of humans and those of machines. Beginning in the early 1950s, he worked on computational ideas to characterize human psychological processes and produced theories on how to endow machines with intelligence. Professor Minsky, in 1959, co-founded the M.I.T. Artificial Intelligence Project (later the Artificial Intelligence Laboratory) with his colleague John McCarthy, who is credited with coining the term ''artificial intelligence.'' Beyond its artificial intelligence charter, however, the lab would have a profound impact on the modern computing industry, helping to impassion a culture of computer and software design. It planted the seed for the idea that digital information should be shared freely, a notion that would shape the so-called open-source software movement, and it was a part of the original ARPAnet, the forerunner to the Internet. Professor Minsky's scientific accomplishments spanned a variety of disciplines. He designed and built some of the first visual scanners and mechanical hands with tactile sensors, advances that influenced modern robotics. In 1951 he built the first randomly wired neural network learning machine, which he called Snarc. And in 1956, while at Harvard, he invented and built the first confocal scanning microscope, an optical instrument with superior resolution and image quality still in wide use in the biological sciences. His own intellect was wide-ranging and his interests were eclectic. While earning a degree in mathematics at Harvard he also studied music, and as an accomplished pianist, he would later delight in sitting down at one and improvising complex baroque fugues. Professor Minsky was lavished with many honors, notably, in 1969, the Turing Award, computer science's highest prize. He went on to collaborate, in the early '70s, with Seymour Papert, the renowned educator and computer scientist, on a theory they called ''The Society of Mind,'' which combined insights from developmental child psychology and artificial intelligence research. Professor Minsky's book ''The Society of Mind,'' a seminal work published in the mid-1980s, proposed ''that intelligence is not the product of any singular mechanism but comes from the managed interaction of a diverse variety of resourceful agents,'' as he wrote on his website. Underlying that hypothesis was his and Professor Papert's belief that there is no real difference between humans and machines. Humans, they maintained, are actually machines of a kind whose brains are made up of many semiautonomous but unintelligent ''agents.'' And different tasks, they said, ''require fundamentally different mechanisms.'' Their theory revolutionized thinking about how the brain works and how people learn. ''Marvin was one of the people who defined what computing and computing research is all about,'' Dr. Kay said. ''There were four or five supremely talented characters from back then who were early and comprehensive and put their personality and stamp on the field, and Marvin was among them.'' Marvin Lee Minsky was born on Aug. 9, 1927, in New York City. The precocious son of Dr. Henry Minsky, an eye surgeon who was chief of ophthalmology at Mount Sinai Hospital, and Fannie Reiser, a social activist and Zionist. Fascinated by electronics and science, the young Mr. Minsky attended the Ethical Culture School in Manhattan, a progressive private school from which J. Robert Oppenheimer, who oversaw the creation of the first atomic bomb, had graduated. (Mr. Minsky later attended the affiliated Fieldston School in Riverdale.) He went on to attend the Bronx High School of Science and later Phillips Academy in Andover, Mass. After a stint in the Navy during World War II, he studied mathematics at Harvard and received a Ph.D. in math from Princeton, where he met John McCarthy, a fellow graduate student. Intellectually restless throughout his life, Professor Minsky sought to move on from mathematics once he had earned his doctorate. After ruling out genetics as interesting but not profound, and physics as mildly enticing, he chose to focus on intelligence itself. ''The problem of intelligence seemed hopelessly profound,'' he told The New Yorker magazine when it profiled him in 1981. ''I can't remember considering anything else worth doing.'' To further those studies he reunited with Professor McCarthy, who had been awarded a fellowship to M.I.T. in 1956. Professor Minsky, who had been at Harvard by then, arrived at M.I.T. in 1958, joining the staff at its Lincoln Laboratory. A year later, he and Professor McCarthy founded M.I.T.'s AI Project, later to be known as the AI Lab. (Professor McCarthy left for Stanford in 1962.) Professor Minsky's courses at M.I.T. -- he insisted on holding them in the evenings -- became a magnet for several generations of graduate students, many of whom went on to become computer science superstars themselves. Among them were Ray Kurzweil, the inventor and futurist; Gerald Sussman, a prominent A.I. researcher and professor of electrical engineering at M.I.T.; and Patrick Winston, who went on to run the AI Lab after Professor Minsky stepped aside. Another of his students, Danny Hillis, an inventor and entrepreneur, co-founded Thinking Machines, a supercomputer maker in the early 1990s. Mr. Hillis said he had so been taken by Professor Minsky's intellect and charisma that he found a way to insinuate himself into the AI Lab and get a job there. He ended up living in the Minsky family basement in Brookline, Mass. ''Marvin taught me how to think,'' Mr. Hillis said in an interview. ''He had a style and a playful curiosity that was a huge influence on me. He always challenged you to question the status quo. He loved it when you argued with him.'' Professor Minsky's prominence extended well beyond M.I.T. While preparing to make the 1968 science-fiction epic ''2001: A Space Odyssey,'' the director Stanley Kubrick visited him seeking to learn about the state of computer graphics and whether Professor Minsky believed it would be plausible for computers to be able to speak articulately by 2001. Professor Minsky is survived by his wife, Gloria Rudisch, a physician; two daughters, Margaret and Juliana Minsky; a son, Henry; a sister, Ruth Amster; and four grandchildren. ''In some ways, he treated his children like his students,'' Mr. Hillis recalled. ''They called him Marvin, and he challenged them and engaged them just as he did with his students.'' In 1989, Professor Minsky joined M.I.T.'s fledgling Media Lab. ''He was an icon who attracted the best people,'' said Nicholas Negroponte, the Media Lab's founder and former director. For Dr. Kay, Professor Minsky's legacy was his insatiable curiosity. ''He used to say, 'You don't really understand something if you only understand it one way,''' Dr. Kay said. ''He never thought he had anything completely done.'' http : // www.nytimes.com/2016/01/26/business/marvin-minsky-pioneer-in-artificial-intelligence-dies-at-88.html Graphic PHOTOS: Marvin Minsky in an electrical engineering lab at M.I.T. in 1968. His work in computer science demonstrated the possibilities of imparting common-sense reasoning to computers. (PHOTOGRAPH BY M.I.T.) Professor Minsky's work predated the supercomputer. (PHOTOGRAPH BY LOUIS FABIAN BACHRACH) Load-Date: January 27, 2016 End of Document A Theory of Musk's Maniacal Drive The New York Times

### Document 417

Real scalpels, artificial intelligence -- what could go wrong? Sitting on a stool several feet from a long-armed robot, Dr. Danyal Fer wrapped his fingers around two metal handles near his chest. As he moved the handles -- up and down, left and right -- the robot mimicked each small motion with its own two arms. Then, when he pinched his thumb and forefinger together, one of the robot's tiny claws did much the same. This is how surgeons like Dr. Fer have long used robots when operating on patients. They can remove a prostate from a patient while sitting at a computer console across the room. But after this brief demonstration, Dr. Fer and his fellow researchers at the University of California, Berkeley, showed how they hope to advance the state of the art. Dr. Fer let go of the handles, and a new kind of computer software took over. As he and the other researchers looked on, the robot started to move entirely on its own. With one claw, the machine lifted a tiny plastic ring from an equally tiny peg on the table, passed the ring from one claw to the other, moved it across the table and gingerly hooked it onto a new peg. Then the robot did the same with several more rings, completing the task as quickly as it had when guided by Dr. Fer. The training exercise was originally designed for humans; moving the rings from peg to peg is how surgeons learn to operate robots like the one in Berkeley. Now, an automated robot performing the test can match or even exceed a human in dexterity, precision and speed, according to a new research paper from the Berkeley team. The project is a part of a much wider effort to bring artificial intelligence into the operating room. Using many of the same technologies that underpin self-driving cars, autonomous drones and warehouse robots, researchers are working to automate surgical robots too. These methods are still a long way from everyday use, but progress is accelerating. ''It is an exciting time,'' said Russell Taylor, a professor at Johns Hopkins University and former IBM researcher known in the academic world as the father of robotic surgery. ''It is where I hoped we would be 20 years ago.'' The aim is not to remove surgeons from the operating room but to ease their load and perhaps even raise success rates -- where there is room for improvement -- by automating particular phases of surgery. Robots can already exceed human accuracy on some surgical tasks, like placing a pin into a bone (a particularly risky task during knee and hip replacements). The hope is that automated robots can bring greater accuracy to other tasks, like incisions or suturing, and reduce the risks that come with overworked surgeons. During a recent phone call, Greg Hager, a computer scientist at Johns Hopkins, said that surgical automation would progress much like the Autopilot software that was guiding his Tesla down the New Jersey Turnpike as he spoke. The car was driving on its own, he said, but his wife still had her hands on the wheel, should anything go wrong. And she would take over when it was time to exit the highway. ''We can't automate the whole process, at least not without human oversight,'' he said. ''But we can start to build automation tools that make the life of a surgeon a little bit easier.'' Five years ago, researchers with the Children's National Health System in Washington, D.C., designed a robot that could automatically suture the intestines of a pig during surgery. It was a notable step toward the kind of future envisioned by Dr. Hager. But it came with an asterisk: The researchers had implanted tiny markers in the pig's intestines that emitted a near-infrared light and helped guide the robot's movements. The method is far from practical, as the markers are not easily implanted or removed. But in recent years, artificial intelligence researchers have significantly improved the power of computer vision, which could allow robots to perform surgical tasks on their own, without such markers. The change is driven by what are called neural networks, mathematical systems that can learn skills by analyzing vast amounts of data. By analyzing thousands of cat photos, for instance, a neural network can learn to recognize a cat. In much the same way, a neural network can learn from images captured by surgical robots. Surgical robots are equipped with cameras that record three-dimensional video of each operation. The video streams into a viewfinder that surgeons peer into while guiding the operation, watching from the robot's point of view. But afterward, these images also provide a detailed road map showing how surgeries are performed. They can help new surgeons understand how to use these robots, and they can help train robots to handle tasks on their own. By analyzing images that show how a surgeon guides the robot, a neural network can learn the same skills. This is how the Berkeley researchers have been working to automate their robot, which is based on the da Vinci Surgical System, a two-armed machine that helps surgeons perform more than a million procedures a year. Dr. Fer and his colleagues collect images of the robot moving the plastic rings while under human control. Then their system learns from these images, pinpointing the best ways of grabbing the rings, passing them between claws and moving them to new pegs. But this process came with its own asterisk. When the system told the robot where to move, the robot often missed the spot by millimeters. Over months and years of use, the many metal cables inside the robot's twin arms have stretched and bent in small ways, so its movements were not as precise as they needed to be. Human operators could compensate for this shift, unconsciously. But the automated system could not. This is often the problem with automated technology: It struggles to deal with change and uncertainty. Autonomous vehicles are still far from widespread use because they aren't yet nimble enough to handle all the chaos of the everyday world. The Berkeley team decided to build a new neural network that analyzed the robot's mistakes and learned how much precision it was losing with each passing day. ''It learns how the robot's joints evolve over time,'' said Brijen Thananjeyan, a doctoral student on the team. Once the automated system could account for this change, the robot could grab and move the plastics rings, matching the performance of human operators. Other labs are trying different approaches. Axel Krieger, a Johns Hopkins researcher who was part of the pig-suturing project in 2016, is working to automate a new kind of robotic arm, one with fewer moving parts and that behaves more consistently than the kind of robot used by the Berkeley team. Researchers at the Worcester Polytechnic Institute are developing ways for machines to carefully guide surgeons' hands as they perform particular tasks, like inserting a needle for a cancer biopsy or burning into the brain to remove a tumor. ''It is like a car where the lane-following is autonomous but you still control the gas and the brake,'' said Greg Fischer, one of the Worcester researchers. Many obstacles lie ahead, scientists note. Moving plastic pegs is one thing; cutting, moving and suturing flesh is another. ''What happens when the camera angle changes?'' said Ann Majewicz Fey, an associate professor at the University of Texas, Austin. ''What happens when smoke gets in the way?'' For the foreseeable future, automation will be something that works alongside surgeons rather than replaces them. But even that could have profound effects, Dr. Fer said. For instance, doctors could perform surgery across distances far greater than the width of the operating room -- from miles or more away, perhaps, helping wounded soldiers on distant battlefields. The signal lag is too great to make that possible currently. But if a robot could handle at least some of the tasks on its own, long-distance surgery could become viable, Dr. Fer said: ''You could send a high-level plan and then the robot could carry it out.'' The same technology would be essential to remote surgery across even longer distances. ''When we start operating on people on the moon,'' he said, ''surgeons will need entirely new tools.'' https : // www.nytimes.com/2021/04/30/technology/robot-surgery-surgeon.html Graphic PHOTOS: Above, a robot designed to assist and train surgeons during minimally invasive procedures conducted a peg transfer at University of California, Berkeley. At right, watching as the transfer took place were, from left, Ken Goldberg, an engineering professor Samuel Paradis, a master's student Brijen Thananjeyan, a doctoral candidate and Dr. Minho Hwang. Below, Dr. Danyal Fer, a surgeon and researcher, has long used robots while operating on patients. (PHOTOGRAPHS BY SARAHBETH MANEY FOR THE NEW YORK TIMES) Load-Date: May 4, 2021 End of Document Using Artificial Intelligence to Clean Up, and Expand, the Voter Rolls The New York Times

### Document 568

She interviewed many of the scientists who were at the heart of the field through the end of the 1970s, and she compiled a groundbreaking history of its early years. Pamela McCorduck, whose encounters with eminent computer scientists in the 1960s and ’70s led her to write a groundbreaking history of artificial intelligence over the field’s first 20 years, died on Oct. 18 at her home in Walnut Creek, Calif. She was 80. Her sister, Sandra McCorduck Marona, confirmed the death but did not give a cause. “For 60 years, I’ve lived in A.I.’s exponential,” Ms. McCorduck wrote in a memoir, “This Could Be Important: My Life and Times With the Artificial Intelligentsia” (2019). “I’ve watched computers evolve from plodding sorcerer’s apprentices to machines that can best any humans at checkers, then chess, then the guessing game ‘Jeopardy!,’ and now the deeply complex game of Go.” Ms. McCorduck was an English major who first ventured into the evolving world of artificial intelligence in 1960 as a student at the University of California, Berkeley, where she helped edit an influential book of academic papers about A.I. with Edward Feigenbaum and Julian Feldman, two of the field’s pioneering computer scientists. Her next leap into A.I. was an immersive one at Carnegie Mellon University in Pittsburgh, where in the 1970s she taught English. Her husband, Joseph Traub, was head of the computer science department there, which included artificial intelligence luminaries like Herbert Simon, Allen Newelland Raj Reddy. “She was dumped into this saturated milieu of the great and greatest in A.I. at Carnegie Mellon — some of the same people whose papers she’d helped us assemble — and decided to write a history of the field,” Professor Feigenbaum said in a phone interview. The result was “Machines Who Think: A Personal Inquiry Into the History and Prospects of Artificial Intelligence” (1979), a chronicle of past attempts to mechanize thought. She also wrote about the founders of a new science who had conceived of expert systems, speech understanding, robotics, general problem-solving and game-playing machines, beginning in the mid-1950s. Their work was considered to be the first of its kind in this area. Artificial intelligence, she wrote, “has pervaded Western intellectual history, a dream in urgent need of being realized.” “Work toward that end has been a splendid effort,” she continued, “the variety of its forms as wondrous as anything humans have conceived, its practitioners as lively a group of poets, dreamers, holy men, rascals and eccentrics as one could hope to find — not a dullard among them.” Ms. McCorduck’s “powers of observation” and “conversational style” raised her book above others that have in the years since tried to explain artificial intelligence to a broad audience, Philip Mirowski wrote in AI Magazine in a review of the 25th-anniversary edition of “Machines Who Think,” which included a long addendum updating A.I.’s history through 2004. Pamela Ann McCorduck was born on Oct. 27, 1940, in Liverpool, England, as the city was being bombed by the German Luftwaffe. When she was 6 she left for the United States with her parents, Jack and Hilda (Bond) McCorduck, and her two younger siblings, who are twins. Her father owned beauty colleges, where her mother was a beautician and teacher. The family settled first in Stamford, Conn., before moving several times. She graduated from high school in Rutherford, N.J., and received a bachelor’s degree in English composition and literature from Berkeley in 1960. Ten years later she earned a master’s in English literature at Columbia University. “Computers &amp; Thought,” the result of her work with Professors Feigenbaum and Feldman, was published in 1963. She called herself a “gofer” to them, but Professor Feigenbaum said that she had been essential to their project. She continued her association with Professor Feigenbaum as his executive assistant for several years after he left Berkeley for Stanford University in 1965 to help start its computer science department and to direct the Stanford Computation Center. She met Professor Traub at Stanford, and they married in 1969. (Her first marriage, to Thomas Tellefsen, had ended in divorce.) The next year they moved to Seattle, where he taught at the University of Washington; a year after that they moved to Pittsburgh. Around that time she published two novels: “Familiar Relations” (1971), the story of a family set in Liverpool in 1944, and “Working to the End” (1972), about a brilliant woman scientist in a love triangle with her brother-in-law. At Carnegie Mellon, where she taught in the English department, Ms. McCorduck got to know the computer scientists working on artificial intelligence and became particularly close with Professor Simon, who helped pioneer the idea that computers can exhibit artificial intelligence that mirrors human thinking. She often offered Professor Simon a glass of sherry when he walked past her house in Pittsburgh on his way home, and they discussed artificial intelligence, linguistics, music and art, she saidin an oral history interview with Carnegie Mellon in 2019. Ms. McCorduck received financial support from Carnegie Mellon to write “Machines Who Think.” She also received help from the professors and researchers she had interviewed. “She’d say, ‘I wrote this chapter, can you can read it?’” said Dr. Reddy, who is now university professor of computer science and robotics at Carnegie Mellon (and who, like Professors Feigenbaum and Simon,is a winner of the A.M. Turing Award, often called the Nobel Prize of computing). “She was interacting with all the movers and shakers of A.I. She was in the middle of it, an eyewitness to history.” Ms. McCorduck moved to Columbia, where she taught creative writing, when Professor Traub was appointed the founding chairman of the university’s computer science department in 1979. She continued to write; among her later books were “The Universal Machine” (1985), about the impact of computers on art, science, education and medicine; “The Rise of the Expert Company” (1988), an exploration of how companies used artificial intelligence, written with Professor Feigenbaum and Penny Nii; and “Aaron’s Code” (1990), about Harold Cohen, an abstract painter who developed a complex software program to generate works of art. She also published two more novels, “The Edge of Chaos” in 2007 and “Bounded Rationality” in 2012. In addition to her sister, she is survived by her brother, John, and her stepdaughters, Claudia Traub and Hillary Spector. Professor Traub died in 2015. Ms. McCorduck had regrets about not recognizing the possibility that artificial intelligence could be misused. She voiced those regrets in “This Could Be Important,” her final book. “A thread in my book is how naïve I was — we all were — in the early days when it seemed as if more intelligence could only be like more virtue,” she told insideBigData, a website devoted to news about A.I., machine learning and data science, in 2020. “I’m especially disappointed with myself. I was a student of the humanities. How could I not have imagined that more intelligence would bring along all the usual misbehavior humans are capable of?” She was especially concerned with facial recognition systems, which she called “a blundering tool in the hands of governments,” adding: “It will still be blundering when it improves technically. That’s really a political, not a technological problem.” PHOTO: Pamela McCorduck in 2012. Ms. McCorduck had regrets about not recognizing that artificial intelligence could be misused. (PHOTOGRAPH BY JILL FINEBERG PHOTOGRAPHY) Load-Date: November 5, 2021 End of Document Best Place for Jobs in Artificial Intelligence? The San Francisco Bay Area, of Course, a Study Says. The New York Times

### Document 241

Artificial intelligence will eventually solve some of the world's biggest problems -- but it'll take some smart humans to get it there. Quoc Le, a software engineer at Google Brain, is one such human. Google Brain focuses on "deep learning," a part of artificial intelligence. Think of it as a sophisticated type of machine learning, which is the science of getting computers to learn from data. Deep learning uses multiple layers of algorithms, called neural networks, to process images, text and sentiments quickly and efficiently. The idea is for machines to eventually be able to make decisions as humans do. But we're far from that point today, according to a recent Quora post by Andrew Ng, a cofounder of Google Brain. Launched in 2011, Google Brain was originally an initiative within the secretive, futuristic Google X division. It has since graduated and is now housed in the company's research department. While Google publishes research from Brain, it remains relatively tight-lipped about the team's organizational structure. Google would not disclose how many work on the team today, citing that the teams are fluid. 34-year-old Le, who has a PhD from Stanford in computer science, has been working at Google Brain for 4.5 years. "There's very few people in the world that actually understand how to get machines to learn and think," said Le, who is originally from Vietnam. "Deep learning is still new." But as deep learning develops, people get more excited about its potential to tackle big problems like education or climate change. For example, using remote sensors, environmental data around the world can be tracked. Right now, that data is largely unprocessed, but deep learning could be used to understand patterns and point to solutions. "I'm confident deep learning isn't going to 'plateau' anytime soon and that it'll continue to grow rapidly," Ng wrote on Quora. Ng now works as chief scientist at Baidu. Alphabet -- the parent company of Google -- has integrated Google Brain technology into some of its own services. Speech recognition technology in its Android operating systems and improved photo search capabilities originated at Brain. Google open-sourced its deep learning code, TensorFlow, to the public in a bid to help accelerate the development of artificial intelligence. In 2014, it acquired DeepMind Technologies for $650 million in a bid to beef up its own AI expertise According to CB Insights, startups working on deep learning and artificial intelligence have raised more than $950 million in the past five years. Google Brain alum Olcan Sercinoglu is running one of those startups. A software engineer, Sercinoglu left Google Brain in 2014 to launch Scaled Inference. The firm is working to bring machine learning to the masses with intelligent software. It hasn't launched its product yet, but just a few months after incorporating, Sercinoglu closed $13.6 million in funding from investors like Tencent Holdings, SV Angel and Khosla Ventures. He credits Google Brain -- which is known for its cutting-edge work -- for helping him complete such a successful round. "I think having worked at Google Brain was a big factor," he said, adding that deep learning and neural networks are just one aspect of the technology his firm is developing. Sercinoglu, 34, spent one year working on the Google Brain team, but nearly 10 years in other departments at Google. He interned at the company in 2001, working under Jeff Dean. Dean, a senior fellow at Google, was one of the original research partners behind Google Brain. "Even back then, we were working on brains -- but that had nothing to do with machine learning," Sercinoglu told CNNMoney. TM & © 2016 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: February 23, 2016 End of Document The key area where Trump is trouncing Biden CNN Wire

### Document 537

Chess and Go were child’s play. Now A.I. is winning at capture the flag. Will such skills translate to the real world? Capture the flag is a game played by children across the open spaces of a summer camp, and by professional video gamers as part of popular titles like Quake III and Overwatch. In both cases, it’s a team sport. Each side guards a flag while also scheming to grab the other side’s flag and bring it back to home base. Winning the game requires good old-fashioned teamwork, a coordinated balance between defense and attack: In other words, capture the flag requires what would seem to be a very human set of skills. But researchers at an artificial intelligence lab in London have shown that machines can master this game, too, at least in the virtual world. In a paper published on Thursday in Science (and previously available on the website arXiv before peer review), the researchers reported that they had designed automated “agents” that exhibited humanlike behavior when playing the capture the flag “game mode” inside Quake III. These agents were able to team up against human players or play alongside them, tailoring their behavior accordingly. “They can adapt to teammates with arbitrary skills,” said Wojciech Czarnecki, a researcher with DeepMind, a lab owned by the same parent company as Google. Through thousands of hours of game play, the agents learned very particular skills, like racing toward the opponent’s home base when a teammate was on the verge of capturing a flag. As human players know, the moment the opposing flag is brought to one’s home base, a new flag appears at the opposing base, ripe for the taking. [Like the Science Times page on Facebook. | Sign up for the Science Times newsletter.] DeepMind’s project is part of a broad effort to build artificial intelligence that can play enormously complex, three-dimensional video games, including Quake III, Dota 2 and StarCraft II. Many researchers believe that success in the virtual arena will eventually lead to automated systems with improved abilities in the real world. For instance, such skills could benefit warehouse robots as they work in groups to move goods from place to place, or help self-driving cars navigate en masse through heavy traffic. “Games have always been a benchmark for A.I.,” said Greg Brockman, who oversees similar research at OpenAI, a lab based in San Francisco. “If you can’t solve games, you can’t expect to solve anything else.” Until recently, building a system that could match human players in a game like Quake III did not seem possible. But over the past several years, DeepMind, OpenAI and other labs have made significant advances, thanks to a mathematical technique called “reinforcement learning,” which allows machines to learn tasks by extreme trial and error. By playing a game over and over again, an automated agent learns which strategies bring success and which do not. If an agent consistently wins more points by moving toward an opponent’s home base when a teammate is about to capture a flag, it adds this tactic to its arsenal of tricks. In 2016, using the same fundamental technique, DeepMind researchers built a system that could beat the world’s top players at the ancient game of Go, the Eastern version of chess. Many experts had thought this would not be accomplished for another decade, given the enormous complexity of the game. First-person video games are exponentially more complex, particularly when they involve coordination between teammates. DeepMind’s autonomous agents learned capture the flag by playing roughly 450,000 rounds of it, tallying about four years of game experience over weeks of training. At first, the agents failed miserably. But they gradually picked up the nuances of the game, like when to follow teammates as they raided an opponent’s home base: Since completing this project, DeepMind researchers also designed a system that could beat professional players at StarCraft II, a strategy game set in space. And at OpenAI, researchers built a system that mastered Dota 2, a game that plays like a souped-up version of capture the flag. In April, a team of five autonomous agents beat a team of five of the world’s best human players. Last year, William Lee, a professional Dota 2 player and commentator known as Blitz, played against an early version of the technology that could play only one-on-one, not as part of a team, and he was unimpressed. But as the agents continued to learn the game and he played them as a team, he was shocked by their skill. “I didn’t think it would be possible for the machine to play five-on-five, let alone win,” he said. “I was absolutely blown away.” As impressive as such technology has been among gamers, many artificial-intelligence experts question whether it will ultimately translate to solving real-world problems. DeepMind’s agents are not really collaborating, said Mark Riedl, a professor at Georgia Tech College of Computing who specializes in artificial intelligence. They are merely responding to what is happening in the game, rather than trading messages with one another, as human players do. (Even mere ants can collaborate by trading chemical signals.) Although the result looks like collaboration, the agents achieve it because, individually, they so completely understand what is happening in the game. “How you define teamwork is not something I want to tackle,” said Max Jaderberg, another DeepMind researcher who worked on the project. “But one agent will sit in the opponent’s base camp, waiting for the flag to appear, and that is only possible if it is relying on its teammates.” Games like this are not nearly as complex as the real world. “3-D environments are designed to make navigation easy,” Dr. Riedl said. “Strategy and coordination in Quake are simple.” Reinforcement learning is ideally suited to such games. In a video game, it is easy to identify the metric for success: more points. (In capture the flag, players earn points according to how many flags are captured.) But in the real world, no one is keeping score. Researchers must define success in other ways. This can be done, at least with simple tasks. At OpenAI, researchers have trained a robotic hand to manipulate an alphabet block as a child might. Tell the hand to show you the letter A, and it will show you the letter A. At a Google robotics lab, researchers have shown that machines can learn to pick up random items, such as Ping-Pong balls and plastic bananas, and toss them into a bin several feet away. This kind of technology could help sort through bins of items in huge warehouses and distribution centers run by Amazon, FedEx and other companies. Today, human workers handle such tasks. As labs like DeepMind and OpenAI tackle bigger problems, they may begin to require ridiculously large amounts of computing power. As OpenAI’s system learned to play Dota 2 over several months — more than 45,000 years of game play — it came to rely on tens of thousands of computer chips. Renting access to all those chips cost the lab millions of dollars, Mr. Brockman said. DeepMind and OpenAI, which is funded by various Silicon Valley kingpins including Khosla Ventures and the tech billionaire Reid Hoffman, can afford all that computing power. But academic labs and other small operations cannot, said Devendra Chaplot, an A.I. researcher at Carnegie Mellon University. The worry, for some, is that a few well-funded labs will dominate the future of artificial intelligence. But even the big labs may not have the computing power needed to move these techniques into the complexities of the real world, which may require stronger forms of A.I. that can learn even faster. Though machines can now win capture the flag in the virtual world, they are still hopeless across the open spaces of summer camp — and will be for quite a while. PHOTO: Capture the flag requires what would seem to be a very human set of skills. (PHOTOGRAPH BY DEEPMIND) Load-Date: February 23, 2022 End of Document Moments of Whimsy Mixed With Pleas for the Planet The New York Times

### Document 492

Nils J. Nilsson, a computer scientist who helped develop the first general-purpose robot and was a co-inventor of algorithms that made it possible for the machine to move about efficiently and perform simple tasks, died on Sunday at his home in Medford, Ore. He was 86. His death was confirmed by his wife, Grace Abbott. Dr. Nilsson was a member of a small group of computer scientists and electrical engineers at the Stanford Research Institute (now known as SRI International) who pioneered technologies that have proliferated in modern life, whether in navigation software used in more than a billion smartphones or in such speech-control systems as Siri. The researchers had been recruited by Charles Rosen, a physicist at the institute, who had raised Pentagon funding in 1966 to design a robot that would be used as a platform for doing research in artificial intelligence. Although the project was intended to create a general-purpose mobile “automaton” and be a test bed for A.I. programs, Mr. Rosen had secured the funding by selling the idea to the Pentagon that the machine would be a mobile sentry for a military base. At one Pentagon meeting he was asked if this automaton could carry a gun. “How many do you need?” he answered. “I think it should easily be able to handle two or three.” The researchers puzzled about what to name their robot, then decided that because it “shook like hell” when it moved, they would just call it Shakey. In 1970, Life Magazine, overstating its abilities, called the machine “the first electronic person” and suggested that true “thinking” machines would arrive in the near future. Dr. Nilsson, who had specialized in radar, joined the Stanford institute in 1961. Another member of the group, Dr. Peter Hart, recalled in an interview that in recruiting Dr. Nilsson, Mr. Rosen had poked his finger at Dr. Nilsson’s chest and said: “Radar? That’s like doing research on light bulbs! You have to come help us design these learning machines.” An early focus of Dr. Nilsson’s work involved neural networks, a new technology at the time that had been pioneered by Frank Rosenblatt at Cornell University. That technology would fall out of fashion in the 1970s, then re-emerge this decade after the cost of computing and gathering large data sets fell dramatically. With the addition of vast amounts of data, neural networks began to rival human qualities in speech understanding and vision. In 1965, Dr. Nilsson published one of the first books in the field of neural networks, “Learning Machines: Foundations of Trainable Pattern-Classifying Systems.” The approach broke with the dominant direction of artificial intelligence at the time. Edward Feigenbaum, an early member of the artificial intelligence research community, called the book “revelatory.” One challenge for the Stanford researchers was to figure out how a robot might navigate in an environment full of obstacles. Dr. Nilsson collaborated with Bertram Raphael and Dr. Hart to create what became known as the A\* (pronounced “A Star”) algorithm, which allowed Shakey to find the shortest path between two points in a room strewn with obstacles. Dr. Hart recalled walking down a hallway and encountering his two fellow researchers deep in discussion about how to calculate the most efficient route for a robot. He went home that evening and spent hours thinking about finding a mathematical proof that would show that a given path was the shortest one possible. He returned the next day and began working with his colleagues to come up the A\* algorithm. Dr. Nilsson worked with another researcher, Richard Fikes, to develop an algorithm to do higher-level planning, or reasoning, known as the Stanford Research Institute Problem Solver, or Strips. The program was designed to enable Shakey to perform simple tasks like finding and moving blocks; this required the machine to reason through a problem in an abstract way. After the Shakey project wound down, Dr. Nilsson gained funding for another project at SRI International, known as the “Computer-based Consultant,” which focused on natural language understanding. It was a predecessor to Siri, which was also launched at SRI and spun off as an independent company in 2007 before it was acquired by Apple in 2010. Dr. Nilsson was named chairman of the Stanford computer science department in 1985. He was also the author of “The Quest for Artificial Intelligence: A History of Ideas and Achievements” (2010), among other books. Nils John Nilsson was born on Feb. 6, 1933, in Saginaw, Mich., to Walter and Pauline (Glerum) Nilsson. When he was 11, the family moved to California, where his father was a salesman for an industrial equipment distributor. His mother was a homemaker. Dr. Nilsson studied at Stanford as an undergraduate and in 1958 received his Ph.D. there in electrical engineering. His dissertation was in information theory, exploring the problem of both detecting and jamming radar. He then joined the Air Force and served three years, stationed at the Rome Air Development Center in Rome, N.Y., a research laboratory, before joining the Stanford Research Institute. In 1958 he married Karen Braucht, who died in 1991. Along with his wife, Ms. Abbott, his survivors include two children from his first marriage, Lars Nilsson and Kristin Nilsson Farley; four stepsons; four grandchildren; and eight step-grandchildren. Unlike many engineers and computer scientists in Silicon Valley, Dr. Nilsson shied away from the start-up frenzy that has been emblematic of the region. “He was a researcher and academically inclined,” Dr. Hart said. “He didn’t have any interest in commerce or, as he would call it, ‘industry.’ That was great for other people, but he was not interested.” PHOTO: Nils Nilsson at Stanford University in 1987. Twenty years earlier, as a researcher, he helped create the first general purpose robot. (PHOTOGRAPH BY Ed Souza/Stanford News FOR THE NEW YORK TIMES) Load-Date: April 29, 2019 End of Document Tesla Workers at a Factory in Buffalo Begin a Campaign to Form a Union The New York Times

## Topic 8

### Document 1229

- A futuristic message board that delivers tailored airport information to travelers, in their own language, with a scan of a boarding pass. New app alerts that let you know when your group, not just your flight, is boarding so you're not glued to the gate. In-flight movies you can start on your way to the airport, and a new binge button on seatback screens. Delta Air Lines CEO Ed Bastian, the first airline CEO to deliver a keynote address at the mammoth tech trade show CES, took advantage of the spotlight Tuesday and unveiled a flurry of tech features the airline says will smooth travel in the future. Some, such as the more detailed boarding alerts, will be introduced this month, others, including the parallel reality airport screens, will only be tested this year, using a small sample of travelers in Detroit. Many more features Bastian touted, including a permanent bag tag with GPS and seamless security screening with biometrics at every step of the travel journey, are farther out. All are designed, the airline said in a video at CES, "to make sure traveling isn't something that stresses you but something that delights you." One thing on travelers' minds not rolled out at CES: a timetable for free Wi-Fi on Delta. Bastian reiterated that free Wi-Fi, which Delta has been publicly floating since late 2018, remains Delta's goal and said in his keynote address Tuesday that the airline has a team working "nonstop" to add bandwidth and make its Wi-Fi faster ahead of offering it for free. He said he's confident they can do that "in the next couple years." The airline did a limited test of free Wi-Fi in May. In an interview with Bloomberg television last fall, Bastian said offering free Wi-Fi comes with a lot of technological challenges, including travelers crashing the system. JetBlue Airways is the only U.S. airline offering free Wi-Fi. Budget airlines don't even offer Wi-Fi, though Spirit plans to roll it out. What's an airline CEO doing at a consumer electronics show? Delta doesn't make 8K TVs, flying cars, sex toys or other high-tech wares being peddled or promised at CES this year. It sells travel. But like so many businesses today, technology underpins travel. When Bastian was announced as a keynote speaker in September, after serving on a panel about technology in travel at last year's show, the head of the group that puts on CES said attendees would for the first time hear about the promise technology holds for the travel and tourism industry. "Biometrics, AR/VR, mobile technology and more are simplifying travel today and fundamentally changing travel in the future," Gary Shapiro,president and CEO of the Consumer Technology Association said. Veteran travel industry analyst Henry Harteveldt of Atmosphere Research Group said Delta is a good choice to showcase the promise of technology for travelers because it's been a leader among U.S. airlines in things like mobile app features from flight rebooking to bag tracking. "I think Delta has a unique credibility to deliver this message," he said. But the key is execution, Harteveldt said. Bastian assured the CES audience that the airline up to the task. "We're dedicated to solving your travel problems and making your journeys and your lives easier and less stressful." Delta is going on the offense after playing defense on the technology front for the past few years, making sure it had the technology in place to ensure a reliable operation and infrastructure, Bastian said at the airline's investor day in December, teasing his CES presentation. "We could talk about technology for hours," Gil West, Delta's Chief Operating Officer, said at the investor day. 4 tech features touted - and when travelers might see them 1. A souped-up mobile app. Delta is billing its Fly Delta app, which 60% of its travelers use when they fly, as a "digital concierge." In addition to the more detailed boarding alerts at the airport coming later this month and increased tie-ins with ridehailing company Lyft, the airline has long-term visions of personalized service, including real-time information about weather and traffic on the day of travel. A video shown at CES shows a traveler getting an alert that their Lyft ride is going to arrive earlier because of heavy traffic. "We'll intuitively coordinate your travel day using real-time data connecting ground transportation and other travel arrangements with your flight based on such factors as weather and traffic," the airline said. Harteveldt said the app alert letting travelers know when their group is boarding should smooth boarding if people pay attention and only line up when it's their turn. Bastian said the general your-flight-is boarding alert is "helpful, but only to a point." The alert about boarding "means there's no need to cluster at the gate. You know who you are," he said to CES attendees. And for travelers who like to hang out at an airport lounge or bar before their flight, it has the potential to let them linger longer. The bottom line: Delta wants the app to be more than a place to check in for your flight or check your SkyMiles frequent flyer balance. 2. Parallel reality at the airport: where the electronic information you see, such as gate directions and lounge information, is relevant to you. Delta, in partnership with Misapplied Sciences, will start small, with a test at Detroit Metro Airport involving nearly 100 travelers this summer. The volunteer testers will swipe their boarding pass at the parallel reality display post security in Concourse A, near the Delta Sky Club lounge. Each will see personalized messages as they walk past the same screen. Bastian said it looks like science fiction, "but it's actually closer than you think." Harteveldt said this is one of the "coolest" things Delta announced at CES and said it has great potential if executed well. He likened it to something out of "Minority Report," the 2002 sci-fi flick from Steven Spielberg and starring Tom Cruise. 3. In-flight movies and shows on the go, plus a binge-watching button. Delta, which has seatback screens on more than 700 planes, more than any U.S. carrier, says it is "doubling down" on in-flight entertainment. The airline plans to enable travelers to start their free in-flight entertainment on the Delta app as soon as they check in for their flight and finish it on the plane, using seatback screens or the app. What's coming when is unclear, but the airline said it will take the first step this year by testing a binge button on seatback screens so travelers can stream TV series like they do at home and a feature that will recommend shows and movies based on a passengers' previous entertainment picks. Harteveldt says passengers generally don't pick their airline based on in-flight entertainment, but that a good lineup is always a plus and can boost passenger satisfaction. 4. Artificial intelligence to the rescue during bad weather. Beginning this spring, Delta will add artificial intelligence to its lineup of tools designed to help the airline make better decisions during storms and other bad weather. The goal: inconvenience fewer travelers and airline crews. Delta says machine learning will use historical data to "nimbly" simulate operating challenges. It says it will be the largest such simulation by a U.S. airline. Delta COO West said in December that so-called decision science tools can do what humans can't: "play it forward." "How many flight do we need to proactively cancel so that we can recover quickerand make those up on the back end?" Harteveldt said the AI tool is one of the most promising, if non-sexy, tech moves Delta is making. "It has the potential to move the customer really close to the center of the decision making," he said. Load-Date: January 9, 2020 End of Document Check out tech for job satisfaction USA TODAY

### Document 665

Calif. -- Car enthusiasts, after hearing industry executives discussing the self-driving technology being built into their vehicles, might be forgiven for thinking robotic cars will soon drive themselves out of auto showrooms. Carlos Ghosn, the chairman and chief executive of the Renault-Nissan Alliance, announced during a news media event on Jan. 7 at the company's research laboratory in Silicon Valley that Nissan would introduce 10 new autonomous vehicles in the next four years. Elon Musk, the chief executive of Tesla, upped the ante. In a conference call with reporters last week, he asserted that the so-called Autopilot feature introduced in the Tesla Model S last fall was ''probably better than a person right now.'' Mr. Musk also said that within a year or two, it would be technically feasible to summon a Tesla from the opposite side of the country. But there is a growing gap between what these executives are saying and what most people think of when they hear executives or scientists describing autonomous or driverless cars. What Mr. Musk and Mr. Ghosn are describing -- cross-country-driving hyperbole aside -- are cars with advanced capabilities that can help drive or even take over in tricky situations like parallel parking on a busy street. Truly autonomous cars that do all the work, like the bubble-shaped vehicles Google has been testing near its Silicon Valley campus, are still at least a decade away from ferrying people around town, said Xavier Mosquet, a senior partner at the Boston Consulting Group and managing director of the firm's Detroit office. ''This is going to be a journey, and a reasonably long one,'' he said. It is increasingly a journey with significant financial implications. Last year, Uber announced plans to open an autonomous vehicle research center with Carnegie Mellon University. General Motors recently invested $500 million in Uber's top competitor, Lyft, with the goal of creating an on-demand network of autonomous vehicles. And rumors continue that Google and Ford are entering into a partnership to build autonomous cars. The White House also weighed in last week. President Obama's proposed budget for the next fiscal year includes $4 billion to be spent over 10 years for related research. Transportation Secretary Anthony Foxx also said the government would remove hurdles to developing autonomous vehicles and set further guidelines for them within six months. Cars are beginning to drive on their own in certain situations, and in the coming years, they will do increasingly more under computer control. They will follow curving roads, change lanes, pass through intersections, and stop and start. But they will require human supervision. Significantly, on many occasions, the cars will in effect still tell their human drivers, ''Here, you take the wheel,'' when they encounter complex driving situations or emergencies. In the automotive industry, this is referred to as the handoff problem, and automotive engineers acknowledge that there is no easy solution. Automotive designers have not yet found a way to make a driver who may be distracted by texting, reading email or watching a movie perk up and retake control of the car in the fraction of a second that is required in an emergency. The danger is that by inducing human drivers to pay even less attention to driving, the safety technology may be creating new hazards. ''The whole issue of interacting with people inside and outside the car exposes real issues in artificial intelligence,'' said John Leonard, a professor of mechanical engineering at the Massachusetts Institute of Technology. ''The ability to know if the driver is ready, and are you giving them enough notice to hand off, is a really tricky question.'' The limitations of Autopilot, which Tesla describes as offering the ability to ''automatically steer down the highway, change lanes and adjust speed in response to traffic,'' were clearly visible in a recent test drive with Sebastian Thrun, a roboticist and artificial intelligence expert who led the Stanford University team that won the Pentagon's autonomous vehicle Grand Challenge in 2005 and later founded Google's self-driving effort. Although Dr. Thrun left Google several years ago, he is still involved in the field of artificial intelligence. He describes himself as an enthusiastic Tesla owner. On a recent test drive, he cataloged the car's limitations and errors, including those he described as ''critical interventions'' in which the driver must override the car's behavior. The Tesla Autopilot system permits drivers to remove their hands from the wheel, but it prompts them to regain control after a brief period. It will also warn a driver to retake control in certain situations. The Tesla performed well in freeway driving, and the company recently fixed a bug that had caused the car to unexpectedly veer off onto freeway exits. However, on city streets and country roads, Autopilot's performance could be described as hair-raising. The car, which uses only a camera to track the roadway by identifying lane markers, did not follow the curves smoothly. It also did not slow down when approaching turns. On a recent 220-mile drive to Lake Tahoe from Palo Alto, Calif., Dr. Thrun said he had to intervene more than a dozen times. The company said that on Jan. 9, it introduced a new version of the Autopilot software that offered both restrictions and improvements in handling. Like the Tesla, the new autonomous Nissan models will still require human oversight and will not drive autonomously in all conditions. Nissan's engineers acknowledged that even their most advanced models would not be autonomous in every situation, including snow, heavy rain and even some nighttime driving. ''There are certain limitations depending on the condition of the weather. For example, if you are in heavy snow or rain, it is impossible to have autonomous driving,'' said Tsuyoshi Yamaguchi, Renault-Nissan's executive vice president for technology development. ''We should make sure the vehicle recognizes it and gives a caution to the driver.'' The situation is further complicated by laws and regulations that require cars to be controlled by humans. In Europe, the 1968 Vienna Convention required that ''every moving vehicle or combination of vehicles shall have a driver,'' and ''every driver shall at all times be able to control his vehicle.'' Although an amendment has been proposed, no new legislation is yet in place. In the United States, Google began an extensive lobbying campaign with individual states in 2011. But the company acknowledged a setback last year when the California Department of Motor Vehicles issued draft regulations that required a human driver capable of controlling the car to be in the vehicle. None of that has discouraged some enthusiastic Tesla owners. Doug Carmean, a Microsoft computer designer who commutes daily between Seattle and Redmond, Wash., said he had encountered the Tesla Autopilot offramp bug and found it ''scary.'' Yet as much as 45 minutes of his commute each day is in slow, stop-and-go traffic, and his car will effortlessly and predictably follow the car ahead, permitting him to surf the web on the Tesla's giant display. ''Even though it has these frightening movements, I've come to enjoy it,'' he said. ''It's a sense of awe and pleasure.'' http : // www.nytimes.com/2016/01/18/technology/driverless-cars-limits-include-human-nature.html Graphic PHOTOS: A prototype Nissan autonomous vehicle. (B1) The back of a Nissan autonomous vehicle. Nissan is to introduce 10 new autonomous vehicles in the next four years. (PHOTOGRAPHS BY ELIZABETH D. HERMAN FOR THE NEW YORK TIMES) (B6) Load-Date: January 18, 2016 End of Document Daily Report: IBM and Yahoo in the Hot Seats The New York Times Blogs (Bits)

