

# Manual Coding Articles - Coder 2

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## 63 “ChatGPT is ominous, but the pen is mightier”

American schools are woefully unprepared for the emergence of ChatGPT, particularly as it relates to writing instruction. We have detected the incoming bogey, but we’ve yet to scramble the fighters. The clock is ticking. I warned in a recent interview with Fox News that artificial intelligence technologies will be so disruptive to writing instruction that educators will be forced to reimagine curriculum from the ground up. With each update to AI technology, teachers will be less able to detect original writing and thinking on the part of their students. The idea that plagiarism-detection programs will be able to outpace text-generating AI is laughable, especially when one considers who will be operating these tools. Children are always one step ahead of parents and schools when it comes to the latest technology. If students are determined to use programs like ChatGPT to write a summary of *The Catcher in the Rye*, they will find a way. The ease of cheating in the AI era will impede students from deep learning in subjects that involve writing, such as literature and history. The process of planning and drafting an essay plays a crucial role in helping students organize and prioritize information. It is not simply busy work. Rather, the essay is the means by which students arrange ideas and values within a hierarchy. By cheating with ChatGPT and similar programs, students will only cheat themselves of the opportunity to strengthen their understanding of reality and become powerful thinkers. To be certain, writing instruction is already the weakest link in the already-floundering chain of American education. According to the latest statistics from the National Assessment of Educational Progress, 73% of 8th and 12th graders already lack basic proficiency in writing. Let that sink in for a minute. A full three-quarters of American students are incapable of grade-level writing. These numbers will only continue to plunge as writing becomes easier to avoid, thanks to AI. It is not an exaggeration to say that we are in the process of producing an illiterate generation. While this may seem dire - I’ve been accused of “fearmongering” and being a “doomsayer” by no less a public luminary than Jason Wingard, president of Temple University - I believe the emergence of ChatGPT and its competitors (Google has just released a similar program called “Bard”) presents educators with a tremendous opportunity: Now, at long last, educators will be forced to admit failure in writing instruction and reimagine the enterprise entirely. A recent op-ed by Jeremy Tate in the *Wall Street Journal* acknowledges the challenges to writing instruction posed by ChatGPT (unlike Wingard’s op-ed in *Forbes*, which dismisses concerns about learning loss out of hand) but poses the untenable solution that we should return to the Socratic method of defending ideas orally in the classroom. While this may be a workable solution at small liberal arts colleges that boast superior faculty and favorable student-to-teacher ratios, such methods will be unworkable in English and History classrooms across America that often contain 30+ students. A better solution would be to resurrect a different educational product from a bygone era: handwriting. Despite being the go-to method of the digital age, typing has never been an optimal method for student writing because its speed discourages meaningful deliberation. Handwriting is much slower than typing, which is, counterintuitively to the modern mind, a great benefit for students, especially elementary school-aged students. We write to discriminate between ideas of different value; when the gears move too fast, we struggle to perform this crucial procedure. The multisensory process of handwriting slows the process down and pulls the student into a deeper level of concentration, which yields better thinking and deeper learning. It also fosters sustained concentration, which is perhaps the single most useful skill one could develop in this age of distraction. Handwriting is also a potent counteroffensive to the emergence of auto-generated essays, particularly as it relates to in-class assignments. AI is indeed a powerful tool, but for students learning to think and write, the pen remains far mightier.