### Document 139

The self-driving car industry has an irresistible sales pitch: Its technology can prevent car crashes and save thousands of lives. But there's one major nagging problem. No one has proven the utopian promise will come true. Still, the self-driving car industry continues to push forward. Waymo, the self-driving arm of Google's parent company, already has vans in Chandler, Arizona, that operate without a human behind the wheel. General Motors talks of doing the same in 2019. Ford is planning for a similar approach in 2021. But experts believe the industry must change course and adopt the safety practices of another section: aviation. Today, self-driving companies work independently and with little input from competitors or governments. Silicon Valley self-driving car startup Zoox is looking toward aviation's collaborative model for inspiration. Government regulators, including the Federal Aviation Administration and NASA, work with aviation industry groups and companies such as Boeing and Airbus to share anonymous flight data and identify hazards before they turn deadly. They focus on risks like turbulence, engine failures and planes skidding off runways. The aviation industry also has an intense certification process to prove new technologies. The Federal Aviation Administration and aviation companies work together to agree on plans to test technologies. The entire process can last up to eight years. The cautious approach is working. No jet-powered commercial passenger jets crashed in 2017 and airline crashes have declined since the early '90s even as more people fly. The US government has long relied on the auto industry to certify that its vehicles meet safety standards, but Mark Rosenkind, Zoox's safety innovation officer, is among the experts that say that approach doesn't work for cars that drive themselves. Autonomous vehicles will tackle even harder technical challenges than planes, such as identifying and avoiding a child standing at a street corner who may run into the road. An airplane's autopilot system doesn't have to steer around unpredictable pedestrians when flying at 30,000 feet. "Nobody's done this before," said Rosekind of proving self-driving cars are safe. "Yeah, stuff's been done in aviation and stuff's been done in artificial intelligence, but nobody's brought all of this together for the solution we're looking for." Before joining Zoox, Rosekind was the top official at the National Highway Traffic Safety Administration, tasked with protecting Americans on the roads. He was drawn to Zoox and self-driving cars because he views the technology as the first new tool to make a significant difference in auto safety in 100 years. "People have to be both understanding and tolerant that there's a huge opportunity here," Rosekind told CNN Business at Zoox's Foster City, California, offices. "We have to figure out the right way to get there. It's not like it's going to be from zero to one -- it's horrible, but now it's perfect." Zoox, which was founded in 2014, is designing its own self-driving car from scratch rather than retrofitting existing cars and trucks like its competitors Waymo, GM and Ford. Self-driving car advocates will likely recall a popular stat: 94% of car crashes are because of human error. Consider the improvements once humans aren't driving. "People love to say, we're going to get rid of that [94%]. Prove it," Rosekind said. "How does a company show that its sensors and artificial intelligence will eliminate those crashes?" Some in the industry like to point to how many miles they've driven in self-driving cars. In October, Waymo announced it hit the 10 million mile milestone. But Rosekind believes the industry needs a better test. The accomplishment of driving several million miles with an old version of self-driving software may not say a lot about how good the current version of your self-driving car is, he says. The challenge of proving self-driving cars are safe is so significant that even people outside the industry are getting involved. DARPA, the Defense Department research agency, is now sponsoring research to determine how to certify that self-driving vehicles, and all autonomous systems, are really safe. "The methods for validating correctness just doesn't exist yet. That's what we're changing," Sandeep Neema, who leads the Assured Autonomy program said. His program began this year and will run for four years. By that time, self-driving cars may already be somewhat common. Neema's researchers are working to find solutions as quickly as possible. One researcher, Matt Carrico, a fellow at the aviation company Rockwell Collins, believes the auto industry must follow in aviation's footsteps and establish measures for safety. Like Rosekind, he's suspect of popular metrics of today, such as relying on how many miles a self-driving car has covered. "You can drive million of miles. But what does that tell you about unexpected behaviors? What actually happened in those millions of miles? Were they boring? Or were you actually looking at all the [unusual] cases and pushing the envelope to explore what might go wrong," Carrico said. Aviation safety experts say their field has been so safe because of how closely it works with competitors and regulators. "Boeing works with Airbus and Gulfstream and Bombardier all the time. They meet, they talk about issues. they're on industry working groups, all focused on safety," said David Silver, vice president for civil aviation at Aerospace Industries Association. "We understand our whole system is based on public confidence." Teamwork isn't the norm among autonomous vehicle developers, but companies like Zoox seek to change that. Rosekind has called for his former home, NHTSA, should be a gathering place for the industry to talk and work together on safety, just as the FAA is for the aviation industry. But so far this hasn't happened. Safety is critical because the self-driving industry risks a backlash if things go wrong. Autonomous cars have another thing in common with planes: Passengers don't have control, so the public is less accepting of deaths. Any crash may change how people feel about self-driving vehicles. Public comfort with autonomous vehicles dipped after a self-driving Uber struck and killed a pedestrian in Arizona last year. "It's not necessarily fair," Rosekind said. "It's people judging. I have control and I'm a really great driver, but I don't know about that robot." TM & © 2018 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: November 28, 2018 End of Document Who won the Democratic debate? CNN Wire

### Document 1159

-- Three years ago, Google's self-driving car project abruptly shifted from designing a vehicle that would drive autonomously most of the time while occasionally requiring human oversight, to a slow-speed robot without a brake pedal, accelerator or steering wheel. In other words, human driving was no longer permitted. The company made the decision after giving self-driving cars to Google employees for their work commutes and recording what the passengers did while the autonomous system did the driving. In-car cameras recorded employees climbing into the back seat, climbing out of an open car window, and even smooching while the car was in motion, according to two former Google engineers. ''We saw stuff that made us a little nervous,'' Chris Urmson, a roboticist who was then head of the project, said at the time. He later mentioned in a blog post that the company had spotted a number of ''silly'' actions, including the driver turning around while the car was moving. Johnny Luu, a spokesman for Google's self-driving car effort, now called Waymo, disputed the accounts that went beyond what Mr. Urmson described, but said behavior like an employee's rummaging in the back seat for his laptop while the car was moving and other ''egregious'' acts contributed to shutting down the experiment. We humans are easily distracted by our games, phones and mates. And automotive engineers, computer interaction designers and, yes, lawyers, wonder if the self-driving cars they are working on will ever really be able to count on us in an emergency. Engineers say they believe that cars will be intelligent enough to do all the driving, somewhere between five years and a decade from now, depending on whom you ask. But until then, what passes for autonomous driving will be a delicate ballet between human and machine: Humans may be required to take the wheel at a moment's notice when the computer can't decide what to do. To outline a development path to complete autonomy, the automotive industry has established five levels of human-to-machine control, ranging from manual driving -- Level 0 -- up through complete autonomy, Level 5. In the middle, Level 3 is an approach in which the artificial intelligence driving the car may ask humans to take over in an emergency. But many automotive technologists are skeptical that the so-called handoff from machine to human can be counted on, because of the challenge of quickly bringing a distracted human back into control of a rapidly moving vehicle. ''Do you really want last-minute handoffs?'' said Stefan Heck, chief executive of Nauto, a start-up based in Palo Alto, Calif., that has developed a system that simultaneously observes both the driver and the outside environment and provides alerts and safety information. ''There is a really good debate going on over whether it will be possible to solve the handoff problem.'' Nauto's data shows that a ''driver distraction event'' occurs, on average, every four miles. Mr. Heck said there was evidence that the inattention of human drivers was a factor in half of the approximately 40,000 traffic fatalities in the United States last year. Last month, a group of scientists at Stanford University presented research showing that most drivers required more than five seconds to regain control of a car when -- while playing a game on a smartphone -- they were abruptly required to return their attention to driving. Another group of Stanford researchers published research in the journal Science Robotics in December that highlighted a more subtle problem. Taking back control of a car is a very different experience at a high speed than at a low one, and adapting to the feel of the steering took a significant amount of time even when the test subjects were prepared for the handoff. ''There is a motor-learning process if I haven't been controlling the vehicle and I have to take control,'' said J. Christian Gerdes, a Stanford University mechanical engineering professor who was one of the authors of the study. The handoff challenge is compounded by what is known as ''over-trust'' by automotive engineers. Over-trust was what Google observed when it saw its engineers not paying attention during commutes with prototype self-driving cars. Driver inattention was implied in a recent National Highway Traffic Safety Administration investigation that absolved the Tesla from blame in a 2016 Florida accident in which a Model S sedan drove under a tractor-trailer rig, killing the driver. Solving the over-trust issue is a key to autonomous vehicles in the Level 3 category, where the computer hands off to humans. The first commercial vehicle to offer Level 3 autonomy is expected to be released next month by Audi. A version of its luxury A8 model will be able to drive in stop-and-go freeway traffic up to 37 miles an hour while allowing drivers to pursue other tasks. The vehicle reportedly will notify drivers in emergencies, giving them eight to 10 seconds to intervene. Despite these limited advances, many automotive technologists remain uncertain about whether technology will ever be able to operate smoothly with a human driver who may be reading email or playing World of Warcraft. ''I believe that Level 3 autonomous driving is unsolvable,'' said John Leonard, a mechanical engineering professor at the Massachusetts Institute of Technology who has collected detailed examples of driving situations that are currently impossible for state-of-the-art autonomous driving systems. ''The notion that a human can be a reliable backup is a fallacy.'' Yet, despite widespread skepticism, the automotive industry is spending heavily on artificial intelligence technologies designed to make cars safer before they are fully autonomous. The idea is that self-driving technology (warning lights, emergency braking) can help humans be safer drivers. Gill Pratt, a roboticist who heads an ambitious Toyota research effort in Silicon Valley; Ann Arbor, Mich.; and Cambridge, Mass.; said he did not see the automation ratings -- one through five -- as a straight line of technical progress. Instead, he said, he saw the ratings as different ways of addressing the same car-safety question, regardless of who or what is in control. Unlike many in the industry who say that advances in machine learning will soon make self-driving cars safer than those driven by humans, Mr. Pratt has pushed for less futuristic ''guardian'' technologies that could be added to a car the same way that anti-lock brakes, stability control, blind-spot warning lights and other features have become common. One possible new feature being designed by the Toyota Research Institute is adding the ability not just to stop when a pedestrian is detected, but also to swerve to avoid an accident, he said. Toyota is also working on technologies that will assist human drivers in remaining vigilant when they are required to oversee an autonomous driving system for long stretches of time. There is already a rich literature that explores the challenges of keeping airplane pilots vigilant; Toyota researchers say they will be able to develop techniques to maintain human driver attention. Mr. Pratt said Toyota had not given up on the challenge of Level 3 driving. But to make a safe Level 3 car, he said, it may be necessary to develop technologies that see risks as much as 15 seconds in the future. Still, over-trust will be a tough challenge to overcome. ''Imagine if the autopilot disengages once in 10,000 miles,'' he said. ''You will be very tempted to over-trust the system. Then when it does mess up, you will be unprepared.'' And if all those issues do get resolved, there is one more question: Will people really use self-driving cars? Last September, researchers at the University of Michigan Transportation Research Institute published results of a survey reporting that for 62 percent of Americans, an increase in productivity as a result of self-driving cars was unlikely. The researchers found that 23 percent of Americans would refuse to drive in autonomous cars and 36 percent would be so nervous that they would not take their eyes off the road. An additional 3 percent said they would be too motion-sick to take advantage of the cars. ''Also of importance is the fact that current trips in light-duty vehicles average only about 19 minutes, a rather short duration for sustained productive activity or invigorating sleep,'' the researchers concluded. https : // www.nytimes.com/2017/06/07/technology/google-self-driving-cars-handoff-problem.html Graphic PHOTO: At Toyota's research center, the company is working on technologies to help drivers be ready to take over for robot cars at any time. (PHOTOGRAPH BY CHRISTIE HEMM KLOK FOR THE NEW YORK TIMES) (B5) Load-Date: June 8, 2017 End of Document Google's Big Swing: Know-It-All Assistant The New York Times

### Document 717

Tex. -- On Monday, an orange and blue car with the words ''Self-Driving Vehicle'' prominently displayed on both sides drove itself through the streets of this rapidly growing city north of Dallas, navigating across four lanes of traffic and around a traffic circle. The car, operated by the Silicon Valley start-up Drive.ai, will eventually become part of a fleet of autonomous taxis that will ferry locals along a predetermined route between the Dallas Cowboys facility in Frisco and two other office, retail and apartment complexes. While other companies have tested self-driving cars for years and some are in the early stages of offering a taxi service, Drive.ai's autonomous vehicle debut on Monday was still notable. It was the first new rollout of autonomous cars in the United States since a pedestrian died in Arizona in March after a self-driving car operated by Uber hit her. The fatal crash renewed a debate about driverless technology safety, casting a chill over the industry. Uber immediately halted its testing program, which remains at a standstill. Other big players, including Toyota, also paused their self-driving tests. But Drive.ai's announcement that it will officially begin its taxi service in July showed that the industry is starting to get back on track. ''You don't succeed by staring in the rearview mirror,'' said Andrew Ng, a board member of Drive.ai, who helped found the artificial intelligence labs at Google and the Chinese internet giant Baidu. Drive.ai said it was moving ahead even as questions about the cause of Uber's crash remained unanswered. Sarah Abboud, an Uber spokeswoman, declined to comment on specifics, citing an continuing investigation by the National Transportation Safety Board. But she said the company had initiated a ''top-to-bottom safety review'' and had brought on Christopher A. Hart, a former chairman of the safety board, as an adviser on its ''overall safety culture.'' Tarin Ziyaee, until recently the chief technology officer of the self-driving start-up Voyage, said he hoped the Uber crash would push companies to openly discuss the powerful but still limited technologies inside their test cars. ''We need to talk about the nitty-gritty -- what these systems are really doing and where their weaknesses are,'' said Mr. Ziyaee, who also worked on autonomous systems at Apple. ''These companies are putting secrecy over safety. That has to change. The public deserves to know how things work.'' Mr. Ng said the Uber crash had not affected Drive.ai's rollout plans. ''We're focused on the path forward,'' he said. Drive.ai was founded in 2015 by Mr. Ng's wife, Carol Reiley, a roboticist, and several students who worked in a Stanford University A.I. lab overseen by Mr. Ng. The start-up specializes in a rapidly progressing type of artificial intelligence called deep learning, which allows systems to learn tasks by analyzing vast amounts of data. Venture capital firms including New Enterprise Associates have since invested in the start-up. Based in Mountain View, Calif., Drive.ai has raised $77 million and has more than 100 employees. Waymo, the autonomous vehicle company that was spun out of Google, is already running a private taxi service outside Phoenix, in a state that is a popular destination for self-driving car experiments. Drive.ai chose to begin its trials in Frisco, where the streets are clean and wide, pedestrian traffic is light and the sun is out for 230 days a year, on average. A Texas law passed in the fall also lets companies operate self-driving services with no restrictions from municipal governments. When Drive.ai's free, daytime-only service begins this summer, it will be open to 10,000 people who live or work in the area. The cars will travel along a few miles of road where the speed limit does not exceed 45 miles an hour, with passengers being picked up and dropped off at only a few specific locations. Backup drivers will be behind the wheel, taking control when needed. But as the program expands, Drive.ai plans on moving drivers into the passenger seat and out of the cars entirely by the end of the year. Though pedestrians are scarce in the area, the cars will drive through parking lots where they are likely to encounter foot traffic. So Drive.ai equipped its cars with digital displays designed to communicate with pedestrians and other drivers. While an autonomous vehicle cannot make eye contact with a pedestrian or respond to hand signals, it can display a simple message like ''Waiting for you to cross'' or ''Picking up.'' Because the cars are equipped with sensors that gather information about their surroundings by sending out pulses of light -- as well as radar and an array of cameras -- the cars could potentially operate at night as well. But the start-up decided to keep a tight rein on its service before gradually expanding the route and exposing the cars to new conditions. Drive.ai said it would suspend operations during a downpour and in the rare event of snow. There will still be situations where the cars are slow to make decisions on their own -- in the face of extremely heavy traffic, for instance -- but remote technicians employed by Drive.ai will send help to the cars over the internet. The cars will include connections to three separate cellular networks. Drive.ai said it was working closely with Frisco officials. The city of 175,000 can keep the company abreast of construction zones and other road changes, Mr. Ng said, and signs identifying the area where the cars will drive have been installed. Thomas Bamonte, a senior program manager for automated vehicles with the North Central Texas Council of Governments, which handles planning for Dallas and surrounding areas, said such work would become increasingly important as the metropolitan area added roughly a million new people every 10 years. ''We want to invest in new technology rather than the physical expansion of roadways,'' he said. Asked if the Uber crash gave him pause, he said state law allowed companies like Drive.ai to operate without interference from local governments. The companies, he said, must be cautious. Noah Marshall, a financial analyst with Jamba Juice, which is based in Frisco, said the new autonomous taxi service would be a ''great thing'' for the town. His office is along Drive.ai's route, and he said he hoped to try the service. Other Frisco residents were warier. ''This might be a good idea, but there is so much traffic here, and Texans aren't very patient,'' said Mark Mulch, a local real estate agent. Referring to one Arizona city where self-driving cars are being tested, he added: ''Scottsdale is laid back. But Dallas is too fast.'' https : // www.nytimes.com/2018/05/07/technology/uber-crash-autonomous-driveai.html Graphic PHOTOS: Drive.ai, a Silicon Valley start-up that plans to operate a fleet of selfdriving taxis in a limited area of Frisco, Tex., starting in July, conducted a product demonstration on Monday in Frisco. (PHOTOGRAPH BY COOPER NEILL FOR THE NEW YORK TIMES) (B1) Joe Fey, a Drive.ai technician, worked on the sensors that are part of a retrofit kit on top of a car in August. They are used to gather data and document the landscape in which the vehicle drives. (B3) Load-Date: May 8, 2018 End of Document Workers In Tech, Use The Force The New York Times

### Document 1201

-- It appears that Google has persuaded federal regulators that -- in some situations at least -- the Tin Man has a heart. In a letter sent this month to Google, Paul Hemmersbaugh, the chief counsel for the National Highway Traffic Safety Administration, seemed to accept that the computers controlling a self-driving car are the same as a human driver. The agency's letter is certain to sharpen the debate over regulation of cars that can drive themselves, even though the technology is still probably years from becoming mainstream. The letter is also at odds with proposed rules in California, where much of the autonomous vehicle research is taking place. In a setback to Google's autonomous car efforts, the California Department of Motor Vehicles issued draft regulations in December that would require a human driver to remain ''in the loop'' in a self-driving car. In other words, someone with a driver's license should be prepared to take over at any moment. ''If driverless cars dramatically reduce accidents, as it appears they will, then speeding up their adoption is good,'' said Wendall Wallach, a Yale ethicist. But he added that the N.H.T.S.A. letter ''creates the illusion that by declaring self-driving cars the equivalent of human drivers, we have resolved the broader societal challenges.'' There is no consensus within the automotive industry about the ultimate role of human drivers in the face of rapid progress in artificial intelligence technologies. There is also uncertainty within the industry about whether the technology is advancing quickly enough that it will soon drive a car more safely than humans. Much of the industry has committed to developing autonomous technologies that assist drivers. Last year, Toyota announced a $1 billion research effort adjacent to Stanford University and the Massachusetts Institute of Technology intended to focus on artificial intelligence that helps human drivers, rather than autonomous vehicles. The industry has begun to deploy a variety of automation systems as safety features, like lane keeping and so-called traffic jam assist. Mr. Hemmersbaugh of the traffic safety agency was responding to a Nov. 12 proposal from Google for a design for a self-driving car without controls, such as a steering wheel, a brake and an accelerator. The prototype, which Google began testing last year, is for a low-speed vehicle that could perform taxi and possibly delivery functions automatically in crowded urban settings. The company switched the focus of its self-driving car program after deciding last year that it could not solve the so-called handoff problem, in which a human driver is required to control the car in an emergency. Google began testing a fleet of cars in 2010, using two professional drivers to oversee the operations of the computer systems that controlled vehicle navigation. However, in 2014, the program was expanded to permit some of the company's employees to commute using the autonomous cars. The company then observed distracting driving behavior up to and including passengers falling asleep. ''Google has long taken the position that the most dangerous thing on the roads is a human driver due to their driving distracted, driving while intoxicated, lack of compliance with the law,'' and other issues, said Ronald Arkin, a roboticist at the Georgia Institute of Technology. The N.H.T.S.A. letter, which was posted on the agency's website and reported by Reuters on Tuesday, is not a complete endorsement of Google's position. The next step, the letter said, is determining how the self-driving car ''meets a standard developed and designed to apply to a vehicle with a human driver.'' The legal challenges that artificial intelligence will pose have become more complex as technology has advanced. It was once fashionable to say that the machines would only do exactly what they were programmed to do. And if the human programmer made an error, such as misplacing a decimal point, that would be expressed in some incorrect behavior on the machine's part. However, recent progress in artificial intelligence has largely been made with so-called deep learning algorithms. This is a branch of machine learning that is based on software composed of multiple processing layers, each with its own complex structure. The programs are ''trained'' by exposing them to large data sets. They are then able to perform humanlike tasks, such as categorizing visual objects and understanding speech. At this point, researchers admit that they do not completely understand how the deep learning networks make decisions. This will confront courts with a vexing challenge in the event of accidents caused by the A.I. system. Who will be blamed when it is not clear whether the error was made by human or machine? http : // www.nytimes.com/2016/02/11/technology/nhtsa-blurs-the-line-between-human-and-computer-drivers.html Graphic PHOTO: Google's self-driving car. The National Highway Traffic Safety Administration seems to be at odds with California's proposed rules. (PHOTOGRAPH BY GORDON DE LOS SANTOS/GOOGLE) Load-Date: February 11, 2016 End of Document Koch Executive’s Harassment in China Adds to Fears Among Visitors The New York Times

### Document 24

Australia has its first "loyal wingman." Boeing Australia presented the country's Air Force on Tuesday with a prototype of a jet-powered drone that they hope will one day fly alongside manned warplanes while bringing artificial intelligence to the battlefield. The Loyal Wingman, at 38-foot-long (11.5 meters) and with a range of 2,000 miles (3,218.6 kilometers), will "use artificial intelligence to fly independently, or in support of manned aircraft, while maintaining safe distance between other aircraft," according to Boeing's website on the project. The drones will be able to engage in electronic warfare as well as intelligence, reconnaissance and surveillance missions and swap quickly between those roles, according to Boeing. The aircraft delivered in Sydney on Tuesday is the first of three prototypes Boeing is producing. It's also the first aircraft "to be designed, engineered and manufactured in Australia in more than 50 years," Boeing said in a statement. Australian Prime Minister Scott Morrison said the drones will protect the country's pricier combat aircraft like F-35 stealth fighters and their pilots in the future, and drone production will help with a current crisis, fighting the effects of the coronavirus. "The Loyal Wingman program has helped support around 100 high-tech jobs in Australia. Such projects will be critical to bolster growth and support jobs as the economy recovers from the Covid-19 pandemic," Morrison said in a statement. The Australian government says it has invested about $40 million into the project. The Australian government calls the Boeing-RAAF tie-up "a partnership," but has note provided specifics on actual ownership of the prototypes. Boeing says the project represents its largest investment in unmanned aircraft outside the United States, though it does not give specific figures, and it touts it as customizable for export as the foundation of its "Airpower Teaming System." "We are proud to take this significant step forward with the Royal Australian Air Force and show the potential for smart unmanned teaming to serve as a force multiplier," said Kristin Robertson, vice president and general manager of Autonomous Systems for Boeing Defense, Space and Security. "We look forward to getting the aircraft into flight testing and proving out the unmanned teaming concept." It is expected to fly for the first time later this year, Boeing and RAAF said in a statement. Boeing first announced plans for the drone at an airshow in Melbourne 15 months ago. The then-chief of the RAAF, Air Marshal Leo Davies, hinted at how a drone with artificial intelligence would interact with human pilots in an interview with the Australian Strategic Policy Institute. "We can program it to learn, but it learns linearly, it is not emotional and it is in many respects, in an air combat sense, quite inflexible," Davies was quoted as saying. "When we look at a pilot's ability to assess the situation, that brings with it an amount of emotion and creativity that allows us to be agile. "We need the flexibility and agility of the human meshed with the speed of a machine. When we put those together, we've got a quite amazing outcome," Davies said. TM & © 2020 Cable News Network, Inc., a WarnerMedia Company. All rights reserved. Load-Date: May 5, 2020 End of Document Nvidia's market value briefly catapults to $2 trillion CNN Wire

### Document 474

As more people fly, airlines and airports are relying more heavily on artificial intelligence to speed their trips. This article is part of our continuing Fast Forward series, which examines technological, economic, social and cultural shifts that happen as businesses evolve. Airports, often hemmed in by neighborhoods, highways or water, already struggle to keep up with the rising number of air travelers. And the number is expected to keep going up — to more than seven billion globally by 2035, an airline trade association says, nearly doubling from 2016. So while airports are expanding their physical facilities where they can, governments and the travel industry are leaning more heavily on technology, especially artificial intelligence, to process more air travelers more quickly. The airports in Osaka, Japan, and Abu Dhabi have tested autonomous check-in kiosks that move themselves to help manage peaks of passenger flow. Seattle-Tacoma International Airport and Miami International Airport are among those using visual sensors to monitor passenger line lengths and how quickly people are moving through security checkpoints. Managers can use the information to adjust where they need more workers and to send passengers to shorter lines. Passengers can see how long their wait will be on signs or on a phone app. The goal is to help reduce travelers’ worries about whether they are going to make their flight. For international flights, more airlines are installing what are known as self-boarding gates that use a photo station to take and compare a photo of the traveler with the picture in the person’s passport and other photos in Customs and Border Protection files. The gates, which are using facial recognition technology, replace agents who check boarding passes and identification cards. Seven percent of airlines have installed some self-boarding gates, and about a third of all airlines plan to use some of this type of gate by the end of 2022, according to SITA, a technology company serving about 450 airports and airlines. Sherry Stein, head of technology strategy for SITA, said the goals are to reduce hassle for passengers, speed boarding and increase security. Still, there are privacy concerns over the use of the photos. The general public doesn’t receive much information about how the photos will be used or stored, said Oren Etzioni, the chief executive of the Allen Institute for AI in Seattle. “So even though we consciously give up our privacy, we still worry that these kinds of digital records can be used against us in unanticipated ways by the government, our employer, or criminals,” he said. A photo taken at the airport leaves another digital footprint that makes us more traceable, he added. The Department of Homeland Security said it did not retain photos of U.S. citizens once their identities were confirmed at airports. Technology similar to that used in self-boarding gates is being deployed for some foreign passengers arriving in the United States. Miami International Airport, for example, began using facial recognition screening at its facility for international passenger arrivals in 2018 and reported that it can screen as many as 10 passengers per minute using the technology. Travelers who have been to the United States previously step up to facial recognition stations, and a customs official checks their passports to make sure they are valid. First-time visitors still need to present a passport or visa and agree to have their fingerprints and photos taken. Some of the new technology is aimed at easing language difficulties. Kennedy International Airport in New York recently installed three A.I.-based real-time translation devices from Google at information stations around the airport. Travelers choose their language from a counter-mounted screen and ask their questions aloud to the device. The device repeats the question in English to the person at the station. That person responds in English, and the device translates that aloud to the travelers. Artificial intelligence is also being used behind the scenes to reduce the time airplanes spend at the gate between flights, which can mean shorter waiting time for passengers who have boarded and buckled up. London-Gatwick, Québec City and Cincinnati/Northern Kentucky airports are among about 30 around the world testing or installing a visual A.I. system made by the Swiss company Assaia. The system uses cameras pointed at a plane parked at the gate to track everything that happens after the aircraft lands: how long it takes for fuel and catering trucks to arrive, whether the cargo door is open, and even if employees on the ground are wearing their safety vests. While humans can do each of these tasks, monitoring and analyzing the operations of these various functions can speed the turnaround of the plane and prevent accidents, according to Assaia. After the same plane has, for instance, been filmed doing hundreds of turnarounds at a particular airport, the A.I. system can identify the elements or situations that most often cause delays, and managers can take corrective action. Accidents like ground crew injuries or service vehicle collisions can also be analyzed for their causes. The time an airplane spends waiting for a gate after landing or waiting in line to take off could also be reduced. A group at SITA focused on airport management systems is helping to design technology that can synthesize data from many sources, including changing aircraft arrival times, weather conditions at destination airports and logistical issues to improve runway schedules and gate assignments. Artificial intelligence software can also make a difference with rebooking algorithms, Mr. Etzioni said. When weather or mechanical issues disrupt travel, the airlines’ speed in recomputing, rerouting and rescheduling matters, he said. The data streams get even more complex when the whole airport is considered, Ms. Stein of SITA said. A number of airports are creating a “digital twin” of their operations — using central locations with banks of screens that show the systems, people and objects at the airport, including airplane locations and gate activity, line lengths at security checkpoints, and the heating, cooling and electrical systems — monitored by employees who can send help when needed. These digital systems can also be used to help with emergency planning. The same types of thermal, audio and visual sensors that can be used to supply data to digital twins are also being used to reduce equipment breakdowns. Karen Panetta, the dean of graduate engineering at Tufts University and a fellow at the Institute of Electrical and Electronics Engineers, said hand-held thermal imagers used before takeoff and after landing can alert maintenance crews if an area inside the airplane’s engine or electrical system is hotter than normal, a sign something may be amiss. The alert would help the crew schedule maintenance right away, rather than be forced to take the aircraft out of service at an unexpected time and inconvenience passengers. At the moment, people, rather than technology, evaluate most of the data collected, Dr. Panetta said. But eventually, with enough data accumulated and shared, more A.I. systems could be built and trained to analyze the data and recommend actions faster and more cost effectively, she said. Air travel isn’t the only segment of the transportation industry to begin using artificial intelligence and machine learning systems to reduce equipment failure. In the maritime industry, a Seattle company, ioCurrents, digitally monitors shipping vessel engines, generators, gauges, winches and a variety of other mechanical systems onboard. Their data is transmitted in real time to a cloud-based A.I. analytics platform, which flags potential mechanical issues for workers on the ship and on land. A.I. systems like these and others will continue to grow in importance as passenger volume increases, Ms. Stein said. “Airports can only scale so much, build so much and hire so many people.” PHOTO: Seattle-Tacoma International Airport is among the airports using smart technology to direct passengers to the shortest security lines. (PHOTOGRAPH BY MILES FORTUNE FOR THE NEW YORK TIMES) Load-Date: February 27, 2020 End of Document The Summer of 2023 Was California’s Coolest in More Than a Decade; California Today The New York Times

### Document 175

Jaime Waydo spent years building self-driving cars at Waymo, and was quick to praise their abilities. The cars already had the experience of 300 years of average driving experience, she said in a 2017 interview. Waymo's self-driving cars could see 360 degrees, she noted, while humans could see about 120 degrees. "[The cars] can also see up to two football fields away, which is a significantly better vision than what you or I probably have," Waydo told an interviewer in 2017. But in a recent interview with CNN Business, Waydo spoke more of the challenges and limits of self-driving cars, like identifying puddles, or seeing clearly when the sun is low on the horizon. She said her years working on self-driving showed her all of the unusual things can happen on the roads, which make it difficult for even advanced artificial intelligence to react appropriately to the myriad new scenarios it might encounter. A Waymo self-driving car once saw a baby crawling on a road, she recalled. (The baby was fine, according to Waydo.) Waydo, who left her role as lead systems engineer at Waymo in 2018 to work on autonomous systems at Apple, is now joining Cavnue, a startup making digital infrastructure intended to help self-driving cars understand roads, so they can actually drive better than a human. Roads, signs and traffic lights were designed when governments expected that only humans would drive cars. A bright green light may be the easiest way to tell a human it's safe to drive ahead, but a self-driving car may be better off if the information is messaged to them over a radio or cellular network. As the task of developing and rolling out self-driving cars has started to look slower and more difficult than expected, autonomous driving executives like Waydo are increasingly warming up to the idea of retrofitting infrastructure to get them on roads faster. But critics say the technology is unproven and the costs could be expensive for governments already struggling with the cost of simple road upkeep, like filling potholes. For years, self-driving car companies operated under the belief that their technology and current road infrastructure would be enough, and their cars wouldn't need any dedicated vehicle-to-infrastructure technology, such as traffic lights that broadcast their color directly to a vehicle's computer, or cameras mounted at blind turns or on light posts to get crucial information for the cars, like if a cyclist is approaching. But self-driving has proved harder to get off the ground than expected. Companies have missed deadlines for deployments. The industry has consolidated, with even a company as big as Uber selling its self-driving vehicle program. Other startups have shut down or sold themselves to big tech companies. Waydo wants self-driving technology to spread broadly so that people like her father, whom she said lives in a rural area and has Parkinson's Disease, can benefit from the technology. (Waymo, which is owned by Google parent company Alphabet, operates a self-driving robotaxi service in part of Phoenix, Arizona, but hasn't expanded it across the country.) She's not alone in coming around on the merits of smart infrastructure. Michael Fleming, CEO of the self-driving truck company Torc Robotics, which Daimler owns a majority stake in, said his company expects to announce smart infrastructure partnerships this year. He's been working on autonomous vehicles since competing in a 2004 government-sponsored race that's widely credited with kicking off the self-driving car industry. "There was a lot of uncertainty as far as which technical solutions made the most amount of sense," Fleming told CNN Business. "When we first started we really didn't know. Today, I'm convinced." He says smart infrastructure, like a traffic signal that broadcasts its color, has an advantage of being simpler than the artificial intelligence algorithms companies use to perceive things like red or green lights. Waydo recalled that when Waymo expanded to Texas, it had to adjust to traffic lights that are horizontal, requiring more work from engineers. With smart infrastructure, she said, traffic lights can all seem the same to self-driving cars, making it easier to launch the cars in new places. Eryk Nice, a vice president of technology strategy at Hyundai's self-driving venture Motional, is a believer that smart infrastructure can speed how fast self-driving cars arrive to the public. For example, self-driving vehicles struggle to navigate parking garages, but sensors mounted in a garage could tell the cars exactly where they are. Vehicle-to infrastructure technology is an ambitious goal. Cavnue and its competitors will have to develop cost-effective sensors that are hung along roadsides and capable of communicating with nearby cars. Maintenance costs will need to be manageable. The company said it's planning for the technology to be cheaper than the cost of lighting a roadway. Waydo declined to say specifically what type of sensors may be used. But some critics are holding their ground. Kyle Vogt, the founder of Cruise, GM's self-driving operation, said in 2014 that, "if you have a job in [vehicle-to-infrastructure] right now, you should probably look for a new one." Vogt described the hurdles of the technology as proving it works before installation, getting local communities to support installing it and convincing local governments to pay for it. Cruise spokeswoman Tiffany Testo told CNN Business that Vogt's views haven't changed. She pointed to the progress of self-driving cars when compared to smart infrastructure as an indication that it's not needed. Vogt isn't alone in his concerns. Paul Godsmark, co-founder of the Canadian Automated Vehicle Centre of Excellence, recalled when the US federal government pushed for connecting cars to infrastructure via short-range radios, but the auto industry didn't embrace the technology. "The [Department of Transportation] had backed the wrong horse," Godsmark said. "We know tech moves faster than the public sector." Chandler, Arizona, home to Waymo's self-driving ridehail service, says it hasn't installed any infrastructure especially for self-driving cars. Micah Miranda, Chandler's economic development director, told CNN Business that currently the technology seems like an inefficient use of capital as self-driving vehicles aren't being used broadly, and it's unclear what infrastructure technology would be best as it isn't standardized. "Tearing up roads, light poles, that kind of stuff, the cost of that infrastructure is very expensive," Miranda said."We have to make sure our capital dollars are going into serving the broadest portion of the population in their transportation needs." The largest players in self-driving - Waymo, Cruise, and Aurora, which acquired Uber's self-driving arm - all say their vehicles don't rely on smart infrastructure today. They also declined to say if they believe smart infrastructure would speed their ability to deploy self-driving cars to cities. But Waymo's parent company Alphabet may be hedging its bets. Cavnue was founded by Sidewalk Infrastructure Partners, which is funded by Alphabet. In February, Cavnue was selected to help alleviate congestion on a Maryland highway outside Washington DC, Interstate 270. Cavnue will work on the project with the Australian infrastructure company Transurban, which was selected by the Maryland Department of Transportation and then chose Cavnue. Rob Deans, Transurban's vice president of technology, said his company was impressed with Cavnue's experience in connected and autonomous vehicles. "Autonomous vehicles are probably the single biggest change coming to transport," he told CNN Business. "I think they have an opportunity to leverage Alphabet, the leader with their subsidiary or spinout, Waymo." Waymo is part of Cavnue's advisory team on a smart road project outside Detroit. Cavnue CEO Tyler Duvall said its business model may rely on tolls for road access, or payments if a road isn't congested. Cavnue's team is small today, with about 14 people, according to Duvall. But it plans to grow, and he said it's finding significant interest, and is having conversations with about eight governments. "There's insatiable interest for innovation," he said of transportation officials. "It's can we build the team fast enough to bring the idea to them." By Matt McFarland, CNN Business TM & © 2021 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: March 10, 2021 End of Document Facebook parent posts first revenue decline as a public company CNN Wire

### Document 644

— The ride-hailing service Lyft has agreed to alliances with just about anyone working on driverless car technology. Its latest partnership aims to make its autonomous vehicle technology available to any car manufacturer. Lyft said Wednesday that it had reached a deal with Magna International, one of the world’s biggest auto suppliers, to jointly develop and manufacture self-driving car systems. The companies said they will work together to introduce autonomous vehicles to Lyft’s ride-hailing network. At the same time, Magna can sell the driverless-car technology to any customer — including other technology companies. Magna also said it would invest $200 million in Lyft’s latest fund-raising round, lifting the San Francisco-based company’s valuation to $11.7 billion. The partnership reflects Lyft’s open-arms approach to autonomous vehicles. Lyft has opened its ride-hailing network to other companies working on self-driving cars, including Ford and General Motors, a major Lyft investor, so they can gain real-world experience by picking up passengers and collecting data. Uber, Lyft’s main rival, has been developing self-driving technology mostly on its own. Waymo, a Lyft partner, is slowly introducing its own ride-hailing service using autonomous Chrysler Pacifica minivans equipped with Waymo’s own hardware and software. The hype over self-driving cars has made development of the technology challenging for some traditional automakers. Car companies face huge salaries for top artificial intelligence engineers and limited access to data and key components. The competitive landscape is so charged that it has already given birth to at least one high-profile lawsuit. As a result, automakers are confronting a choice: Pay big for a technology start-up or risk falling behind. Last year, Ford announced it would invest $1 billion in Argo AI, an artificial intelligence start-up focused on developing autonomous vehicle technology. GM acquired Cruise for an estimated $1 billion in cash, stock and incentive packages in 2016, the same year it invested $500 million in Lyft. After lagging behind Uber, Lyft has recently made a concerted push into self-driving cars. The company opened a research facility in Palo Alto, Calif., and has aggressively recruited engineers. It also has a major asset for self-driving technology — a ride-hailing network picking up and dropping off passengers 10 million times a week. This provides Lyft with a customer base to introduce and test the vehicles and a way to collect information that can be used to “train” autonomous cars. But Raj Kapoor, Lyft’s chief strategy officer, said it would be a few years before truly autonomous vehicles were ready for the road. “I believe this relationship will get us there faster,” Mr. Kapoor said. Magna, a Canadian auto parts maker, already supplies a wide range of driver-assist technology to its customers, including a system for staying in lanes, automatic emergency braking and rearview cameras. It also builds entire vehicles for customers like Mercedes-Benz, BMW and Jaguar — a capability that has made the company a potential partner for a new entrant like Apple. Magna has already been working on hardware for self-driving cars, including radar and lidar — an abbreviation for light detection and ranging — that help the vehicles see the world around them. But Magna said the partnership with Lyft would be essential to helping it push further into autonomous vehicles, combining its automotive and manufacturing experience with Lyft’s ride network to better understand the many situations that a self-driving car will encounter. “The question isn’t whether autonomous vehicles are going to happen but how long the transition is,” said Swamy Kotagiri, Magna’s chief technology officer. Under the partnership, Lyft would take the lead in developing self-driving car technology while Magna would oversee manufacturing of the systems. The two companies would share the development costs and the resulting intellectual property. Lyft compared its strategy of operating its own self-driving cars as well as welcoming driverless cars from other companies to the way Amazon is both a retailer selling products to customers directly and an online virtual mall, providing space for other companies to sell goods on the site. Follow Daisuke Wakabayashi on Twitter: @daiwaka. PHOTO: A Lyft driver hub in San Francisco. The ride-hailing service, which has taken an open-arms approach to autonomous vehicle development, added the Canadian parts maker Magna to its long list of partners. (PHOTOGRAPH BY Christie Hemm Klok for The New York Times FOR THE NEW YORK TIMES) Related Articles Lyft to Develop Self-Driving Car Technology in New Silicon Valley Facility Playing Catch-Up to Uber on Self-Driving, Lyft Teams Up With Partners G.M.’s Investment in Lyft Hedges Against a Future With Fewer Car Owners Load-Date: July 31, 2018 End of Document At BlackRock, Machines Are Rising Over Managers to Pick Stocks The New York Times

### Document 134

Dr. Timothy Carone is a former astrophysicist and an associate teaching professor at the University of Notre Dame's Mendoza College of Business. Carone specializes in automation and artificial intelligence and is the author of "Future Automation -- Changes to Lives and to Businesses." The opinions expressed in this article belong to him. We are in the midst of a technological revolution. Over the past 40 years, we've witnessed rapid changes to technology and discovered new ways of using it that were unanticipated. Unfortunately, this revolution has had some gut-wrenching implications that we were unprepared to accommodate. In some cases, it's clear that technology is moving far faster than our culture. Uber's fatal self-driving car crash in Tempe, Arizona is the latest example. On Sunday night, a self-driving Uber SUV struck and killed 49-year-old Elaine Herzberg as she walked her bicycle across a street. The crash occurred while Rafael Vasquez, a 44-year-old test driver from Uber, was behind the wheel, according to the Tempe police. It's believed to be the first fatality involving a fully autonomous car. Uber responded by removing self-driving cars from the roads. As we continue testing and perfecting the technology behind self-driving cars, there will be more accidents like this. Self-driving cars may seem like the logical step in the evolution of personal transportation. They are conceptually simple, easy to understand and in many ways, very desirable. But they are not cars in the usual sense. These cars are complex systems. They are the most complex robots that humans have built. Self-driving cars contain hundreds of computer processors. The amount of software these processors run is greater than the combined amount of software in the Chevy Volt, the F-35 fighter jet and Facebook. The software contains many different types of artificial intelligence capabilities that can detect an object near a car, identify the object and decide what to do next with the car. Complex systems like this take a decade or more to mature into dependable operation. Google started testing its first self-driving car in 2009. The effort continues almost 10 years later and will continue for another 10 years, at least. The same timeframe is true for the other self-driving car manufacturers. They have solved the basic problems with self-driving cars. Now, they're in the process of putting cars on the road. There will inevitably be accidents during this transitional period. We won't understand how they occurred, nor will we be able to interrogate a self-driving car to ask why it drove off the bridge with the family of five in it. We will have to deal with more deaths and the destruction of property that to us appears unfair and arbitrary. In the meantime, test drivers will need to be the ones to make the tough choices behind the wheel. Driving a car can seem like a rote process, but it is not. We make complex decisions and value judgments continually when we are behind the wheel, and eventually, so will the car. The danger with being in this transitional period is that companies on the frontline of this technology will be forced to slow their efforts due to unnecessary regulatory interference. Complex systems, including self-driving cars, are never free of defects. But the researchers and innovators behind self-driving technology argue that autonomous technology will eventually make driving much safer some day because it will take unpredictable human behavior out of the equation. Therefore, calls to stop all self-driving cars from operating on the roads until they are proven safe demonstrate a true lack of understanding of how complex systems are made operational. This approach would have slowed down progress with aviation safety in the 20th century so that we would not now have the safe skies we do. The federal government and its partners in the state and local governments need to understand that they cannot change the process for how complex systems evolve over time. Their role is to ensure that when accidents occur, there is the proper analysis of what happened and that this information is available for anyone to use. This is the time for increasing transparency into the maturation process, not stopping it. According to the National Safety Council, a nonprofit that promotes health and safety in the US, 110 people will be killed today, tomorrow and the next day by traditional cars. Today, we need to maintain the momentum of self-driving car implementation so that in 10 years, that number is far lower instead of staying the same because we feared technology. TM & © 2018 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: March 22, 2018 End of Document Fake and dangerous kids products are turning up for sale on Amazon CNN Wire

### Document 402

United States vehicle safety regulators have said the artificial intelligence system piloting a self-driving Google car could be considered the driver under federal law, an important step toward winning approval for autonomous vehicles on the roads. The National Highway Traffic Safety Administration told Google of its decision in a previously unreported Feb. 4 letter to the company posted on the agency's website this week. Google's self-driving car unit on Nov. 12 submitted a proposed design for a self-driving car that has ''no need for a human driver,'' the letter said. Automakers and technology companies are racing to develop vehicles that can drive themselves at least part of the time. If the car's artificial intelligence is considered the driver for legal purposes, then it clears the way for automakers to design vehicle systems that communicate directly with the vehicle's artificial pilot. The safety agency's response to Google offered its most comprehensive outline of the legal obstacles to putting fully autonomous vehicles on the road. Google said it was ''still evaluating'' the safety agency's response. (REUTERS Load-Date: February 10, 2016 End of Document Quotation of the Day: Jeff Hawkins Is Finally Ready to Explain His Brain Research The New York Times

### Document 307

Toyota is getting serious about automated driving. On Thursday, the car company announced it is investing $1 billion over the next five years into artificial intelligence and robotics research. It is creating a new company, called Toyota Research Institute Inc., that will have offices in Silicon Valley and Cambridge, Mass. The research will likely be used in fully automated cars down the line, but the Institute wants to focus on features that can help drivers avoid crashes, like automated breaking, in the near future. "There are some people who are looking at autonomous driving as the end goal," said John Hanson, a Toyota spokesperson. "It is definitely off in the future. What we want to do is we want to start saving lives immediately." The group wants to decrease the turn-around time for getting new automated features from the lab into cars on the road. "What this model, we hope, will accomplish is to bridge the gap between pure research and product development," said Hanson. Driverless cars are a hot topic in Silicon Valley. Stanford has teams working on the technology, car companies have innovation centers here, and Google's self-driving car prototypes can be spotted on the streets. Still, fully automated cars won't be available to consumers for many years. Toyota has hired Gill Pratt, who led the DARPA Robotics Challenge, to lead the new unit. It will start in 2016 by hiring approximately 200 people across both locations. It hopes to attract top engineers from Stanford and MIT. While some of its research will be proprietary, the Institute also plans to be part of a collaborative, open AI effort. It will work with startups, other manufactures, research institutes and universities. "We're trying to eliminate crashes all together, and that's a lot to do but we think it's doable," said Hanson. TM & © 2015 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: November 6, 2015 End of Document Will artificial intelligence kill the smartphone? CNN Wire

## Topic 9

### Document 967

The worker said the company had tried to retaliate against her activism opposing a deal with the Israeli military, while co-workers argued the company had an anti-Palestinian bias. A Google employee who became the most visible opponent of a company contract with the Israeli military said on Tuesday that she would resign after claiming Google had tried to retaliate against her for her activism. The employee, Ariel Koren, a marketing manager for Google's educational products arm who has worked for the company for seven years, wrote a memo to colleagues announcing her plan to leave Google at the end of the week. She spent more than a year organizing against Project Nimbus, a $1.2 billion agreement for Google and Amazon to supply Israel and its military with artificial intelligence tools and other computing services. Ms. Koren, 28, helped circulate petitions and lobby executives, and she talked to news organizations, all in an effort to get Google to reconsider the deal. Then, in November, she said, came a surprising ultimatum from Google: Agree to move to São Paulo, Brazil, within 17 business days or lose your job. Ms. Koren marketed educational products to Latin America and was based in Mexico City before moving to San Francisco during the pandemic. But, she said, there was not a clear business justification for the mandated move or its urgency, and a supervisor in Brazil told her that employees in São Paulo were working from home because of the pandemic. Google and the National Labor Relations Board investigated her complaint and found no wrongdoing. Fifteen other Google employees posted audio testimonies to YouTube on Tuesday asking the company not to work with Israel and criticizing Google's treatment of Palestinians and its censorship of employees who support them. All but two of the workers spoke anonymously. They released their remarks to coincide with Ms. Koren's departure from the company. ''Google systematically silences Palestinian, Jewish, Arab and Muslim voices concerned about Google's complicity in violations of Palestinian human rights -- to the point of formally retaliating against workers and creating an environment of fear,'' Ms. Koren wrote in the letter explaining her decision to resign. Shannon Newberry, a Google spokeswoman, said in a statement that ''we prohibit retaliation in the workplace and publicly share our very clear policy.'' ''We thoroughly investigated this employee's claim, as we do when any concerns are raised,'' she added. Ms. Koren is the latest in a string of Google employees who have accused the company of retaliation for their activism. Two, Claire Stapleton and Meredith Whittaker, resigned in 2019 and said they had faced retribution after organizing a worker walkout in 2018 to protest the company's sexual misconduct policies. In November 2019, Google fired four employees who had been involved in a variety of organizing efforts at the company. A fifth worker was fired soon after for creating a pop-up message on Google's corporate network notifying workers of their protected right to organize. The National Labor Relations Board said Google had illegally fired two of the workers, and illegally surveilled and retaliated against others. The company also pushed out two artificial intelligence researchers, Timnit Gebru and Margaret Mitchell. Both had been part of the company's Ethical A.I. team and had criticized Google's technology in a research paper. Ms. Gebru had separately said the company's diversity efforts were insufficient. When asked about the firings, Google reiterated previous statements that it had not retaliated against the workers, and it said that, in some instances, the dismissed employees had violated data security policies. Google made news recently for a different type of firing -- letting go of an engineer, Blake Lemoine, in July after he claimed the company's A.I. was sentient and leaked corporate documents. Google's growing reputation for punishing employees who are publicly critical of the company is a notable change for an employer that once nourished an outspoken workplace culture. Google had long welcomed wide-ranging dialogue on its internal, online message boards and encouraged employees to debate executives' decisions in companywide meetings and other forums. ''Google has drawn enough of a line in the sand of either you're with us and you're on board or you're out,'' Ms. Stapleton said in a recent interview. The Los Angeles Times earlier reported Ms. Koren's claim. Ms Koren, who is Jewish, opposed Nimbus after it was announced in April 2021 because she was concerned that Google's technology could help the Israeli Defense Forces surveil and harm Palestinians. The contract went into effect in July 2021 and lasts for seven years. Neither the company nor Israel has detailed the capabilities Israel will receive, or how they will be used, but a Google slide deck for training Nimbus users included software that Google claims can recognize people, gauge emotional states from facial expressions and track objects in video footage. The Intercept earlier reported details of the slide deck. (A spokeswoman said the company did not sell ''general purpose'' facial-recognition technology.) ''We are proud that Google Cloud has been selected by the Israeli government to provide public cloud services to help digitally transform the country,'' Ms. Newberry, the spokeswoman, said. ''The project includes making Google Cloud Platform available to government agencies for everyday workloads such as finance, health care, transportation and education, but it is not directed to highly sensitive or classified workloads.'' Ms. Koren and Gabriel Schubiner, another Jewish employee who became a public opponent of Nimbus, were on a mailing list for the Jewish employee resource group at Google, called Jewglers. They shared their concerns with the 3,000 employees on the list and, they said, found a hostile reception from some. So, they created an offshoot group in 2020, Jewish Diaspora in Tech, which now has 500 members but is not recognized by Google. The group became a center for anti-Nimbus organizing. Ms. Koren said she went on disability leave for depression, anxiety and burnout in July 2021. During her leave, anti-Nimbus organizing intensified, with a public petition, another for Google employees and a campaign supported by two outside, nonprofit groups. Two weeks before her disability leave was set to end, Ms. Koren sat for a televised interview with MSNBC to discuss the protests against Nimbus. She returned to work in November, she said, and was told that she had three weeks to make a decision about moving to Brazil. She found a lawyer and filed a complaint with Google's human resources department, claiming retaliation. Google said it would investigate, which delayed the move. She also filed a retaliation complaint with the N.L.R.B., which dismissed the case for insufficient evidence. Ms. Koren said Google had not allowed the board to speak with her manager, while the company said the planned move had been purely a business decision. In February, she went on another disability leave, and never returned to work. During her leave, more than 700 of her colleagues signed a petition saying that Google had unjustly retaliated against Ms. Koren. Roughly 25,000 people signed a public version of the same petition. In March, the day before The Los Angeles Times published an article about her retaliation claim, Ms. Koren said, she received an email from Google's human resources department, saying that it was aware she had taken her concerns to a public forum and that she should instead meet with the department. Google told the newspaper that it had found no evidence of retaliation before it told Ms. Koren, she said. She had a videoconference in April, she said, with a representative from human resources, who told her that the mandated move to Brazil had been improperly executed and had caused harm -- without saying specifically how -- but that it had not amounted to retaliation. ''Even though Google has shown a clear pattern of aggressively pursuing military contracts and retaliating against employees speaking out, there's no way you can be emotionally prepared,'' Ms. Koren said in an interview. What some workers say is a crackdown on employee activism has continued to color life inside the company, according to the remarks of the 15 Google employees, as well as interviews with seven workers. They contend that the company unfairly enforces its content moderation rules, creating a double standard: Speech supporting the Israeli government is permitted, while speech supporting Palestinians is flagged and sometimes a punishable offense. Six Palestinians, who provided anonymized remarks read aloud by colleagues, said they did not feel safe to express their opinions at the company. ''Project Nimbus makes me feel like I am making my living off my family's oppression,'' one of the workers said. Some of the employees recalled being punished or reprimanded for perceived antisemitism after some colleagues had said it was antisemitic for them to proclaim, ''Support Palestine.'' One person said a colleague had accused them of antisemitism for self-identifying as a ''Palestinian-American.'' One employee who requested anonymity said in an interview that he had been forced to meet with human resources after co-workers repeatedly reported him for antisemitism over several months. He had included an expression in his corporate profile -- ''From the river to the sea, Palestine will be free'' -- and took it down when asked to. He had also discussed on internal forums findings about Israeli policies from the United Nations and Amnesty International; life in Gaza, which borders Israel and Egypt and is home to two million Palestinians; and his belief that Israel is an apartheid state. He said that he had been given a formal warning and that his performance evaluation had been reduced to ''needs improvement.'' Though he had never received that lower rating before, he lost a bonus of more than $10,000, and could be fired for another offense, he said. He was told not to post anything that could offend co-workers, so he stopped discussing politics altogether. The employees who recorded the YouTube videos and who spoke with The New York Times point to Ms. Koren's experience as an indication that they cannot openly discuss their views and keep their jobs. Google did not directly address their complaints in its statement. Still, Ms. Koren said she was encouraged by the show of support. ''When Google and other folks retaliate against workers, it's about creating a culture of fear,'' Ms. Koren said. ''I think the opposite is true in this case -- more workers took a stand.'' https : // www.nytimes.com/2022/08/30/technology/google-employee-israel.html Graphic PHOTOS: Ariel Koren spent more than a year organizing against Project Nimbus. (PHOTOGRAPH BY GELOY CONCEPCION FOR THE NEW YORK TIMES) (B1) Gabriel Schubiner, another Google employee, publicly opposed Nimbus. (PHOTOGRAPH BY CLARK HODGIN FOR THE NEW YORK TIMES) (B5) Load-Date: August 31, 2022 End of Document A Sobered-Up Japan Tells Young People to Drink Up The New York Times

### Document 425

Arvind Krishna, who has led the company’s cloud computing business, was named the new chief executive. Ginni Rometty, the longtime face of IBM and one of the country’s most prominent female business leaders, is stepping down as chief executive, the company said on Thursday. Ms. Rometty, who became chief executive in 2012, struggled to achieve growth at the technology giant as it made the transition to new fields like cloud computing and artificial intelligence. She will be replaced in April by Arvind Krishna, who now runs the company’s cloud computing business. The timing of the departure of Ms. Rometty, 62, came as a surprise, made after the close of the market on Thursday in a lengthy statement filled with praise from IBM’s board. She will remain as executive chairwoman of the board until the end of the year. Ms. Rometty was one of the top women executives in the corporate world, a frequent speaker at conferences, and liked and admired by her chief executive peers. Her assessments of the challenges facing IBM, an old-line technology company making a difficult transition, were cleareyed and candid. In an interview in 2014, for example, she said the next couple of years would be a “rocky time” for IBM. But the failure to reach the crossover point — when the new businesses like cloud computing, data analytics and artificial intelligence grew faster than older hardware, software and services business — frustrated Wall Street. During her tenure, IBM’s stock price slipped even as the stock market in general rose sharply. Shares in the company rose more than 4 percent in after-hours trading. Yet even Wall Street analysts who were often critical of IBM’s performance during her leadership acknowledged that she had inherited key challenges. IBM, they note, was slow to adapt to cloud computing — computing tasks done on remote computers, owned by others. The leaders have been Amazon and Microsoft, and Google is pushing hard to capture that corporate business as well. “She came in at a particularly tough time, and that challenge was handed to her,” said Toni Sacconaghi, an analyst at Bernstein Research. In August 2019, IBM bought Red Hat, the largest distributor of the popular open-source operating system Linux, for $34 billion. At the time, many analysts said that the deal meant that Ms. Rometty would probably stay on until the end of this year. But her two predecessors, Samuel J. Palmisano and Louis V. Gerstner Jr., both retired at 60. The acquisition of Red Hat seems to be going well, analysts said. James Whitehurst, the chief executive of Red Hat, was named the president of IBM on Thursday. Last week, IBM reported a slight increase in revenue. “This positions us for sustained revenue growth in 2020,” Ms. Rometty said at the time. Other than Red Hat, IBM acquired 65 companies under Ms. Rometty, mostly small ones. And she sold off companies that accounted for $9 billion in yearly revenue, including semiconductor manufacturing and several lower-profit services and software businesses. “It’s been her eight-year project to reposition the company,” said Frank Gens, chief analyst of IDC, a technology research firm. “And after the positive report last quarter, she’s declared victory and retired.” At the time the announcement was made, Ms. Rometty was addressing IBM’s top 300 managers at an annual company leadership conference in downtown Manhattan. She told the assembled executives about the change and shared the stage with Mr. Krishna and Mr. Whitehurst. The three received a lengthy standing ovation, said an IBM manager who attended but was not authorized to speak about the private event. IBM said the transition was the culmination of a lengthy succession process that began more than a year ago, with Ms. Rometty collaborating closely with the rest of the IBM board. Ms. Rometty was a computer science major at Northwestern University, where she was also a sorority president. But much of her nearly 40 years at IBM was spent in sales and building up IBM’s big technology services business. In tapping Mr. Krishna and Mr. Whitehurst, the company decided that the time had come for a seasoned technologist and an operating expert. Mr. Krishna, 57, had been senior vice president for IBM’s cloud and cognitive software, which includes its Watson artificial intelligence technology. Since he joined IBM in 1990, Mr. Krishna held a series of research and business management roles. He holds a Ph.D. in electrical engineering from the University of Illinois at Urbana-Champaign. “Arvind is the right C.E.O. for the next era at IBM.,” Ms. Rometty said in the statement on Thursday. Mr. Whitehurst, 52, came to IBM with the acquisition of Red Hat, which he joined in 2007. Under his leadership, Red Hat’s revenue increased eightfold and its stock market valuation surged tenfold. Before Red Hat, Mr. Whitehurst was chief operating officer of Delta Air Lines, leading it out of its bankruptcy restructuring. A former partner at the Boston Consulting Group, Mr. Whitehurst earned his undergraduate degree in economics and computer science from Rice University, and he holds an M.B.A. from the Harvard Business School. In recent years, IBM has not had a separate president. And given their ages and backgrounds, Mr. Krishna is seen as a shorter-term chief executive, with Mr. Whitehurst positioned to take over in a few years and perhaps become a longer-term leader, said Mr. Gens and Mr. Sacconaghi. Only 33 women hold chief executive positions at Fortune 500 companies, according to Catalyst, a nonprofit organization that works closely with women chief executives in an effort to improve workplace conditions for women. That number is still only 7 percent of the total, but it has steadily risen over the past two decades. “We will have one less at the end of the year, but we now have a much broader pipeline, and hopefully, that number will continue to grow,” said Catalyst’s president and chief executive, Lorraine Hariton. Ms. Hariton said that Ms. Rometty’s departure should not be viewed as anything larger than a chief executive stepping down. “We should just see it as normal to have succession. Period,” she said. IBM is a company that has long provided ample opportunities for women, said Ms. Hariton, who, like Ms. Rometty, was an IBM employee as far back as the early 80s. “This is a very progressive company,” she said. “Women leaders have been commonplace.” Cade Metz contributed reporting. PHOTO: Ginni Rometty faced many challenges when she became IBM’s chief in 2012. (PHOTOGRAPH BY SAMUEL CORUM FOR THE NEW YORK TIMES) (B4) Load-Date: January 31, 2020 End of Document Some Magic Words to Get The Best From a Chatbot The New York Times

### Document 91

Hours after Google tried to turn the page on a months-long controversy over the abrupt departure of one leader of its Ethical AI team, the other leader said she was fired. The announcement quickly sent shockwaves through the artificial intelligence industry. In a tweet Friday afternoon, Margaret Mitchell wrote, "I'm fired." Mitchell, a Google researcher who founded the company's Ethical AI team, was put on administrative leave in January and had her email access blocked then, as she confirmed to CNN Business at the time. Mitchell had been outspoken on Twitter for months following the December exit of Timnit Gebru, which came as a shock to Mitchell and many other employees at Google. Earlier this month, Mitchell tweeted a lengthy internal memo that was heavily critical of Google which she wrote the day her Google email access was shut down. A Google spokesperson did not dispute that Mitchell was fired when asked for comment on the matter. "After conducting a review of this manager's conduct, we confirmed that there were multiple violations of our code of conduct, as well as of our security policies, which included the exfiltration of confidential business-sensitive documents and private data of other employees," the spokesperson said. When reached for comment, Mitchell said: "I don't know about those allegations actually. I mean most of that is news to me" Mitchell's firing will likely only add to tensions that have been brewing within the team, and the company, in the months since Gebru's departure. And it came as the company appeared to be trying to turn the page by wrapping up an investigation into the matter and announcing policy changes. Just hours before Mitchell tweeted the news of her firing, Jeff Dean, Google's head of AI, announced several policy changes in an internal memo, saying Google plans to change its approach for handling how certain employees leavethe company after finishing a months-long review of the abrupt and controversial departure of prominent Black artificial intelligence researcher Gebru. A copy of the memo, which was obtained by CNN Business, said changes would includehaving HR employees review "sensitive" employee exits. Until early December, when she abruptly left the company, Gebru was the co-leader of Google's Ethical AI team. A pioneer in the research of bias and inequality in AI, she was also one of few Black employees at the company overall. (3.7% of Google employees are Black, according to the company's 2020 annual diversity report.) Gebru is also co-founder of the group Black in AI, which aims to increase representation of Black people in the field. Back then, Gebru initially tweeted that she had been "immediately fired" for an email she had recently sent to Google's Brain Women and Allies internal mailing list. In the email she expressed dismay over the ongoing lack of diversity at the company and frustration over an internal process related to the review of a not-yet published research paper she coauthored. Dean wrote in an email to Google Research employees (which he also posted publicly) that the paper in question was not submitted for internal review far enough in advance of its deadline, and that it "didn't meet our bar for publication." In later tweets, Gebru clarified that no one at Google explicitly told her that she was fired. Rather, she said Google would not meet a number of her conditions for returning and accepted her resignation immediately because it felt that her email reflected "behavior that is inconsistent with the expectations of a Google manager." Gebru's sudden exit sparked anger among many Google employees and others in the tech industry that continues to simmer months later, often exhibited via emotional posts on Twitter. This year,two Google employees quit over Gebru's exit. In the memo on Friday, Dean said of Gebru's contentious exit that the company "could have and should have handled this situation with more sensitivity" and that he regrets that it led to some employees questioning whether they belong at Google. "It's important that the Research org, along with the rest of Google, is a place where everyone feels like they belong and has the opportunity to succeed," he wrote. He also said Google will clarify internally what its process is for publishing "sensitive" research going forward. Dean also said the company will work toaddress diversity issuesby "more than doubling" the staffthat works on retaining Google employees. Additionally, he said Google will make diversity, equity and inclusion efforts part of the performance evaluations for Google employees at and above the vice-president level. Gebru responded to the memo on Friday by tweeting, "I write an email asking for things, I get fired, and then after a 3 month investigation, they say they should probably do some of the things I presumably got fired asking for, without holding anyone accountable for their actions." Gebru later confirmed that Mitchell had been fired and tweeted: "There are many words I can say right now ... To the VPs at google, I pity you." The memo and firing came a day after Google announced it shuffled the leadership of its responsible artificial intelligence efforts. Marian Croak, a Black woman who has been a vice president at the company for six years working on a range of projects including getting public Wi-Fi on railroads in India, will run a new center focused on responsible AI within Google Research. Croak will report to Dean. Ten teams centered around AI ethics, fairness, and accessibility - including the Ethical AI team - will report to her. By Rachel Metz, CNN Business TM & © 2021 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: April 7, 2021 End of Document Opinion: Warning signs for Democrats CNN Wire

### Document 115

Google is making changes to the leadership of its responsible artificial intelligence efforts months after the contentious departure of prominent Black artificial intelligence researcher Timnit Gebru rattled the company. The tech giant said in a blog post Thursday that Marian Croak, a Black woman who has been a vice president at the company for six years working on a range of projects including getting public Wi-Fi on railroads in India, will run a new center focused on responsible AI within Google Research. The announcement, which included a video interview with Croak, touted her decades of tech experience and patents for technologies such as Voice over IP. Croak will report to Jeff Dean, Google's head of AI. Ten teams centered around AI ethics, fairness, and accessibility - including the Ethical AI team, which Gebru had previously helped lead - will report to her. The move was first reported by Bloomberg late Wednesday. In the blog post, Croak pointed out how new the field of ethical AI is - it has been on many AI researchers' radar screens for only a handful of years. She noted there is "quite a lot of conflict" currently in the field, such as over standardizing definitions of "fairness" or "safety," which can be polarizing. "And what I'd like to do is have people have the conversation in a more diplomatic way, perhaps, than we're having it now, so that we can truly advance this field," she said. She also plans to undertake a "critical assessment of all the AI systems that are deployed or currently being designed and try to understand where the gaps are" and work within Google to diminish "potential harms." Until early December, when she abruptly left the company, Gebru was the co-leader of Google's Ethical AI team. A pioneer in the research of bias and inequality in AI, she was also one of few Black employees at the company overall (3.7% of Google employees are Black, according to the company's 2020 annual diversity report). The research scientist is also co-founder of the group Black in AI, which aims to increase representation of Black people in the field. Gebru initially tweeted that she had been "immediately fired" for an email she had recently sent to Google's Brain Women and Allies internal mailing list. In the email she expressed dismay over the ongoing lack of diversity at the company and frustration over an internal process related to the review of a not-yet published research paper she coauthored. Dean said in an email to Google Research employees (which he also posted publicly) that the paper in question was not submitted for internal review far enough in advance of its deadline, and that it "didn't meet our bar for publication." In later tweets, Gebru clarified that no one at Google explicitly told her that she was fired. Rather, she said Google would not meet a number of her conditions for returning and accepted her resignation immediately because it felt that her email reflected "behavior that is inconsistent with the expectations of a Google manager." Gebru's sudden exit sparked anger among many Google employees and others in the tech industry that continues to simmer months later, often exhibited via emotional posts on Twitter. CEO Sundar Pichai wrote in a memo to Google employees soon after she left that the company would investigate what happened. Earlier this month, two Google employees quit over Gebru's exit, and Margaret Mitchell, a Google researcher who until Gebru's abrupt departure co-led the group with her, was put on administrative leave in January, as she confirmed to CNN Business at the time. A Google spokeswoman had no comment regarding Croak's new position beyond pointing CNN Business to the company's blog post. Gebru could not be immediately reached for comment, but in a tweet thread Wednesday night she wrote that the announcement of Croak, another Black woman, makes it appear "as if we're all interchangeable" and called the company's moves since her departure "beyond gaslighting." "I don't have enough words to express how awful this is right now," she wrote. A Google employee familiar with the situation who requested anonymity due to privacy concerns said that they and other employees initially learned Croak's appointment from the Bloomberg piece late Wednesday, rather than from Google itself, though a meeting on Thursday confirmed the change. The employee said morale in the ethical AI group is "pretty low." "I'm just really, really upset," the employee said. By Rachel Metz, CNN Business TM & © 2021 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: April 7, 2021 End of Document Tom Cruise and the 'Mission Impossible: Dead Reckoning Part One' cast discuss that stunt, Covid and the franchise's future CNN Wire

### Document 925

The researcher, one of the company’s best-known Black female employees, said she was fired last week. Sundar Pichai, chief executive of Google’s parent company Alphabet, apologized for the departure of a prominent artificial intelligence researcher, whose exit has roiled the company’s work force and raised questions about its stated commitment to diversity and the responsible development of A.I. technology. In an email to employees on Wednesday, Mr. Pichai, however, stopped short of saying that the company was wrong in how it hastened the resignation of Timnit Gebru, who was a co-leader of Google’s Ethical A.I. team and one of its best-known Black female employees. Dr. Gebru said last week that the company fired her after she sent an email that criticized the company’s lack of progress in hiring women and minorities as well as biases built into its artificial intelligence technology. She said that she had demanded an explanation for why the company had told her to retract a paper that pinpointed flaws in a new breed of language technology, including a system built by Google that underpins the company’s search engine. She said that short of a transparent explanation or further discussion that she would resign after an appropriate amount of time. The company immediately accepted her statement as a resignation and cut her off from all company services and systems. Colleagues have rallied to Dr. Gebru’s defense, saying that Google did not treat her fairly and that this incident was an example of how Black employees are often mistreated at the company. “I’ve heard the reaction to Dr. Gebru’s departure loud and clear: It seeded doubts and led some in our community to question their place at Google. I want to say how sorry I am for that, and I accept the responsibility of working to restore your trust,” Mr. Pichai wrote in an email viewed by The New York Times. Axios had reported about the email earlier. “We need to assess the circumstances that led to Dr. Gebru’s departure, examining where we could have improved and led a more respectful process,” he added. “We will begin a review of what happened to identify all the points where we can learn.” On Twitter, Dr. Gebru said Mr. Pichai’s email was not a true apology. “I see this as ‘I’m sorry for how it played out but I’m not sorry for what we did to her yet.’” The parting with Dr. Gebru is especially fraught for Google, because it involves two thorny subjects for the company — a lack of diversity in its work force and concerns about the dangerous consequences of artificial intelligence technology. Dr. Gebru, who joined the company last year from Stanford, was vocal about the importance of the company’s efforts to hire and retain more women as well as Black employees, who currently account for less than 2 percent of the company’s work force. In addition, her research to examine the long-term implications of A.I. put her at odds with the company’s strategic goals of depending on artificial intelligence as the breakthrough technology to improve most, if not all, of its products. Last week, about 2,000 Google employees signed a petition protesting her dismissal from the company and demanding that executives within its research organization be more transparent about the circumstances of Dr. Gebru’s exit. On Monday, members of Google’s Ethical A.I. team published a post that disputed some of the company’s statements regarding her exit, including the company’s assertion that she resigned and was not fired. Jeff Dean, one of Google’s most senior executives who oversees the company’s A.I. research arm, met with a group of employees on Tuesday to explain what took place with Dr. Gebru, but many walked away from the meeting even more upset. PHOTO: The departure from Google of Timnit Gebru, one of its most prominent Black female employees, has set off a storm at the company. (PHOTOGRAPH BY Cody O&#39;Loughlin for The New York Times FOR THE NEW YORK TIMES) Load-Date: December 14, 2020 End of Document Reddit's Sprawling Content Is Fodder for the Likes of ChatGPT. But Reddit Wants to Be Paid. The New York Times

### Document 484

The split-up strategy reflects how decisively computing has shifted to the cloud. IBM, throughout its 109-year history, hasn’t often led technology trends. But it has adapted and eventually prospered time and again. It is trying to go the adaptation route once again. IBM on Thursday acknowledged the challenge and embraced the opportunity for the company in the accelerating shift to cloud computing. The company said it was spinning off its legacy technology services business to focus on cloud computing and artificial intelligence. Arvind Krishna, who became chief executive this year, called the move “a landmark day” for IBM, “redefining the company.” The split-up strategy reflects how decisively computing has shifted to the cloud. Today, nearly all new software is being created as a cloud service, delivered over the internet from remote data centers. The computing model affords corporate customers more flexibility and cost savings, sold as a pay-for-use service or annual subscriptions. IBM was late to the cloud market, which Amazon pioneered when it began Amazon Web Services in 2006. But IBM has made a major push into cloud services and software in recent years, punctuated by its $34 billion purchase in 2018 of Red Hat, a distributor of open-source software and tools used by cloud developers. In an interview, Ginni Rometty, IBM’s executive chair and former chief executive, said cloud computing, enhanced by artificial intelligence, “is now IBM’s enduring platform.” IBM is tailoring its cloud strategy to help corporate customers make the transition to the new technology and thus carve out a fast-growing and healthy business amid the market leaders: Amazon Web Services, Microsoft and Google. The main business, retaining the IBM name, will be its cloud operations, along with its hardware, software and consulting services units. They generate about three-quarters of IBM’s revenue. The business to be spun off, which is not yet named, is IBM’s basic technology services business, which maintains, supports and upgrades the computing operations of thousands of corporate customers. That business is sizable, with sales of about $19 billion a year, and will become a separate public company. But that business is not where the growth opportunities lie in the technology business. IBM has been unable to generate overall growth for years, disappointing investors. Last year, the company’s revenue declined 3 percent, to $77 billion. IBM’s performance has been held back by the erosion of its old-line businesses, even as newer businesses like cloud grew. Over the years, IBM has repeatedly sold off businesses whose profitability was waning to focus on more profitable products and services. Personal computers, disk drives, chip manufacturing and some technology services have been shed. But spinning off the technology support operation as a separate company is a particularly big step. “IBM’s future is as a smaller company, more of a niche technology company,” said Michael Cusumano, a professor at the Massachusetts Institute of Technology’s Sloan School of Management. The corporate split, Mr. Krishna said, is intended to “unlock growth” for the more focused IBM. He added that the company should deliver “mid-single-digit” revenue growth over the next few years. Mr. Krishna said in an interview that the split-up was the culmination of IBM’s increasing focus on cloud and A.I. as engines of growth. The strategic question, he said, was: “What do I not need?” The answer was the services business that supports and maintains technology for corporations. IBM says that business, as a separate company, should have more financial flexibility since it will no longer have to compete for funding from the corporate parent. Mr. Krishna declined to predict how the spinoff would affect employment. But the technology support business has been trimming employment recently. IBM shares rose nearly 6 percent by the end of trading on Thursday. The company has positioned itself as a champion of a “hybrid cloud” approach. It is trying to take its corporate customers into cloud computing without abandoning their old technology altogether. IBM lags the biggest, richest cloud providers, led by Amazon and Microsoft, which spend tens of billions a year on their vast networks of data centers. IBM, analysts say, cannot compete head to head with the broad cloud services. So IBM has chosen the hybrid path and portrayed itself as the Switzerland of the cloud market, able to plug into the internet clouds of Amazon, Microsoft and Google, as well as the IBM cloud. The services arm that is remaining inside IBM does a big business in writing specialized software for its many corporate clients. “IBM’s cloud strategy has got to dovetail with its custom software development,” Mr. Cusumano, the M.I.T. professor, said. PHOTOS: IBM is spinning off its legacy technology services business to focus on cloud computing and artificial intelligence. Its chief, Arvind Krishna, left, said the move would redefine the company. (PHOTOGRAPHS BY ALEXANDER KOERNER/GETTY IMAGES; BRIAN ACH/GETTY IMAGES) Load-Date: July 20, 2021 End of Document Wonking Out: Is the Fiscal Picture Getting Better or Worse? Yes.; Paul Krugman The New York Times

### Document 977

Caroline Ellison, who ran the cryptocurrency trading firm Alameda Research, has found herself at the center of Sam Bankman-Fried’s collapsed crypto empire. When his cryptocurrency exchange started teetering in early November, Sam Bankman-Fried went on Twitter to calm everyone down. FTX was fine, he insisted. Nothing to worry about. Joining him in the outreach was a close colleague: Caroline Ellison, the 28-year-old chief executive of Alameda Research, a crypto trading firm Mr. Bankman-Fried also founded. A little-known figure outside crypto circles, Ms. Ellison claimed repeatedly that Mr. Bankman-Fried’s empire was on stable financial footing. On Twitter, she sparred with Changpeng Zhao, the chief executive of Binance, who was voicing doubts about FTX and Alameda. But her words weren’t enough to keep FTX alive. A run on deposits, prompted partly by Mr. Zhao’s comments, left the company owing $8 billion. Within less than a week, FTX and Alameda had filed for bankruptcy. Now the companies are facing investigations by the Justice Department and the Securities and Exchange Commission, focused on whether FTX’s shortfall arose because it had illegally lent its customers’ deposits to Alameda. Ms. Ellison is at the center of the furor. In a meeting with Alameda employees the week that the companies imploded, Ms. Ellison acknowledged her company had dipped into FTX user funds, The New York Times and The Wall Street Journal have previously reported. On Twitter, amateur detectives have spent the last two weeks dissecting her life, and she is likely to play a crucial role in any criminal case that emerges from FTX’s collapse. “She will face an immense amount of scrutiny both from criminal prosecutors and a variety of different civil agencies, and also civil suits,” said Eugene Soltes, an expert on corporate integrity at Harvard Business School. “It looks pretty awful from her perspective.” Lawyers for Ms. Ellison declined to comment. In some ways, Mr. Bankman-Fried, 30, and Ms. Ellison couldn’t be more different. While he was an aggressive and outgoing public cheerleader for the crypto industry, she maintained a relatively low profile. But they emerged from the same intellectual milieu. Like Mr. Bankman-Fried, Ms. Ellison was deeply involved in the effective altruism movement — a community that has become increasingly influential in technology circles. At times, the pair were romantically involved. Effective altruism is a global philanthropic movement in which donors seek to maximize the impact of their giving for the long term. But the tight-knit community — driven by online forums, blogs and mailing lists — is also a hothouse for all sorts of other ideas outside the mainstream, from polyamorous living to the possibility that artificial intelligence will one day destroy humankind. In blog posts that Ms. Ellison is believed to have written over the years, she philosophized at length about a wide range of topics, from book recommendations and dating preferences to her one-time view that “the sexual revolution was a mistake,” a position she said she had moved away from. The daughter of economists at the Massachusetts Institute of Technology, Ms. Ellison grew up in the Boston area, where she was the captain of the Newton North High School math team and regarded as a serious student and a hard worker. “I am shocked,” said Pavel Etingof, a math professor at M.I.T. who worked with Ms. Ellison when she was in high school. “I trust the U.S. law enforcement to get to the bottom of it.” In 2012, Ms. Ellison moved across the country to attend college at Stanford, where she majored in math. Former classmates described her as studious and quiet; one friend recalled that Ms. Ellison read widely, including biographies and science fiction, and seemed sincere in her interest in philanthropy. Ms. Ellison has given a handful of interviews over the years, speaking in soft, halting tones. By her own account, she got interested in effective altruism in her freshman year at Stanford, after reading about the movement online. When she graduated, Ms. Ellison joined the quantitative trading firm Jane Street, where she was part of a cohort of new arrivals coached by Mr. Bankman-Fried, who was a couple of years older. “I was kind of scared of him,” she said in an interview with The Times in March. “You could tell he was quite smart and sort of intimidating.” The pair stayed in touch, and Ms. Ellison got in contact with Mr. Bankman-Fried in February 2018, not long after he had started Alameda, which was based in an office in Berkeley. They had coffee, and Mr. Bankman-Fried seemed cagey, informing her that he had just embarked on a new project he couldn’t tell her about. But eventually he decided to share his plans for Alameda. “I was like, ‘Oh man, this sounds pretty exciting,’” she recalled in March. “For the next week, I kept thinking about it and being like, ‘I wonder what’s going on at Alameda right now?’ It sounded like crypto trading is pretty crazy.” Alameda made fast profits by exploiting inefficiencies in the Bitcoin market. Not long after its founding, Mr. Bankman-Fried moved the company to Hong Kong, where Ms. Ellison eventually joined him with a small group of traders. In 2019, he started FTX; as the new exchange started to consume more of his time, he appointed Ms. Ellison and another trader, Sam Trabucco, as joint chief executives of Alameda. Mr. Trabucco stepped down earlier this year, leaving Ms. Ellison in sole charge. The relationship between Alameda and FTX was the original sin that led to the implosion of Mr. Bankman-Fried’s empire. Alameda traded heavily on the FTX platform, meaning it sometimes benefited when FTX’s other customers lost money, a conflict of interest that Mr. Bankman-Fried sometimes seemed uncomfortable discussing in interviews. Even as she profited from crypto’s explosion in popularity, Ms. Ellison was hardly a true believer in the technology. “I do think a lot of crypto projects don’t have much real value,” she said matter-of-factly on FTX’s official podcast in early 2021. On another episode, she said she had pursued crypto trading mainly to make lots of money, which she planned to give away as part of her commitment to effective altruism. “Young people tend to be too risk averse,” she said. As her career advanced, Ms. Ellison is believed to have posted frequently on the social-networking site Tumblr, blogging under the handle “worldoptimization.” The blog was anonymous, but it included specific details from her life, as well as a link to her public Twitter account. In an interview, Mr. Bankman-Fried confirmed that Ms. Ellison was the author, though the blog has now been deleted and it’s not clear whether she has publicly acknowledged it was hers. In an archived post from 2019, the blog’s author said that effective altruism seemed to be an “inevitable consequence of ambition.” “If I want to do something with my life, what is there to do?” the post said. “Money is too easy.” Last year, FTX relocated to the Bahamas, and Ms. Ellison set about encouraging other people in the effective altruism community to follow them. A post under her name on an effective altruist forum listed some of the benefits, including “low tax” and “beaches!” “It’s a fairly small country,” the post said. “If a lot of EAs move there, EA could end up being a somewhat influential force.” In the Bahamas, Ms. Ellison lived in the five-bedroom penthouse of Albany, a luxury resort on the island of New Providence. She shared the space with nine other occupants, including Mr. Bankman-Fried, as well as Nishad Singh and Gary Wang, two other top FTX executives. The four housemates sat on the board of the FTX Future Fund, an effective altruist group that Mr. Bankman-Fried financed with his crypto fortune. In April, Ms. Ellison, Mr. Singh and Mr. Bankman-Fried joined a $580 million funding round for a little-known artificial intelligence lab founded by other effective altruists. The start-up aimed to build “safe AI” — a key part of the effective altruist belief system. At times, the FTX leadership team’s charitable commitments manifested in a holier-than-thou attitude, making colleagues outside the clique feel alienated and judged, according to two people familiar with the matter who requested anonymity to discuss sensitive matters. Ms. Ellison was sometimes blunt, one of the people said, and struck other staff as self-righteous. Online, she could also be flippant about her management of Alameda. When she finished calls with the chief executives of other companies, she would say to herself, “Oh thank god, I think I fooled them into thinking I’m a real adult,” according to a Tumblr post on worldoptimization’s account. At Alameda and FTX, traders often used Adderall-like stimulants to remain alert over long hours, said people familiar with the matter — a habit that Ms. Ellison appeared to publicly acknowledge. “Nothing like regular amphetamine use to make you appreciate how dumb a lot of normal, non-medicated human experience is,” she tweeted in 2021. Even before the crisis of the last two weeks, there were signs that Alameda was in big trouble. According to a recent bankruptcy filing, the company’s quarterly financial statements were never audited. One business partner, who requested anonymity to describe private business discussions, ended work with Alameda after a call with its executives raised red flags late last year. The business partner asked about a line representing $2 billion of investments on Alameda’s balance sheet — a sizable chunk of the firm’s overall assets — and the Alameda representatives couldn’t explain what it was. Then, on Nov. 2, the crypto news site CoinDesk published an article based on a leaked Alameda balance sheet that appeared to show that a large portion of the company’s assets consisted of FTT, the cryptocurrency that FTX invented. The disclosure raised concerns about the financial stability of Mr. Bankman-Fried’s empire. On Nov. 6, Mr. Zhao announced plans to sell an enormous supply of FTT. At the time, the token was worth about $22; if its price dropped too much, FTX would be in trouble. Ms. Ellison confronted Mr. Zhao on Twitter: “Alameda will happily buy it all from you today at $22,” she said. Behind the scenes, she gave orders to her small team of traders to keep the token’s price at $22 by placing bids at roughly that level, according to a person familiar with the matter. But Mr. Zhao’s tweets set off the crypto equivalent of a bank run, and customers rushed to withdraw their holdings from FTX. As the crisis unfolded, Ms. Ellison was visiting the Alameda office in Hong Kong, where she worked in a private meeting room, taking phone calls, according to a person familiar with the matter. Two days after Mr. Zhao’s tweets, Mr. Bankman-Fried announced what had seemed unthinkable: The exchange was facing “liquidity crunches,” unable to meet withdrawals. In a meeting with employees the next day, Ms. Ellison admitted that Alameda had taken customer funds from FTX to make up for shortfalls in its accounts, according to a person familiar with the matter who was granted anonymity to share internal discussions. Ms. Ellison sounded tearful, the person said, and told the group she was sorry. FTX now owes creditors $8 billion, and the amount it lent to Alameda is as high as $10 billion, according to people familiar with the firm’s finances. The Alameda staff were shocked. As the news sank in, they commiserated, discussing plans to leave Hong Kong and seek legal help. Ms. Ellison was not included. Erin Griffith and Matthew Goldstein contributed reporting. Jack Begg, Kitty Bennett and Alain Delaquérière contributed research. PHOTOS: Caroline Ellison, the chief executive of Alameda Research, claimed repeatedly that FTX was on stable financial footing. (PHOTOGRAPH FROM CAROLINE ELLISON); Ms. Ellison was coached by Sam Bankman-Fried, above, at the quantitative trading firm Jane Street. (PHOTOGRAPH BY ERIKA P. RODRIGUEZ FOR THE NEW YORK TIMES) (B3) This article appeared in print on page B1, B3. Load-Date: November 24, 2022 End of Document Twitter Suspensions Draw International Outrage; DealBook Newsletter The New York Times

### Document 894

Timnit Gebru, one of the few Black women in her field, had voiced exasperation over the company’s response to efforts to increase minority hiring. A well-respected Google researcher said she was fired by the company after criticizing its approach to minority hiring and the biases built into today’s artificial intelligence systems. Timnit Gebru, who was a co-leader of Google’s Ethical A.I. team, said in a tweet on Wednesday evening that she was fired because of an email she had sent a day earlier to a group that included company employees. In the email, reviewed by The New York Times, she expressed exasperation over Google’s response to efforts by her and other employees to increase minority hiring and draw attention to bias in artificial intelligence. “Your life starts getting worse when you start advocating for underrepresented people. You start making the other leaders upset,” the email read. “There is no way more documents or more conversations will achieve anything.” Her departure from Google highlights growing tension between Google’s outspoken work force and its buttoned-up senior management, while raising concerns over the company’s efforts to build fair and reliable technology. It may also have a chilling effect on both Black tech workers and researchers who have left academia in recent years for high-paying jobs in Silicon Valley. “Her firing only indicates that scientists, activists and scholars who want to work in this field — and are Black women — are not welcome in Silicon Valley,” said Mutale Nkonde, a fellow with the Stanford Digital Civil Society Lab. “It is very disappointing.” A Google spokesman declined to comment. In an email sent to Google employees, Jeff Dean, who oversees Google’s A.I. work, including that of Dr. Gebru and her team, called her departure “a difficult moment, especially given the important research topics she was involved in, and how deeply we care about responsible A.I. research as an org and as a company.” After years of an anything-goes environment where employees engaged in freewheeling discussions in companywide meetings and online message boards, Google has started to crack down on workplace discourse. Many Google employees have bristled at the new restrictions and have argued that the company has broken from a tradition of transparency and free debate. On Wednesday, the National Labor Relations Board said Google had most likely violated labor law when it fired two employees who were involved in labor organizing. The federal agency said Google illegally surveilled the employees before firing them. Google’s battles with its workers, who have spoken out in recent years about the company’s handling of sexual harassment and its work with the Defense Department and federal border agencies, have diminished its reputation as a utopia for tech workers with generous salaries, perks and workplace freedom. Like other technology companies, Google has also faced criticism for not doing enough to resolve the lack of women and racial minorities among its ranks. The problems of racial inequality, especially the mistreatment of Black employees at technology companies, has plagued Silicon Valley for years. Coinbase, the most valuable cryptocurrency start-up, has experienced an exodus of Black employees in the last two years over what the workers said was racist and discriminatory treatment. Researchers worry that the people who are building artificial intelligence systems may be building their own biases into the technology. Over the past several years, several public experiments have shown that the systems often interact differently with people of color — perhaps because they are underrepresented among the developers who create those systems. Dr. Gebru, 37, was born and raised in Ethiopia. In 2018, while a researcher at Stanford University, she helped write a paper that is widely seen as a turning point in efforts to pinpoint and remove bias in artificial intelligence. She joined Google later that year, and helped build the Ethical A.I. team. After hiring researchers like Dr. Gebru, Google has painted itself as a company dedicated to “ethical” A.I. But it is often reluctant to publicly acknowledge flaws in its own systems. In an interview with The Times, Dr. Gebru said her exasperation stemmed from the company’s treatment of a research paper she had written with six other researchers, four of them at Google. The paper, also reviewed by The Times, pinpointed flaws in a new breed of language technology, including a system built by Google that underpins the company’s search engine. These systems learn the vagaries of language by analyzing enormous amounts of text, including thousands of books, Wikipedia entries and other online documents. Because this text includes biased and sometimes hateful language, the technology may end up generating biased and hateful language. After she and the other researchers submitted the paper to an academic conference, Dr. Gebru said, a Google manager demanded that she either retract the paper from the conference or remove her name and the names of the other Google employees. She refused to do so without further discussion and, in the email sent Tuesday evening, said she would resign after an appropriate amount of time if the company could not explain why it wanted her to retract the paper and answer other concerns. The company responded to her email, she said, by saying it could not meet her demands and that her resignation was accepted immediately. Her access to company email and other services was immediately revoked. In his note to employees, Mr. Dean said Google respected “her decision to resign.” Mr. Dean also said that the paper did not acknowledge recent research showing ways of mitigating bias in such systems. “It was dehumanizing,” Dr. Gebru said. “They may have reasons for shutting down our research. But what is most upsetting is that they refuse to have a discussion about why.” Dr. Gebru’s departure from Google comes at a time when A.I. technology is playing a bigger role in nearly every facet of Google’s business. The company has hitched its future to artificial intelligence — whether with its voice-enabled digital assistant or its automated placement of advertising for marketers — as the breakthrough technology to make the next generation of services and devices smarter and more capable. Sundar Pichai, chief executive of Alphabet, Google’s parent company, has compared the advent of artificial intelligence to that of electricity or fire, and has said that it is essential to the future of the company and computing. Earlier this year, Mr. Pichai called for greater regulation and responsible handling of artificial intelligence, arguing that society needs to balance potential harms with new opportunities. Google has repeatedly committed to eliminating bias in its systems. The trouble, Dr. Gebru said, is that most of the people making the ultimate decisions are men. “They are not only failing to prioritize hiring more people from minority communities, they are quashing their voices,” she said. Julien Cornebise, an honorary associate professor at University College London and a former researcher with DeepMind, a prominent A.I. lab owned by the same parent company as Google’s, was among many artificial intelligence researchers who said Dr. Gebru’s departure reflected a larger problem in the industry. “This shows how some large tech companies only support ethics and fairness and other A.I.-for-social-good causes as long as their positive P.R. impact outweighs the extra scrutiny they bring,” he said. “Timnit is a brilliant researcher. We need more like her in our field.” PHOTOS: Timnit Gebru had questioned biases built into artificial intelligence systems. (PHOTOGRAPH BY CODY O&#39;LOUGHLIN FOR THE NEW YORK TIMES) (B1); Google headquarters in California. Tension has been growing between the company’s workers and management. (PHOTOGRAPH BY LAURA MORTON FOR THE NEW YORK TIMES) (B6) Load-Date: December 4, 2020 End of Document Meta to Require Political Advertisers to Disclose Use of A.I. The New York Times

### Document 1088

-- Stephen Pratt surprised many when he left IBM after working on its vaunted Watson artificial intelligence technology in February, after just eight months on the job. It turns out that Mr. Pratt has set his sights on starting up his own A.I. business. Mr. Pratt and the investment firm TPG Growth plan to announce on Monday that they have formed Noodle.ai, which aims to bring a combination of artificial intelligence and data analysis to corporate customers. It is a field that has grown exceptionally popular in recent years, spurred on in part by the visibility of IBM's Watson, which famously defeated human ''Jeopardy'' champions like Ken Jennings. Now, a range of companies like IBM and start-ups believe that A.I. can help companies make sense of their vast amounts of data much more quickly. In setting up Noodle, Mr. Pratt is reuniting with TPG, the $70 billion investment firm known for deals like the takeovers of Neiman Marcus and J. Crew. The two worked together from 2014 to 2015 trying to identify data analytics companies to invest in. But last summer, Mr. Pratt -- a former consultant who helped found the consulting arm of the Indian technology giant Infosys -- took the position as global leader of Watson for IBM Global Business Services unit. It's a division for which IBM has held lofty hopes, committing some 2,000 employees to help corporate clients use advanced computer intelligence to analyze data in fields as diverse as health care and commerce. Now, Mr. Pratt is working with TPG Growth, which has struck smaller but prominent investments in the likes of Uber and Airbnb. To Bill McGlashan, the head of TPG Growth, Noodle represents the chance to finally invest in a data analytics company, after having spent years looking at existing service providers like Palantir. ''We have looked at every player in the space,'' he said in a phone interview. ''But we never got comfortable investing in any of them.'' Incubating a new business is nothing new to TPG Growth. It has helped give birth to start-ups across different industries, including those as far afield as movies, in the form of the Hollywood studio STX. Mr. McGlashan conceded that it took a lot of work to get Mr. Pratt to leave his prestigious and ''well-compensated'' position as the head of IBM Watson. But for Mr. Pratt, leaving to start Noodle meant being able to build a new analytics and A.I. business from the ground up. The company will be based in San Francisco and Bangalore, relying on teams around the world to handle workloads. ''We're going to have a work force around the world that's optimized for speed and cost,'' he said. Other founders of the start-up include Matt Denesuk, who was previously the chief data science officer for General Electric's G.E. Digital unit; Raj Joshi, who was the senior executive vice president of professional services at MicroStrategy; and Ted Gaubert, who previously worked with Mr. Pratt at Infosys Consulting as chief technology officer. Mr. McGlashan of TPG Growth said that his firm planned to make full use of Noodle's services, offering the start-up as an option for its portfolio companies. Mr. Pratt spoke positively about his former employer, but he seemed ready to do battle all the same. ''This is an existential threat to larger enterprises,'' Mr. Pratt said. ''The people who do it first will have an exceptional advantage over laggards.'' http : // www.nytimes.com/2016/03/15/business/dealbook/former-head-of-ibms-watson-unit-to-start-own-ai-firm.html Load-Date: March 15, 2016 End of Document Five Technologies That Will Rock Your World The New York Times

### Document 554

Our company’s motto used to be “Don’t be evil.” An organized work force will help us live up to it. On Nov. 1, 2018, at 11:10 a.m., some 20,000 Google employees, along with employees of Waymo, Verily and other Alphabet companies, stopped working and walked off the job in cities around the world. A week earlier, The New York Times reported that the company had paid tens of millions of dollars to two executives who had been accused of sexual misconduct toward our co-workers, staying silent about the alleged abuse and letting them walk away with no consequences. People speaking at the protests that morning recounted their own experiences of harassment and discrimination at the company. In San Francisco, one woman held up a sign reading, “I reported and he got promoted.” Others read, “Happy to quit for $90 million, no sexual harassment required” and “Unfair workplaces create unfair platforms.” We’d had enough. The two of us are software engineers, and we were recently elected executive chair and vice chair of the Alphabet Workers Union, a group of more than 200 workers in the United States who believe our company’s structure needs to change. For far too long, thousands of us at Google — and other subsidiaries of Alphabet, Google’s parent company — have had our workplace concerns dismissed by executives. Our bosses have collaborated with repressive governments around the world. They have developed artificial intelligence technology for use by the Department of Defense and profited from ads by a hate group. They have failed to make the changes necessary to meaningfully address our retention issues with people of color. Most recently, Timnit Gebru, a leading artificial intelligence researcher and one of the few Black women in her field, said she was fired over her work to fight bias. Her offense? Conducting research that was critical of large-scale A.I. models and being critical of existing diversity and inclusion efforts. In response, thousands of our colleagues organized, demanding an explanation. Both of us have heard from colleagues — some new, some with over a decade at the company — who have decided that working at Alphabet is no longer a choice they can make in good conscience. Workers have mobilized against these abuses before. Organized workers at the company forced executives to drop Project Maven, the company’s artificial-intelligence program with the Pentagon, and Project Dragonfly, its plan to launch a censored search engine in China. Some of Alphabet’s subcontractors won a $15 minimum hourly wage, parental leave, and health insurance after an employee outcry. And the practice of forced arbitration for claims of sexual harassment was ended after the November 2018 walkout — albeit only for full-time employees, not contractors. A few months later, Google announced that it would end forced arbitration for employees for all claims. To those who are skeptical of unions or believe that tech companies are more innovative without unions, we want to point out that these and other larger problems persist. Discrimination and harassment continue. Alphabet continues to crack down on those who dare to speak out, and keep workers from speaking on sensitive and publicly important topics, like antitrustand monopoly power. For a handful of wealthy executives, this discrimination and unethical working environment are working as intended, at the cost of workers with less institutional power, especially Black, brown, queer, trans, disabled, and female workers. Each time workers organize to demand change, Alphabet’s executives make token promises, doing the bare minimum in the hopes of placating workers. It’s not enough. Today, we’re building on years of organizing efforts at Google to create a formal structure for workers. So far, 226 of us have signed union cards with the Communications Workers of America — the first step in winning a recognized bargaining unit under U.S. law. In other words, we are forming a union. We are the workers who built Alphabet. We write code, clean offices, serve food, drive buses, test self-driving cars and do everything needed to keep this behemoth running. We joined Alphabet because we wanted to build technology that improves the world. Yet time and again, company leaders have put profits ahead of our concerns. We are joining together — temps, vendors, contractors, and full-time employees — to create a unified worker voice. We want Alphabet to be a company where workers have a meaningful say in decisions that affect us and the societies we live in. As union members, we have created an elected leadership and representative structure with dues-paying members. Our union will be open to all Alphabet workers, regardless of classification. About half of the workers at Google are temps, vendors or contractors. They are paid lower salaries, receive fewer benefits, and have little job stability compared with full-time employees, even though they often do the exact same work. They are also more likely to be Black or brown — a segregated employment system that keeps half of the company’s work force in second-class roles. Our union will seek to undo this grave inequity. Everyone at Alphabet — from bus drivers to programmers, from salespeople to janitors — plays a critical part in developing our technology. But right now, a few wealthy executives define what the company produces and how its workers are treated. This isn’t the company we want to work for. We care deeply about what we build and what it’s used for. We are responsible for the technology we bring into the world. And we recognize that its implications reach far beyond the walls of Alphabet. Our union will work to ensure that workers know what they’re working on, and can do their work at a fair wage, without fear of abuse, retaliation or discrimination. When Google went public in 2004, it said it would be a company that “does good things for the world even if we forgo some short-term gains.” Its motto used to be “Don’t be evil.” We will live by that motto. Alphabet is a powerful company, responsible for vast swaths of the internet. It is used by billions of people across the world. It has a responsibility to prioritize the public good. It has a responsibility to its thousands of workers and billions of users to make the world a better place. As Alphabet workers, we can help build that world. Parul Koul is the executive chair of the Alphabet Workers Union. She is a software engineer who joined Google in 2019. Chewy Shaw is the vice chair of the Alphabet Workers Union. He is a site reliability engineer who has been at Google since 2011. The Times is committed to publishing a diversity of letters to the editor. We’d like to hear what you think about this or any of our articles. Here are some tips. And here’s our email: letters@nytimes.com. Follow The New York Times Opinion section on Facebook, Twitter (@NYTopinion) and Instagram. PHOTO (PHOTOGRAPH BY STEPHEN LAM/REUTERS) Load-Date: January 6, 2021 End of Document San Francisco Balks at Expanding Driverless Car Services on City’s Roads The New York Times

### Document 974

The creation of the union, a rarity in Silicon Valley, follows years of increasing outspokenness by Google workers. Executives have struggled to handle the change. OAKLAND, Calif. — More than 400 Google engineers and other workers have formed a union, the group revealed on Monday, capping years of growing activism at one of the world’s largest companies and presenting a rare beachhead for labor organizers in staunchly anti-union Silicon Valley. The union’s creation is highly unusual for the tech industry, which has long resisted efforts to organize its largely white-collar work force. It follows increasing demands by employees at Google for policy overhauls on pay, harassment and ethics, and is likely to escalate tensions with top leadership. The new union, called the Alphabet Workers Union after Google’s parent company, Alphabet, was organized in secret for the better part of a year and elected its leadership last month. The group is affiliated with the Communications Workers of America, a union that represents workers in telecommunications and media in the United States and Canada. But unlike a traditional union, which demands that an employer come to the bargaining table to agree on a contract, the Alphabet Workers Union is a so-called minority union that represents a fraction of the company’s more than 260,000 full-time employees and contractors. Workers said it was primarily an effort to give structure and longevity to activism at Google, rather than to negotiate for a contract. Chewy Shaw, an engineer at Google in the San Francisco Bay Area and the vice chair of the union’s leadership council, said the union was a necessary tool to sustain pressure on management so that workers could force changes on workplace issues. “Our goals go beyond the workplace questions of ‘Are people getting paid enough?’ Our issues are going much broader,” he said. “It is a time where a union is an answer to these problems.” In response, Kara Silverstein, Google’s director of people operations, said: “We’ve always worked hard to create a supportive and rewarding workplace for our work force. Of course, our employees have protected labor rights that we support. But as we’ve always done, we’ll continue engaging directly with all our employees.” The new union is the clearest sign of how thoroughly employee activism has swept through Silicon Valley over the past few years. While software engineers and other tech workers largely kept quiet in the past on societal and political issues, employees at Amazon, Salesforce, Pinterest and others have become more vocal on matters like diversity, pay discrimination and sexual harassment. Nowhere have those voices been louder than at Google. In 2018, more than 20,000 employees staged a walkout to protest how the company handled sexual harassment. Others have opposed business decisions that they deemed unethical, such as developing artificial intelligence for the Defense Department and providing technology to Customs and Border Protection. Even so, unions have not gained traction in Silicon Valley. Many tech workers shunned them, arguing that labor groups were focused on issues like wages — not a top concern in the high-earning industry — and were not equipped to address their concerns about ethics and the role of technology in society. Labor organizers also found it difficult to corral the tech companies’ huge work forces, which are scattered around the globe. Only a few small union drives have succeeded in tech in the past. Workers at the crowdfunding site Kickstarter and at the app development platform Glitch won union campaigns last year, and a small group of contractors at a Google office in Pittsburgh unionized in 2019. Thousands of employees at an Amazon warehouse in Alabama are also set to vote on a union in the coming months. “There are those who would want you to believe that organizing in the tech industry is completely impossible,” Sara Steffens, C.W.A.’s secretary-treasurer, said of the new Google union. “If you don’t have unions in the tech industry, what does that mean for our country? That’s one reason, from C.W.A.’s point of view, that we see this as a priority.” Veena Dubal, a law professor at the University of California, Hastings College of the Law, said the Google union was a “powerful experiment” because it brought unionization into a major tech company and skirted barriers that had prevented such organizing. “If it grows — which Google will do everything they can to prevent — it could have huge impacts not just for the workers but for the broader issues that we are all thinking about in terms of tech power in society,” she said. The union is likely to ratchet up tensions between Google engineers, who work on autonomous cars, artificial intelligence and internet search, and the company’s management. Sundar Pichai, Google’s chief executive, and other executives have tried to come to grips with an increasingly activist work force — but have made missteps. Last month, federal officials saidGoogle had most likely wrongly fired two employees who protested its work with immigration authorities in 2019. Timnit Gebru, a Black woman who is a respected artificial intelligence researcher,also said last month that Google had fired her after she criticized the company’s approach to minority hiring and the biases built into A.I. systems. Her departure set off a storm of criticism about Google’s treatment of minority employees. “These companies find it a bone in their throat to even have a small group of people who say, ‘We work at Google and have another point of view,’” said Nelson Lichtenstein, the director of the Center for the Study of Work, Labor and Democracy at the University of California, Santa Barbara. “Google might well succeed in decimating any organization that comes to the floor.” The Alphabet Workers Union, which represents employees in Silicon Valley and cities like Cambridge, Mass., and Seattle, gives protection and resources to workers who join. Those who opt to become members will contribute 1 percent of their total compensation to the union to fund its efforts. Over the past year, the C.W.A. has pushed to unionize white-collar tech workers. (The NewsGuild, a union that represents New York Times employees, is part of the C.W.A.) The drive focused initially on employees at video game companies, who often work grueling hours and face layoffs. In late 2019, C.W.A. organizers began meeting with Google employees to discuss a union drive, workers who attended the meetings said. Some employees were receptive and signed cards to officially join the union last summer. In December, the Alphabet Workers Union held elections to select a seven-person executive council. But several Google employees who had previously organized petitions and protests at the company objected to the C.W.A.’s overtures. They said they had declined to join because they worried that the effort had sidelined experienced organizers and played down the risks of organizing as it recruited members. Amr Gaber, a Google software engineer who helped organize the 2018 walkout, said C.W.A. officials were dismissive of other labor groups that had supported Google workers during a December 2019 phone call with him and others. “They are more concerned about claiming turf than the needs of the workers who were on the phone call,” Mr. Gaber said. “As a long-term labor organizer and brown man, that’s not the type of union I want to build.” The C.W.A. said it had been selected by Google workers to help organize the union and had not elbowed its way in. “It’s really the workers who chose,” Ms. Steffens of C.W.A. said. Traditional unions typically enroll a majority of a work force and petition a state or federal labor board like the National Labor Relations Board to hold an election. If they win the vote, they can bargain with their employer on a contract. A minority union allows employees to organize without first winning a formal vote before the N.L.R.B. The C.W.A. has used this model to organize groups in states where it said labor laws were unfavorable, like the Texas State Employees Union and the United Campus Workers in Tennessee. The structure also gives the union the latitude to include Google contractors, who outnumber full-time workers and who would be excluded from a traditional union. Some Google employees have considered establishing a minority or solidarity union for several years, and ride-hailing drivers have formed similar groups. Although they will not be able to negotiate a contract, the Alphabet Workers Union can use other tactics to pressure Google into changing its policies, labor experts said. Minority unions often turn to public pressure campaigns and lobby legislative or regulatory bodies to influence employers. “We’re going to use every tool that we can to use our collective action to protect people who we think are being discriminated against or retaliated against,” Mr. Shaw said. Members cited the recent N.L.R.B. finding on the firing of two employees and the exit of Dr. Gebru, the prominent researcher, as reasons to broaden its membership and publicly step up its efforts. “Google is making it all the more clear why we need this now,” said Auni Ahsan, a software engineer at Google and an at-large member of the union’s executive council. “Sometimes the boss is the best organizer.” PHOTOS: Activists rallying after an annual shareholder meeting outside of the Google Cloud computing unit’s headquarters in Sunnyvale, Calif., in 2019. Chewy Shaw, below, an engineer at Google and the vice chair of the union’s leadership council, said the union would focus on issues “much broader” than salary levels. (PHOTOGRAPHS BY REUTERS; DAMIEN MALONEY FOR THE NEW YORK TIMES) (B5) Load-Date: January 25, 2021 End of Document YouTube Says It Will Ban Misleading Election-Related Content The New York Times

### Document 496

Sam Bankman-Fried, the chief executive of the embattled cryptocurrency exchange, was a proponent and donor of the ''effective altruism'' movement. In short order, the extraordinary collapse of the cryptocurrency exchange FTX has vaporized billions of dollars of customer deposits, prompted investigations by law enforcement and destroyed the fortune and reputation of the company's founder and chief executive, Sam Bankman-Fried. It has also dealt a significant blow to the corner of philanthropy known as effective altruism, a philosophy that advocates applying data and evidence to doing the most good for the many and that is deeply tied to Mr. Bankman-Fried, one of its leading proponents and donors. Now nonprofits are scrambling to replace millions in grant commitments from Mr. Bankman-Fried's charitable vehicles, and members of the effective altruism community are asking themselves whether they might have helped burnish his reputation. ''Sam and FTX had a lot of good will -- and some of that good will was the result of association with ideas I have spent my career promoting,'' the philosopher William MacAskill, a founder of the effective altruism movement who has known Mr. Bankman-Fried since the FTX founder was an undergraduate at M.I.T., wrote on Twitter on Friday. ''If that good will laundered fraud, I am ashamed.'' Mr. MacAskill was one of five people from the charitable vehicle known as the FTX Future Fund who jointly announced their resignation on Thursday. In their statement, they said that ''it looks likely that there are many committed grants that the Future Fund will be unable to honor.'' Grant recipients worked on topics including pandemic preparedness and artificial intelligence safety. Mr. MacAskill did not respond to a request for comment for this article. Through a separate nonprofit called Building a Stronger Future, Mr. Bankman-Fried also gave to groups including the news organizations ProPublica, Vox and the Intercept. In a note to staff members on Friday, ProPublica's president, Robin Sparkman, and editor in chief, Stephen Engelberg, wrote that the remaining two-thirds of a $5 million grant for reporting on pandemic preparedness and biothreats were on hold. ''Building a Stronger Future is assessing its finances and, concurrently, talking to other funders about taking on some of its grant portfolio,'' they wrote. In a statement on Sunday, a senior adviser to the foundation, Avi Zenilman, wrote: ''While we don't have information on the immediate future of Building a Stronger Future, it is clear that its scope and structure will need to change. However, the organizations and institutions it funded remain vitally important. We are hopeful that this work will continue in some way.'' ''We are deeply sorry to everyone impacted by this shocking event, including our grantees and partners,'' Mr. Zenilman added. Benjamin Soskis, senior research associate in the Center on Nonprofits and Philanthropy at the Urban Institute, said that the issues raised by Mr. Bankman-Fried's reversal of fortune acted as a ''distorted fun-house mirror of a lot of the problems with contemporary philanthropy,'' in which very young donors control increasingly enormous fortunes. ''They gain legitimation from their status as philanthropists, and there's a huge amount of incentive to allow them to call the shots and gain prominence as long as the money is flowing,'' Mr. Soskis said. Mr. Bankman-Fried's fall from grace may have cost effective-altruist causes billions of dollars in future donations. For a relatively young movement that was already wrestling over its growth and focus, such a high-profile scandal implicating one of the group's most famous proponents represents a significant setback. His connection to the movement in fact predates the vast fortune he won and lost in the cryptocurrency field. Over lunch a decade ago while he was still in college, Mr. Bankman-Fried told Mr. MacAskill, the philosopher, that he wanted to work on animal-welfare issues. Mr. MacAskill suggested the young man could do more good earning large sums of money and donating the bulk of it to good causes instead. Mr. Bankman-Fried went into finance with the stated intention of making a fortune that he could then give away. In an interview with The New York Times last month about effective altruism, Mr. Bankman-Fried said he planned to give away a vast majority of his fortune in the next 10 to 20 years to effective altruist causes. He did not respond to a request for comment for this article. Effective altruism focuses on the question of how individuals can do as much good as possible with the money and time available to them. Historically, the community focused on low-cost medical interventions, such as insecticide-treated bed nets to prevent mosquitoes from giving people malaria. More recently many members of the movement have focused on issues that could have a greater impact on the future, like pandemic prevention and nuclear nonproliferation as well as preventing artificial intelligence from running amok and sending people to distant planets to increase our chances of survival as a species. In a few short years, effective altruism went from a somewhat obscure corner of charity favored by philosophy students and social workers to a leading approach to philanthropy for an increasingly powerful cohort of millennial and Gen-Z givers, including Silicon Valley programmers and hedge fund analysts. The Facebook and Asana co-founder Dustin Moskovitz and his wife, Cari Tuna, have said they are devoting much of their fortune to effective-altruist causes. ''I don't know yet how we'll repair the damage Sam did and harden EA against other bad actors,'' Mr. Moskovitz wrote in a tweet on Saturday. ''But I know that we're going to try, because the stakes remain painfully high.'' As recently as last month, the umbrella FTX Foundation said it had given away $140 million, of which $90 million went through the FTX Future Fund dedicated to long-term causes. It is unclear how much of that money made it to the recipients and how much was earmarked for giving in installments over several years. Asked whether he had set up any kind of endowment for his giving, Mr. Bankman-Fried said in the Times interview last month: ''It's more of a pay-as-we-go thing, and the reason for that, frankly, is I'm not liquid enough for it to make sense to do an endowment right now.'' A significant share of the grants went to groups focused on building the effective altruist movement rather than organizations working directly on its causes. Many of those groups had ties to Mr. Bankman-Fried's own team of advisers. The largest single grant listed on the Future Fund website was $15 million to a group called Longview, which according to its website counts the philosopher Mr. MacAskill and the chief executive of the FTX Foundation, Nick Beckstead, among its own advisers. The second-largest grant, in the amount of $13.9 million, went to the Center for Effective Altruism. Mr. MacAskill was a founder of the center. Both Mr. Beckstead and Mr. MacAskill are on the group's board of trustees, with Mr. MacAskill serving as the chair of the United Kingdom board and Mr. Beckstead as the chair of the U.S. subsidiary. The FTX Foundation itself had little to no oversight beyond Mr. Bankman-Fried's close coterie of collaborators. According to its website, the board of the FTX Foundation comprised Caroline Ellison, the head of Alameda Research, the hedge fund Mr. Bankman-Fried founded; Gary Wang, the chief technology officer of FTX; and Nishad Singh, director of engineering at FTX. https : // www.nytimes.com/2022/11/13/business/ftx-effective-altruism.html Graphic PHOTO: Sam Bankman-Fried, the founder of the FTX crypto exchange, and Gisele Bündchen, its environmental adviser, at a panel on 'effective altruism' in April. (PHOTOGRAPH BY ERIKA P. RODRIGUEZ FOR THE NEW YORK TIMES) (B5) This article appeared in print on page B1, B5. Load-Date: November 14, 2022 End of Document Sony takes a step toward the electric car market with a new subsidiary. The New York Times

### Document 614

-- Diane Greene, whose pursuit of Pentagon contracts for artificial intelligence technology sparked a worker uprising at Google, is stepping down as chief executive of the company's cloud computing business. Ms. Greene said she would stay on as chief executive until January. She will be replaced by Thomas Kurian, who oversaw product development at Oracle until his resignation in October. Ms. Greene will remain a board director at Google's parent company, Alphabet. The change in leadership caps a turbulent three years for Ms. Greene, who was brought on to expand Google's cloud computing business. Google Cloud has struggled to make major inroads in persuading corporate customers to use its computing infrastructure over alternatives like Amazon's A.W.S. and Microsoft's Azure. In a blog post published by the company, Ms. Greene said she had initially told friends and family that she was planning to run Google Cloud for only two years but stayed for three. Ms. Greene, a widely respected technologist and entrepreneur, said that after leaving Google Cloud, she planned to help female founders of companies by investing in and mentoring them. Ms. Greene joined Google in 2015 when it acquired Bebop, a start-up she had founded, for $380 million. She is best known as a co-founder and former chief executive of VMware, whose software for juggling many programs across many computers is widely used in corporate data centers. That kind of ''virtual machine'' software is one of the technologies that make computing clouds efficient and relatively inexpensive. Google said this year that its cloud business was generating more than $1 billion in revenue per quarter -- which is dwarfed by the tens of billions of dollars that Google generates quarterly from selling online advertising. ''When this journey started, some people would say that Google had great technology but they weren't sure that customers would rely on Google as their enterprise partner,'' Ms. Greene wrote in the blog post. Now, no one is ''questioning our seriousness or our abilities.'' Her leadership of Google Cloud came under scrutiny this year when employees protested the company's pursuit of a Defense Department contract for the Maven program, which uses artificial intelligence to interpret video images and could be used to improve the targeting of drone strikes. When reports of the company's involvement in Project Maven spread internally, more than 4,000 employees signed a letter protesting the decision. In March, Ms. Greene defended the decision, saying that it was a small contract worth ''only'' $9 million and that the technology would be used for nonlethal purposes. When that response failed to calm the furor among some employees, Google announced in June that it would not renew that contract with the Pentagon for artificial intelligence work when the current deal expired in 2019. Announcing that decision, Ms. Greene said that Google would not have sought the Maven contract if company officials had anticipated the criticism from employees and that the decision was made when Google was more aggressively going after military work. She found herself in the spotlight again last month when she was one of the last technology and business executives to pull out of speaking at the Future Investment Initiative conference in Saudi Arabia after the slaying of the journalist Jamal Khashoggi was tied to Saudi leadership. In March, Saudi Aramco, Saudi Arabia's state-run oil giant, announced a partnership for ''national cloud services and other technology opportunities'' as part of a push to modernize the kingdom. https : // www.nytimes.com/2018/11/16/technology/diane-greene-google-cloud.html Graphic PHOTO: Diane Greene Load-Date: November 17, 2018 End of Document An Earful of Enlightenment The New York Times

### Document 1137

-- Marc Benioff, the founder and chief executive of Salesforce.com, showed up onstage on Wednesday afternoon at his biggest customer event of the year to talk up his business technology company's products and strategy. But what was arguably the higher-stakes meeting was held later that day. At the plush St. Regis San Francisco Hotel, Mr. Benioff presided over a gathering with Wall Street analysts and investors. His aim: to assuage their concerns about his plan to buy Twitter, the struggling social media company. ''We look at a lot of things,'' Mr. Benioff told the room, without directly mentioning Twitter. ''The number we acquire is very few.'' Still, he said, ''it gives us ideas'' to look at companies. For weeks, the technology world has been buzzing about Mr. Benioff's intentions, after it emerged last month that Salesforce was interested in bidding for Twitter. At first glance, the two companies could not be more different. Twitter is where celebrities, politicians and countless other individuals broadcast their thoughts in 140-character messages. Salesforce, on the other hand, makes online software for salespeople and marketers. Yet Twitter would fit into a vision that Mr. Benioff has had for Salesforce, which he founded in 1999, as a company that can help enterprises with all of their customer needs. Twitter, in Mr. Benioff's eyes, is already a powerful customer service tool that airlines, restaurants, banks and many other companies use to field consumer complaints and requests. Companies can also use what people post on Twitter to glean consumer habits. ''This is a huge messaging and communications service,'' Mr. Benioff, who turned 52 last month, said on Wednesday in an interview on his way to the St. Regis. He added, ''I use mergers and acquisition activity to think about the market.'' Mr. Benioff faces a battery of challenges in buying Twitter. Skeptical investors have pushed Salesforce stock down about 5 percent since news broke that the company was considering bidding for the social media company. Behind the scenes, investors have been grousing about a potential purchase. Any deal would very likely be Salesforce's largest, with Twitter valued at about $14 billion. Salesforce, which is unprofitable, has a market capitalization of about $48 billion. Twitter investors appear dubious, too. The company's stock dropped more than 20 percent on Thursday as speculation about other suitors seemed to dissipate. ''This would be a disaster,'' said Joel Fishbein, managing director at BTIG, a financial services firm. ''Benioff is a visionary, but this could blow up. Engineers could leave Salesforce, and it would send the stock down 30 or 40 percent.'' Mr. Benioff acknowledged that Salesforce would face difficulties in taking over Twitter, given that Salesforce sells software to businesses while Twitter is a consumer technology company. The chief executive, who is an activist in areas like gay rights and gender equality, also said he was troubled by the amount of hate speech on Twitter. But it is not unusual for Mr. Benioff to go against the grain. A San Francisco native, he worked at Oracle, the business software company, for years before founding Salesforce as an online software firm in 1999, when online software was still unproven. Salesforce soon became the largest maker of so-called customer relationship management, or C.R.M., software sold over the cloud, which is used by salespeople and marketers at companies like American Express and General Electric. Salesforce went public in 2004. Along the way, Salesforce became one of the largest employers in San Francisco and Mr. Benioff became one of the city's richest men. He has turned part of his fortune toward philanthropy, donating millions of dollars to a new children's hospital in San Francisco that bears his family's name, as well as pledging money to the city's public schools. ''Marc wants to be well thought of, to feel like he's doing things the right way,'' said Adam Bosworth, a Salesforce executive who left in August to work at Amazon. Mr. Bosworth recalled once disagreeing with Mr. Benioff on a management issue and sending him an email with the subject line, ''You are not being a mensch.'' ''It was the fastest response I ever got from him,'' Mr. Bosworth said. Mr. Benioff has courted attention as Salesforce has grown. San Francisco's tallest building, which is now under construction, is set to have the Salesforce name. The chief executive has publicly crusaded for political causes like gay rights in Indiana, where Salesforce has a big office. He holds mindfulness workshops with Buddhist monks from a group that has been staying at one of his San Francisco mansions for the last year. This week, the streets of his city are jampacked with people attending his company's annual conference. To increase Salesforce's business, Mr. Benioff has been on a buying spree, purchasing companies that can help build up data or capabilities in technologies like artificial intelligence, as well as features that broaden how Salesforce can serve customers. This week, Salesforce said it was buying Krux, a little-known advertising company with over 30 petabytes of information on 3.5 billion devices, in a deal valued at more than $700 million. That followed a $750 million purchase in August of Quip, a maker of real-time collaboration software. Quip co-founder Bret Taylor, a veteran of Google and Facebook, is on the board of Twitter. Much of the data that Salesforce is gaining through acquisitions can help power artificial intelligence, which Mr. Benioff says will soon be everywhere. ''We've bought about a dozen A.I. companies, built whole new teams,'' he said in a recent interview. But the biggest deal was one that got away. Earlier this year, Mr. Benioff tried to acquire LinkedIn, the professional social networking site, which has data about professionals and jobs. Salesforce lost to Microsoft, which is paying $26.2 billion for LinkedIn. Salesforce has since raised concerns over the deal with Europe's antitrust authorities. Without LinkedIn, Mr. Benioff turned his sights to Twitter, which has been trying to figure out how to rev up its growth. Mr. Benioff, who is himself a power user of Twitter, said on Wednesday that while it was essential that Salesforce be in A.I., there was more to Twitter than that. ''It's a huge customer-service platform,'' used by companies like Dell, Apple and Bank of America, he said in the interview on the way to the St. Regis. ''It's not a reason to buy it, but it's a reason to look at it. I'm not saying I'm buying it, but I'm not saying I'm not buying it.'' Later, at the investor meeting where analysts shied from mentioning the name Twitter, Mr. Benioff tried to explain where he was coming from. ''I see things in a different kind of way,'' he told them. ''I hope someday to sit down and say how I think about that which shall not be named.'' Eventually, though, Mr. Benioff could not resist a more direct reference to Twitter's chief executive, Jack Dorsey. ''I wish Jack well with his company,'' Mr. Benioff said at the end of the investor meeting. http : // www.nytimes.com/2016/10/07/technology/twitters-fate-marc-benioff-of-salesforce-addresses-acquisition-talk.html Graphic PHOTOS: Marc Benioff worked at Oracle before starting Salesforce in 1999, when online software was still unproven. (PHOTOGRAPH BY JEFF MINTON) (B1) Adam Bosworth, above, a former Salesforce executive, says Marc Benioff wants to ''feel like he's doing things the right way.'' (PHOTOGRAPH BY JASON HENRY FOR THE NEW YORK TIMES) (B5) Load-Date: October 7, 2016 End of Document Drone Maker DJI Adds Technology to Limit Where Its Machines Can Fly The New York Times Blogs (Bits)

### Document 1022

For five and a half years, nearly the entire tenure of its chief executive, Virginia M. Rometty, IBM has reported a steady erosion of revenue. Selling off its chip manufacturing and smaller data-center computer businesses contributed to the decline. So, too, did the fact that new businesses like cloud computing, data analytics and artificial intelligence had not yet grown big enough to make up for the downturn in IBM’s traditional hardware and software products. But IBM’s half-decade losing streak will most likely end on Thursday, analysts predict, when the company reports its quarterly performance. The crossover to growth would be a long-awaited bright spot for Ms. Rometty and IBM, a challenged giant that has been overshadowed in recent years by the younger technology giants on the West Coast. Even if IBM delivers a revenue gain, however, the bigger question facing the company remains: Has Ms. Rometty turned it around? Skeptics abound. IBM is expected to have gotten an extra lift in the most recent quarter from currency gains and strong sales of a new line of mainframe computers. Without that help, the company’s revenue would decline by 2 percent or so, according to an estimate from A. M. Sacconaghi, a financial analyst for Sanford C. Bernstein. “Is a turnaround afoot? I don’t see it yet,” Mr. Sacconaghi said. There is no doubt, though, that there are signs of progress at IBM, which would not comment on its financial picture before the release of the earning report. So much attention is focused on the company’s top line because revenue is the broadest measure of the headway IBM is making in a difficult transformation toward cloud computing, data handling and A.I. offerings for corporate customers. The new businesses — “strategic imperatives,” IBM calls them — now account for 45 percent of the company’s revenue. And though it still has a ways to go, IBM has steadily built up those operations — and gained converts. The number of software developers using its cloud technology has doubled in the last year, IBM says, though it would not provide numbers. On Wednesday, Barclays upgraded IBM’s stock to a buy and noted its long-term opportunity in the cloud market. IBM’s stock price, a notable laggard as markets have surged in recent years, has climbed nearly 10 percent so far this year. IBM was slow to recognize the significance of cloud computing and software tools delivered as Internet-style services. In artificial intelligence, the company scored a research and public relations triumph in 2011, when its Watson system defeated human champions in the question-and-answer game, “Jeopardy!” But IBM first applied the Watson technology to the daunting realm of cancer research, a lengthy struggle with little short-term financial reward. Today, IBM trails well behind Amazon Web Services and Microsoft in the cloud market, according to analysts. Yet IBM has invested heavily in more than 60 cloud data centers in 19 countries in the past three years. And the most recent analysis by IDC, a technology research firm, and a report last month by Jefferies, a Wall Street firm, ranked IBM third in the category, ahead of Google. The Watson technology has been retooled as dozens of different services including text understanding, language translation, image recognition and sentiment analysis — all delivered via the cloud and available à la carte. IBM’s strategy is to offer businesses cloud computing, A.I. technology and industry expertise tailored for each customer. Big companies, said David Kenny, senior vice president for IBM’s Watson and cloud businesses, are adapting cloud and A.I. technology to make their businesses faster and smarter. “We start from our strength in knowing how enterprises operate,” Mr. Kenny said. “We’re a trusted partner for companies in this data and A.I. wave.” Companies want to move quickly, Mr. Kenny said, but they often want to exploit the speed and flexibility of cloud technology from within their own computer centers, where they figure their vital business data is more secure. AT&T began a project with IBM last fall to accelerate the use of cloud technology in developing and updating the telecommunications giant’s 2,200 in-house software applications. IBM — a longtime technology supplier to AT&T — was chosen both for its cloud expertise and its industry knowledge, said Sorabh Saxena, AT&T’s president of business operations. The AT&T-IBM collaboration involves breaking down programs into cloud-based building blocks of code called microservices, each of which handles a certain task. So a new feature for mobile payments, for example, can be adopted quickly by updating a few lines of code rather than having to rewrite an entire program. Most of this business software uses cloud technology that runs inside AT&T data centers — in a so-called private cloud, in contrast to a public cloud in which computing services are delivered from remote data centers owned by another company. Many corporations opt for private clouds to house their most sensitive customer and business data. “For certain parts of our business, IBM was the ideal partner,” Mr. Saxena said. IBM emphasizes its hybrid stance in the cloud market, offering both private and public cloud technology to its corporate clients. In its financial reporting, IBM also includes all the hardware, software and services it sells to companies to build private clouds in its total cloud revenue, which would put it on a par with Amazon. Most industry analysts focus on the public cloud market, assuming it will grow faster as companies build fewer data centers themselves. In the public cloud market, IBM has revenue of about $2 billion a year, growing at 30 percent, according to the most recent estimate by IDC. By contrast, Amazon generates more than $12 billion a year and Microsoft about $6.5 billion. Yet for IBM, its underlying cloud software is crucial to building a big A.I. business with Watson. “IBM has a strong set of assets in A.I.,” said Ed Anderson, an analyst at Gartner. “And cloud is the answer to getting Watson in the hands of developers.” That was the appeal for Opentopic, a start-up that uses A.I. technology to mine online and corporate data for marketing insights. Opentopic switched from Amazon Web Services to the IBM cloud in 2015, largely to tap Watson’s code modules for text, image and sentiment analysis, so the Opentopic developers had to write less code themselves. “It allows us to prototype rapidly,” said Andre Konig, a co-founder of Opentopic. “And Watson is the artificial intelligence layer that makes that possible.” The start-up’s clients include Unilever, Abbott Laboratories and The Economist. Today, Opentopic does all its software development on the IBM cloud, but that will most likely change soon. It is working with a new company that runs its business on the Amazon cloud. “We need to be where our customers are,” Mr. Konig said. “The future is going to be multi-cloud,” meaning businesses will use various services. His comment points to a brewing issue for IBM — and perhaps one that will help determine the resilience of Ms. Rometty’s turnaround campaign. IBM is putting all its advanced technology on the cloud — not just artificial intelligence, but also blockchain and quantum computing. If others are leaders in the underlying cloud layers, why not focus higher up and distribute its leading-edge technology on other clouds as well? IBM says its Watson software, for example, is fine-tuned down to the chip level for the IBM cloud. But some analysts suggest that IBM may eventually take another path, working with Amazon, Microsoft and Google. “If IBM does that,” said Frank Gens, IDC’s chief analyst, “its chance of being a cloud leader goes way up.” Follow Steve Lohr @SteveLohr PHOTOS: An IBM Watson, the company’s A.I. technology, displayed at the International CES electronics trade show this month. (PHOTOGRAPH BY DAVID MCNEW/AGENCE FRANCE-PRESSE — GETTY IMAGES) (B1); David Kenny, senior vice president for cloud and Watson. “We’re a trusted partner for companies in this data and A.I. wave,” he said. (PHOTOGRAPH BY SCOTT McINTYRE FOR THE NEW YORK TIMES) (B2) Related Articles The Promise of Artificial Intelligence Unfolds in Small Steps While You Were Sleeping IBM Poised for Growth, Chief Says Load-Date: January 19, 2018 End of Document How to Take Back Control From Facebook The New York Times

### Document 400

The company abandoned work on an earlier military program after employees revolted. Google executives told employees last week in a companywide meeting that it is interested in a Pentagon contract for cloud computing and that working for the military would not necessarily conflict with principles created by the company for how its artificial intelligence technology would be used. Google is pursuing the contract three years after an employee revolt forced the company to abandon work on a Pentagon program that used artificial intelligence and to establish new guidelines against using A.I. for weapons or surveillance. The pursuit potentially sets up another clash between company leaders and employees. Google's cloud unit prioritized preparation for a bid on a Pentagon contract, The New York Times revealed this month, pulling engineers off other projects to focus on creating a winning proposal. The rush to pursue the contract is a dramatic shift for Google, which said in 2018 that it would not bid on a major cloud computing contract with the Defense Department, known as the Joint Enterprise Defense Infrastructure, or JEDI, because the work would conflict with its A.I. principles. The JEDI cloud computing contract was estimated to be worth $10 billion over 10 years, and was awarded to Microsoft in 2019. But facing legal challenges from Amazon, the Pentagon scrapped the contract in July and announced a new plan to purchase cloud computing technology. The new version of the contract, known as the Joint Warfighting Cloud Capability, will split the work between multiple companies. The segmented nature of the contract allows Google to work on parts of the Pentagon cloud without violating its ban on weapons, Google executives told employees in the videoconference meeting on Thursday, a recording of which was obtained by The Times. The exact scope of the work is still unclear because the government has not submitted a formal request for proposal. While it has not been invited to bid, Google has said it is interested. In a blog post published the same day as the meeting, Thomas Kurian, who oversees the company's cloud unit, wrote: ''If we are invited to be part of the J.W.C.C. contract, we will absolutely bid.'' At the meeting, Mr. Kurian said there are many areas where Google's capabilities and expertise can be applied ''with no conflict to Google's A.I. principles.'' ''We have governance processes that provide guidance and oversight into what A.I. products we will offer and what custom A.I. projects we will and we will not pursue, and we will follow those governance processes,'' he said. Mr. Kurian's remarks, which were reported earlier by CNBC, were made in response to a question from an employee about Google's interest in the Pentagon contract and The Times's reporting on it. ''We understand that not every Googler will agree with this decision, but we believe Google Cloud should seek to serve the government where it is capable of doing so and where the work meets Google's A.I. principles and our company's values,'' Mr. Kurian said. Google's chief executive, Sundar Pichai, echoed his remarks. ''I think we are strongly committed to working with the government in a way that's consistent with our A.I. principles,'' Mr. Pichai said. A spokesman for Google declined to comment. https : // www.nytimes.com/2021/11/15/technology/google-ai-pentagon.html Graphic PHOTO: Google's C.E.O., Sundar Pichai, said the work would be done ''in a way that's consistent with our A.I. principles.'' Load-Date: November 17, 2021 End of Document There Went the Neighborhood The New York Times

### Document 928

Google Chief ApologizesFor A.I. Researcher's Exit Sundar Pichai, chief executive of Google's parent company Alphabet, apologized for the departure of a prominent artificial intelligence researcher, whose exit has roiled the company's work force and raised questions about its stated commitment to diversity and the responsible development of A.I. technology. In an email to employees on Wednesday, Mr. Pichai, however, stopped short of saying that the company was wrong in how it hastened the resignation of Timnit Gebru, who was a co-leader of Google's Ethical A.I. team and one of its best-known Black female employees. Dr. Gebru said last week that the company fired her after she sent an email that criticized the company's lack of progress in hiring women and minorities as well as biases built into its artificial intelligence technology. She said that she had demanded an explanation for why the company had told her to retract a paper that pinpointed flaws in a new breed of language technology, including a system built by Google that underpins the company's search engine. She said that short of a transparent explanation or further discussion that she would resign after an appropriate amount of time. The company immediately accepted her statement as a resignation. Colleagues have rallied to Dr. Gebru's defense, saying that Google did not treat her fairly and that this incident was an example of how Black employees are often mistreated at the company. On Twitter, Dr. Gebru said Mr. Pichai's email was not a true apology. ''I see this as 'I'm sorry for how it played out but I'm not sorry for what we did to her yet.''' The parting with Dr. Gebru is especially fraught for Google, because it involves two thorny subjects: a lack of diversity in its work force and concerns about the risks of artificial intelligence technology. DAISUKE WAKABAYASHI ENTERTAINMENT Twitch Cracks DownOn Hate and Harassment Twitch, the livestreaming platform popular among video game players, unveiled new guidelines on Wednesday aimed at cracking down on hateful conduct and sexual harassment on its site. The site, owned by Amazon, said it had broadened its definition of sexual harassment and created a new category for them. Under the new guidelines, Twitch will ban lewd or repeated comments about anyone's physical appearance and expressly prohibit the sending of unsolicited links to nudity. The company also said it would prohibit streamers from displaying the Confederate battle flag and take stricter action against those who target someone's immigration status. Violators could receive warnings, temporary suspensions or permanent bans. Twitch said the changes, which take effect in January, were its most significant policy updates in almost three years. They followed a nearly yearlong review that included consultations with streamers and academics who study cyberbullying, diversity and inclusion, the company said. ''We need to ensure that anyone who shows up on Twitch feels safe and confident that they can broadcast without harassment,'' Sara Clemens, Twitch's chief operating officer, said in an interview. For years, Twitch has been dogged by claims that viewers could easily harass streamers with sexually explicit comments and threatening messages. KELLEN BROWNING https : // www.nytimes.com/2020/12/09/business/10bizdigest.html Graphic PHOTO (PHOTOGRAPH BY MIKE BLAKE/REUTERS) Load-Date: December 10, 2020 End of Document The Most Amazing — and Dangerous — Technology in the World The New York Times

### Document 466

-- Two Google employees, Claire Stapleton and Meredith Whittaker, helped organize a 20,000-person walkout from the company last November. Now they say they have paid a price for their actions. In a letter shared internally with co-workers on Monday and reviewed by The New York Times, Ms. Stapleton, a marketing manager at YouTube, said Google had demoted her after she urged colleagues to walk out from the company last year over its treatment of sexual harassment. Ms. Whittaker, an artificial intelligence researcher, said in the letter that she had also been ''informed my role would be changed dramatically.'' In addition to the demotion, Ms. Stapleton said, Google instructed her to take medical leave even though she was not sick, according to the letter. And Ms. Whittaker said she had been told to abandon her external work at New York University, where she runs research on artificial intelligence and ethics for the university's A.I. Now Institute. Ms. Stapleton said she had hired a lawyer and reversed the demotion. Ms. Whittaker did not address whether her role had ultimately changed. ''Only after I hired a lawyer and had her contact Google did management conduct an investigation and walked back my demotion, at least on paper,'' Ms. Stapleton wrote in the letter. ''While my work has been restored, the environment remains hostile and I consider quitting nearly every day.'' ''We prohibit retaliation in the workplace, and investigate all allegations,'' a Google spokeswoman said. ''Employees and teams are regularly and commonly given new assignments, or reorganized, to keep pace with evolving business needs. There has been no retaliation here.'' The letter was earlier reported by Wired. In October, The Times reported that Google had provided a $90 million exit package to Andy Rubin, the creator of the Android mobile operating system, after an accusation of sexual harassment against him was found to be credible. The lavish payment after the misconduct outraged Google's employees. The company's top executives later apologized and revealed they had fired 48 people for sexual harassment over the past two years, with none receiving an exit package. But the apologies did not calm employees' disquiet. Ms. Stapleton and Ms. Whittaker, along with other colleagues, called for employees to walk out of the company for a day in protest. At the time, Ms. Stapleton said in an interview that The Times article had ''turned the lights on on the bias, discrimination and systemic inequality women and other groups experience very viscerally at Google.'' On Nov. 1, about 20,000 Google employees left work in locations across the world, including Berlin, Chicago, London, Seattle, Singapore, Zurich and Hyderabad, India, as well as the company's headquarters in Mountain View, Calif. Some carried signs that said, ''O.K. Google, really?'' and chanted: ''Stand up! Fight back!'' Some of the employees talked publicly about how they also faced sexual harassment at work. Afterward, Google said it would end its practice of forced arbitration for claims of sexual harassment. More than 300 other employees have shared stories of retaliation since the walkout, Ms. Stapleton and Ms. Whittaker wrote in their letter. They said they planned to share their stories of retaliation at a company meeting on Friday. ''I think it's pretty straightforward,'' said Amr Gaber, a software engineer at Google who helped organize the walkout. ''Google has never treated them this way, and then the walkout happened. Now they're having to deal with being told their work is no longer valuable.'' The meeting on Friday will allow others to speak up about their experiences, Mr. Gaber said. ''If we can't fight fear, then people aren't going to speak up and we're not going to listen to the voices that need to be heard,'' he said. Interested in All Things Tech? Get the Bits newsletter for the latest from Silicon Valley and the technology industry. And sign up for the personal technology newsletter for advice and tips on the technology changing how you live. https : // www.nytimes.com/2019/04/22/technology/google-walkout-employees-retaliation.html Load-Date: April 23, 2019 End of Document Kaartiga Sivanesan, Rajiv Menjoge The New York Times

### Document 216

Microsoft is giving Windows a demotion, and leaning into the cloud. CEO Satya Nadella told employees on Thursday that Terry Myerson, leader of the Windows and Devices Group, is leaving the company. "Microsoft has been my work, my team, and my purpose for 21 years," Myerson wrote in a LinkedIn blog post. "It is an emotional day." His departure had been planned for "some time," Myerson added. The shakeup includes the formation of two new engineering teams that will prioritize Microsoft's cloud and artificial intelligence products - a move that should make investors happy, said Brad Reback, a software analyst at Stifel. Morgan Stanley said recently that Microsoft could hit $1 trillion in market value within a year, thanks in large part to the strengths of Azure, Microsoft's cloud computing service, and the cloud-based Office 365 software suite. Thursday's announcement "further demonstrates that those are the growth engines going forward," Reback said. And it aligns with Microsoft's long-term priorities. "Microsoft has actually been moving away from Windows and more towards the cloud, analytics and AI for the past ten years," explained Laura DiDio, an analyst at ITIC. "This did not happen overnight." So far, the company's investment in the cloud, artificial intelligence and the Internet of Things has paid off. Amy Hood, Microsoft's chief financial officer, said in January that the company's commercial cloud revenue grew 56% year-over-year. In that quarter, Windows commercial products and cloud services sales fell 4%. It's not unusual for Microsoft to blow up its organizational structure. In 2015, Nadella ousted three key executives, including the former Nokia CEO. That was just a year after Nadella replaced Steve Ballmer as CEO. DiDio pointed out that Nadella has made major changes quickly during his tenure. "That's the way you have to move," to stay relevant, she said. "You've got to be agile to stay ahead of the game." The changes don't mean that Microsoft is totally giving up on Windows, DiDio said. But they do mean that Nadella is focusing the company's energies around stronger assets. "They're de-emphasizing Windows," she said, in order to become a stronger "player in cloud and artificial intelligence, because that's where the money is." TM & © 2018 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: March 30, 2018 End of Document Dozens of young women in South Korea were allegedly forced into sexual slavery on an encrypted messaging app CNN Wire

## Topic 10

### Document 1173

painful recession was fading into memory, yet the expansion felt unsatisfying to many. There was evidence of huge technological leaps everywhere except in the data on worker productivity. And the unemployment rate was falling to levels that forecasting models predicted would trigger a burst of inflation. That was the economic situation in the mid-1990s, and it also describes 2018. An intriguing — and optimistic — possibility for the years ahead is that the parallels with the 1990s won’t end there. Back then, technological advances that had been building for years finally started to translate into higher rates of productivity growth economywide. Some feared inflation, but Alan Greenspan, the Federal Reserve chairman, decided not to move pre-emptively to choke off the expansion. Instead, he advocated patience to see just how hot the economy could get without setting off a spiral of rising prices. The result was the strongest period of growth and prosperity in recent decades. History, of course, may not repeat itself. The mix of technological advances and sound economic policy that generated the 1990s boom simply may not materialize this time. Plenty of threats could send this expansion hurtling toward recession instead. A trade war or emerging markets crisis or economic policy mistake could prove more powerful than economic fundamentals. And some of the technological advances that seem on the verge of fueling a productivity boom may take longer to develop than their enthusiasts assert. But it’s clear that some senior economic policymakers are at least open to the possibility of a boom. In a speech last month, the Federal Reserve chairman, Jerome Powell, discussed the 1990s experience in detail, suggesting that Mr. Greenspan’s strategy at that time was one to emulate. In 1996, many Fed policymakers wanted to raise interest rates to head off the risk of inflation. “But Chairman Greenspan had a hunch that the United States was experiencing the wonders of a ‘new economy’ in which improved productivity growth would allow faster output growth and lower unemployment, without serious inflation risks,” Mr. Powell said. “Meeting after meeting,” he added, the Fed’s policy committee “held off on rate increases while believing that signs of rising inflation would soon appear. And meeting after meeting, inflation gradually declined.” Mr. Powell wasn’t forecasting that the same would happen in coming years; rather, he was preaching the virtues of Mr. Greenspan’s strategy of risk management that allowed the boom to emerge. The expansion of the last nine years has been steady and successful at putting millions of people to work, but it has fallen short in overall growth or in generating substantial boosts to incomes. The culprit: productivity. The amount of output per hour of labor has been growing slowly. In the last five years, it has risen about 1 percent annually, compared with 2.1 percent on average since 1947. If that changes, and businesses find ways to get more production of goods and services out of each hour of work, it should set the stage for higher wages and faster growth. That’s what happened in the 1990s: Annual productivity rose an average of 1.8 percent from 1991 to 1995, then leapt to a 3 percent annual rate from 1996 to 2000. What are the chances of a similar jump in the coming years, with similar beneficial results? Economists don’t have a great understanding of what drives productivity advances, but there are three realistic possibilities of where gains might come from — and they aren’t mutually exclusive. Solow’s Paradox and Technological Diffusion In 1987, the economist Robert Solow joked that “you can see the computer age everywhere but in the productivity statistics.” That is, even as there were remarkable advances in semiconductors, software and desktop computing, it wasn’t evident in any efficiency improvements in the overall economy. The surge didn’t arrive until well into the 1990s, and that pattern — a long lag between a technological innovation and its full economic impact — makes sense when you think about it. For example, fewer corporate executives have a full-time secretary now than they did in the 1980s, in part because of innovations like voice mail, email and desktop word processors. But it’s not as if companies suddenly fired a bunch of secretaries on the day they got a voice-mail system. It was a gradual process as more people became accustomed to answering their own phones and typing their own memos. Just because some high-performing companies have started using a productivity-enhancing technology doesn’t mean it has spread throughout the business world. By the early 1990s, Walmart became efficient in using computers to manage its supply chain — at a time many retailers were still using old-school cash registers. It would be years before the bulk of the industry caught up. The Walmart catch-up effect was a major part of the late 1990s overall productivity surge, according to research from the McKinsey Global Institute. Moreover, sometimes big innovations can actually make the economy less productive while they are being introduced. An automobile factory that’s installing a robotic assembly line might employ many robotics engineers, but also autoworkers still making cars the old way. Even if the innovation eventually results in higher productivity, the company might need more person-hours of work per car produced in the short run. What are the potential parallels in 2018? Technological optimists have argued for years that artificial intelligence, machine learning, advanced robotics, augmented reality and other areas offer huge potential efficiency gains. As in Solow’s Paradox from an earlier era, there’s no evidence yet in the economic data, but perhaps that will change, as it did with an earlier generation of advances. That’s exactly what McKinsey consultants found in research published in June. One day driverless cars may be a boon for productivity — but right now they are a drag on it as thousands of skilled engineers work to develop the technology without generating a dime of economic output. Similarly, farms may eventually increase their yield with artificial intelligence that allows them to automate the pulling of weeds and the application of fertilizer. Electrical utilities may be able to become more efficient using smart grids. Hospitals may be able to deliver better care for less money when computers help diagnose patients. Will technologies like those be ready for prime time soon, or ever? That’s the part we don’t know for sure. But there are other forces that will more clearly affect the productivity outlook in the next few years. Tax Cuts and a Capital Spending Surge At the root of conservative economic philosophy is that low taxes on capital, along with light regulation, will encourage businesses to invest more heavily, resulting in a more productive economy in the long run. The next few years will be a test of that proposition. The corporate income tax rate was cut to 21 percent at the start of the year, from 35 percent. The Trump administration’s deregulation-minded appointees have had a year and a half to go about their work. Oh, and the stock market is booming, and interest rates remain low by historical standards, implying companies should have plenty of access to capital on favorable terms if they want to make those investments. In short, this should be a conducive environment for businesses to increase their “capital stock” — the accumulated facilities, equipment, software and other intangible investments — to enable workers to be more productive. Is this investment actually happening? The evidence isn’t definitive at this point. Business investment rose at an 11.5 percent rate in the first quarter of 2018 and 8.5 percent in the second quarter, both substantially faster than the economy as a whole. But that was fueled in part by a boom in energy exploration that was probably more tied to the rise in oil prices in 2017 than tax policy. The nascent trade war may create a layer of uncertainty for businesses that have major customer bases overseas as they weigh big-ticket investments, working at cross-purposes with the stated goal of the tax legislation. But the verdict on whether pro-business policy out of Washington will drive a surge in investment spending, with big benefits for productivity, will depend on more than a couple of quarters, and remains a real possibility. The Tight Labor Market Finally, the tight labor market could force businesses to find more efficient ways to deploy workers. With the unemployment rate at 3.9 percent, near a several-decade low, companies in a range of industries have been complaining about the difficulty of finding qualified labor. This shows up in headlines about trucker shortages, construction worker shortages and oil field worker shortages. It may eventually show up in faster growth in wages, no matter what happens to technological advances or business investment. But one distinct possibility is that it will force businesses to act more creatively and aggressively about squeezing more economic output from each hour of labor. Companies could invest more heavily in new capital — think of automated checkout kiosks at retail stores or restaurants. Or companies could provide extra training so that each worker can get more done. It could also happen through experimentation with new management techniques or other business practices; these would show up in what economists call “total factor productivity.” This isn’t the traditional way economists think about productivity, but we see it in other contexts. When the minimum wage is raised, companies sometimes try to replace human labor with machines or focus on making their workers more productive. The ultralow unemployment may have the same effect in the years ahead. There is, for good reason, a tendency to focus on the risks of what can go wrong in the economy. The current expansion could become the longest on record next year, which makes the recession risk talk all the more relevant. But the 1990s are a reminder that there can be good economic surprises as well as bad ones. Predicting the future is hard. And the parallels aren’t perfect. But there’s reason to wonder if economic history just might repeat itself. PHOTO: Before the boom: Treasury Secretary Robert Rubin and the Fed chairman Alan Greenspan in 1995. (PHOTOGRAPH BY Stephen Crowley/The New York Times FOR THE NEW YORK TIMES) Load-Date: September 11, 2018 End of Document Barack Obama's Favorite Book of 2018 Was 'Becoming.' Here's What Else He Liked. The New York Times

### Document 648

— When Zbynek Frolik needed new employees to handle surging orders at his cavernous factories in central Bohemia, he fanned advertisements across the Czech Republic. But in a prosperous economy where nearly everyone had work, there were few takers. Raising wages didn’t help. Nor did offers to subsidize housing. So he turned to the robots. “We can’t find enough humans,” said Mr. Frolik, whose company, Linet, makes state-of-the art hospital beds sold in over 100 countries. “We’re trying to replace people with machines wherever we can.” Such talk usually conjures visions of a future where employees are no longer needed. In many major economies, companies are experimenting with replacing factory workers, truck drivers and even lawyers with artificial intelligence, raising the specter of a mass displacement of jobs. But in Eastern Europe, robots are being enlisted as the solution for a shortage of workers. Often they are helping to create new types of jobs as businesses in the Czech Republic, Hungary, Slovakia and Poland try to stay agile and competitive. Growth in these countries, which became low-cost manufacturing hubs for Europe after the fall of Communism, has averaged 5 percent in recent years, buoyed by the global recovery. Few are riding higher than the Czech Republic, where plants roll out cars for the likes of Toyota and consumer electronics for Dell, while smaller companies produce specialty goods to sell around the world. A roaring economy has slashed the jobless rate to just 2.4 percent, the lowest in the European Union. The dearth of manpower, however, has limited the ability of Czech companies to expand. Nearly a third of them have started to turn away orders, according to the Czech Confederation of Industry, a trade group. “It’s becoming a brake on growth,” said Jaroslav Hanak, the organization’s president. “If businesses don’t increase robotization and artificial intelligence, they’ll disappear.” Eastern Europe’s factories are already well automated. New robot installations in the Czech Republic rose 40 percent between 2010 and 2015, according to the International Federation of Robotics. Today there are around 101 robots for every 10,000 workers. And more machines are coming as companies try to improve productivity, tilting them toward levels in countries like Germany, which averages 309 robots per 10,000 workers, the most in Europe. At Elko EP, which makes industrial timers for companies like General Electric, 70 percent of production is automated, and the company is aiming to be almost fully robotized in a few years. In a sleek white corner of the factory, robots have taken over routine manufacturing tasks. Jiri Konecny, the company’s chief executive, moved factory floor workers to more complex roles, and focused hundreds of other employees on research and development. “If we didn’t invest early in automation, we’d be dead by now,” he said. For the Czech Republic and its neighbors, the calculus is one of survival. A new generation of robots is needed not just to confront the labor squeeze, but also to increase flexibility and output as consumers demand a wider range of products. On a recent afternoon in Brno, the nation’s second-largest city, hundreds of suppliers showed off articulated robots, robotic sensors and other wares in a hall as big as an airport at Amper, an automation convention. Buyers crowded around “smart” machines that tested car headlights or interacted with humans in shared work spaces. Many are doing brisk business as companies around Eastern Europe accelerate an automation drive. At Rittal, a maker of switch gears and control cabinets for industrial robots, orders rose 15 percent last year and have jumped 25 percent since January. “Companies aren’t able to produce more, so their competitiveness is falling,” said Jaromir Zeleny, Rittal’s managing director. “They don’t want to be so dependent on people.” Cost is another factor. Eastern Europe became a manufacturing powerhouse by luring multinationals with low wages. That advantage is ebbing, though. Average monthly pay in the Czech Republic rose 8 percent last year to about 1,160 euros, or about $1,400. Although one-third the average in Germany, it is expected to keep climbing. Businesses say letting in more foreign workers would help. But the conservative government has pledged to limit immigration, and recently set strict caps on foreign work visas. There are longer-term trends at play, as well. Families aren’t having children fast enough to replace people heading into retirement. Automation, one argument goes, could compensate. Skoda, the nation’s biggest automaker, said last month that it would “significantly accelerate” automation to face demographic changes and wage pressures. “A labor shortage will continue for years,” said Bohdan Dovhanic, a Prague-based business director at Schneider Electric, a French industrial company. “We must be prepared to find more human employees, or find a way to substitute for them.” Whether robots will help or threaten human livelihood has sparked a fierce debate in a country that coined the term. The word “robot,” derived from the Slavonic term “rabota,” meaning arduous work, first appeared in a 1920 Czech play about machines created to perform repetitive factory tasks. The robots cooperate at first, but eventually take over. The risk, critics say, is that when future recessions hit, workers will suffer. “You won’t switch off the robots and bring back people,” said Michal Pechoucek, head of the Artificial Intelligence Center at the Czech Technical University in Prague. Czech unions echo those warnings. “Unless business leaders, politicians and trade unions react well in advance and responsibly to the upcoming industrial revolution,” said Josef Stredula, president of the Czech-Moravian Confederation of Trade Unions, “even more jobs may be under threat.” For now, companies here insist that robotization will create new work. At Linet, the hospital bed manufacturer, most welding, cutting, painting and molding functions were automated a decade ago. Thirty industrial robots do the work of up to 200 people. But that doesn’t offset the need for humans, who program machines and perform complex custom work on the assembly line that robots can’t do. Like other employers, Mr. Frolik was caught off guard when joblessness fell swiftly. Virtually every part of the Czech economy has been affected. In the industrial countryside north of the capital where his factories are, unemployment is below 2 percent. And in Prague, even the trams have run less frequently this year for want of drivers. Mr. Frolik started Linet after the Czech Republic’s 1989 Velvet Revolution with a $10,000 investment in an old cow barn. Today, Linet is one of the world’s biggest hospital bed makers, with 900 employees making 500 beds a day. Its devices monitor and collect data on patient health, and can cost as much as a BMW. A Linet bed, Mr. Frolik said with a chuckle, even appeared in an episode of the Netflix show “House of Cards” in which Kevin Spacey’s character, President Frank Underwood, was recovering from an assassination attempt. To keep up with a surge in orders driven by the global recovery, he needs more people. He raised wages 12 percent last year and tried to poach employees from other factories, but it wasn’t enough, and he didn’t have the production capacity to bid on major government contracts. “We could be growing much more,” Mr. Frolik said. So he put in an €8 million order last month for superfast robotic lasers and plastic molding machines to replace older models. The new devices will let him move six workers to the custom assembly line. But with other Czech companies also scrambling to upgrade, he’ll have to wait for delivery of the machines. Mr. Frolik stopped before a hulking industrial laser that would eventually be replaced by a faster, smarter machine. The two employees operating it would be educated for other work at the factory inside the old cow barn, which has been converted into a training center. “We’ll still need people,” Mr. Frolik said. “But robots are more reliable.” PHOTO: At Linet, most welding, cutting, painting and molding functions were automated a decade ago. Thirty industrial robots do the work of up to 200 people. But that doesn’t offset the need for humans. (PHOTOGRAPH BY Milan Bures for The New York Times FOR THE NEW YORK TIMES) Load-Date: October 9, 2018 End of Document What Scientific Mysteries Do You Want Solved?; Student Opinion The New York Times

### Document 129

Bank tellers are out and robotics engineers are in, according to a new report that says the coronavirus recession is accelerating technological changes that could displace 85 million jobs within the next five years. "Automation, in tandem with the Covid-19 recession, is creating a 'double disruption' scenario for workers," said the report published Wednesday in Switzerland by the World Economic Forum, which warns that inequality is likely to increase unless displaced workers can be retrained to enter new professions. More than two-fifths of large companies surveyed by the WEF plan to reduce their workforces due to the integration of technology. "For the first time in recent years, job creation is starting to lag behind job destruction --- and this factor is poised to affect disadvantaged workers with particular ferocity," the WEF said in its report. The coronavirus pandemic has caused a sharp spike in unemployment around the world. Several major economies in Europe and elsewhere have extended support for wages in order to offset the alarming rise in joblessness. Unemployment in the United States, meanwhile, continues to march higher while lawmakers quarrel over new stimulus measures. "As unemployment figures rise, it is of increasing urgency to expand social protection including support for retraining to displaced and at-risk workers as they navigate the paths... towards the 'jobs of tomorrow,'" the WEF report said. The pandemic risks deepening existing inequalities because industries that have been hardest hit, including travel and tourism, hospitality and retail, tend to have younger, and lower-wage workers who are disproportionately female. The World Bank has warned that the pandemic could increase income inequality and push up to 115 million people into extreme poverty this year. The 'jobs of tomorrow' The pandemic has accelerated technology adoption by businesses and consumers, turbocharging demand for cloud computing and e-commerce services, while squeezing companies that can't serve their customers online. Workers unable to work from home, either because their jobs require face-to-face interaction or because they have limited internet access, have also been severely disadvantaged. "Efforts to support those affected by the current crisis lag behind the speed of disruption," WEF founder Klaus Schwab and board member Saadia Zahidi said in the preface to the report. "We find ourselves at a defining moment: the decisions and choices we make today will determine the course of entire generations' lives and livelihoods," they added. According to the WEF report, a shift in the division of labor between humans and machines could displace an estimated 85 million jobs by 2025, while giving rise to 97 million new roles. Jobs set to be increasingly redundant include administrative assistants, bookkeepers and payroll clerks, while positions in growing demand include those in the green economy, roles at the forefront of data and artificial intelligence, as well as new jobs in engineering, cloud computing and product development. An expected increase in jobs in marketing, sales and content production, as well as roles requiring an aptitude for working with people from different backgrounds "showcase the continuing importance of human interaction in the new economy," the report added. Some workers whose jobs are vulnerable may be able to move into new careers, according to the report, which found that 94% of businesses surveyed expect employees to pick up new skills on the job, a sharp increase from 65% in 2018. An analysis by LinkedIn's data science team conducted for the WEF showed that many professionals who have moved into "emerging roles" in the new economy over the past five years came from entirely different occupations, which in some cases did not share similar skills. For example, half of those who transitioned into data science and artificial intelligence (AI) professions were from unrelated industries. That figure climbs to 67% in engineering roles, 72% in content roles and 75% in sales. Transitions into data and AI allow for the largest variation in skills profiles, the LinkedIn study shows, finding that half of those who moved into these roles had skills with low similarity. Skills in high demand Critical thinking, analysis and problem solving remain among the top skills that the world's largest companies see as rising in importance over the next five years. New skills the companies highlighted that speak to how the pandemic has disrupted daily life include stress tolerance, resilience and flexibility. Companies are increasingly investing in retraining existing employees. The report projects that half of workers who remain in their roles will need to learn new skills to perform their jobs effectively in an increasingly automated world. The WEF report cites a study by online education provider Coursera, which found that between April and June there was a five-fold increase in employer provision of online learning opportunities and a four-fold increase in individuals seeking out opportunities for learning online through their own initiative. TM & © 2020 Cable News Network, Inc., a WarnerMedia Company. All rights reserved. Load-Date: October 21, 2020 End of Document Meet the winner of the London Design Festival's Emerging Talent award CNN Wire

### Document 355

Apple said its new iPhone 13 models have better screens, cameras and battery life, but it didn't announce any major new advances. It is a story that now happens just about every September: Apple introduced new iPhones that have slightly bigger screens, faster speeds and better cameras -- but no new major advances. In a prerecorded infomercial, Apple executives framed the improvements in the new iPhone 13 as significant innovations, but they result in a device that looks and performs much like the iPhones that Apple touted last year. Apple said the new iPhones have a brighter screen, longer battery life and more powerful cameras and computer processors. Having already pushed the screen nearly to the edge of the device, Apple slightly increased its size by reducing the small notch at the top of the screen. Apple kept the same flat-edge design of the phone that it has used in other recent models. Apple is hoping that by adding new features and making slight design improvements, customers will keep shelling out more money. It is a strategy that has worked for a long time. The iPhone, now in its 14th year, remains one of the world's best-selling products and the centerpiece of Apple's business. Over the first half of the year, the latest period available, Apple said iPhone sales rose 58 percent to $87.5 billion over the same period a year earlier. That success is partly because Apple has built an intensely loyal customer base, and also because it has designed its products in a way that makes it difficult for customers to switch to the competition, like Samsung and Google. The iPhone also remains among the best smartphones on the market in several areas, including camera technology and screen resolution. Apple spent much of its advertisement showing off the iPhone's new ''cinematic mode,'' a camera technology that can automatically follow and focus on a subject, resulting in videos that more closely resemble professional movies. Apple's emphasis on advanced camera technology in its iPhones is a reflection of its hefty investment in artificial intelligence to compete with Google. A few years ago, Google's Pixel smartphones used the search giant's prowess in artificial intelligence to leapfrog the iPhone's camera capabilities. But over the last few years, Apple made several aggressive moves to catch up, acquiring several A.I. start-ups and hiring a top A.I. executive from Google, John Giannandrea. Partly as a result, its newer iPhone cameras have received higher ratings than the Pixel. As in past years, Apple unveiled two separate versions of the new iPhone: the entry-level iPhone 13 and iPhone 13 mini, and the more expensive and advanced iPhone 13 Pro and iPhone 13 Pro Max. Apple largely kept prices flat from last year's models. The dominance of the iPhone has also brought Apple increased scrutiny and criticism from app developers, regulators and lawmakers. Having an iPhone app has become a necessity for many companies, which has enabled Apple to build an enormous business by charging a commission of up to 30 percent on some app sales. But that practice has been at the center of legal and regulatory challenges in recent years. Last week, a federal judge ordered Apple to let app developers direct customers to other payment methods in their apps, which could enable them to avoid Apple's commission. Regulators in the United States, Europe and India are also investigating Apple's App Store practices. https : // www.nytimes.com/2021/09/14/technology/how-good-is-apple-iphone-13.html Graphic PHOTO: (PHOTOGRAPH BY Apple FOR THE NEW YORK TIMES) Load-Date: September 15, 2021 End of Document Facing Backlash, Some Corporate Leaders Go ‘Under the Radar’ With D.E.I. The New York Times

### Document 373

Sweden — From inside the control room carved into the rock more than half a mile underground, Mika Persson can see the robots on the march, supposedly coming for his job here at the New Boliden mine. He’s fine with it. Sweden’s famously generous social welfare system makes this a place not prone to fretting about automation — or much else, for that matter. Mr. Persson, 35, sits in front of four computer screens, one displaying the loader he steers as it lifts freshly blasted rock containing silver, zinc and lead. If he were down in the mine shaft operating the loader manually, he would be inhaling dust and exhaust fumes. Instead, he reclines in an office chair while using a joystick to control the machine. He is cognizant that robots are evolving by the day. Boliden is testing self-driving vehicles to replace truck drivers. But Mr. Persson assumes people will always be needed to keep the machines running. He has faith in the Swedish economic model and its protections against the torment of joblessness. “I’m not really worried,” he says. “There are so many jobs in this mine that even if this job disappears, they will have another one. The company will take care of us.” In much of the world, people whose livelihoods depend on paychecks are increasingly anxious about a potential wave of unemployment threatened by automation. As the frightening tale goes, globalization forced people in wealthier lands like North America and Europe to compete directly with cheaper laborers in Asia and Latin America, sowing joblessness. Now, the robots are coming to finish off the humans. But such talk has little currency in Sweden or its Scandinavian neighbors, where unions are powerful, government support is abundant, and trust between employers and employees runs deep. Here, robots are just another way to make companies more efficient. As employers prosper, workers have consistently gained a proportionate slice of the spoils — a stark contrast to the United States and Britain, where wages have stagnatedeven while corporate profits have soared. “In Sweden, if you ask a union leader, ‘Are you afraid of new technology?’ they will answer, ‘No, I’m afraid of old technology,’” says the Swedish minister for employment and integration, Ylva Johansson. “The jobs disappear, and then we train people for new jobs. We won’t protect jobs. But we will protect workers.” A Cushion for Innovation Americans tend to dismiss Nordic countries as a realm of nanny-state-worshiping socialists in contrast to the swashbuckling capitalists who rule in places like Silicon Valley. But Sweden presents the possibility that, in an age of automation, innovation may be best advanced by maintaining ample cushions against failure. “A good safety net is good for entrepreneurship,” says Carl Melin, policy director at Futurion, a research institution in Stockholm. “If a project doesn’t succeed, you don’t have to go broke.” Eighty percent of Swedes express positive views about robots and artificial intelligence, according to a survey this year by the European Commission. By contrast, a survey by the Pew Research Center found that 72 percent of Americans were “worried” about a future in which robots and computers substitute for humans. In the United States, where most people depend on employers for health insurance, losing a job can trigger a descent to catastrophic depths. It makes workers reluctant to leave jobs to forge potentially more lucrative careers. It makes unions inclined to protect jobs above all else. Yet in Sweden and the rest of Scandinavia, governments provide health care along with free education. They pay generous unemployment benefits, while employers finance extensive job training programs. Unions generally embrace automation as a competitive advantage that makes jobs more secure. Making the United States more like Scandinavia would entail costs that collide with the tax-cutting fervor that has dominated American politics in recent decades. Sweden, Denmark and Finland all spend more than 27 percent of their annual economic output on government services to help jobless people and other vulnerable groups, according to data from the Organization for Economic Cooperation and Development. The United States devotes less than 20 percent of its economy to such programs. For Swedish businesses, these outlays yield a key dividend: Employees have proved receptive to absorbing new technology. This is especially crucial in mining, a major industry in Sweden. Wages are high, with pay and working conditions set through national contracts negotiated by unions and employers’ associations. Boliden’s mines have some of the world’s lowest-grade ore, meaning it contains minute quantities of valuable minerals. The prices are set by global markets. “We have every reason not to be competitive,” says Boliden’s chief executive, Lennart Evrell. The only way for the company to ensure profit is to continually increase efficiency. This is why Mr. Persson and his co-workers in the control room will soon be operating as many as four loaders at once via joysticks. The company is pressing ahead with plans to deploy self-driving trucks, testing a system with AB Volvo, the Swedish automotive giant, at a mine in the town of Kristineberg. There, Boliden has expanded annual production to close to 600,000 tons from about 350,000 tons three decades ago — while the work force has remained about 200. “If we don’t move forward with the technology and making money, well, then we are out of business,” says Magnus Westerlund, 35, vice chairman of a local union chapter representing laborers at two Boliden mines. “You don’t need a degree in math to do the calculation.” At the mine below the frigid pine forests in Garpenberg, 110 miles northwest of Stockholm, Mr. Persson and his co-workers earn about 500,000 krona per year (nearly $60,000). They get five weeks of vacation. Under Swedish law, when a child arrives, the parents have 480 days of family leave to apportion between them. No robot is going to change any of that, Mr. Persson says. “It’s a Swedish kind of thinking,” says Erik Lundstrom, a 41-year-old father of two who works alongside Mr. Persson. “If you do something for the company, the company gives something back.” Daunting Job Projections That proposition now confronts a formidable test. No one knows how many jobs are threatened by robots and other forms of automation, but projections suggest a potential shock. A 2016 study by the World Economic Forum surveyed 15 major economies that collectively hold two-thirds of the global work force — about 1.86 billion workers — concluding that the rise of robots and artificial intelligence will destroy a net 5.1 million jobs by 2020. A pair of Oxford University researchers concluded that nearly half of all American jobs could be replaced by robots and other forms of automation over the next two decades. When automated teller machines first landed at bank branches in the late 1960s, some foresaw the extinction of humans working in banks. But employment swelled as banks invested the savings into new areas like mortgage lending and insurance. Similar trends may play out again. Three years ago, Soren Karlsson quit his job on the business side of a Swedish newspaper to start United Robots, a venture that one might initially think was aimed at ruining the lives of his former colleagues: He developed a robot, named Rosalinda, that scans data about sporting events to yield news stories. “The stories are not as colorful as a human would write,” he says. But his robots never break for lunch. Today, Mr. Karlsson has six people working at his offices in the city of Malmo. He expects that Rosalinda will write 100,000 stories this year for various Swedish media outlets, bringing his company revenue of about 5 million krona (about $590,000). At the Swedish Union of Journalists, no one seems concerned. Rosalinda is mostly adding coverage that did not exist before — stories about high school floor hockey games, middling soccer matches. “We have always tried to applaud and embrace new developments,” says the union president, Jonas Nordling. “We can’t just moan about what is happening.” Yet even if robots create more jobs than they eliminate, large numbers of people are going to need to pursue new careers. Sweden and its Nordic brethren have proved successful at managing such transitions. So-called job security councils financed by employers help people who lose jobs find new ones. One such council in Stockholm, the TRR Trygghetsradet, boasts that 83 percent of participants have found new jobs this year. Two-thirds have landed in positions paying the same as or better than their previous jobs. But some worry that the system could be overwhelmed by the impact of automation. The number of students older than 35 has fallen by nearly one-fifth in recent years at Swedish universities, which have curtailed enrollment of midcareer laborers while focusing on traditional degree programs. “That’s a kind of warning signal for us,” says Martin Linder, president of Unionen, which represents some 640,000 white-collar workers. Maintaining Sweden’s social safety net also requires that the public continue to pay tax rates approaching 60 percent. Yet as Sweden absorbs large numbers of immigrants from conflict-torn nations, that support may wane. Many lack education and may be difficult to employ. If large numbers wind up depending on government largess, a backlash could result. “There’s a risk that the social contract could crack,” said Marten Blix, an economist at the Research Institute of Industrial Economics in Stockholm. For now, the social compact endures, and at the Boliden mine, a sense of calm prevails. The Garpenberg mine has been in operation more or less since 1257. More than a decade ago, Boliden teamed up with Ericsson, the Swedish telecommunications company, to put in wireless internet. That has allowed miners to talk to one another to fix problems as they emerge. Miners now carry tablet computers that allow them to keep tabs on production all along the 60 miles of roads running through the mine. “For us, automation is something good,” says Fredrik Hases, 41, who heads the local union chapter representing technicians. “No one feels like they are taking jobs away. It’s about doing more with the people we’ve got.” PHOTO: Oskar Pals, 19, operating a loader by remote control at the New Boliden mine in Sweden. In less than 10 years, he says, “this will then be all automated, but I am not worried — there will always be other work tasks.” (PHOTOGRAPH BY Linus Sundahl-Djerf for The New York Times FOR THE NEW YORK TIMES) Related Articles Global Economy’s Stubborn Reality: Plenty of Work, Not Enough Pay The Long-Term Jobs Killer Is Not China. It’s Automation. Free Cash in Finland. Must Be Jobless. Load-Date: October 11, 2018 End of Document Galleries The New York Times

### Document 541

Starbucks has employees at hundreds of busy locations strolling through car lines, taking orders with hand-held devices so customers can get their caffeine fix a few seconds faster. Shake Shack, which has long emphasized that quality ingredients are worth waiting a few extra minutes for, will soon feature its first drive-through window. And the vast majority of new Chipotles this year will have “Chipotlanes,” where customers can drive up to a window and pull away with preordered meals in less than a minute. With dining room restrictions in place for much of the country during the pandemic, drive-through and pickup windows became critical ways for a variety of restaurants to remain afloat. Now, as the dining industry looks toward a post-pandemic world, many companies are betting big that digital ordering and drive-throughs will remain integral to their success. And the basic experience of sitting in a single line of cars, speaking into a sometimes garbled intercom and pulling up to a window to pay for your food before driving away is poised to be demonstrably altered for the first time in decades. A number of restaurants are moving quickly to improve their online order and app abilities, change their physical designs or add two or three drive-through lanes. Some are testing artificial intelligence systems to tailor suggestions for individuals who pull up to the menu board. “The drive-through has been one of those places that hasn’t changed in decades,” said Ellie Doty, the North American chief marketing officer for Burger King. “But with Covid, we’re seeing the dramatic acceleration of directions we were already going.” Taco Bell, which last year announced plans to test a restaurant design with stadium seating for gamers to play against one another, has switched much of its focus to creating smaller restaurants with dual drive-through lanes and curbside pickup. Applebee’s is testing its first drive-through in Texarkana, Texas. Shake Shack is experimenting with a number of new designs and plans, including walk-up windows and curbside pickup. It will open its first drive-through this year in Orlando, Fla., and plans five to eight more through 2022. “We had started working on some of the formats even prior to the pandemic,” said Andrew McCaughan, the chief development officer for Shake Shack. “But we saw a massive accelerator and catalyst to move faster and to get drive-through really going.” While several chains lay claim to inventing the drive-through, many say it dates back to the 1930s when a Los Angeles franchise of a Texas chain, the Pig Stand, allowed customers to order and pick up their food from a window. In the late 1940s, the California chain In-N-Out Burger introduced the two-way squawk box. But the phenomenon really took off in the 1970s when McDonald’s installed drive-throughs. As more families had two working parents and the demand for quick-and-easy meals rose, drive-throughs became mainstream. But they also became a source of derision and hilarity. In 1993’s “Wayne’s World 2,” the characters Garth and Wayne purposely cut out their voices while giving their orders, suggesting a broken intercom. The server repeats the order back perfectly. Indeed, drive-throughs can be stressful. Other customers occasionally honk to prod you to speed up your order. After screaming “No pickles!” repeatedly into the intercom, you sometimes still get a burger with three pickles on it. And lines can stretch through parking lots and into the street, especially during peak pandemic use. Chick-fil-A has been sued by neighboring businesses that say its long drive-through lines block their customers’ access. For most restaurants, the solution has many parts. First, more are trying to encourage customers to use ordering apps, which improve the accuracy of orders and are often connected to loyalty programs that give them points for free food. They are also trying to figure out how to best speed consumers through the drive-through or pickup process without disrupting traffic patterns or other businesses. Drive-through times average 4 minutes and 15 seconds, according to Bluedot, a geolocation company. Like a Daytona 500 pit crew, restaurants are always looking for ways to shave off minutes, or even seconds. To be competitive in this race, Chipotle, whose digital orders soared from 20 percent of its sales to as high as 70 percent at the height of the pandemic, installed in many of its kitchens a second assembly line where employees put together tacos or burrito bowls for mobile and online orders exclusively. The chain also expects that 70 percent of its restaurants that open this year will have the dedicated Chipotlanes for online orders. “In the traditional drive-through experience, you wait in line to order, you wait in line to pay and pick up, you wait in line for your food to be prepared,” said Jack Hartung, the chief financial officer of Chipotle. “We’re trying to get our service time from when you pull up to the restaurant, pick up your food and drive off to 40 or 50 seconds.” Others, like McDonald’s and Burger King, are adding multiple drive-through lanes, which have been a feature at some busy fast-food spots like Chick-fil-A but are becoming more commonplace. Burger King is running three-lane tests in the United States, Brazil and Spain. In the U.S. and Spain, the third lane is “express” for advance orders made through the app. In Brazil, the lane takes delivery drivers to a pickup area with food lockers or shelves. Burger King is also looking to propel its drive-throughs into the future with a Big-Brother-like artificial intelligence system, Deep Flame. Right now, roughly half of Burger King’s drive-throughs with digital menu boards are using Deep Flame’s technology to suggest foods that are particularly popular in the area that day. It also uses outside factors, like the weather, to highlight items like an iced coffee on a hot day. But this year, Burger King is testing a Bluetooth technology that will be able to identify customers in Burger King’s loyalty program and show their previous orders. If a customer ordered a small Sprite and a Whopper with cheese, hold the pickles, the last three visits, Deep Flame will calculate that chances are high that the customer will want the same order again. It’s unclear whether the technology pays off. McDonald’s is moving in a similar direction. The fast-food giant acquired the Israeli artificial intelligence firm Dynamic Yield in 2019 with an eye toward boosting sales by providing personalized digital promotions to customers. Restaurant Brands International — the parent company of Burger King, Tim Hortons and Popeyes — hopes to have the predictive personalized systems at more than 10,000 of its restaurants’ locations across North America by mid-2022. “We’re taking what was an outdated, old, static sales channel and bringing it to the forefront of the industry,” said Duncan Fulton, the chief corporate officer for Restaurant Brands International. Now, customers can have the “the ability to automatically reorder things and pay for the items at the board, which, ultimately, speeds up the window time, allowing you to collect your food and go on your way.” PHOTOS: A surge in digital orders in the pandemic spurred Chipotle to set up special drive-though lanes at new locations. (PHOTOGRAPH BY WINNIE AU FOR THE NEW YORK TIMES) (B1); Chipotle restaurants are among those that have set up curbside pickup spots for digital orders. (PHOTOGRAPHS BY WINNIE AU FOR THE NEW YORK TIMES) (B5) Load-Date: April 28, 2021 End of Document The Revenge of Maximalism; fashion review The New York Times

### Document 261

Millions of workers around the world are at risk of losing their jobs to robots -- but Americans should be particularly worried. Thirty-eight percent of jobs in the U.S. are at high risk of being replaced by robots and artificial intelligence over the next 15 years, according to a new report by PwC. Meanwhile, only 30% of jobs in the U.K. are similarly endangered. The same level of risk applies to only 21% of positions in Japan. The U.S. and U.K. labor markets are both dominated by services jobs, and roughly the same share of workers are employed in key sectors including finance, transportation, education, manufacturing and food services. But PwC found major differences in the nature of the work done within these sectors that explains why more U.S. jobs are at risk. Take financial services as an example. In the U.S., 61% of jobs in the sector are at a high risk of being replaced by robots. The same is true for only 32% of finance jobs in the U.K. John Hawksworth, PwC's chief economist in the U.K., said that many workers in the U.S. financial sector are focused on domestic retail operations -- think bank tellers in small towns. The U.K.'s finance sector, meanwhile, is much more focused on international finance and investment banking -- functions that require significantly higher levels of education and expertise. Workers at risk in the U.S. "would be doing more routine tasks that are easier to automate than that of, say, an investment banker in London," Hawksworth said. Workers shouldn't necessarily freak out about soaring unemployment due to a robot takeover. The changing workforce will create more jobs in the future, but they'll likely go to higher skilled workers, said Hawksworth. Expect a "restructuring of the jobs market," he said, noting that employment levels in many major economies are still quite high despite the encroachment of robots in the workplace. People with jobs in education, health care and social work are the least at risk of being replaced, PwC said. "Creative and critical thinking will be highly valued, as will emotional intelligence," said Jon Andrews, head of technology and investments at PwC. Meanwhile, the authors warns that more robots could mean greater social inequality. Workers that design and produce the robots, and have complementary skills to work alongside our artificial intelligence partners, will see more of the riches. Others could get left behind. "The gap between rich and poor could get even wider," said Hawksworth. TM & © 2017 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: March 25, 2017 End of Document Tech companies are still helping police scan your face CNN Wire

### Document 1209

and the plant needs workers willing to adapt their skills to survive in a rapidly changing economy. Automation has allowed Marlin Steel to thrive, but across the country, workers feel threatened. Donald Trump catapulted into the White House by giving voice to those fears and promising to save American factories and jobs by rewriting trade deals, taxing imports and cutting regulations. Futurists have warned for years that automation will take your job. Now it's happening, albeit in pockets, at manufacturers, warehouses and even some labor-intensive white-collar professions. As the political debate rages over how to inject fresh energy into the American economy with Trump taking office, automation presents perhaps the greatest threat to the American economy. But it may also reflect its greatest opportunity if workers take the Cifarelli route and embrace robotics, artificial intelligence and automation. Either way, it's poised to accelerate -- and if not here, then in foreign countries that will reap the benefits while the U.S. economy suffers a competitive disadvantage. About 49% of worker activities can be turned over to some sort of machine or robot, increasingly helped along by artificial-intelligence software, according to consultancy McKinsey. About 58% of CEOs plan to cut jobs over the next five years because of robotics, while 16% say they plan to hire more people because of robotics, according to a PricewaterhouseCoopers survey. As artificial-intelligence programs proliferate, automation won't be confined to the factory floor. Positions that involve a substantial amount of predictable work, such as data processing, could succumb to automated software and artificial intelligence. McKinsey counted more than 70 professions in which at least 90% of activities can be automated, from mail clerks to ophthalmic lab technicians, tire-repairers, butchers, food preparers and bakers. But many Americans don't think they need to adapt: 80% of them say their job definitely or probably will exist in its current form in 50 years, according to the Pew Research Center. "We often think about automation as applying to front-line, low-wage, low-skill activities and jobs -- and what we've discovered is there are some activities that are high-wage, high-skill that are actually very susceptible to automation," says Michael Chui, a McKinsey Global Institute partner in San Francisco who studies automation. "Almost every job in the economy has a significant percentage of activities that can be automated." The professional service robot industry expects to sell a third more units from 2016 through 2019 -- 333,200 in all -- than it sold in the past 17 years, says the International Federation of Robotics. They could be used in place of professionals, whether it's medicine, agriculture, hospitality or even the supermarket down the street. Consider: Restaurant workers. In fast-food, San Francisco-based Momentum Machines already makes a hamburger-flipping robot. Several chains are gradually introducing self-ordering stations. Shelf stockers. In stores, San Francisco-based Bossa Nova Robotics has developed a robot that is checking shelf inventory in a test at Lowe's, the home-improvement chain. Journalists. Automated Insights has created a software suite called WordSmith that writes thousands of automated stories every month, including Minor League Baseball game accounts and earnings reports for the Associated Press, basketball game recaps for Yahoo! Sports and financial content for dozens of other clients. Bookkeepers. Accountants -- perceived as having steady 9-to-5 jobs with an average salary of $67,190 in 2015, according to the Bureau of Labor Statistics -- are poised for a total makeover. About one in five people in the finance and insurance sector primarily perform data processing -- and about 85% of that work can be automated, McKinsey estimates. "The basic gist of it is the more certainty your job entails, the more likely is to be automated out," says Mary (Missy) Cummings, a Duke University professor and director of the Humans and Autonomy Lab. In other words, the more predictable your daily routine is, the more likely your job is to go away. It's already happening. Walmart announced plans in September to cut 7,000 bookkeeping and store accounting positions as it automates cash management and centralizes the process at its headquarters. In accounting, nimble firms will transition their focus to advising clients based on insights gleaned from automated data. Audits may go from an annual process to a continuous action. Software will increasingly handle the "high-volume, routine, non-judgmental" activities in real time, says Bill Brennan, audit transformation leader for PricewaterhouseCoopers. PwC is now hiring employees for its auditing business with backgrounds in science, technology and engineering. "We need those individuals to help us as we get into data analysis, analytics, data security, cloud computing. The future employee is going to have a combination of those skills," Brennan says. Cifarelli knows. At Marlin Steel, her college-level education pays off in production work. Pecking periodically at a computer mouse, she delivers detailed instructions, programming the machine to carve small canyons in wood to hold wire that is later welded together with automated equipment to make precision wire baskets, accurate to within 2/1000ths of an inch. She has bonded with her CNC, which she has come to think of as a robot companion. "I need the robot to ensure consistency," Cifarelli says. "Over the past year, I've become really accustomed to the sounds and the movements of it. I can really predict what's gonna happen. We're kind of a team." For Marlin Steel, the problem was straightforward: Automate or die. In the early 2000s, factory workers at the 48-year-old company were forming the big metal baskets typically seen in bagel shops by hand-bending wire at a rate of 300 bends per hour in a grueling manual process for producing for wire baskets that typically hold bagels. "They all had huge right arms," Marlin Steel CEO and owner Drew Greenblatt says. When emerging overseas competitors swooped in and undercut the company on labor costs, producing baskets for less than $6 each to Marlin's $12, sales cratered. "Our entire business model blew up and we were hemorrhaging," Greenblatt says. "China was exporting baskets into Manhattan for cheaper than I could buy the steel." To fight back, the company purchased robotic wire-forming machines and other automated equipment to manufacture precision wire baskets and other metal products for customers that required a higher-quality product, such as Boeing, General Motors, Harley-Davidson and Disney. Because of automation, Marlin Steel nearly doubled its workforce over the past decade to 33 employees and boosted pay from minimum wage when Greenblatt acquired the company to at least $15 an hour today, with some employees making more than $30. "It's only viable because my employees are like on steroids," Greenblatt says. "All of a sudden they're super-productive, and it's because we've given them the tools -- it's robotics and automation. Thank God for robots. If it wasn't for robots, these guys would be unemployed." Foreign competition Marlin Steel may have been ahead of its time. Industrial robots have hit an inflection point -- powered by cost reductions and technological improvements in visioning, sensing and gripping -- and are poised to accelerate. Although they perform only 10% of tasks in manufacturing today, they will perform 25% by 2025, according to a study by Boston Consulting Group. In one tangible sign of increased automation, those technological improvements have ushered in the dawn of the "collaborative robot," unleashing automation from protective cages and placing the machinery right next to humans, with sensors protecting the worker and ensuring efficiency. Barclays analysts estimate that global sales of "cobots" will balloon from 4,100 units and $120 million in 2015 to 701,000 and $12 billion in 2025. And it's happening globally. China, for example, is not wasting any time. Amid all the political consternation over suspected currency manipulation and global trade advantages, China is expected to double its installation of industrial robots from 75,000 in 2015 to 150,000 in 2018, nearly four times the rate of North America, according to the International Federation of Robotics. Trump has pledged to bring manufacturing back to the U.S., even suggesting that Apple's iPhone could be made here and exhorting Apple CEO Tim Cook to do so. But that might not be possible without massive automation to make it cost-effective to manufacture in the U.S. Apple's iPhone manufacturer, Foxconn, in fact, has already begun automating certain work that was done before by hand. A Chinese government official told a Hong Kong newspaper in May that Foxconn had replaced 60,000 workers with robots at one factory there. As automation advances, globalization will enter a new chapter in which low-cost labor becomes increasingly irrelevant. Unlike humans, robots don't get paid an hourly wage. So it's not much more expensive to operate a machine in a developed economy than it is in the developing world. "The fastest growing robotics user in the world is China because they understand that they want a lot of this manufacturing based on low-cost labor, but that's not the whole game," says Jeff Burnstein, president of the Association for Advancing Automation. "The game now more than ever is quality, speed and flexibility -- and low-cost labor alone is not gonna do it." Automation is a double-edged sword, though. Take the example of family-owned Ramsey, Minn.-based injection molder Dynamic Group. The company recently boosted its production by 400% after installing robotic arms made by Universal Robots. Automation bolstered the company's capability to produce lower-volume, highly complex products that would otherwise not be profitable because the company could not afford to hire workers to craft and manufacture devices with limited commercial appeal. "It's really hard to be able to be competitive nation- and worldwide coming from this market and having to do that type of labor," says Joe McGillivray, CEO of Dynamic Group, whose father co-founded the company in 1977. "We're able to do more work, which will allow us to make more money and pay you better." Still, the downsides of automation are impossible to ignore. As advanced manufacturing companies adopt more automation, many workers won't be needed. McGillivray said that by installing robots, Dynamic Group expects to reduce its reliance on temporary workers. In the past, the company had occasionally hired up to 20 temp workers to aid its permanent staff of 106 workers. "We would instead be using robots as our flex labor instead of people as our flex labor," he says. Artificial intelligence If automation evokes imagery of robots replacing humans, then its close relative, artificial intelligence, conjures fears of computers taking dominion over humans. But those fears, while perhaps not unfounded in the distant future, fail to reflect AI's emerging role as an assistant to people in the workplace. At Boston-based start-up Lola, two executives who were almost single-handedly responsible for replacing travel agents with computers -- that is, one of automation's most obvious examples of displacement -- are reviving the travel agent through artificial intelligence. The 50-person company has developed an AI-based system -- which basically just means groups of software algorithms -- to aid human travel agents in making recommendations to travelers, booking accommodations and addressing itinerary hiccups. The AI can crawl through a user's email inbox, for example, to identify travel preferences and scheduling quirks. Those insights are translated into intelligence that the travel agents use to improve their customer's experience. For Lola Chairman Barney Harford, former CEO of travel booking site Orbitz and former executive at Expedia, it's a sharp turn from his previous life ushering in the age of do-it-yourself travel. "We are bringing humans back into the picture." Graphic photo Jasper Colt, USA TODAY Load-Date: February 6, 2017 End of Document CRITIC'S CORNER USA TODAY

### Document 247

India's finance minister isn't worried about jobs being lost in the country's manufacturing sector despite warnings that industrial robots will dramatically reduce the need for factory workers in coming decades. "I still have faith in human ingenuity, that even when jobs are lost in certain sectors ... more jobs will be created because of that increased economic activity in other sectors," Arun Jaitley told CNN's Fareed Zakaria on Sunday at the CNN Asia Business Forum in Mumbai. Economists are increasingly concerned that developments in artificial intelligence and robotics will disrupt the business world in a similar way to previous industrial revolutions, leading to job losses. Robots are likely to be performing 45% of manufacturing tasks by 2025, versus just 10% today, according to a study by Bank of America. And the rise of artificial intelligence will only accelerate that process as the number of devices connected to the Internet doubles to 50 billion by 2020. In the highly-industrialized countries of East Asia, the trend is already on full display, with factories using fewer workers to produce more goods. For India, the risk is that industrial robots will steal jobs from workers before the country has gained the benefits of having large numbers of its citizens employed in the manufacturing sector, where wages are traditionally higher than alternatives including agriculture. Jaitley, a corporate lawyer and stalwart of the Bharatiya Janata Party, downplayed these risks. Even if jobs are lost, he said, the benefits of increased production will be a boon for the broader economy. Jaitley and Prime Minister Narendra Modi visited Mumbai this week to promote their signature "Make in India" campaign, which aims to increase manufacturing and foreign investment in the country. In recent months, companies including GE, Airbus, Xiaomi, Foxconn and GM have all inked deals to expand their manufacturing operations in India. TM & © 2016 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: February 15, 2016 End of Document Elon Musk sets bold goals. But has he delivered? CNN Wire

### Document 275

Think you are too smart to be replaced by a robot in your job? Think again. Experts are warning that skilled jobs will soon start disappearing because of the rise of artificial intelligence. So far, robots have mainly been replacing manual labor, performing routine and intensive tasks. But smarter machines are putting more skilled professions at risk. Robots are likely to be performing 45% of manufacturing tasks by 2025, versus just 10% today, according to a study by Bank of America. And the rise of artificial intelligence will only accelerate that process as the number of devices connected to the Internet doubles to 50 billion by 2020. By the same year, nearly half of all U.S. jobs will be at high risk of being lost to computers, according to experts at Oxford University, with an additional 20% facing medium risk. Jobs previously thought of as secure and now considered at risk include data analysts and bankers. The prices of robots and computers are falling, making them even more attractive to employers. Costs have declined by 27% over the past decade and are expected to drop by another 22% in the next decade, the Bank of America report stated. And as robots become easier to use, with features like machine learning, and voice and facial recognition, they're becoming a more viable alternative in jobs where people deal with customers. Countries that can adopt new technology early will get a big boost from lower labor costs and higher productivity. Japan is leading the way. There are already 1,520 robots per 10,000 employees in Japan's car plants, compared to only 66 per 10,000 worldwide. China is eager too -- the country has been the biggest buyer of robots for the last two years, and now accounts for 25% of global demand. The coming revolution could dramatically transform the global economy, and increase inequality. That's because most of the jobs set to disappear are lower paid, with medium skills, economists have warned. Of course, this is not the first time that technology has radically transformed the workforce. During the Industrial Revolution, many manual laborers were forced to "skill up" and move into more sophisticated jobs. But the report warns this time could be different. Workers in skilled positions may be forced to take jobs they are overqualified to do but which can't easily be performed by a machine. Could you lose your job to robots? Here are some examples of jobs most at risk: Administrative staff, manual workers, data processing jobs. Bank of America estimated that there's a 90% risk or more of the following being replaced: Tour guides, bakers, butchers, pharmacy technicians, insurance sales agents, retail salespersons, tax collectors, telemarketers, accountants and clerks. At the other end of the spectrum are professions such as physicians, psychologists and clergy. Jobs that require empathy, intuition and lots of social interaction are least likely to be threatened by technology. They include mental healthcare workers, social workers, police and detectives, teachers and artists. TM & © 2016 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: January 16, 2016 End of Document Pop star Shawn Mendes invests in smart emoji app CNN Wire

### Document 994

Switzerland -- They'll never admit it in public, but many of your bosses want machines to replace you as soon as possible. I know this because, for the past week, I've been mingling with corporate executives at the World Economic Forum's annual meeting in Davos. And I've noticed that their answers to questions about automation depend very much on who is listening. In public, many executives wring their hands over the negative consequences that artificial intelligence and automation could have for workers. They take part in panel discussions about building ''human-centered A.I.'' for the ''Fourth Industrial Revolution'' -- Davos-speak for the corporate adoption of machine learning and other advanced technology -- and talk about the need to provide a safety net for people who lose their jobs as a result of automation. But in private settings, including meetings with the leaders of the many consulting and technology firms whose pop-up storefronts line the Davos Promenade, these executives tell a different story: They are racing to automate their own work forces to stay ahead of the competition, with little regard for the impact on workers. All over the world, executives are spending billions of dollars to transform their businesses into lean, digitized, highly automated operations. They crave the fat profit margins automation can deliver, and they see A.I. as a golden ticket to savings, perhaps by letting them whittle departments with thousands of workers down to just a few dozen. ''People are looking to achieve very big numbers,'' said Mohit Joshi, the president of Infosys, a technology and consulting firm that helps other businesses automate their operations. ''Earlier they had incremental, 5 to 10 percent goals in reducing their work force. Now they're saying, 'Why can't we do it with 1 percent of the people we have?''' Few American executives will admit wanting to get rid of human workers, a taboo in today's age of inequality. So they've come up with a long list of buzzwords and euphemisms to disguise their intent. Workers aren't being replaced by machines, they're being ''released'' from onerous, repetitive tasks. Companies aren't laying off workers, they're ''undergoing digital transformation.'' A 2017 survey by Deloitte found that 53 percent of companies had already started to use machines to perform tasks previously done by humans. The figure is expected to climb to 72 percent by next year. The corporate elite's A.I. obsession has been lucrative for firms that specialize in ''robotic process automation,'' or R.P.A. Infosys, which is based in India, reported a 33 percent increase in year-over-year revenue in its digital division. IBM's ''cognitive solutions'' unit, which uses A.I. to help businesses increase efficiency, has become the company's second-largest division, posting $5.5 billion in revenue last quarter. The investment bank UBS projects that the artificial intelligence industry could be worth as much as $180 billion by next year. Kai-Fu Lee, the author of ''AI Superpowers'' and a longtime technology executive, predicts that artificial intelligence will eliminate 40 percent of the world's jobs within 15 years. In an interview, he said that chief executives were under enormous pressure from shareholders and boards to maximize short-term profits, and that the rapid shift toward automation was the inevitable result. ''They always say it's more than the stock price,'' he said. ''But in the end, if you screw up, you get fired.'' Other experts have predicted that A.I. will create more new jobs than it destroys, and that job losses caused by automation will probably not be catastrophic. They point out that some automation helps workers by improving productivity and freeing them to focus on creative tasks over routine ones. But at a time of political unrest and anti-elite movements on the progressive left and the nationalist right, it's probably not surprising that all of this automation is happening quietly, out of public view. In Davos this week, several executives declined to say how much money they had saved by automating jobs previously done by humans. And none were willing to say publicly that replacing human workers is their ultimate goal. ''That's the great dichotomy,'' said Ben Pring, the director of the Center for the Future of Work at Cognizant, a technology services firm. ''On one hand,'' he said, profit-minded executives ''absolutely want to automate as much as they can.'' ''On the other hand,'' he added, ''they're facing a backlash in civic society.'' For an unvarnished view of how some American leaders talk about automation in private, you have to listen to their counterparts in Asia, who often make no attempt to hide their aims. Terry Gou, the chairman of the Taiwanese electronics manufacturer Foxconn, has said the company plans to replace 80 percent of its workers with robots in the next five to 10 years. Richard Liu, the founder of the Chinese e-commerce company JD.com, said at a business conference last year that ''I hope my company would be 100 percent automation someday.'' One common argument made by executives is that workers whose jobs are eliminated by automation can be ''reskilled'' to perform other jobs in an organization. They offer examples like Accenture, which claimed in 2017 to have replaced 17,000 back-office processing jobs without layoffs, by training employees to work elsewhere in the company. In a letter to shareholders last year, Jeff Bezos, Amazon's chief executive, said that more than 16,000 Amazon warehouse workers had received training in high-demand fields like nursing and aircraft mechanics, with the company covering 95 percent of their expenses. But these programs may be the exception that proves the rule. There are plenty of stories of successful reskilling -- optimists often cite a program in Kentucky that trained a small group of former coal miners to become computer programmers -- but there is little evidence that it works at scale. A report by the World Economic Forum this month estimated that of the 1.37 million workers who are projected to be fully displaced by automation in the next decade, only one in four can be profitably reskilled by private-sector programs. The rest, presumably, will need to fend for themselves or rely on government assistance. In Davos, executives tend to speak about automation as a natural phenomenon over which they have no control, like hurricanes or heat waves. They claim that if they don't automate jobs as quickly as possible, their competitors will. ''They will be disrupted if they don't,'' said Katy George, a senior partner at the consulting firm McKinsey & Company. Automating work is a choice, of course, one made harder by the demands of shareholders, but it is still a choice. And even if some degree of unemployment caused by automation is inevitable, these executives can choose how the gains from automation and A.I. are distributed, and whether to give the excess profits they reap as a result to workers, or hoard it for themselves and their shareholders. The choices made by the Davos elite -- and the pressure applied on them to act in workers' interests rather than their own -- will determine whether A.I. is used as a tool for increasing productivity or for inflicting pain. ''The choice isn't between automation and non-automation,'' said Erik Brynjolfsson, the director of M.I.T.'s Initiative on the Digital Economy. ''It's between whether you use the technology in a way that creates shared prosperity, or more concentration of wealth.'' https : // www.nytimes.com/2019/01/25/technology/automation-davos-world-economic-forum.html Graphic PHOTOS: This year's World Economic Forum in Davos, Switzerland, where leaders' public positions on A.I.'s impact did not match the views they shared privately. (PHOTOGRAPH BY LAURENT GILLIERON/EPA, VIA SHUTTERSTOCK) Foxconn's chairman has said he plans to replace 80 percent of the Taiwanese electronics company's workers with robots in five to 10 years. (PHOTOGRAPH BY LAUREN JUSTICE FOR THE NEW YORK TIMES) (B3) Load-Date: January 26, 2019 End of Document Does Your Toothbrush Have an App Yet? The New York Times

### Document 853

Broad unease about losing jobs to machines could dissipate as people focus on the benefits of minimizing close human contact. The recycling industry was already struggling before the pandemic. Now, an increasing number of cities are suspending recycling services, partly out of fear that workers might contract the coronavirus from one another while sorting through used water bottles, food containers and boxes. One solution: Let robots do the job. Since the coronavirus took hold in the United States last month, AMP Robotics has seen a ''significant'' increase in orders for its robots that use artificial intelligence to sift through recycled material, weeding out trash. ''Some facilities that were looking at getting one or two robots are now saying, 'We need quite a bit more,''' said the Colorado company's chief executive, Matanya Horowitz. ''It's all moving quite fast.'' Before the pandemic, automation had been gradually replacing human work in a range of jobs, from call centers to warehouses and grocery stores, as companies looked to cut labor costs and improve profit. But labor and robotics experts say social-distancing directives, which are likely to continue in some form after the crisis subsides, could prompt more industries to accelerate their use of automation. And long-simmering worries about job losses or a broad unease about having machines control vital aspects of daily life could dissipate as society sees the benefits of restructuring workplaces in ways that minimize close human contact. ''Pre-pandemic, people might have thought we were automating too much,'' said Richard Pak, a professor at Clemson University who researches the psychological factors around automation. ''This event is going to push people to think what more should be automated.'' The grocery industry is leaning more on automation to free up employees to deal with the crush of demand during the pandemic. Brain Corp, a San Diego company that makes software used in automated floor cleaners, said retailers were using the cleaners 13 percent more than they were just two months ago. The ''autonomous floor care robots'' are doing about 8,000 hours of daily work ''that otherwise would have been done by an essential worker,'' the company said. At supermarkets like Giant Eagle, robots are freeing up employees who previously spent time taking inventory to focus on disinfecting and sanitizing surfaces and processing deliveries to keep shelves stocked. Retailers insist the robots are augmenting the work of employees, not replacing them. But as the panic buying ebbs and sales decline in the recession that is expected to follow, companies that reassigned workers during the crisis may no longer have a need for them. The role of a cashier is also changing. For many years, retailers have provided self-checkout kiosks. But those machines often require intervention by workers to help shoppers navigate the often fickle and frustrating technology. The pandemic is prompting some stores to adopt even more aggressive ''contactless'' options. From farm stands to butchers, merchants are asking customers whenever possible to use mobile payment services like PayPal or Venmo. Banking regulators in Europe last week increased the amount of money that shoppers can pay through their mobile devices, while reducing some authentication requirements. While fully automated stores, such as Amazon Go, might have seemed like a technological curiosity a few months ago, they are likely to become a more viable option for retailers. ''No one would probably have thought of a cashier's job as being dangerous until now,'' Mr. Pak said. Mark Muro, a senior fellow at the Brookings Institution who studies labor markets, said that with companies hurting for cash, the pressure to replace humans with machines becomes even more intense. ''People become more expensive as companies' revenues decline,'' he said. A new wave of automation could also mean that when companies start hiring again, they do so in smaller numbers. ''This may be one of those situations when automation does substantially depress rehiring,'' Mr. Muro said. ''You may see fewer workers when the recovery does come.'' Even some conversations are being automated away. With closed offices keeping many of its workers away, PayPal has turned to chatbots, using them for a record 65 percent of message-based customer inquiries in recent weeks. PayPal is also using automated translation services so its English-speaking representatives can help customers who don't speak English. ''The resources we are able to deploy through A.I. are allowing us to be more flexible with our staff and prioritize their safety and well-being,'' PayPal said in a statement. YouTube said in a blog post that with fewer people in its offices around the world, machines are doing more content moderation. ''We will temporarily start relying more on technology to help with some of the work normally done by reviewers,'' the company said. ''This means automated systems will start removing some content without human review.'' Recycling is one industry that may be altered permanently by the pandemic. Some workers, who earn as little as $10 an hour, have been concerned about coming to work during the crisis and some cities have been scrambling to find enough protective gear for all of their employees. Federal health officials have assured them that the risks of transmission from household refuse is low. But workers in recycling facilities often work side by side sorting material, making social distancing difficult. At AMP Robotics, executives like Mr. Horowitz say their robots will enable recycling facilities to space out their employees, who stand at conveyor belts weeding through the used plastic and paper. Another benefit of the bots: ''They can't get the virus,'' Mr. Horowitz said. https : // www.nytimes.com/2020/04/10/business/coronavirus-workplace-automation.html Graphic PHOTOS: An AMP Robotics system sorting recyclable material at the company's lab in Louisville, Colo. Right, a screen showing how AMP's artificial intelligence identifies items on a conveyor. Labor and robotics experts say social distancing directives could prompt more companies to automate some tasks. (PHOTOGRAPHS BY BENJAMIN RASMUSSEN FOR THE NEW YORK TIMES) (B3) Load-Date: April 11, 2020 End of Document The Dark Possibilities Of A.I. and Art The New York Times

### Document 424

Artificial intelligence won't eliminate every retail job, an economist says, but the future could be grim unless we start planning now. Americans are worried that technology will soon replace much of the work done by humans, and they are right to be. Yet the danger we are facing isn't really about technology. It's about politics and economic fairness. Whether the pain and the benefits of artificial intelligence are equitably distributed -- and whether the turmoil that is still to come will be viewed as an overall social good -- will depend on our political will. The disruptive effects are already here. Online retailers like Amazon are using A.I. to automate many of the steps that come between placing an order on your smartphone and receiving a package on your doorstep. The impact on American jobs is already enormous. E-commerce's share of retail sales nearly doubled in the last five years, to 11 percent from 6 percent, and brick-and-mortar stores, which employ millions of workers, are suffering. American retailers closed nearly 6,000 stores in 2018, and those losses are set to accelerate this year. Since 2014, the United States economy has added more than 12 million jobs, according to data from the Bureau of Labor Statistics, yet the number of retail sales jobs decreased by about 114,000. Online retailers use A.I. applications to figure out what customers want and to get it to them quickly, all at a much lower cost than their brick-and-mortar competitors. The key innovation is using data to make better predictions. Amazon uses customers' browsing and buying histories to make personal recommendations. Purchasing patterns across places and over time are used to predict product needs and to stock warehouses accordingly. In traditional stores, the shelves are often full of items that no one wants and bereft of others that were hotter than anticipated. This mismatch between supply and demand is greatly reduced online, and A.I. is the engine that makes it possible. The A.I. effect on workers isn't entirely negative. While A.I. technology directly threatens existing retail jobs, its downstream impact has created new jobs as well. This is because -- at least for now -- the ''last mile'' of online retail still requires a human touch. As it turns out, retail job losses since 2014 have been almost exactly counterbalanced by a gain of 118,000 light-truck or delivery-service driver jobs. The number of heavy-truck and tractor-trailer drivers increased more than 175,000 over the same period, making these two driving jobs among the fastest-growing occupations in the United States. The growth of online retail has changed how people make purchases, but it has not changed our appetites for consumption, and may have even increased them. So sales jobs are being shifted around rather than replaced. A.I. will create many new opportunities, including some that we cannot foresee. And it will have other benefits, too, such as increased safety and reduced environmental impact. Still, we shouldn't be Pollyannas about artificial intelligence. Driverless cars and trucks are on the way. Although bringing autonomous vehicles to market has so far proved more difficult than expected, driving jobs will surely disappear someday. Job creation and destruction may balance out in aggregate, but that is cold comfort for people who come out on the losing side. The broader issue is whether A.I.-enabled technology creates good jobs. Truck drivers are often classified as independent contractors, rather than regular employees. A program called Amazon Flex -- similar to Uber and Lyft, but for delivery drivers -- allows the retail giant to hire drivers on demand. Amazon uses A.I. to calculate how many drivers are needed in an area at any moment, based on package volume, weight and travel time. As in other gig jobs, the hours are flexible, a benefit that workers clearly value. But that flexibility goes both ways. Drivers are responsible for providing their own vehicle, as well as fuel and other expenses. There are no benefits, little job security and reports of sometimes grueling working conditions. Amazon can hire large numbers of drivers to meet the holiday rush, without worrying about paying overtime or employing them the rest of the year. As the gig economy grows, so does the need to modernize labor laws. A.I. technology allows companies to monitor and control workers, while still maintaining a formal arms-length relationship that skirts federal employment status guidelines. The result is a legal gray area. Tech companies like Uber and Grubhub argue that driving is not their core business -- that they are merely platforms that connect customers with clients. They use A.I. to price trips and predict the best route for a driver. Does this mean that the driver is under the company's control enough to be considered an employee? These issues are working their way through the courts, which have struggled to interpret labor regulations that were mostly written for a different age. A California law that took effect just this month is likely to reclassify many gig workers as employees, prompting companies like Uber to consider modifying their apps for California drivers to give them more control over their work. Ultimately, federal legislation may be needed to untangle these questions. There is a direct parallel with earlier technological changes. The Industrial Revolution powered a tremendous increase in prosperity. Yet working conditions in the factories of the 19th century were terrible, much worse than anything we see today. Beginning in the early 20th century, trade unions and new government regulations acted together to raise pay, improve working conditions and increase workplace safety. We need a similar strengthening of the social contract to manage the changing nature of work in the digital age. Federal labor laws will need to clarify the status of gig workers, providing them with some guarantees to prevent exploitation and giving them the right to bargain collectively. More broadly, as A.I. disrupts the economy, we will need to help people pivot more easily to the jobs of the future. This means flexible benefits, including health care, that are not tied to one employer, and policies that give a measure of economic security to workers who want to be retrained and learn new careers. We need to accept that we cannot stop the coming wave of technological change. But we can moderate its impact on society. We should act with purpose, embracing A.I. as a tool that will enable us to create a better and fairer world. David Deming is the director of the Malcolm Wiener Center for Social Policy at the Harvard Kennedy School. https : // www.nytimes.com/2020/01/30/business/artificial-intelligence-robots-retail.html Graphic PHOTO: (PHOTOGRAPH BY Richard Borge FOR THE NEW YORK TIMES) Load-Date: February 2, 2020 End of Document A Futuristic Lineup at Park Avenue Armory The New York Times

### Document 729

Who is winning the race for jobs between robots and humans? Last year, two leading economists described a future in which humans come out ahead. But now they've declared a different winner: the robots. The industry most affected by automation is manufacturing. For every robot per thousand workers, up to six workers lost their jobs and wages fell by as much as three-fourths of a percent, according to a new paper by the economists, Daron Acemoglu of M.I.T. and Pascual Restrepo of Boston University. It appears to be the first study to quantify large, direct, negative effects of robots. The paper is all the more significant because the researchers, whose work is highly regarded in their field, had been more sanguine about the effect of technology on jobs. In a paper last year, they said it was likely that increased automation would create new, better jobs, so employment and wages would eventually return to their previous levels. Just as cranes replaced dockworkers but created related jobs for engineers and financiers, the theory goes, new technology has created new jobs for software developers and data analysts. But that paper was a conceptual exercise. The new one uses real-world data -- and suggests a more pessimistic future. The researchers said they were surprised to see very little employment increase in other occupations to offset the job losses in manufacturing. That increase could still happen, they said, but for now there are large numbers of people out of work, with no clear path forward -- especially blue-collar men without college degrees. ''The conclusion is that even if overall employment and wages recover, there will be losers in the process, and it's going to take a very long time for these communities to recover,'' Mr. Acemoglu said. ''If you've worked in Detroit for 10 years, you don't have the skills to go into health care,'' he said. ''The market economy is not going to create the jobs by itself for these workers who are bearing the brunt of the change.'' The paper's evidence of job displacement from technology contrasts with a comment from the Treasury secretary, Steve Mnuchin, who said at an Axios event last week that artificial intelligence's displacement of human jobs was ''not even on our radar screen,'' and ''50 to 100 more years'' away. (Not all robots use artificial intelligence, but a panel of experts -- polled by the M.I.T. Initiative on the Digital Economy in reaction to Mr. Mnuchin's comments -- expressed the same broad concern of major job displacement.) The paper also helps explain a mystery that has been puzzling economists: why, if machines are replacing human workers, productivity hasn't been increasing. In manufacturing, productivity has been increasing more than elsewhere -- and now we see evidence of it in the employment data, too. The study analyzed the effect of industrial robots in local labor markets in the United States. Robots are to blame for up to 670,000 lost manufacturing jobs between 1990 and 2007, it concluded, and that number will rise because industrial robots are expected to quadruple. The paper adds to the evidence that automation, more than other factors like trade and offshoring that President Trump campaigned on, has been the bigger long-term threat to blue-collar jobs. The researchers said the findings -- ''large and robust negative effects of robots on employment and wages'' -- remained strong even after controlling for imports, offshoring, software that displaces jobs, worker demographics and the type of industry. Robots affected both men's and women's jobs, the researchers found, but the effect on male employment was up to twice as big. The data doesn't explain why, but Mr. Acemoglu had a guess: Women are more willing than men to take a pay cut to work in a lower-status field. The economists looked at the effect of robots on local economies and also more broadly. In an isolated area, each robot per thousand workers decreased employment by 6.2 workers and wages by 0.7 percent. But nationally, the effects were smaller, because jobs were created in other places. Take Detroit, home to automakers, the biggest users of industrial robots. Employment was greatly affected. If automakers can charge less for cars because they employ fewer people, employment might increase elsewhere in the country, like at steel makers or taxi operators. Meanwhile, the people in Detroit will probably spend less at stores. Including these factors, each robot per thousand workers decreased employment by three workers and wages by 0.25 percent. The findings fuel the debate about whether technology will help people do their jobs more efficiently and create new ones, as it has in the past, or eventually displace humans. David Autor, a collaborator of Mr. Acemoglu's at M.I.T., has argued that machines will complement instead of replace humans, and cannot replicate human traits like common sense and empathy. ''I don't think that this paper is the last word on its subject, but it's an exceedingly carefully constructed and thought-provoking first word,'' he said. Mr. Restrepo said the problem might be that the new jobs created by technology are not in the places that are losing jobs, like the Rust Belt. ''I still believe there will be jobs in the years to come, though probably not as many as we have today,'' he said. ''But the data have made me worried about the communities directly exposed to robots.'' In addition to cars, industrial robots are used most in the manufacturing of electronics, metal products, plastics and chemicals. They do not require humans to operate, and do various tasks like welding, painting and packaging. From 1993 to 2007, the United States added one new industrial robot for every thousand workers -- mostly in the Midwest, South and East -- and Western Europe added 1.6. The study, a National Bureau of Economic Research working paper published Monday, used data on the number of robots from the International Federation of Robotics (there is no consistent data on the monetary value of the robots in use.) It analyzed the effect of robots on employment and wages in commuting zones, a way to measure local economies. The next question is whether the coming wave of technologies -- like machine learning, drones and driverless cars -- will have similar effects, but on many more people. The Upshot provides news, analysis and graphics about politics, policy and everyday life. Follow us on Facebook and Twitter. Sign up for our newsletter. http : // www.nytimes.com/2017/03/28/upshot/evidence-that-robots-are-winning-the-race-for-american-jobs.html Graphic PHOTO: A General Motors plant in Lansing, Mich. Automakers are the biggest users of industrial robots, which have hurt jobs and wages in local economies. (PHOTOGRAPH BY BILL PUGLIANO/GETTY IMAGES) Load-Date: March 29, 2017 End of Document Will Robots Take Our Children’s Jobs? The New York Times

### Document 2

Your grocery store's tomatoes may have a new friend aiding their development: artificial intelligence. NatureSweet, which grows tomatoes on six farms in the United States and Mexico, is using artificial intelligence to better control pests and diseases in its greenhouses. The technology, developed by the Israeli digital farming company Prospera, has already improved harvests and reduced labor costs. NatureSweet began testing the technology almost a year ago at one of its farms in Arizona. It plans to roll the tech out to all of its locations soon. Adrian Almeida, chief innovation officer at NatureSweet, believes artificial intelligence will eventually improve his greenhouses tomato yields by 20%. "It'll be better for the environment and for the customer," Almeida said. Farms are increasingly using technology to grow crops, from task-tracking systems that monitor watering and seeding to drones that capture aerial images. So far, NatureSweet's weekly harvests have grown 2 to 4%. This may seem modest, but the results makes a big difference when growing millions of pounds of tomatoes a year. To use the method, NatureSweet installed 10 cameras in greenhouse ceilings. The cameras continuously take photos of the crops below. Prospera's software has been trained to recognize trouble, such as insect infestations or dying plants. Previously, some of NatureSweet's 8,000 employees were tasked with walking through the greenhouses to identify struggling plants. But the process was slow and expensive. NatureSweet did this only once a week. The cameras from Prospera monitor the plants 24/7 and provide instant feedback. Prospera's founder Daniel Koppel previously researched how to predict crop yields from satellite photos -- insights that can be used to trade commodities on Wall Street. Instead, he built his own business, figuring it would have a greater global impact. NatureSweet has also experimented with using the cameras to forecast when plants are ready to be harvested. Although Almeida said that aspect of the technology is still a work in progress, improved efficiency is apparent. He estimated NatureSweet's headcount would have to grow by 4% without it. The company announced this week it raised $15 million from investors such as Qualcomm Ventures and Cisco Investments to fund expansion. Prospera plans to track more crops, including peppers and potatoes, as well as monitor plants outside greenhouses. TM & © 2017 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: July 27, 2017 End of Document Tech's biggest show is set to kick off in Las Vegas. Here's what to expect CNN Wire

### Document 156

Apple will likely unveil new iPhones during a closely watched media event on Tuesday --- but don't expect anything foldable, 5G capable or radically different from the year before. At the event, which will take place in its Cupertino, California, headquarters, Apple will likely to show off three new high-end iPhones --- the iPhone 11 Pro, the iPhone 11 Pro Max and the iPhone 11 --- replacing its XS, XS Max and XR models, according to reports. It may also introduce a much cheaper model starting around $450. The devices, which are said to look nearly identical to last year's lineup, may feature a new camera system with three cameras on the back --- including one for capturing ultra-wide-angle shots --- as well as built-in artificial intelligence software to improve photo and video editing. The name Pro also implies that the devices are targeted to business power users and creative types. At a time when some of its competitors are launching innovative but riskier concepts, such as Samsung's foldable smartphone and its two 5G devices, Apple is expected to stay the course. That, too, may be risky. The iPhone business --- still Apple's single biggest moneymaker --- has been lackluster at best of late. Revenue from iPhones has declined by double-digit percentages in recent quarters. The decline came as the company grappled with consumers waiting longer to upgrade their smartphones and a trade war denting demand in China, once one of Apple's most promising markets. If the rumors ahead of this year's event are true, it may have a hard time reversing this concerning trend. "Apple tends to perform well when it changes the design of the iPhone in a drastic way," said ABI Research analyst David McQueen, referencing the transition from the iPhone 5S to the iPhone 6. "However, it cannot do this every year." This year promises to be full of more iterative updates: a faster processor, improved Face ID and Facetime, the removal of 3D touch and the new camera set-up. Apple already teased iOS 13 features at its developers' conference in June, promising a dark mode to save on battery life, a feature to silence unknown callers and a tool that allows you to swipe to type, rather than lifting your fingers to tap the keys. The recently rumored in-screen Touch ID sensor is not expected until next near. Apple is also expected to hold off on the launch of a 5G phone this year ---- a move that could give its chief rivals, mainly Samsung, an edge in the space. Apple's shift away from Qualcomm components toward Intel over the past couple of years reportedly stalled development for 5G modems in time for this year's cycle. Even without these features, the company may do just enough to hold the line."Apple is doing what Apple needs to do by demonstrating new devices, applications and features to keep people within the Apple ecosystem and not lose them to Android," said Ramon Llamas, research director at market intelligence firm IDC. The iPhones won't be the only new products on display Tuesday. The Apple Watch, the first product to launch under CEO Tim Cook's leadership, is also expected to get a refresh. The product has made major strides since its 2015 launch: It now offers cellular connectivity and has a strong foothold on the wearables market. Apple may also integrate artificial intelligence capabilities, built-in sleep tracking and offer material changes into the smartwatch, but these tweaks will likely only appeal to those who don't already own one and not lead to upgrades. "Apple Watch has been a remarkable story, partly because it was such a slow starter," said Ben Stanton, a senior analyst at Canalys. "Sales are thriving right now, and a high proportion of customers are actually buying their first ever Apple Watch." The rumor mill also suggests updates for MacBooks, iPads and Apple TV hardware, but the company's big September event tends to stay focused on iPhones for "fear of diluting the message of one or the other," Stanton said. Apple will unveil its new products on Tuesday at 1:00 p.m. ET/10:00 a.m. PT. CNN Business will be on the ground reporting on all the latest. TM & © 2019 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: September 8, 2019 End of Document Europe is making AI rules now to avoid a new tech crisis CNN Wire

### Document 1076

There is no shortage of predictions about how artificial intelligence is going to reshape where, how and if people work in the future. But the grand work-changing projects of A.I., like self-driving cars and humanoid robots, are not yet commercial products. A more humble version of the technology, instead, is making its presence felt in a less glamorous place: the back office. New software is automating mundane office tasks in operations like accounting, billing, payments and customer service. The programs can scan documents, enter numbers into spreadsheets, check the accuracy of customer records and make payments with a few automated computer keystrokes. The technology is still in its infancy, but it will get better, learning as it goes. So far, often in pilot projects focused on menial tasks, artificial intelligence is freeing workers from drudgery far more often than it is eliminating jobs. The bots are mainly observing, following simple rules and making yes-or-no decisions, not making higher-level choices that require judgment and experience. “This is the least intelligent form of A.I.,” said Thomas Davenport, a professor of information technology and management at Babson College. But all the signs point to much more to come. Big tech companies like IBM, Oracle and Microsoft are starting to enter the business, often in partnership with robotic automation start-ups. Two of the leading start-ups, UiPath and Automation Anywhere, are already valued at more than $1 billion. The market for the robotlike software will nearly triple by 2021, by one forecast. “This is the beginning of a wave of A.I. technologies that will proliferate across the economy in the next decade,” said Rich Wong, a general partner at Accel, a Silicon Valley venture capital firm, and an investor in UiPath. The emerging field has a klutzy name, “robotic process automation.” The programs — often called bots — fit into the broad definition of artificial intelligence because they use ingredients of A.I. technology, like computer vision, to do simple chores. For many businesses, that is plenty. Nearly 60 percent of the companies with more than $1 billion in revenue have at least pilot programs underway using robotic automation, according to research from McKinsey & Company, the consulting firm. The companies and government agencies that have begun enlisting the automation software run the gamut. They include General Motors, BMW, General Electric, Unilever, Mastercard, Manpower, FedEx, Cisco, Google, the Defense Department and NASA. State Auto Insurance Companies in Columbus, Ohio, started its first automation pilot project two years ago. Today, it has 30 software programs handling back-office tasks, with an estimated savings of 25,000 hours of human work — or the equivalent of about a dozen full-time workers — on an annualized basis, assuming a standard 2,000-hour work year. Holly Uhl, a technology manager who leads the automation program, estimated that within two years the company’s bot population would double to 60 and its hours saved would perhaps triple to 75,000, nearly all in year-after-year savings rather than one-time projects. Cutting jobs, Ms. Uhl said, is not the plan. The goal for the company, whose insurance offerings include auto, commercial and workers’ compensation, is to increase productivity and State Auto’s revenue with limited additions to its head count, she said. Ms. Uhl said her message to workers is: “We’re here to partner with you to find those tasks that drive you crazy.” Rebekah Moore, a premium auditor at the company, had one in mind. Premium auditors scrutinize insurance policies and make recommendations for changing rates. They audit less than half of the policies, Ms. Moore said. The policies that will not be audited then have to be set aside and documented. That step, she explained, is a routine data-entry task that involves fiddling with two computer programs, plugging in codes and navigating drop-down menus. It takes a minute or two. But because auditors handle many thousands of policies, the time adds up, to about an hour a day, she estimated. Starting in May, a bot took over that chore. “No one misses that work,” Ms. Moore said. Is she worried about the bots climbing up the task ladder to someday replace her? Not at all, she said. “We’ll find things to do with our time, higher-value work,” said Ms. Moore, 37. On State Auto’s current path, her confidence seems justified. If the company hits its target of 75,000 hours in savings by 2020, that would be the equivalent of fewer than 40 full-time workers, compared with State Auto’s work force of 1,900. The company plans to grow in the next two years. If so, State Auto would most likely be hiring a few dozen people fewer than it would otherwise. Automation companies are eager to promote the bots as helpful assistants instead of job killers. The technology, they say, will get smarter and more useful, liberating workers rather than replacing them. “The long-term vision is to have one bot for every employee,” said Bobby Patrick, chief market officer for UiPath. The company, which is based in New York, recently reported that its revenue more than tripled in the first half of 2018, to a yearly rate of more than $100 million. Mihir Shukla, chief executive of Automation Anywhere, refers to his company’s bots as “digital colleagues.” In July, the company announced it had raised a $250 million round of venture funding, valuing the company at $1.8 billion. The market for A.I.-enhanced software automation is poised for rapid growth, but that expansion, analysts say, will ultimately bring job losses. Forrester Research estimated that revenue would nearly triple to $2.9 billion over the next three years. And by 2021, robotic automation technology will be doing the equivalent work of nearly 4.3 million humans worldwide, Forrester predicted. In a dynamic global labor market, that is not a clear-cut forecast of 4.3 million layoffs. The bots may do work not previously done by humans, and people may move onto new jobs. “But these initial bots will get better, and the task harvesting will accelerate,” said Craig Le Clair, an analyst for Forrester. “For workers, there will be a mix of automation dividends and pain.” The recent research has examined jobs as bundles of tasks, some of which seem ripe for replacement and others not. So the technology’s immediate impact will resemble the experience to date with robotic software, changing work more than destroying jobs. For Ms. Uhl of State Auto, the most persistent pushback has come not at the company but at home, from her two young sons, Christian, 9, and Elijah, 7, who are eager to glimpse the future. Hearing their mother talk about robots at work, they keep asking her to bring one home. “It’s not the kind of robot you can see,” Ms. Uhl said she has told her disappointed sons. Follow Steve Lohr on Twitter: @SteveLohr. PHOTO: Holly Uhl, a manager at State Auto Insurance Companies in Columbus, Ohio, oversees an automation project for back-office tasks that saves an estimated 25,000 hours of human work a year. (PHOTOGRAPH BY Maddie McGarvey for The New York Times FOR THE NEW YORK TIMES) Related Articles Robots Will Take Jobs, but Not as Fast as Some Fear, New Report Says A.I. Will Transform the Economy. But How Much, and How Soon? A.I. Is Doing Legal Work. But It Won’t Replace Lawyers, Yet. Load-Date: August 11, 2018 End of Document Maybe Information Doesn't Want to Be Free The New York Times

### Document 368

For years, it has been an article of faith in corporate America that cloud computing and artificial intelligence will fuel a surge in wealth-generating productivity. That belief has inspired a flood of venture funding and company spending. And the payoff, proponents insist, will not be confined to a small group of tech giants but will spread across the economy. It hasn’t happened yet. Productivity, which is defined as the value of goods and services produced per hour of work, fell sharply in the first quarter this year, the government reported this month. The quarterly numbers are often volatile, but the report seemed to dash earlier hopes that a productivity revival was finally underway, helped by accelerated investment in digital technologies during the pandemic. The growth in productivity since the pandemic hit now stands at about 1 percent annually, in line with the meager rate since 2010 — and far below the last stretch of robust improvement, from 1996 to 2004, when productivity grew more than 3 percent a year. Economies grow not only by adding more capital and labor. Another vital ingredient is a nation’s skill in creating and commercializing innovation, which makes investment and workers more productive. Seemingly small percentage gains in productivity can make a big difference in a country’s wealth and living standards over time. Even an additional 1 percent annual increase in productivity over a few years, to 2024, would generate an extra $3,500 in per-capita income for Americans, McKinsey &amp; Company estimated in a report last year. The 3.8 percent average annual gain from 1948 to 1972 was the engine of the nation’s postwar prosperity. Productivity is not a cure-all for economic ills. “Even if the optimism about this wave of digital technology proves justified, that does not mean there will be a real sharing of the benefits,” said Laura Tyson, a professor at the Haas School of Business at the University of California, Berkeley, and a chair of the Council of Economic Advisers in the Clinton administration. But a less productive economy is a smaller one with fewer resources to deal with social challenges like inequality. The current productivity puzzle is the subject of spirited debate among economists. Robert J. Gordon, an economist at Northwestern University, is the leading skeptic. Today’s artificial intelligence, he says, is mainly a technology of pattern recognition, poring through vast troves of words, images and numbers. Its feats, according to Mr. Gordon, are “impressive but not transformational” in the way that electricity and the internal combustion engine were. Erik Brynjolfsson, director of Stanford University’s Digital Economy Lab, is the leader of the optimists’ camp. He confesses to being somewhat disappointed that the productivity pickup is not yet evident, but is convinced it is only a matter of time. “Real change is happening — a tidal wave of transformation is underway,” Mr. Brynjolfsson said. “We’re seeing more and more facts on the ground.” It will probably be years before there is a definitive answer to the productivity debate. Mr. Brynjolfsson and Mr. Gordon made a “long bet” last year, with the winner determined at the end of 2029. But studies at the industry and company levels, tapping data that ranges from Census Bureau business surveys to online job listings, showthe pattern of technology diffusion and the obstacles. The leaders are mainly large companies that have been investing in digital technology for years and high-growth younger companies, which are often backed by venture capital. Cloud computing is fairly widely adopted, but not the most advanced technology, like A.I applications. The limited uptake, some experts say, is not so surprising at this stage, given that three-quarters of American businesses are small, with fewer than 10 employees. At Anthem, a health insurer whose plans cover more than 45 million people, about 75 percent of the customer questions are now handled through its digital channels, including a web portal, a mobile app and speech recognition software. Three years earlier, the digital share was about 30 percent. The question-answering technology to help people with basic tasks like checking the status of a claim, paying a bill or finding a doctor is animated partly by A.I. Digital automation has eliminated 10 million phone calls that Anthem’s call centers would have fielded, estimated Rajeev Ronanki, president of digital platforms. Anthem, which is changing its corporate name next month to Elevance Health, is not cutting its customer service staff. But the role of those workers and how their performance is measured have changed. The traditional metric of performance in call centers is “call-handle time,” and the less time per call, the better. Anthem now wants its customer service staff to resolve problems for callers with one call, whenever possible, rather than passing them to another department. Many of its call center agents have received additional training to become what Anthem calls “care navigators.” Measurements of their performance now include issues resolved and consumer satisfaction surveys. By that broader set of measures, Mr. Ronanki said, the company’s contact agents are 30 percent to 40 percent more productive. Adding skills and redesigning work, he said, are as important as improving technology. “Building the technical capability alone is just the beginning,” Mr. Ronanki said. It takes time for new technologies to spread and for people to figure how to best use them. For example, the electric motor, which was introduced in the 1880s, did not generate discernible productivity gains until the 1920s, when the mass-production assembly line reorganized work around the technology. The personal computer revolution took off in the 1980s. But it was not until the second half of the 1990s that economic productivity really surged, as those machines became cheaper, more powerful and connected to the internet. The 1990s revival was helped by a leap in technology investment by companies and by venture capitalists, especially in internet and web start-ups. Similarly, in the past decade software spending in the United States has more than doubled to $385 billion, as companies invest to digitize their operations, the research firm IDC reported. Venture investment in artificial intelligence start-ups worldwide increased more than 80 percent last year to $115 billion, according to PitchBook, which tracks financing. Cresta is an A.I. start-up trying to make a dent in the modern productivity problem. In 2020, Cresta introduced its initial product: real-time recommendation and coaching software for call center agents. Its technology digests huge volumes of text and voice conversations to identify patterns of behavior, and answers to questions that solve customer problems or generate sales. The goal is not to replace workers but to lift their performance, said Zayd Enam, the company’s co-founder and chief executive. Cresta’s offering, he said, is made possible by recent advances in the power and speed of A.I. software, which he described as “game changing.” Cresta has 200 employees, has raised more than $150 million in venture funding and has several dozen corporate customers including Verizon, Cox Communications and Porsche. CarMax, the nation’s largest used-car retailer, started trying out the Cresta software in December. The A.I. experiment followed years of investment to shift the company’s computer operations to run on more flexible, cloud-based systems, said Jim Lyski, executive vice president for strategy, marketing and products. Customer inquiries to CarMax’s contact centers tend to be lengthy. Used cars span different years, models, features and driving histories, and financing plans for what is a major purchase vary. The range of questions is all but unlimited, Mr. Lyski said, so purely automated communication is not an option. But a computing assistant that could help sort all the automotive complexity, offering real-time suggestions and information, was appealing. Cresta first trained on the CarMax contact center data, and the experiment began with its live chat agents, who have text conversations with customers. The experience has been encouraging, Mr. Lyski said. There has been about a 10 percent improvement in response time, conversion to sales and reduced session time. And the system keeps learning and getting better. The company has begun a pilot project with agents who field voice calls, lifting the total number of agents using the A.I. technology to 200. One concern, Mr. Lyski said, was how employees would respond to having A.I. over their shoulders. Would it be good enough to be seen as a welcome helper instead of an irritating distraction? The reaction has been positive, he said. Cresta began with contact centers as a large, early market because it is a labor-intensive field where A.I. can be applied relatively quickly and productively. But Mr. Enam sees its “real-time intelligence A.I.” potentially being useful in a wide range of knowledge work, acting as a clever assistant in everything from hiring to product development. “This technology is more general purpose than we see now,” he said. Mr. Brynjolfsson of Stanford is betting that’s true, and Mr. Gordon of Northwestern is doubtful. Audio produced by Parin Behrooz. Audio produced by Parin Behrooz. PHOTOS: Jim Lyski, a CarMax executive, found an experiment with A.I. encouraging. (PHOTOGRAPH BY MATT EICH FOR THE NEW YORK TIMES) (B1); Productivity growth since the pandemic hit stands at about 1 percent annually. (PHOTOGRAPH BY TIMO LENZEN) (B6) Load-Date: June 22, 2023 End of Document Monday Briefing The New York Times

### Document 812

hastily formed crowdsourcing operation to contain the insects in Kenya, Ethiopia and Somalia could help manage climate-related disasters everywhere. Melodine Jeptoo will never forget the first time she saw a locust swarm. Moving like a dark cloud, the insects blotted out the sky and pelted her like hail. ''When they're flying, they really hit you hard,'' said Ms. Jeptoo, who lives in Kenya and works with PlantVillage, a nonprofit group that uses technology to help farmers adapt to climate change. In 2020, billions of the insects descended on East African countries that had not seen locusts in decades, fueled by unusual weather connected to climate change. Kenya had last dealt with a plague of this scale more than 70 years ago; Ethiopia and Somalia, more than 30 years ago. Nineteen million farmers and herders across these three countries, which bore the brunt of the damage, saw their livelihoods severely affected. ''People were operating in the dark, running around with their heads cut off in a panic,'' said Keith Cressman, a senior locust forecasting officer at the United Nations Food and Agriculture Organization. ''They hadn't faced something of this magnitude since the early 1950s.'' But as bad as 2020's swarms were, they and their offspring could have caused much worse damage. While the weather has helped slow the insects' reproduction, the success, Mr. Cressman said, has primarily resulted from a technology-driven anti-locust operation that hastily formed in the chaotic months following the insects' arrival to East Africa. This groundbreaking approach proved so effective at clamping down on the winged invaders in some places that some experts say it could transform management of other natural disasters around the world. ''We'd better not let this crisis go to waste,'' said David Hughes, an entomologist at Penn State University. ''We should use this lesson as a way not just to be adapted to the next locust crisis, but to climate change, generally.'' Desert locusts are the Dr. Jekylls and Mr. Hydes of the insect world. Normally, the grasshopper-like plant eaters spend their time living solitarily across the deserts of North Africa, Southwest Asia and the Middle East. But when rains arrive, they change from a muted brown into a fiery yellow and become gregarious, forming groups of more than 15 million insects per square mile. Such a swarm can consume the equivalent amount of food in a single day as more than 13,000 people. The locust plague that hit East Africa in 2020 was two years in the making. In 2018, two major cyclones dumped rain in a remote area of Saudi Arabia, leading to an 8,000-fold increase in desert locust numbers. By mid-2019, winds had pushed the insects into the Horn of Africa, where a wet autumn further boosted their population. An unusual cyclone in Somalia in early December finally tipped the situation into a true emergency. ''Ten years ago, there would have been between zero and one cyclones coming off the Indian Ocean,'' Dr. Hughes said. ''Now there's eight to 12 per year -- a consequence of climate change.'' Countries like Sudan and Eritrea that regularly deal with small, seasonal swarms have teams of locust trackers who are trained to find the insects and recognize which life cycle stage they are in. They use a tablet-based program to transmit locust data by satellite to national and international authorities so experts can design appropriate control strategies. But people outside of those frontline locust nations who may want to start using this system today would encounter a typical technology problem: The version of the tablets that the locust-tracking program was written for is no longer manufactured, and newer tablets are not compatible with the software. And even if the hardware were available, in 2020, East Africa lacked experts who could identify locusts. ''We'd never had a dress rehearsal for the real thing,'' said Alphonse Owuor, a United Nations Food and Agriculture Organization specialist in Somalia. ''We had people who were very familiar with locusts in theory, but who didn't have the experience or equipment required to carry out this massive operation.'' With swarms suddenly covering an area of Kenya larger than New Jersey, officials were tasked with creating a locust-combating operation virtually from scratch. Collecting dependable, detailed data about locusts was the first crucial step. ''Saying 'Oh, there's locusts in northern Kenya' doesn't help at all,'' Mr. Cressman said. ''We need longitude and latitude coordinates in real time.'' Rather than try to rewrite the locust-tracking software for newer tablets, Mr. Cressman thought it would be more efficient to create a simple smartphone app that would allow anyone to collect data like an expert. He reached out to Dr. Hughes, who had already created a similar mobile tool with the Food and Agriculture Organization to track a devastating crop pest, the fall armyworm, through PlantVillage, which he founded. PlantVillage's app uses artificial intelligence and machine learning to help farmers in 60 countries, primarily in Africa, diagnose problems in their fields. Borrowing from this blueprint, Dr. Hughes and his colleagues completed the new app, eLocust3m, in just a month. Unlike the previous tablet-based program, anyone with a smartphone can use eLocust3m. The app presents photos of locusts at different stages of their life cycles, which helps users diagnose what they see in the field. GPS coordinates are automatically recorded and algorithms double check photos submitted with each entry. Garmin International also helped with another program that worked on satellite-transmitting devices. ''The app is really easy to use,'' said Ms. Jeptoo of PlantVillage. Last year, she recruited and trained locust trackers in four hard-hit Kenyan regions. ''We had scouts who were 40- to 50-year-old elders, and even they were able to use it.'' In the last year, more than 240,000 locust records have poured in from East Africa, collected by PlantVillage scouts, government-trained personnel and citizens. But that was only the first step. Countries next needed to act on the data in a systematic way to quash locusts. In the first few months, however, officials were strategizing ''on the back of envelopes,'' Mr. Cressman said, and the entire region had just four planes for spraying pesticides. When Batian Craig, director of 51 Degrees, a security and logistics company focused on protecting wildlife, saw Mr. Cressman quoted in a news story about locusts, he realized he could help. Mr. Craig and his colleagues, who are headquartered at Lewa Wildlife Conservancy in Central Kenya, conduct regular anti-poaching aerial surveys that could be repurposed to seek out and destroy locust swarms. They also closely communicate with rural communities affected by the insects. Additionally, 51 Degrees uses a free program called EarthRanger. Created by Vulcan, a Seattle-based philanthropic company originally co-founded by Paul Allen of Microsoft and his sister Jody Allen, EarthRanger compiles and analyzes geographic data ranging from rhino and ranger locations to sensor data and remote imagery. Engineers at Vulcan agreed to customize a version of EarthRanger for locusts, integrating data from the eLocust programs and the computer loggers on aerial pesticide sprayers. Lewa Conservancy quickly became the headquarters for aerial survey and control across the region. By June 2020, these efforts were paying off. Locusts were prevented from spilling into Africa's Sahel region and west to Senegal. ''If we didn't stop them, the locusts would have reached Chad, Niger, Mali and Mauritania,'' said Cyril Ferrand, leader of the F.A.O.'s Eastern Africa resilience team. ''We were able to prevent a much bigger catastrophe.'' The progeny of the 2020 swarms continue to cause damage across East Africa. But now, countries are better able to combat them -- equipped with the new technology, 28 aircraft and thousands of trained government locust trackers. In February alone, locust-patrolling pilots in Kenya, Ethiopia and Somalia flew the equivalent of three times the circumference of the globe. They sprayed swarms before they had time to mature, stopping the insects from multiplying and spreading into Uganda and South Sudan, as they did last year. ''The situation is still very, very serious,'' Mr. Cressman said. ''But if you compare now to a year ago, the countries are a thousand times more prepared.'' Since February 2020, the F.A.O. estimates that this effort in East Africa has averted the loss of agricultural products with a commercial value of $1.5 billion -- saving the livelihoods of 34 million people. ''These are big data for a region that's already very fragile,'' Mr. Ferrand said. The new approach could yield even greater results in tracking, combating and even averting future disasters. Dr. Hughes is now working with experts from the National Oceanic and Atmospheric Administration and the Massachusetts Institute of Technology to use locust reports to build models that will predict future plagues. Such insight would allow countries to implement pre-emptive control strategies that are less environmentally damaging than pesticides. The same approach, Dr. Hughes said, could also be used to combat other climate-related disasters, such as floods, droughts and pest outbreaks. ''Locusts show how we can crowdsource with artificial intelligence,'' Dr. Hughes said. ''This can be an absolute game-changer to hundreds of millions of people as we adapt to climate change.'' https : // www.nytimes.com/2021/04/08/science/locust-swarms-africa.html Graphic PHOTOS: Desert locusts in a field in Meru, Kenya. A swarm of the insects can consume as much food in a single day as over 13,000 people can. (PHOTOGRAPH BY YASUYOSHI CHIBA/AGENCE FRANCE-PRESSE -- GETTY IMAGES) (D1) Top, a locust swarm near the town of Rumuruti, Kenya, in January. Above from left: Cyril Ferrand of the United Nations Food and Agriculture Organization's Eastern Africa resilience team a pilot following a swarm in Kenya Lake Joseph, a locust tracker. (PHOTOGRAPHS BY BAZ RATNER/REUTERS YASUYOSHI CHIBA/AGENCE FRANCE-PRESSE -- GETTY IMAGES FREDRIK LERNERYD/GETTY IMAGES) Center, two men in Samburu County, Kenya, sending GPS coordinates of a locust infestation. Above, a swarm in Kenya in February. When the rains come, locusts can form groups of more than 15 million insects per square mile. (PHOTOGRAPHS BY FREDRIK LERNERYD/GETTY IMAGES YASUYOSHI CHIBA/AGENCE FRANCE-PRESSE -- GETTY IMAGES) (D5) Load-Date: April 13, 2021 End of Document How the Giant Of Hedge Funds Really Makes Its Money The New York Times

### Document 1093

Portugal — The rise of robots has long been a topic for sci-fi best sellers and video games and, as of this week, a threat officially taken seriously by central bankers. The bankers are not yet ready to buy into dystopian visions in which robots render humans superfluous. But, at an exclusive gathering at a golf resort near Lisbon, the big minds of monetary policy were seriously discussing the risk that artificial intelligence could eliminate jobs on a scale that would dwarf previous waves of technological change. “There is no question we are in an era of people asking, ‘Is the Robocalypse upon us?’” David Autor, a professor of economics at the Massachusetts Institute of Technology, told an audience on Tuesday that included Mario Draghi, the president of the European Central Bank, James Bullard, president of the Federal Reserve Bank of St. Louis, and dozens of other top central bankers and economists. The discussion occurred as economists were more optimistic than they had been for a decade about growth. Mr. Draghi used the occasion to signal that the European Central Bank is edging closer to the day when it will begin paring measures intended to keep interest rates very low and bolster the economy. “All the signs now point to a strengthening and broadening recovery in the euro area,” Mr. Draghi said.His comments pushed the euro to almost its highest level in a year, though it later gave up some of the gains. But along with the optimism is a fear that the economic expansion might bypass large swaths of the population, in part because a growing number of jobs could be replaced by computers capable of learning — artificial intelligence. Policy makers and economists conceded that they have not paid enough attention to how much technology has hurt the earning power of some segments of society, or planned to address the concerns of those who have lost out. That has, in part, nourished the political populism that contributed to Britain’s vote a year ago to leave the European Union, and the election of President Trump. “Generally speaking, economic growth is a good thing,” Ben S. Bernanke, former chairman of the Federal Reserve, said at the forum. “But, as recent political developments have brought home, growth is not always enough.” In the past, technical advances caused temporary disruptions but ultimately improved living standards, creating new categories of employment along the way. Farm machinery displaced farmworkers but eventually they found better paying jobs, and today their great-grandchildren may design video games. But artificial intelligence threatens broad categories of jobs previously seen as safe from automation, such as legal assistants, corporate auditors and investment managers. Large groups of people could become obsolete, suffering the same fate as plow horses after the invention of the tractor. “More and more, we are seeing economists saying, ‘This time could be different,’” said Mr. Autor, who presented a paper on the subject that he wrote with Anna Salomons, an associate professor at the Utrecht University School of Economics in the Netherlands. Central bankers have begun examining the effect of technology on employment because it might help solve several economic quandaries. Why is workers’ share of total earnings declining, even though unemployment is at record lows and corporate profits at record highs? Why is productivity — the amount that a given worker produces — stuck in neutral? “The mere fact that we are organizing this conference here in Sintra testifies to our interest in that discussion,” Benoît Cœuré, a member of the European Central Bank’s executive board, said in an interview, referring to the “Robocalypse” debate. Of particular interest to the European Central Bank is why faster economic growth has not caused wages and prices to rise. The central bank has pulled out all the stops to stimulate the eurozone economy, cutting interest rates to zero and even below, while printing money. Four years of growth have led to the creation of 6.4 million jobs. Yet inflation remains well below the bank’s official target of below, but close to, 2 percent. One explanation is that more work is being done by advanced computers, with the rewards flowing to the narrow elite that owns them. Still, among the economists in Sintra there was plenty of skepticism about whether the Robocalypse is nigh. Since the beginning of the industrial age, almost every major technological innovation has led to dire predictions that humans were being permanently replaced by machines. While some kinds of jobs were lost forever, greater efficiency led to more affordable goods and other industries soaked up the excess workers. Few people alive today would want to return to the late 1800s, when 40 percent of Americans worked on farms. Robocalypse advocates underestimate the power of scientific advances to beget more scientific advances, said Joel Mokyr, a professor at Northwestern University who studies the history of economics. “Think about what computers are doing to our ability to discover science,” Professor Mokyr said during a panel discussion, citing computers that can solve equations that have baffled mathematicians for decades. There may be breakthroughs that “we can’t even begin to imagine.” There are other explanations for stagnant wages besides technology. Companies in Japan, the United States and Europe are sitting on hoards of cash, doling out the money to shareholders rather than investing in new buildings, equipment or innovative products. Just why is another topic of debate. Hal Varian, the chief economist at Google — whose self-driving technology may someday make taxi drivers unnecessary — said that the plunging cost of information technology “has virtually eliminated the fixed cost of entering a business.” Companies can rent software and computing power over the internet. And flat wages reflect the large number of women who have entered the work force in recent decades as well as the post World War II baby boom, Mr. Varian said, adding that those trends have run their course. “We are going to see a higher share going to labor,” he said. Yet already, disruptions caused by technology help account for rampant pessimism among working-class and middle-class people across the developed world. Mr. Bernanke referred to polls showing that about twice as many Americans say the United States is on the wrong track than say the country is moving in the right direction. As a result, “last November Americans elected as president a candidate with a dystopian view of the economy,” Mr. Bernanke said. Mr. Autor, co-author of the Robocalypse paper, concluded that it was too early to say that robots are coming for people’s jobs. But it could still happen in the future. “I say not Robocalypse now,” Mr. Autor said, “perhaps Robocalypse later.” Follow Jack Ewing on Twitter @JackEwingNYT. PHOTO: Workers at Zalando, an online store, prepare orders at a hub in Erfurt, Germany. Zalando invests heavily in hubs and automation. (PHOTOGRAPH BY PHIL HATCHER-MOORE FOR THE NEW YORK TIMES) Related Articles Indian Technology Workers Worry About a Job Threat: Technology How to Prepare for an Automated Future New Tools Needed to Track Technology’s Impact on Jobs, Panel Says Robots Will Take Jobs, but Not as Fast as Some Fear, New Report Says Load-Date: June 30, 2017 End of Document The Week Ahead; Data on New Housing, And a Google Festival The New York Times

### Document 127

What if you could tell what was wrong with your plant by simply hovering your smartphone over it? Well, farmers in Africa now can. Thanks to one of Google's many products, TensorFlow, rural farmers on the continent can diagnose diseased plants by taking a photo of it. TensorFlow came with the launch of Google's artificial intelligence (AI) center in Accra, Ghana's capital city earlier this year. The center, one of the multinational tech company's many investments in Africa, is comprised of researchers and engineers from around the continent building resources to solve various African problems through AI. Just as Google is using technology to create tools that address Africa's growing needs, Microsoft continues to invest in growing tech talents on the continent. This week, the company launched its Africa Development Centre (ADC) with two initial sites in Nairobi, Kenya and Lagos, Nigeria. Microsoft's development center More than 100 local engineers and developers will be hired to work in the new facilities in both countries across artificial intelligence, machine learning and mixed reality innovation, according to Microsoft. The plan is to grow this pool of workers to 500 by 2023. "Our desire is to recruit exceptional engineering talent across the continent that will build innovative solutions for global impact,"said Michael Fortin, Microsoft's corporate vice president in a statement. Fortin said Microsoft was hoping to create opportunities for engineers to work from their home countries while also being a part of the larger global engineering organization. Africa tech analyst, Bankole Oluwafemi, believes that the initial focus on Nigeria and Kenya is because both countries have large developer communities. Kenya and Nigeria in the past decade have earned reputations as technology havens for their major tech startups, funding and mobile access. And according to a report from Disrupt Africa, Kenya, Nigeria and South Africa raised the highest funds for technology startups in Africa last year, emerging as the top investment destinations for early-stage technology firms on the continent. Technology giants in Africa Now approaching 226 million, the number of smartphone connections across Africa has doubled over the last two years, according to a report published by GSMA on Africa's mobile economy. This leap coupled with the growing number of technology hubs and companies in major African cities is a boon for tech investors. It's why Microsoft and Google are not the only international technology companies staking their claims on the continent. IBM, the multinational company, invested $70 million in Africa in 2017 to build cloud, digital and cognitive IT skills among young Africans over a five-year period. Technology company, Andela, famous for identifying and training software developers currently has three technology campuses in Nigeria, Kenya and Uganda. The company has created tech talent factories on the continent over the past years. In March, Chinese telecom giant Huawei joined the league, too - announcing the launch of two data centers in South Africa. Aside from employment, the presence of international tech hubs on the continent gives African developers and engineers the chance to work on global projects at a large scale, Africa tech entrepreneur and Andela Co-founder, Iyin Aboyeji says. "Prior to now African developers had to leave their countries to get global opportunities. Now those opportunities are meeting them on the continent," he told CNN. For Aboyeji, the development affirms the competence and talents of tech developers in Africa. "My hope is that these opportunities are not concentrated in just the large cities but extend to other places," he added. TM & © 2019 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: May 18, 2019 End of Document Tech stocks have been crushed. What's next for the FAANGs? CNN Wire

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Morgan Stanley is cutting approximately 1,500 jobs because of concerns about economic uncertainty around the world, a person familiar with the matter told CNN Business. The job cuts represent more than 2% of the bank's workforce, which totaled 60,532 at the end of September. The layoffs will skew towards technology and operations roles, the source said. The flurry of pink slips comes as Wall Street firms face pressure to restrain spending to offset a challenging environment of low interest rates, slow economic growth and vanishing volatility in financial markets. And it comes as traditional bank jobs are being disrupted by artificial intelligence and other new technologies. Morgan Stanley's compensation expenses crept higher during the third quarter even as revenue was sluggish. "We remain committed to controlling our expenses," CEO James Gorman said at the time. Morgan Stanley declined to comment on the job cuts, which were first reported by CNBC. Some European banks have also eliminated jobs in a bid to control costs. In July, Deutsche Bank launched a dramatic overhaul aimed at slashing the troubled German lender's workforce by 18,000. During a conference call with analysts in October, Gorman said that while business executives "remain confident" in the US economy, they are also worried about whether trade negotiations will stay within the "guardrails of reasonableness." He added, "Nobody wants to see a global economic slowdown." Recession fears have eased in recent weeks on signs that much of the US economy is proving resilient to the US-China trade war. Although America's manufacturing industry is in a downturn, the rest of the economy continues to grow. The United States added 266,000 jobs in November, blowing away estimates from economists. The unemployment rate dipped to 3.5%, matching a 50-year low. Still, the financial services industry is bracing for significant disruption caused by the rise of new technologies such as artificial intelligence and automation. For instance, by 2030, about 1.3 million bank workers in the United States and 500,000 in the United Kingdom could be affected by the introduction of AI, according to IHS Markit. Bank workers who will be affected through layoffs and reassignments include bank tellers, customer service representatives, loan interviewers, compliance officers and loan officers, IHS said. Finance is likewise exposed to these technology trends because banks spend $150 billion per year on technology -- more than any other industry, according to an October study by Wells Fargo banking analyst Mike Mayo. The number of jobs on Wall Street and the banking industry could decline by about 200,000 over the next decade, the report predicted. "New job additions could make the reductions less but our conclusion is still that this will be the biggest reduction in US bank headcount in history," he wrote. TM & © 2019 Cable News Network, Inc., a WarnerMedia Company. All rights reserved. Load-Date: December 10, 2019 End of Document US investors are searching overseas for opportunities CNN Wire

### Document 1055

When Robo Global's team recently gathered at the New York Stock Exchange to celebrate the fifth anniversary of its robotics index and exchange-traded fund, it marked the event in true robotic fashion: A robot, propped on a table, reached out its arm and rang the closing bell as 15 company executives applauded wildly next to it. This clever, eye-catching gesture was aimed to show the world how easy -- and increasingly common -- it is for humans to work alongside robots. ''It was symbolic,'' said Travis Briggs, chief executive of Robo Global's operations in the United States. ''We're in the first inning of this transition to automation and artificial intelligence, and there is a massive amount of growth potential.'' Indeed, robotics and automation are no longer viewed as a passing fad or a cool technology for geeks to gush over. Instead, more companies are turning to artificial intelligence to boost productivity and stay relevant in a fiercely competitive market. Experts call it the fourth industrial revolution and compare today's robotics in the workplace to the early days of the internet. At a recent conference hosted by Robo Global, experts showed photos and videos of robotic prototypes of all shapes and sizes: Robots that climb stairs and around corners to find an object and A.I.-laced pills that can retrieve foreign objects from a person's stomach. They even included a video of a woman, with electrodes attached to her head, using thoughts to tell a robot where to place an object. ''We're starting to see robots and automated systems penetrate every sector of the economy,'' said Jeremie Capron, director of research at Robo Global. ''The pace of change is really accelerating, so, yes, it's a revolution.'' Robo Global, which researches, advises and invests in robotics, automation and A.I. companies, knows all about the sector's growth. Since setting up its Robo Global Robotics & Automation Index ETF (Robo), which tracks more than 80 companies, the corporation reports that its assets have soared to $3.46 billion from $43 million its first year. Several other robotic ETFs, like iShares Robotics and Artificial Intelligence ETF (IRBO) and Global X Robotics & Artificial Intelligence Thematic ETF (BOTZ), have since been established to tap this growing sector. The phenomenon strikes both admiration and fear into a nervous American work force: A video by Boston Dynamics, showing human-looking robots running and jumping over blocks, drew more than five million views on YouTube in one week this fall. Yet many Americans, who grew up watching science fiction and ''Terminator'' movies in which robots were the enemy, worry about robots stealing their jobs. [Video: Parkour Atlas Watch on YouTube.] '''Terminator' and those kinds of images have a significant impact on the way people perceive technology,'' said Raffaello D'Andrea, professor of dynamic systems and control at ETH Zurich University, and a co-founder of Kiva Systems, a robotics company that was sold to Amazon. A recent report, ''The Future of Jobs 2018,'' by the World Economic Forum, forecasts that machines will perform more than half of all current workplace tasks by 2025, up from 29 percent today. It also predicts that 75 million jobs will be displaced by 2022, but that 133 million jobs will be created. Of the new jobs, 54 percent will require new skills. A McKinsey Global Institute report is gloomier, predicting that by 2030, as many as 800 million people worldwide may have been displaced by automation and will need to find new jobs. The retail giant Amazon was one of the earliest to embrace this technology, with its $775 million acquisition of Kiva -- now called Amazon Robotics -- in 2012. Amazon had been under pressure to deliver orders to its Amazon Prime customers within the promised 48-hour window without losing money, Mr. Capron said. Amazon immediately deployed 3,000 robots into its fulfillment centers. ''We need advanced technology and automation to meet customer demand -- it's that simple,'' said Tye Brady, chief technologist at Amazon Robotics. The robots wander up and down the aisles, bringing shelves of items directly to associates to package and ship, significantly slashing costs and shortening the time to process and deliver an order. Today, Amazon has more than 100,000 robots navigating 26 fulfillment centers around the world. ''Amazon delivered more than five billion items under two business days in 2017 to their Prime program members, based on our research, including discussions with Amazon Robotics,'' Mr. Capron said. All of this bolstered customer loyalty and demand, resulting in more orders, sales revenue and jobs. Mr. Brady said it was a myth that automation always destroys jobs. ''Since the acquisition of Kiva, we've added 300,000 full-time jobs globally,'' he said. ''Last year alone, we added 130,000.'' As robots have become faster, smaller, cheaper and safer in recent years, more and more companies -- large and small -- have been seeking robotics to step up productivity, increase precision or cut costs, said Stuart Shepherd, regional sales director for Universal Robots USA and chairman of the Association for Advancing Automation. The average hourly cost of a manufacturing worker to an employer is $36 in the United States, while the hourly cost of a robot is $4, according to a recent Pew Research report. All Axls Machining, a business in Dallas, was struggling to find enough workers to operate its metal-fabrication equipment and to sand and inspect metal parts manually for the medical, aerospace, defense and industrial sectors. Without workers to run the machines and the assembly lines, production lagged. ''After 5 p.m., we'd have a skeleton shift, with only half the machines running,'' said Gary Kuzmin, the company's owner. ''It was costing me orders that I couldn't get to my customers on time.'' But then Mr. Kuzmin discovered Universal Robots, which makes collaborative robots, or cobots, which are small, affordable and designed to operate safely side by side with workers. They are easy to program to do multiple tasks and allow the company to crank out parts around the clock. After introducing the robots, one job that was expected to take six months to complete was finished in less than half that time, Mr. Kuzmin said. ''We saw a 60 percent profit increase on that job alone.'' The company became so adept at programming the robots for different jobs that it formed an All Axls Robotics unit, which sells its specially programmed robots to other machine shops. Mr. Kuzmin said the increased productivity allowed him to hire -- rather than fire -- more workers, boosting his work force to 22 from 16. Early in 2017, another company, Zippertubing, of Chandler, Ariz., was having a tough time finding extra workers to help fulfill a big automotive order for its cable management products. ''We had a lot of people who would come in, work for maybe a week, and then leave because they didn't like the repetitive work environment,'' said Tim Mead, operations manager at Zippertubing. It brought in Universal Robots' cobots and immediately saw productivity surge. ''It used to take three people to do all of the operations that the robot now does,'' Mr. Mead said The robots have also increased the company's accuracy in spotting faulty manufactured parts. When operators look at thousands of parts a day, they sometimes become ''snow-blind'' to defects, Mr. Mead said. But that never happens to robots. In certain sectors -- consumer electronics, automobile manufacturing and logistics -- ''we're moving into an era where automation has really gone from a competitive advantage right now to absolutely necessary,'' Mr. Briggs said. ''Automate or fail.'' All of this has stoked fears, especially among Americans, that robots, automation and A.I. will throw millions of people onto the unemployment line. Some industry experts play down these concerns, saying that in any industrial revolution, jobs are lost and new ones created. ''Fifty years ago, or even 15 years ago, who knew what an app developer was, or the amount of programming that we'd need,'' Mr. Briggs said. Over the next decade, the biggest job losses will most likely affect low-skilled workers performing repetitive tasks, like machine operators, assembly line workers, dishwashers, drivers and preparers of fast food. Certain white-collar areas, like data entry, accounting and payroll, will suffer as well. Demand, however, will probably surge for data analysts, software developers, web designers, IT experts, e-commerce specialists, health care providers, entrepreneurs and social media experts, according to the World Economic Forum report. Sectors that involve human skills, like sales, marketing, customer service and even art and entertainment, will also be in high demand, the report said. While new jobs will offset losses, retraining and education will be critical. As many as 375 million workers globally will need to change job categories and learn new skills to survive the transition, according to the McKinsey Global Institute report. ''The days are gone where somebody learns to do a task, and that's what they do for the rest of their life,'' Mr. D'Andrea said. How quickly and how deeply A.I. and robotics penetrate the job market will ultimately dictate how rapidly people need to be retrained. ''History tells me that every prior technological revolution has resulted in more wealth and more jobs,'' Mr. Capron said. ''So it would have to be very different this time around for history not to repeat itself.'' But A.I. has its critics. The visionary billionaire Elon Musk has described it as humanity's ''biggest existential threat,'' while the renowned physicist Stephen Hawking, who died this year, predicted that ''the development of full artificial intelligence could spell the end of the human race.'' Mr. Musk is particularly concerned about the use of A.I. to develop autonomous lethal weapons that could select targets without human intervention -- a development with potentially apocalyptic repercussions. Mr. D'Andrea said A.I. was a long way off from being a real threat. He does believe, however, that regulations will be needed to safeguard its use in autonomous weapons. Mr. Briggs was less concerned. ''I think Elon Musk is being overly dramatic,'' he said, noting that he did not believe that A.I. should be regulated. ''I think regulation is a slippery slope -- it certainly stifles creativity.'' https : // www.nytimes.com/2018/11/07/business/robotics-automation-productivity-jobs.html Graphic PHOTOS: Robo Global leaders celebrated as a collaborative robot by Universal Robots rang the closing bell at the New York Stock Exchange. An Amazon Robotics drive unit carries items at an Amazon fulfillment center in Kent, Wash. The robots have helped streamline processing. (PHOTOGRAPH BY LINDSEY WASSON/REUTERS) Load-Date: December 16, 2018 End of Document Amazon's Expansive, Creeping Influence in an American City The New York Times

### Document 462

This article is part of our continuing Fast Forward series, which examines technological, economic, social and cultural shifts that happen as businesses evolve. McDonald's has a new plan to sell more Big Macs: Act like Big Tech. Over the last seven months, McDonald's has spent hundreds of millions of dollars to acquire technology companies that specialize in artificial intelligence and machine learning. And the fast-food chain has even established a new tech hub in the heart of Silicon Valley -- the McD Tech Labs -- where a team of engineers and data scientists is working on voice-recognition software. The goal? To turn McDonald's, a chain better known for supersized portions than for supercomputers, into a saltier, greasier version of Amazon. In recent years, fast-food sales have slowed across the United States, as Americans turn to healthier alternatives. While it has performed better than many of its rivals, McDonald's has lost customers, closed restaurants and seen its quarterly sales dip below analysts' expectations. The chain's new emphasis on technology is a bid to reverse that trend. So far, the technological advances can be experienced mostly at the company's thousands of drive-throughs, where for years menu boards have displayed a familiar array of McDonald's favorites: Big Macs, Quarter Pounders, Chicken McNuggets. Now, the chain has digital boards programmed to market that food more strategically, taking into account such factors as the time of day, the weather, the popularity of certain menu items and the length of the wait. On a hot afternoon, for example, the board might promote soda rather than coffee. At the conclusion of every transaction, screens now display a list of recommendations, nudging customers to order more. At some drive-throughs, McDonald's has tested technology that can recognize license-plate numbers, allowing the company to tailor a list of suggested purchases to a customer's previous orders, as long as the person agrees to sign away the data. ''You just grow to expect that in other parts of your life. Why should it be different when you're ordering at McDonald's?'' said Daniel Henry, the chain's chief information officer. ''We don't think food should be any different than what you buy on Amazon.'' As the evolution of the McDonald's drive-through shows, the internet shopping experience, with its recommendation algorithms and personalization, is increasingly shaping the world of brick-and-mortar retail. Restaurants, clothing stores, supermarkets and other businesses use new technology to collect consumer data and then deploy that information to encourage more spending. At some stores, Bluetooth devices now track shoppers' movements, allowing companies to send texts and emails recommending products that customers lingered over but did not buy. And a number of retailers are experimenting with facial recognition tools and other technologies -- sometimes known as ''offline cookies'' -- that allow businesses to gather information about customers even when they are away from their computers. In the restaurant world, the increasingly popular food-delivery apps have produced a slew of customer data. But much of that information is controlled by third-party technology companies rather than by the restaurants, underlining the importance of tech expertise as the industry grows more competitive. ''A lot of the restaurant chains, the larger ones that have the cash and the clout and the depth, are really turning into quasi-technology companies,'' said Michael Atkinson, who runs Orderscape, a company that provides voice-ordering technology. ''All of them have that ambition.'' In recent years, Domino's Pizza has distinguished itself as a technology leader in the slow-moving world of pizza (it's hard to disrupt a crust recipe), aiming to capture the growing food-delivery market with streamlined phone and online ordering systems, data-collection techniques and even self-driving cars. Like McDonald's, Domino's has a tech headquarters: the ''innovation garage'' in Ann Arbor, Mich., where teams of employees drawn from departments across the company work on specific projects under one roof -- an approach borrowed from Silicon Valley. ''That's 60 years' worth of legacy corporate structure that we have blown up by moving into this building,'' said Dennis Maloney, the company's chief digital officer. ''Domino's started off as a pizza company that sells online, and we've managed to transform ourselves into an e-commerce company that sells pizza.'' So far, however, Domino's has stopped short of the latest McDonald's play: acquiring entire tech start-ups. (Pizza Hut, however, recently acquired a company that produces online ordering software.) In March, McDonald's spent more than $300 million to buy Dynamic Yield, the Tel Aviv-based company that developed the artificial intelligence tools now used at thousands of McDonald's drive-throughs. The deal ''has changed the way the high-tech industry thinks about potential M&A,'' said Liad Agmon, a former Israeli intelligence official who co-founded Dynamic Yield. ''We'll see more nontraditional tech companies buying tech companies as an accelerator for their digital efforts. It was genius on McDonald's side.'' Already, the recommendation algorithms built into the drive-through menu boards have generated larger orders, the McDonald's chief executive, Steve Easterbrook, said during an earnings call in July. (Mr. Henry, the chain's information executive, declined to reveal the size of the increase.) By the end of the year, the new system is expected to be in place at nearly every McDonald's drive-through in the United States. In September, McDonald's purchased a second tech company, Apprente, a start-up in Mountain View, Calif., that develops voice-activated platforms that can process orders in multiple languages and accents. In recent months, McDonald's has tested voice recognition at some of its restaurants, seeking to replace the human workers who take orders with a faster system. McDonald's insists that the rollout of the voice technology will not cost jobs. But at a time when it faces renewed protests from workers over low wages and sexual harassment, the chain's new focus on technology could intensify scrutiny of how it treats its workers and how automation may affect them. While McDonalds has reported impressive growth over the last couple of years, some employees at its restaurants make less than $10 an hour. ''Try raising a family on that,'' said Adriana Alvarez, an employee in Cicero, Ill., who has helped lead the high-profile campaign for a $15 hourly wage at McDonald's. ''The company should be able to balance tech and other investments and, in the process, ensure workers like me are safe on the job and have a seat at the table.'' With unemployment at just 3.5 percent in the United States, the fast-food industry is facing one of its worst labor shortages in decades. Rather than eliminate jobs, McDonald's claims, voice-recognition technology would allow franchise owners to reassign workers to understaffed areas of their restaurants. But across the industry, fast-food experts say, some chains may try to use voice tools and other technologies to replace workers. ''The labor shortage frankly has done more to push restaurants toward technology than almost anything else,'' said Jonathan Maze, the executive editor of Restaurant Business Magazine, a trade publication. ''It enables you theoretically to be able to run your restaurant with fewer people.'' At the McDonald's drive-through on Fort Hamilton Parkway in Brooklyn, every order still must go through a human being: Earlier this month, the voice on the other end of the speaker sounded perplexed when a reporter turned down the free soda that usually comes with a cheeseburger and fries. But the rest of the drive-through experience -- with its digital screens and recommendation algorithms -- does indeed feel a bit like shopping online. ''It's a great, efficient way to take people's money,'' Marayah Jerry said as she waited at the drive-through to collect a Ranch Snack Wrap. ''I'll come with an idea of what I want, and then I see the pictures and I'm like, 'That looks good.''' Another drive-through customer, Dalila Ruiz, said she noticed the suggested add-ons at the bottom of the menu board but resisted the temptation to splurge. ''I don't want to be so fat,'' Ms. Ruiz said. Not all McDonald's customers are likely to show such discipline. Critics of artificial intelligence have long warned that the technology could lead to a dystopian future in which humans are subordinate to machines. Before the robot apocalypse, however, A.I. might simply make us fatter. ''There are real, significant unintended consequences of something like this further driving unhealthy eating and more fast-food eating and obesity rates and diabetes rates going up,'' said Dr. Scott Kahan, who directs the National Center for Weight and Wellness, an obesity clinic in Washington. ''These sorts of technologies are making it hard for people to just find some reasonable moderation.'' There is plenty of precedent for companies like McDonald's finding creative ways to persuade Americans to consume more calories. But the marriage of a fast-food giant and an artificial-intelligence start-up marks an unusual new chapter. When Mr. Agmon, the co-founder of Dynamic Yield, announced the McDonald's acquisition in a company WhatsApp chat in March, his colleagues thought he was joking. ''When you start working for a tech company,'' Mr. Agmon said, ''you don't expect this.'' Soon, however, the news began to sink in: The next day, 250 McDonald's hamburgers arrived at Dynamic Yield's headquarters in Tel Aviv, along with fries for the whole staff. But this wasn't really a McDonald's crowd. By the time the staff had finished hugging and congratulating one another, the burgers were cold. https : // www.nytimes.com/2019/10/22/business/mcdonalds-tech-artificial-intelligence-machine-learning-fast-food.html Graphic PHOTOS: A Brooklyn, N.Y., drive-through with the new A.I. technology that offers customers additional food suggestions based on their current orders. Already, the algorithms are generating larger orders. The new system will be in place throughout the United States by year's end. In recent months, McDonald's has also tested voice recognition at some restaurants. (PHOTOGRAPHS BY GABBY JONES FOR THE NEW YORK TIMES) (B5) DRAWING (DRAWING BY ROBERT BEATTY) Load-Date: October 28, 2019 End of Document The White House Pushes A.I. Leaders on Risks The New York Times

### Document 1238

not what investors want to hear from a "growth company." Wall Street reacted with alarm, sending Apple (AAPL) shares down nearly 7% in trading Wednesday and raising questions over how Apple can kick-start growth. They slipped further Thursday. A turnaround could start with the release of iPhone 7, rumored to be launched in September. But unless that product attains blockbuster status as iPhone 6 and iPhone 6 Plus did, Apple could enter trying times. What's a giant company, still the most valuable in the Standard & Poor's 500, supposed to do? Put cash to better use Apple has turned into a multibillion-dollar savings account. Apple ended the just-reported December quarter with $215.7 billion in cash and investments. That's more than any other company in the Standard & Poor's 500 and up 22% from a year ago. But the company isn't doing much with the money, most of which is stored overseas to avoid the taxes owed if brought home. Currently, 93% of Apple's cash is overseas, says Standard & Poor's Ratings Services. Instead, the company has been loading up on long-term debt -- now to the tune of $53 billion -- to give it liquidity to pay a dividend and buy back shares. Rather than using cash for financial engineering, Apple should look to use it to buy start-ups in areas it is lacking, such as virtual reality, messaging and artificial intelligence. Apple has scooped up more than 25 small companies over the past two and a half years, including recent purchases such as Emotient, a start-up that uses artificial intelligence to read facial expressions, and Faceshift, whose motion-capture technology lets animated avatars double the facial movements of real actors. Find ways to innovate in a stagnant smartphone market You probably already have an iPhone, if not two or three. But that's the problem. The smartphone market is increasingly looking like the PC market: mature and stagnant. Consumers are slower to upgrade to the latest iPhone, as they see the one they have as being "good enough." Making things even more difficult is the decision by carriers to do away with subsidized two-year contracts that masked the $650 price tag of iPhones. Apple needs the iPhone 7 to be a winner. Apple gets 68% of its revenue from the smartphone. The Apple Watch, billed as the biggest thing since the iPhone, doesn't appear to have the broad appeal to make up for stalling growth of the smartphone. A new version of the Watch is expected in March, but barring killer features and apps, its standing in the consumer market isn't likely to change much. Enter the car market Apple won't publicly acknowledge Project Titan, its auto-related venture, but it is likely a centerpiece of the company's future. Whatever its final form -- a driverless car, digital dashboard or something else -- the concept of a moving ecosystem of Apple products is the ultimate lifestyle choice. It's a big bet that comes with many moving parts. Apple is competing with major automakers, Tesla and upstart Faraday Future while it copes with the recent departure of the head of the project, longtime Apple engineer Steve Zadesky, and a reported hiring freeze within the 1,000-person project. Apple's design chief Jony Ive, according to one blog, recently expressed his displeasure with progress of Project Titan -- never a good sign within the Apple universe. Figure out services Many of Apple's services so far have fallen flat. Despite a $3billion bet on Beats Music in 2014, its tweaked Apple Music streaming service trails leaders Pandora and Spotify and has failed to be a big revenue generator. Apple Pay made a splash with advertising but has failed to catch on because of reluctance by large retailers to hand over the relationship with their customers to Apple. Apple's cloud services remain rudimentary, helping people to back up their photos -- an area where competitors offer better solutions. Apple needs to find a way to monetize the users of its 1billion hardware devices. Reach emerging markets The developed world is up to the gills in smartphones and tablets already. But it's a different story in emerging nations, where there could be growth left. Apple grew 14% last quarter in China. But it's unclear whether the company's strategy of selling high-priced smartphones will appeal to a country with lower per-capita income than in the developed world. Winning over emerging nations won't be as easy as some bulls thought, given Apple's "sobering" commentary about the slowdown in China and other less-developed nations, said Abhey Lamba, an analyst at Mizuho Securities. "The company indicated material softness in China," Lamba said. Apple is expected to boost investment in India to help counteract the problems in China, he said. Despite its troubles and falling stock price, Apple remains a favorite. Analysts still think the stock can be worth $136.47 a share in 18 months, said S&P Capital IQ. That implies a roughly 46% upside from Wednesday's close of $93.42. Jon Swartz is USA TODAY's San Francisco bureau chief. Follow him at @jswartz. Markets reporter Matt Krantz writes about investing from Los Angeles. Follow him at @mattkrantz. Graphic photo Fabrice Coffrini, AFP Load-Date: January 29, 2016 End of Document S.F. is where you can really get your game on USA TODAY

### Document 843

For $399, this smartphone hits the high notes: speedy, a great camera and a nice screen. Took long enough, didn’t it? Apple’s recently introduced $399 iPhone SE marks a turning point in consumer technology. It’s a smartphone that delivers all the tech that we care about, without making us pay through the nose for it. Many of us have been waiting for this moment. Long ago, the technologies driving TVs and personal computers became so commonplace that good television sets and PCs became affordable for the masses. The ubiquitous smartphone, we presumed, would follow. Instead, as the smartphone matured over the last decade and a bit, the opposite happened. The price tag for the iPhone, the most popular handset in the world, reached heights that were previously unimaginable. Last year’s new iPhones peaked at $1,449, compared with $599 in 2007. Yet budget phones ranging from $200 to $400 had major shortcomings like lousy cameras and slow chips. The new iPhone SE’s lack of compromise is what makes it remarkable. Apple took all the best parts from its expensive iPhones — including a fast computing processor and an excellent camera — and squeezed them into the shell of an older iPhone with a home button and smaller screen. At the same time, it managed to include useful features that were previously exclusive to fancy new phones, like water resistance, wireless charging and so-called portrait photos. That means state-of-the-art smartphone technology has finally come down to a modest price. It’s about time. After testing the new SE for a few weeks, I can confidently say that this device is ideal for many people — especially for those who think about buying tech only when they feel they have to. Justin Adler, 33, is one of them. He owned the first SE, which debuted in 2016, for years, subjecting himself to mockery from his techie colleagues in San Francisco who had much nicer phones. He recently bought the latest SE. “I just never wanted to shell out $1,000 to replace something that was working perfectly fine,” he said. “I was the exact core audience of, if you haven’t upgraded your phone we’re going to give you the cheapest bait as possible.” This new iPhone may suit you as well. Here’s what you need to know. Zooming in on the camera With the SE, Apple took the computing processor of the $699 iPhone 11 — the fastest on the market — and stuck it in a body that is practically the same as the iPhone 8 from 2017. In the process, the company also made significant improvements to the SE’s camera, which has a single lens but now relies on software and artificial intelligence to make photos look much better. In past iterations of high-end iPhones, the devices had two camera lenses that worked together to produce the popular effect known as portrait mode, which sharpens a subject while gently blurring the background. But in the iPhone XR from 2018, Apple used machine learning, which involved computers analyzing images to recognize people and properly sharpen them while blurring the background, to produce portrait shots of people using a single lens. Apple has applied a similar A.I.-assisted approach to the SE, making portrait photos of people possible with a single lens on the cheaper device. In my tests, portrait shots looked excellent — on a par with similar photos taken with the iPhone 11. This is significant for a device of this price. (Google’s $399 Pixel 3A, my favorite Android phone, is also exceptional for its ability to take portrait photos, though that phone is much slower.) Of course, Apple had to cut costs somewhere, so the cheaper iPhone SE’s camera lacks some frills seen in the iPhone 11 and $999 iPhone 11 Pro. Specifically, Apple limited its machine-assisted image processing specifically to human subjects, meaning I couldn’t take artsy photos of my dogs. The camera also lacks the so-called ultra-wide-angle lens for taking shots with a broader field of view, as well as night mode, a feature to take better photos in the dark. But if you are a casual photographer, you could probably live without those whiz-bang features and be happy saving lots of money by choosing the SE. For what it’s worth, the shots I took in daylight of my corgi, Max, on the SE looked just as good as similar shots with the iPhone 11 and other phones on the market, like Google’s $399 Pixel 3A. They came out crisp with natural-looking colors and nice shadow detail. Let’s talk about that screen and home button The other feature that makes the SE cheaper is the first thing you will look at: the screen. At 4.7 inches, the display is smaller than the jumbo 6.1-inch screen on the iPhone 11. But that may be a benefit. The 4.7-inch size is better suited to one-hand use, so it’s easy to use your thumb to reach from the home button to each corner of the screen. Also important, the phone’s smaller body fits more comfortably in a pocket. The SE’s second big cost saver is the use of a home button for unlocking the device, rather than the face scanners seen on modern smartphones. The iPhone fingerprint scanners have always worked quickly and reliably, and so does this one. It might be nice to have a face scanner, but many of us will probably be happy without the feature if it means saving some money. For comparison, I have given big minus points to $1,000 phones, like the Samsung Galaxy S10, for a lousy fingerprint reader and a subpar face scanner. Putting the iPhone SE’s value in perspective To fully understand the SE’s value, it’s important to note that this isn’t Apple’s first rodeo with a cheaper iPhone. Those past models were not as compelling when compared with their pricier counterparts. To wit: The $549 iPhone 5C, introduced in 2013, came in colorful plastic and felt cheaper and slower than the iPhone 5S, the model with a sleek aluminum body that cost $100 more. The $399iPhone SE from 2016 had the design of older iPhones, with the same computing power as newer ones at the time. Yet that SE had a notably inferior camera and dimmer screen than its $649, bigger-screen counterpart at the time, the iPhone 6S. This time, the new SE’s trade-offs seem trivial. No face scanner, shooting photos in the dark or humongous screen? Those are minor inconveniences when you are paying 40 percent less than for an iPhone 11. I will note one big downside: The SE has significantly shorter battery life than the iPhone 11. After a day of shooting photos and juggling work tasks, the SE battery needed to be replenished by dinnertime. With the more expensive phone, I had more than 25 percent battery by bedtime. So people who work long hours and rely on their phones would probably be happier with a high-end one. So who is the expected buyer? I’m not the target demographic for the SE since I’m willing to pay for fancier features. I splurged on the $999 iPhone XS two years ago because I loved taking portrait photos of food and my dogs. But there was something unique about the announcement of the SE that I found striking in a pandemic that has dampened most people’s enthusiasm for buying nice things. When new iPhones are unveiled, I usually get questions from friends who work in tech and are giddy about shiny new gadgets. With the SE, I got text messages from people who hate talking about tech: a friend who is in her 60s and a self-proclaimed Luddite, and a family member who is an environmentalist. Both are using iPhones that are at least five years old, and both were relieved that their next phone won’t cost more than a month’s mortgage. “It’s a slow burner that’s going to help Apple upgrade their base,” Carolina Milanesi, a consumer tech analyst for the research firm Creative Strategies, said of the SE. That includes people who hold on to phones for three to five years and those with hand-me-downs, she said. Come to think of it, that’s most people I know. PHOTOS: At $399, the iPhone SE, left, costs $300 less than the iPhone 11. The writer took a daylight photo of his corgi, Max, with the single-lens iPhone SE, above left, and with the dual-lens iPhone 11. The SE now relies on software and artificial intelligence to improve photo quality. (PHOTOGRAPH BY WALID BERRAZEG/SOPA IMAGES, VIA GETTY IMAGES) Load-Date: May 8, 2020 End of Document Your Tuesday Briefing The New York Times

### Document 601

One of the best-selling T-shirts for the Indian e-commerce site Myntra is an olive, blue and yellow colorblocked design. It was conceived not by a human but by a computer algorithm — or rather two algorithms. The first algorithm generated random images that it tried to pass off as clothing. The second had to distinguish between those images and clothes in Myntra’s inventory. Through a long game of one-upmanship, the first algorithm got better at producing images that resembled clothing, and the second got better at determining whether they were like — but not identical to — actual products. This back and forth, an example of artificial intelligence at work, created designs whose sales are now “growing at 100 percent,” said Ananth Narayanan, the company’s chief executive. “It’s working.” Clothing design is only the leading edge of the way algorithms are transforming the fashion and retail industries. Companies now routinely use artificial intelligence to decide which clothes to stock and what to recommend to customers. And fashion, which has long shed blue-collar jobs in the United States, is in turn a leading example of how artificial intelligence is affecting a range of white-collar work as well. That’s especially true of jobs that place a premium on spotting patterns, from picking stocks to diagnosing cancer. “A much broader set of tasks will be automated or augmented by machines over the coming years,” Erik Brynjolfsson, an economist at the Massachusetts Institute of Technology, and Tom Mitchell, a Carnegie Mellon computer scientist, wrote in the journal Science last year. They argued that most of the jobs affected would become partly automated rather than disappear altogether. The fashion industry illustrates how machines can intrude even on workers known more for their creativity than for cold empirical judgments. Among those directly affected will be the buyers and merchandise planners who decide which dresses, tops and pants should populate their stores’ inventory. A key part of a buyer’s job is to anticipate what customers will want using a well-honed sense of where fashion trends are headed. “Based on the fact that you sold 500 pairs of platform shoes last month, maybe you could sell 1,000 next month,” said Kristina Shiroka, who spent several years as a buyer for the Outnet, an online retailer. “But people might be over it by then, so you cut the buy.” Merchandise planners then use the buyer’s input to figure out what mix of clothing — say, how many sandals, pumps and flats — will help the company reach its sales goals. In the small but growing precincts of the industry where high-powered algorithms roam free, however, it is the machine — and not the buyer’s gut — that often anticipates what customers will want. That’s the case at Stitch Fix, an online styling service that sends customers boxes of clothing whose contents they can keep or return, and maintains detailed profiles of customers to personalize their shipments. Stitch Fix relies heavily on algorithms to guide its buying decisions — in fact, its business probably could not exist without them. Those algorithms project how many clients will be in a given situation, or “state,” several months into the future (like expanding their wardrobe after, say, starting a new job), and what volume of clothes people tend to buy in each situation. The algorithms also know which styles people with different profiles tend to favor — say, a petite nurse with children who lives in Texas. Myntra, the Indian online retailer, arms its buyers with algorithms that calculate the probability that an item will sell well based on how clothes with similar attributes — sleeves, colors, fabric — have sold in the past. (The buyers are free to ignore the projection.) All of this has clouded the future of buyers and merchandise planners, high-status workers whose annual earnings can exceed $100,000. At more conventional retailers, a team of buyers and support workers is assigned to each type of clothing (like designer, contemporary or casual) or each apparel category, like dresses or tops. Some retailers have separate teams for knit tops and woven tops. A parallel merchandise-planning group could employ nearly as many people. Buyers say this specialization helps them intuitively understand trends in styles and colors. “You’re so immersed in it, you almost get a feeling,” said Helena Levin, a longtime buyer at retailers like Charlotte Russe and ModCloth. Ms. Levin cited mint-green dresses, a top seller earlier this decade. “One day it just died,” she said. “It stopped. ‘O.K., everything mint, get out.’ Right after, it looked old. You could feel it.” But retailers adept at using algorithms and big data tend to employ fewer buyers and assign each a wider range of categories, partly because they rely less on intuition. At Le Tote, an online rental and retail service for women’s clothing that does hundreds of millions of dollars in business each year, a six-person team handles buying for all branded apparel — dresses, tops, pants, jackets. Brett Northart, a co-founder, said the company’s algorithms could identify what to add to its stock based on how many customers placed the items on their digital wish lists, along with factors like online ratings and recent purchases. Bombfell, a box service similar to Stitch Fix catering only to men, relies on a single employee, Nathan Cates, to buy all of its tops and accessories. The company has built algorithmic tools and a vast repository of data to help Mr. Cates, who said he could more accurately project demand for clothing than a buyer at a traditional operation. “We know exactly who our customers are,” he said. “We know exactly where they live, what their jobs are, what their sizing is.” For now, at least, only a human can do parts of his job. Mr. Cates is obsessive about touching the fabric before purchasing an item and almost always tries it on first. “If this is a light color, are we going to see your nipples?” he explained. (The verdict on a mint T-shirt he donned at the company’s headquarters in New York? “A little nipply.”) There are other checks on automation. Negotiations with suppliers typically require a human touch. Even if an algorithm can help buyers make decisions more quickly and accurately, there are limits to the number of supplier relationships they can juggle. Arti Zeighami, who oversees advanced analytics and artificial intelligence for the H & M group, which uses artificial intelligence to guide supply-chain decisions, said the company was “enhancing and empowering” human buyers and planners, not replacing them. But he conceded it was hard to predict the effect on employment in five to 10 years. Experts say some of these jobs will be automated away. The Bureau of Labor Statistics expects employment of wholesale and retail buyers to contract by 2 percent over a decade, versus a 7 percent increase for all occupations. Some of this is because of the automation of less sophisticated tasks, like cataloging inventory, and buying for less stylistically demanding retailers (say, auto parts). There is at least one area of the industry where the machines are creating jobs rather than eliminating them, however. Bombfell, Stitch Fix and many competitors in the box-fashion niche employ a growing army of human stylists who receive recommendations from algorithms about clothes that might work for a customer, but decide for themselves what to send. “If they’re not overly enthusiastic upfront when I ask how do you feel about it, I’m making a note of it,” said Jade Carmosino, a sales manager and stylist at Trunk Club, a Stitch Fix competitor owned by Nordstrom. In this, stylists appear to reflect a broader trend in industries where artificial intelligence is automating white-collar jobs: the hiring of more humans to stand between machines and customers. For example, Chida Khatua, the chief executive of EquBot, which helped create an exchange-traded fund that is actively managed by artificial intelligence, predicted that the asset-management industry would hire more financial advisers even as investing became largely automated. The downside is that work as a stylist or financial adviser will probably pay less than the lost jobs of buyers and stock pickers. The good news, said Daron Acemoglu, an economist at M.I.T. who studies automation, is that these jobs may still pay substantially more than many positions available to low- and middle-skilled workers in recent decades. And these jobs may be hard to automate in the end. “If I’m the customer explaining what I want, humans need to be involved,” Mr. Khatua said. “Sometimes I don’t know what I really want.” Follow Noam Scheiber on Twitter: @noamscheiber. PHOTO: Nathan Cates, a Bombfell buyer, in a T-shirt from among the company’s offerings, with Will Noguchi, a stylist. Bombfell’s algorithms help Mr. Cates make choices about what to buy, but he is obsessive about touching the fabric before acquiring an item and almost always tries it on first. (PHOTOGRAPH BY Jeenah Moon for The New York Times FOR THE NEW YORK TIMES) Related Articles Most Americans See Artificial Intelligence as a Threat to Jobs (Just Not Theirs) Google Researchers Are Learning How Machines Learn Is the Populist Revolt Over? Not if Robots Have Their Way A.I. Has Arrived in Investing. Humans Are Still Dominating. Load-Date: July 17, 2018 End of Document Data Could Be the Next Tech Hot Button The New York Times

### Document 1096

Smart software and robots are not poised to wipe out large numbers of American jobs, but technology-driven automation will affect most every occupation and can change work, according to new research from McKinsey. The report, published on Friday and written by two members of the McKinsey Global Institute, the consulting firm's research arm, and another McKinsey employee, adds a twist to the debate over the likely nature and pace of automation in the workplace. Today's automation fears essentially rest on two assumptions. First, the speed of advances in digital software and hardware is faster than in previous waves of technological change. And second, clever software and machines are increasingly able to automate cognitive tasks, not just physical ones. Artificial intelligence, it seems, poses a new kind of threat to jobs - not so much replacing muscle but brains. Looking at the trends in artificial intelligence, Carl Benedikt Frey and Michael A. Osborne, researchers at Oxford University, estimated in a paper published two years ago that 47 percent of American jobs were at risk from automation. The McKinsey research suggests a different kind of impact, at least over the next three to five years, which is the time span of its analysis. The McKinsey study found that less than 5 percent of jobs can be entirely automated using "currently demonstrated technologies," which it describes as technologies that are either in the marketplace or in research labs. Instead, the new research focuses on work below the occupation level, down to some 2,000 different types of work activities in some 800 occupations, using the definitions of a projectsponsored by the Department of Labor. Applying that lens, the researchers concluded that 45 percent of work activities could be automated, which could affect people in many different roles. The work ripe for automation is not just routine tasks in lower-paying jobs. "Most high-wage, high-skill jobs have a significant amount of activity that can be automated," said Michael Chui, a principal at the McKinsey Global Institute, and a co-author of the report. Jobs where some portion of activities could be automated include physicians, financial managers and senior corporate executives. At the apex of the corporate job ladder, chief executives, more than 20 percent of the work could be automated, McKinsey estimates. The C.E.O. chores that could be automated with machine-learning software include analyzing reports and data to make operating decisions, preparing staff assignments and reviewing status reports. Landscapers and home health care workers are among the occupations less susceptible to automation than chief executives, according to McKinsey. The value of the McKinsey research, experts said, is that it provides a fine-grained analysis of the impact of automation. "It makes a lot of sense to look at automation at the task level, as a way to think about redefining jobs," said Erik Brynjolfsson, a professor at M.I.T.'s Sloan School of Management and co-author of "The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies." The McKinsey authors emphasized the potential for automation to enrich work, liberating people to focus on more creative tasks. Apparently there is a lot of room for improvement on that front. According to one calculation in the report, "just 4 percent of the work activities across the U.S. economy require creativity at median human level of performance." Load-Date: November 6, 2015 End of Document Warnings Aside, Robots Probably Won't Steal Jobs The New York Times

### Document 681

The robots are coming, but the march of automation will displace jobs more gradually than some alarming forecasts suggest. A measured pace is likely because what is technically possible is only one factor in determining how quickly new technology is adopted, according to a new study by the McKinsey Global Institute. Other crucial ingredients include economics, labor markets, regulations and social attitudes. The report, which was released Thursday, breaks jobs down by work tasks -- more than 2,000 activities across 800 occupations, from stock clerk to company boss. The institute, the research arm of the consulting firm McKinsey & Company, concludes that many tasks can be automated and that most jobs have activities ripe for automation. But the near-term impact, the report says, will be to transform work more than to eliminate jobs. Globally, the McKinsey researchers calculated that 49 percent of time spent on work activities could be automated with ''currently demonstrated technology'' either already in the marketplace or being developed in labs. That, the report says, translates into $15.8 trillion in wages and the equivalent of 1.1 billion workers worldwide. But only 5 percent of jobs can be entirely automated. ''This is going to take decades,'' said James Manyika, a director of the institute and an author of the report. ''How automation affects employment will not be decided simply by what is technically feasible, which is what technologists tend to focus on.'' The report, a product of years of research by the McKinsey group, adds to the growing body of research on automation and jobs. Conclusions about the relationship between the two vary widely. Examining trends in artificial intelligence, Carl Benedikt Frey and Michael A. Osborne, researchers at Oxford University, estimated in a widely cited paper published in 2013 that 47 percent of jobs in the United States were at risk from automation. By contrast, a report published last year by the Organization for Economic Cooperation and Development concluded that across its 21-member countries, 9 percent of jobs could be automated on average. Differing assumptions, and sheer uncertainty about the future, explain the conflicting outlooks. Throughout history, times of rapid technological progress have stoked fears of jobs losses. More than 80 years ago, the renowned English economist John Maynard Keynes warned of a ''new disease'' of ''technological unemployment.'' Today, it is the rise of artificial intelligence in increasingly clever software and machines that is stirring concern. The standard view is that routine work in factories and offices, like bookkeeping or operating basic machinery, is most vulnerable to automation. But A.I. software that can read and analyze text or speech -- so-called natural language processing -- is encroaching on the work of professionals. For example, there is a lot of legal work that is routine, said Frank Levy, a labor economist at the Massachusetts Institute of Technology. But that routine work, sifting through documents for relevant information, is wrapped in language, which had protected lawyers from the effects of automation. But no longer. ''Natural language processing opens the door to doing more and more work that was beyond automation until recently,'' Mr. Levy said. The McKinsey report cites natural language processing as a key technology: The faster it develops, the more that tasks can be automated; a slower pace means less automation. The economic cost of automation is another concern. People see advances in self-driving vehicles, and think that the jobs of America's 1.7 million truck drivers are in imminent peril, said Michael Chui, a partner at the McKinsey institute and an author of the report. Yet replacing America's truck fleet would require a trillion-dollar investment, Mr. Chui said, adding ''if you could buy a self-driving truck, which you can't.'' Such uncertainties led the McKinsey researchers to calculate the pace of automation as ranges rather than precise predictions. The report's multifactor scenarios suggest that half of today's work activities could be automated by 2055. That threshold could be reached 20 years earlier or 20 years later, the report adds, depending on economic trends, labor market dynamics, regulations and social attitudes. So while further automation is inevitable, McKinsey's research suggests that it will be a relentless advance rather than an economic tidal wave. ''We have more time than we think to adjust to the world that technology makes possible,'' said Matthew J. Slaughter, an economist and dean of the Tuck School of Business at Dartmouth College. The McKinsey report also considered the other side of automation -- as an engine of productivity and economic growth. In that context, the report points to the demographic challenges ahead, as most nations age, and the need for automation-powered growth. Today, there are 46 million Americans over 65, or 15 percent of the population. By 2060, the size of the over-65 group is projected to reach 98 million people, or 24 percent of the population. The American economy may need all the A.I.-assisted automation it can muster. ''If productivity growth continues to be anemic, we're in trouble,'' said Hal Varian, Google's chief economist and an emeritus professor at the University of California, Berkeley. http : // www.nytimes.com/2017/01/12/technology/robots-will-take-jobs-but-not-as-fast-as-some-fear-new-report-says.html Graphic PHOTO: Testing a manned robot, Method-2, in Gunpo, South Korea, last month. A new study says automation will come in a relentless advance rather than a tidal wave. (PHOTOGRAPH BY CHUNG SUNG-JUN/GETTY IMAGES) Load-Date: January 13, 2017 End of Document Robots Exit the Classroom And Enter the Real World The New York Times

### Document 283

President Obama joined a chorus of those warning of the potential downsides of artificial intelligence. In an interview with Wired Magazine, Obama spoke of redesigning the social compact and starting a conversation around fair wages. He cited teachers as being underpaid, and called for a reexamination of what we value, and what we'll pay for. Obama addressed basic income, a proposal for all citizens to receive a government stipend in order to meet their costs of living. The idea has gained recent support among some futurists and economists, given concerns over how technology will eliminate jobs and impact salaries in coming years. "Whether a universal income is the right model -- is it gonna be accepted by a broad base of people? -- that's a debate that we'll be having over the next 10 or 20 years," Obama said. A 2013 Oxford study concluded that 47% of U.S. jobs are at risk of being handled by machines over perhaps a decade or two. Some experts fear we're headed toward mass unemployment. Truck drivers, cab drivers and deliveryman are the most prominent example of those at risk. The tech and car industries are currently pouring billions into self-driving vehicle technology. Businesses have long embraced automation because it lowers their costs and improves profits. But advances in technology are expected to broadly expand the jobs that automated machines can handle. Of course, most Americans once worked on farms. Our country has survived transitions before. Yet experts caution this revolution in how we work could unfold much quicker, making it more difficult and unpleasant. "Oh, we survived the Industrial Revolution, sure we did. But millions of people suffered tremendous hardship," said Oren Etzioni, CEO of the Allen Institute for Artificial Intelligence, in a recent interview with CNNMoney. "This revolution could be faster and sharper and more devastating." The tech industry has made rapid advances because for decades, computers have doubled in strength every two years, what's called Moore's Law. For example, the everyday smartphone is more powerful than the computers used to land on the moon. The graphics on today's video games are overwhelmingly better than 20 years ago. Tech companies that rely on cutting-edge computers, robots and software -- Apple, Google, Microsoft, Amazon and Facebook -- have become America's five biggest businesses in recent years. There are signs that we're already seeing the impact of digital technologies on employment. The number of working U.S. men has been declining for more than 60 years, according to a recent White House report. In 1954, 98% of men between the ages of 25 and 54 were in the workforce. Today, that figure is 88%. Median wages are no longer keeping pace with the U.S. GDP, thinning out the middle class. Wealth is increasingly held by the top 1% of the country. Money is concentrated in a smaller group of people in digital businesses, which are increasingly winner-take-all markets. MIT professors Erik Brynjolfsson and Andrew McAfee detailed this in their 2014 book, The Second Machine Age. While there were multiple big winners in earlier times, think Coke and Pepsi coexisting, or Ford and GM -- in the digital world there's generally only one winner. Look at Google in the search engine space, Microsoft's dominance on desktop operating systems and Facebook's runway success in social networking. While technology has for centuries generally improved the human condition, it always brings some negatives too. And it's up to us to figure out what to do about them. TM & © 2016 Cable News Network, Inc., a Time Warner Company. All rights reserved. Load-Date: October 13, 2016 End of Document Guess who's coming for your job CNN Wire

### Document 1215

the market's top performer in 2017. Tech will remain strong, thanks to advances in artificial intelligence, robotics and cloud computing, more companies upgrading their tech infrastructure and the continued integration of tech into the workplace and people's lives.This Top 3 was gleaned from a USA TODAY review of more than a dozen 2018 investment outlooks from stock market strategists at Wall Street's largest banks. Financials make cents The obstacles that have hobbled banks and other financial services firms since the Great Recession appear to be lifting. Companies that profit from lending money to consumers and helping people invest for retirement are poised to profit from an American economy that grew at a 3% clip the past two quarters and continues to perform well. Loan growth is expected to rise. Banks are also seen getting a boost from a lower corporate tax rate and the Federal Reserve's slow and steady interest rate increases. Banks' performances will improve amid the Trump administration's push to reduce regulations put in place after the 2008 financial crisis. "The negative implications of excess regulation are finally unwinding," wrote Brian Belski, chief investment strategist at BMO Capital Markets. Bank profits will also rise along with interest rates. As borrowing costs increase, banks will be able to charge customers more for loans. They'll make more money on the interest they earn from lending than they pay out to customers with savings and checking accounts. In general, banks will benefit as the number of economic winners broadens out to more people and investors begin shifting money to parts of the stock market that now are viewed more positively, which includes financial companies, adds Sean Darby, chief global equity strategist at Jefferies. Investors will also be enriched by banks returning more cash to them via cash dividends and companies buying back their own shares. Stock buybacks make companies' earnings-per-share growth appear stronger, which is supportive of stock prices. David Kostin, chief U.S. equity strategist at Goldman Sachs, expects a "40% rise in the amount of capital that banks will return to shareholders." Tech rally redux Just because tech stocks led the performance race in 2017 doesn't mean they can't keep going up. While FAANG stocks -- Facebook, Apple, Amazon, Netflix and Google-parent Alphabet -- generated most of the buzz in 2017, the broader tech industry still has the key ingredients to keep rallying. History shows rising stocks with mojo on their side tend to keep rallying when bull markets are in their later stages -- like the current one, which is nearly 9 years old. "The momentum right now is clearly with tech stocks," wrote Savita Subramanian, head of U.S. equity and quantitative strategy at Bank of America Merrill Lynch. Tech rallied 37% in 2017, the best-performing industry group in the S&P 500 stock index. Ongoing trends favor tech companies. They sell a lot of mobile phones, software and services abroad, which will enable them to take advantage of a world where most economies are growing at the same time for the first time in a decade. "Technology," Subramanian says, "is the most globally exposed sector." Tech firms are creating new innovative products -- augmented reality, blockchain, autonomous vehicles, social media -- that are changing the way people communicate and how companies manufacture products. Tech is increasingly embedded in a wide array of products, from autos to home appliances. Automation on the factory floor also is a growth industry. The ubiquitous nature of tech means these companies will continue to grow earnings, gain market share and create new businesses at a fast clip. "Additional growth is anticipated from tech's embedded nature in the life of consumers," wrote John Stoltzfus, chief investment strategist at Oppenheimer Asset Management. Companies will spend more on tech "upgrades" next year amid the shift to new growth areas such as the cloud and as businesses "increase automation in the workplace," Stoltzfus says. Industrial strength The upbeat outlook for industrial companies -- such as defense contractors, building products and machine makers -- is a bet on a continuing global economic recovery. Corporations will also spend more to replace aging equipment and tech systems. The money to finance the spending will come from lower taxes, a stronger economy and a coming change in tax rules. That change will allow companies to take a deduction for the full value of new plant and equipment upon purchase, rather than stringing it out over a number of years. "The age of equipment in the U.S. remains at all-time highs and desperately needs to be replaced," Belski says. Stronger growth around the globe means companies will spend more on new machinery, see increased cargo demand on railroads and profit from the increased pace of automation. This so-called "upgrade" cycle will be a boon for industrial companies, Kostin says. The many geopolitical hot spots around the world, including the nuclear standoff with North Korea, could also generate additional business for U.S. defense contractors, Belski says. Graphic photo AFP/Getty Images Load-Date: December 22, 2017 End of Document Artificial intelligence: Doomsday scenario - or age of wonder?; Excitement over its possibilities tempered by need to stay vigilant USA TODAY

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-- To see what it's like inside stores where sensors and artificial intelligence have replaced cashiers, shoppers have to trek to Amazon Go, the internet retailer's experimental convenience shop in downtown Seattle. Soon, though, more technology-driven businesses like Amazon Go may be coming to them. A global race to automate stores is underway among several of the world's top retailers and small tech start-ups, which are motivated to shave labor costs and minimize shoppers' frustrations, like waiting for cashiers. They are also trying to prevent Amazon from dominating the physical retail world as it does online shopping. Companies are testing robots that help keep shelves stocked, as well as apps that let shoppers ring up items with a smartphone. High-tech systems like the one used by Amazon Go completely automate the checkout process. China, which has its own ambitious e-commerce companies, is emerging as an especially fertile place for these retail experiments. If they succeed, these new technologies could add further uncertainty to the retail work force, which is already in flux because of the growth of online shopping. An analysis last year by the World Economic Forum said 30 to 50 percent of the world's retail jobs could be at risk once technologies like automated checkout were fully embraced. In addition, the efforts have raised concerns among privacy researchers because of the mounds of data that retailers will be able to gather about shopper behavior as they digitize their locations. Inside Amazon Go, for instance, the cameras never lose sight of a customer once he or she enters the shop. Retailers had adopted technologies in their stores long before Amazon Go arrived on the scene. Self-checkout kiosks have been common in supermarkets and other stores for years. Kroger, the grocery chain, uses sensors and predictive analytics tools to better anticipate when more cashiers will be needed. But the opening of Amazon Go in January was alarming for many retailers, who saw a sudden willingness by Amazon to wield its technology power in new ways. Hundreds of cameras near the ceiling and sensors in the shelves help automatically tally the cookies, chips and soda that shoppers remove and put into their bags. Shoppers' accounts are charged as they walk out the doors. Amazon is now looking to expand Go to new areas. An Amazon spokeswoman declined to comment on its expansion plans, but the company has a job posting for a senior real estate manager who will be responsible for ''site selection and acquisition'' and field tours of ''potential locations'' for new Go stores. ''Unanimously, there was an element of embarrassment because here is an online retailer showing us how to do brick and mortar, and frankly doing it amazingly well,'' said Martin Hitch, the chief business officer of Bossa Nova Robotics, a company that makes inventory management robots that Walmart and others are testing. Nowhere are retailers experimenting more avidly with automating store shopping than in China, a country obsessed by new tech fads. One effort is a chain of more than 100 unmanned convenience shops from a start-up called Bingo Box, one of which sits in a business park in Shanghai. Shoppers scan a code on their phones to enter and, once inside, scan the items they want to buy. The store unlocks the exit door after they've paid through their phones. Alibaba, one of China's largest internet companies, has opened 35 of its Hema automated grocery stores, which blend online ordering with automated checkout. Customers scan their groceries at checkout kiosks, using facial recognition to pay electronically, while bags of groceries ordered by customers online float overhead on aerial conveyors, headed to a loading dock for delivery to shoppers. Not to be outdone, JD, another big internet retailer in China, said in December that it had teamed up with a developer to build hundreds of its own unmanned convenience shops. The businesses put readable chips on items to automate the checkout process. At its huge campus south of Beijing, JD is testing a new store that relies on computer vision and sensors on the shelves to know when items have been taken. The system tracks shopping without tagging products with chips. Payment, which for now still happens at a kiosk, is done with facial recognition. JD and Alibaba both plan to sell their systems to other retailers and are working on additional checkout technologies. Back in the United States, Walmart, the world's largest retailer, is testing out the Bossa Nova robots in dozens of its locations to reduce some tedious tasks that can eat up a worker's time. The robots, which look like giant wheeled luggage bags, roll up and down the aisles looking for shelves where cereal boxes are out of stock and items like toys are mislabeled. The machines then report back to workers, who restock the shelves and apply new labels. At 120 of Walmart's 4,700 American stores, shoppers can also scan items, including fruits and vegetables, using the camera on their smartphones and pay for them using the devices. When customers walk out, an employee checks their receipts and does a ''spot check'' of the items they bought. Kroger, one of the country's largest grocery chains, has also been testing a mobile scanning service in its supermarkets, recently announcing that it would expand it to 400 of its more 2,700 stores. New start-ups are seeking to give retailers the technology to compete with Amazon's system. One of them, AiFi, is working on cashierless checkout technology that it says will be flexible and affordable enough that mom-and-pop retailers and bigger outlets can use it. In the United States, venture capitalists put $100 million into retail automation start-ups in each of the past two years, up from about $64 million in 2015, according Pitchbook, a financial data firm. ''There's a gold rush feeling about this,'' said Alan O'Herlihy, chief executive of Everseen, an Irish company working with retailers on automated checkout technology that uses artificial intelligence. While such technologies could improve the shopping experience, there may also be consequences that people find less desirable. Retailers like Amazon could compile reams of data about where customers spend time inside their doors, comparable to what internet companies already know about their online habits. ''It's combined with everything else Amazon might know about you,'' said Gennie Gebhart, a researcher at the Electronic Frontier Foundation, an online civil liberties organization. ''Amazon knows what I buy online, what I watch and now how I move around a space.'' In China, there is less public concern about data privacy issues. Many Chinese citizens have become accustomed to high levels of surveillance, including widespread security cameras and government monitoring of online communications. Depending on how heavily retailers automate in the years to come, job losses could be severe in a sector that has already experienced wave after wave of store closings by the likes of Macy's, Toys ''R'' Us and Sears. Retailers are playing down the threat to jobs. Walmart, the largest private employer in the United States, says that it does not anticipate automation will lead to job losses, but rather that the new technologies are meant to redirect employees to spend more time helping customers find what they need. ''We see this as helping our associates,'' said John Crecelius, vice president of central operations at Walmart. ''We are a people-led business that is technology enabled.'' Some traditional retailers are also skeptical about whether the sort of automation in Amazon Go can move to large stores. They say the technology may not work or be cost effective outside a store with a small footprint and inventory. ''That's probably not scalable to a 120,000-square-foot store,'' said Chris Hjelm, executive vice president and chief information officer at Kroger. But he said it was just a matter of time before more cameras and sensors were commonplace in stores. ''It's a few years out,'' he said, ''before that technology becomes mainstream.'' https : // www.nytimes.com/2018/04/01/technology/retailer-stores-automation-amazon.html Graphic PHOTOS: A shopper at Hema, a Chinese grocery chain, scanning a product with her smartphone, top. The company is experimenting with ways to automate shopping in its stores. Above, a Hema attendant showing how a food code can be scanned with a smartphone. (B1) A shopper at Hema, a Chinese grocery chain operated by Alibaba, the internet giant, scanning a product with her smartphone. The company is experimenting with ways to automate shopping in its stores. An attendant at Hema Fresh in Beijing, left, and a shopper paying with her phone, right. Alibaba, one of China's largest internet companies, has 35 of the grocery stores, which blend online ordering with automated checkout. (PHOTOGRAPHS BY GIULIA MARCHI FOR THE NEW YORK TIMES) (B4) Load-Date: April 2, 2018 End of Document Quote of the Day The New York Times

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The vast majority of Americans expect artificial intelligence to lead to job losses in the coming decade, but few see it coming for their own position. And despite the expected decline in employment, the public widely embraces artificial intelligence in attitude and in practice. About five in six Americans already use a product or service that features it, according to a survey that was conducted last fall and from which new findings were released on Tuesday. ''Whether they know it or not, A.I. has moved into a big percent of Americans' lives in one way or another already,'' said Frank Newport, the editor in chief of Gallup, which conducted the survey with Northeastern University. The study defines artificial intelligence as any technology that can perform a task as humans do. But even if that definition feels overly broad, the findings reveal just how ubiquitous certain products have become in American life. About 84 percent of Americans, for example, use navigation apps like Google Maps, Waze and Apple Maps, the study found. About 72 percent of respondents said they streamed music or video with services like Netflix and Pandora. Nearly half said they used personal assistants on their smartphones, while about 32 percent use ride-sharing apps. Some 22 percent used intelligent home personal assistants, like Google Home or Amazon's Alexa. Twenty percent said they use a smart home device, such as a self-learning light or thermostat. The technologies were used most widely among younger and more educated Americans: More than 90 percent of adults with at least a bachelor's degree or between the ages of 18 and 35 used navigation apps, for example. The report that was released on Tuesday reflects only some of the findings of a large survey of nearly 3,300 American adults conducted in September and October. The other findings, released in January, show that more than three in four Americans believe that artificial intelligence will fundamentally change how the public works and lives in the coming decade. About the same share expect artificial intelligence to destroy more jobs than it creates, though only about one in four were worried about losing their own job. https : // www.nytimes.com/2018/03/06/us/artificial-intelligence-jobs.html Load-Date: March 7, 2018 End of Document The All-Gas, No-Brakes Approach to A.I. The New York Times

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When Digit spends an afternoon unloading boxes from a tractor-trailer in 100-plus-degree heat, co-workers never hear a complaint. Digit, a blue-and-white humanoid robot, was designed to handle the tough, menial and dangerous tasks at warehouses. The robot's movements, informed by years of studying how birds walk, include a slight sway in its frame when it is at rest, to dispel the discomforting stillness that bothers humans. It also doesn't talk, because voice recognition tech is not advanced enough yet. ''Instead of designing the whole warehouse around the robots, we can now build robots that are able to operate on our terms, in our spaces, in our environments,'' said Jonathan Hurst, the chief technology officer and a founder of Agility Robotics, the firm behind Digit. Robotics and automation are not new to logistics; conveyor belts, scanners and other innovations have helped automate and accelerate the speed-obsessed industry for decades. But the pace of investment and change -- fueled by the pandemic-era e-commerce boom, a tight labor market and a fragile supply chain -- has taken off in recent years. Experts say robotics will change how warehouses are operated and designed. ''It's a golden era we're entering into,'' said Tye Brady, chief technologist of Amazon Robotics. The e-commerce giant, which helped supercharge the industry's turn toward automation in 2012 with the acquisition of the robotics company Kiva Systems, has deployed more than half a million robotics units, including Proteus, its first fully autonomous mobile robot. Labor organizations have a different perspective. Technology can make jobs more secure and safer, but the industry is too focused on using it as a cost-saving measure, said Sheheryar Kaoosji, executive director of the Warehouse Worker Resource Center, a nonprofit group in California. ''It has always wanted to cut labor costs, and reducing human labor is something the industry has seen as a way to save money for decades,'' he said. Adoption of robotics in warehouses will increase 50 percent or more in the next five years, according to surveys taken by the Material Handling Institute, an industry trade group. The goal is mechanical orchestration, in which a team of robots, steered by sophisticated software and artificial intelligence, can move boxes and products in a seamless environment. ''I worry for those owners who don't do it,'' said Erik Nieves, chief executive of Plus One Robotics, which has teamed up with Yaskawa America to bring robotic arms to a FedEx sorting facility in Memphis. ''Even today, a lot of warehouses are just racks, a cart and a clipboard. They're just not going to be able to keep up.'' Billions are being invested by big players eager to stay on the cutting edge. Walmart, for instance, recently announced a deal with Symbotic to bring its system of belts, pickers and autonomous vehicles to all of the retailer's 42 main sorting facilities. Amazon, which accounted for 38 percent of robotics investment in the industry last year, announced in April a $1 billion Industrial Innovation Fund to support robotics firms like Agility. And the grocer Kroger has opened five of 20 planned warehouses outfitted with the Ocado automated system for packing and shipping fresh groceries. The seeds of the surge in warehouse robotics were planted during the 2008 recession, when carmakers, which depend heavily on robotics, took a significant and prolonged downturn. Many current innovators have a background in the auto industry and saw logistics as ripe for innovation. But unlike assembly line manufacturing, warehouses demand a significant degree of flexibility. Only recently have systems like visioning and artificial intelligence become cheap and powerful enough to sort the tens of thousands of different products streaming through an e-commerce warehouse. This technological leap is part of a larger embrace of robotics: The industry saw a 28 percent jump in purchases from 2020 to 2021, according to the Association for Advancing Automation. Now, the technology is becoming more affordable and filtering down through the industry, beyond big players like Walmart and Amazon, said Rueben Scriven, a senior analyst at Interact Analysis who covers warehouse automation. He predicts a 25 percent increase in robotics and automation investment this year alone. Real estate firms are also investing in robotics start-ups. For instance, Prologis, an industrial giant with a global warehouse network, has poured tens of millions of dollars into robotics firms through its Prologis Ventures fund. ''Netflix is the only company that could figure out streaming video, and then suddenly it wasn't,'' said Zac Stewart Rogers, a Colorado State University professor focused on logistics and warehousing who sees an emerging middle class of robotics users in the industry. ''Other companies will start to catch up to Amazon's lead.'' There's increased demand for goods-to-person robots by firms like Fetch and Locus. These so-called cobots, which can look like bin-carrying Segways, move back and forth among workers throughout the facility. With the cost of raw materials like steel soaring, these robots become cheaper and quicker to deploy than automated conveyor systems. Some firms have even introduced ''robots as a service'' business models to lease these machines to warehouse operators. Many industry analysts add that increased interest in robots stems from a tight labor market that's due to high turnover and competitive pay in other fields. Automation is one lever that companies could pull to address the problem. Robots won't replace workers in the near term, Mr. Scriven said, but rather make them more efficient and productive. Humans will be crew chiefs, commanding and maintaining teams of robots. And robots can help with recruitment, said William O'Donnell, managing director of Prologis Ventures. ''It will improve the quality of experience for the work force because instead of doing a rote manual thing, individuals will learn how to manage the robot to keep it up and running,'' he said. ''It will create a career path and a more sophisticated skill set.'' But workers have not necessarily found significant benefits in robotics advancements, said Mr. Kaoosji, the worker advocate. Investment in new technologies will need to involve the participation of labor to make sure the evolution of jobs does not leave longtime workers behind. Working at the speed of machines will overwhelm employees, he said. ''It's basically the conveyor belt problem, like Lucy Ricardo with the chocolates in 'I Love Lucy,''' he said. ''If your machines are driving the pace of work, you have to keep with what the machine decides is your pace of work.'' Warehouse builders and operators are already asking for advice on how to optimize new spaces for the new generation of robotics, said James H. Rock, the chief executive of Seegrid, which creates autonomous mobile robots that zip across warehouse floors. He believes that ''lights out'' warehouses -- run by robots around the clock without requiring air conditioning or lighting tuned to human needs -- will arrive in three or four years. Too many in the industry have seen the advantages in increasing efficiency and reducing costs and worker accidents, he said. It's unclear just how much the efficiency gains of robotics will affect the overall demand for warehouse space. Symbotic, for instance, claims it can deliver the same amount as a traditional warehouse operation in half the space. A human and robot tend to take up a similar amount of space on the warehouse floor, but only one needs a break room. A bigger challenge is the industry's aging spaces: A third of warehouses are more than 50 years old, with 70 percent constructed before the 21st century, according to a report from the real estate services firm Newmark. Landlords aren't typically making these investments themselves; tenants and big retailers tend to finance the robotics and automation improvements. Warehouses will need to be wired for greatly expanded power needs and charging stations, as well as more sophisticated wireless and 5G networks to allow the fleet of machines to communicate. Newmark found that the U.S. industrial sector's power use will grow more than twice as fast as any other sector in real estate in coming decades. ''We're largely building the same building,'' said Steve Kros, regional partner at Transwestern, a developer focused on warehouses. ''A generic, vanilla building that can accommodate the widest possible range of tenants. But now they're using two or three times the power of previous generations of warehouses.'' https : // www.nytimes.com/2022/07/12/business/warehouse-technology-robotics.html Graphic PHOTOS: A Yaskawa robotic arm helps process small packages and letters at FedEx's Memphis hub. ''It's a golden era we're entering into,'' said Tye Brady, chief technologist of Amazon Robotics. A line of conveyor belts that make up a large portion of the Small Package Sort System at the FedEx facility in Memphis. A vision sensor used by the robotic arm. The adoption of robotics in warehouses is expected to grow about 50 percent in the next five years. (PHOTOGRAPHS BY WHITTEN SABBATINI FOR THE NEW YORK TIMES) Load-Date: July 13, 2022 End of Document ‘Are You OK?’ San Francisco Residents Say They Most Certainly Are. The New York Times