## 64 “Opinion: How Do Students Feel About OpenAI’s ChatGPT?”

**Bold Ideas Aren’t Conventional** With the invention of the camera, artists could create images without learning how to draw or paint. Yet two centuries later, society continues to value hand-crafted illustrations and paintings as treasured art. There is meaning in brush strokes and expression in hard work. For similar reasons, ChatGPT won’t replace human essayists. ChatGPT is extraordinary, but its responses are algorithmic. Already, plagiarism-detection services are adding features to detect AI-generated text. Educators may closely scrutinize students’ submitted work for signs of AI support, or conversely might embrace AI as a tool to assist students’ writing. But ultimately, ChatGPT won’t supplant educators’ focus on cultivating the writing abilities of their students. Nor should ChatGPT supplant this focus. Even if the program’s responses were truly indistinguishable from a student’s, there is value in learning how to write. Individuals should trust their own ideas, not those collected and generated by a computer. Bold ideas are bold precisely because they are unconventional. They run counter to society’s accepted knowledge. Perhaps ChatGPT will have its impact on education by motivating educators to emphasize to their students the importance of self-determination. -Ted Steinmeyer, Harvard University, J.D. The New Google The release of ChatGPT came at a serendipitous time, right when college students were studying for final exams or turning in final essays. I have seen the AI write love poems, give a detailed summary of an excerpt, write full sets of code, and even draw up a nondisclosure agreement. These new tools might become the new Google. If the databases are constantly being updated with current news and information, as well as connected to the internet, we could use AI to learn and solve problems in daily life. When I went to look up an advanced organometallic chemistry topic, ChatGPT gave a better summary than Google. College professors will have to determine how they want to proceed and if they need to have in-person final essays without technology. But without technology in the classroom, will teaching regress? -Therese Joffre, Hope College, chemistry Don’t Forget the Basics AI tools such as ChatGPT can help users achieve specific goals. There is always concern about new technology and the resulting potential paradigmatic shifts. But history will remind us that it’s important to acknowledge these technological developments and educate about the strengths and weaknesses of these tools. It’s equally important, however, not to forget the basics. ChatGPT can’t replace reasoning or critical thinking. While AI tools can make essays read better, they can’t replace knowing how to form thoughts into careful arguments. The most significant challenge for future educators is finding out how best to develop and assess those skills. -Daniel Pham, University of Oklahoma, medicine Medieval Lessons Live cameras, screen recordings and antiplagiarism software are all too familiar to the current university student. As technology advances, such defenses will continue to be deployed against the illicit use of new tech in the academy. An unceasing tit-for-tat will ensue between tools such as ChatGPT and security measures to curtail academic dishonesty. Educators may strive to stay ahead of all such obstacles, but this is a losing battle. There is another way: Study with Catholic friars. The friars follow the format of a scholastic studium, an educational model that uses formalized arguments as the primary method of teaching. Many exams are given orally, a mode that requires clear thinking and concise speaking on the part of the student. Papers are not submitted but presented to the class. Theses are defended while friars hurl objections and counterpoints at the student. In such rhetorical exercises, there is no opportunity to hide behind clever AI. Moderns can learn much from medieval ways. -Kayla Bartsch, Dominican House of Studies, theology An Auxiliary Resource The ChatGPT bot can be used for the benefit of the students, or it can be used to their detriment. The outcome will depend on how well faculty can integrate this technology into their curricula, as well as the integrity of the students to use it properly. The obvious concern is academic fraud. Educators will need to implement new assessment methods to mitigate cheating. Written in-class assignments might become more common. Instead, students should use AI tools as auxiliary resources. Even if conversational AI is only semi-reliable at this point, it can be used to learn about new topics, or ask questions outside class. The adjustment period will come as a shock to the education system. This is normal for major changes throughout history, such as the Gutenberg Press, the internet or the personal computer. We can remain optimistic, however, that the good faith of most students and faculty will make this technological advancement a net positive. -Rafael Arbex-Murut, University of California, Berkeley, information and data science

## 65 “Opinion: The George Santos AI Chatbots”

No matter the question, the answer is bound to be interesting whether correct, incorrect or totally off the wall. Are we speaking of George Santos or ChatGPT? Yes. If the great march of liberalism is to liberate us from reality altogether, as the political philosopher Bruno Macaes theorizes, the metaverse won't be for real interaction with real people. It will be an artificial reality whose nature ChatGPT, the new chat function associated with Microsoft's Bing search engine, is bringing into focus. In the familiar metaverse called "news," a Washington Post reporter last week warned about a gotcha game that questioners were playing with chatbots. Along came a New York Times reporter to prove his point: Don't ask a chatbot for a list of antisocial activities on the internet. Ask for a list of activities a chatbot might perform if it were an antisocial chatbot. The answer will be identical except prefaced with words to the effect "I as a chatbot would do this . . ." The furor consumed cable news for a morning and yet illustrated mainly the gotcha function that long ago turned every politician into a scripted automaton. Playing this trick on a robot doesn't seem brave but does expose a risk in the environment the robots are entering. Now Microsoft will have to re-engineer its Bing chat mode to beware of journalist tricks. The company rightly points to the relentless prompting of hypotheticals to get a robot to say how it would behave if its programming were different. On Bing's more neurotic outpourings, the company is less convincing and attributes the confusion to overlong sessions-an answer that leaves much to be explained and also isn't very flattering about similar human derangements that thinkers over the years have associated with creativity and originality. In the end, the cacophony tells us less about Bing than about the metaverse known as fake or at least semi-manufactured news. Welcome to the George Santos metaverse. Shaping it will be the two forces that reshaped cable news in the past decade. The first is "availability bias": Claims are advanced because they are familiar and fulfill an existing narrative. Chatbots derive their answers precisely from the statistical likelihood that words have already appeared near each other in large text libraries. The second is the psychological function known as "splitting"-making sure our perceived world is emotionally supportive of our pre-existing beliefs and affiliations. A chatbot isn't a business, after all, unless its answers please. The signposts are everywhere. A journalist questions the ChatGPT-enabled chatbot and finds it ethically preferable to let a million people die than utter a racial epithet. A writer at another paper prods the chatbot to dream up a secret role for Tom Hanks (at age 14) in Watergate. The lack of trenchant and inspired editors is a disease already afflicting traditional media. It's also an essential flaw of our new-media metaverses. On Substack, the sometimes useful Yale historian Timothy Snyder, a supporter of Ukraine, lately descended into a rabbit hole of anti-Trump theorizing, due to too much exposure to the discount-rack fallacies of author Craig Unger. Mr. Snyder's friends in Kyiv may need to stage an intervention. He's becoming a liability. From 4,600 miles away, they understand what he doesn't: The people who fight America's wars, staff its militaries, build its weapons, and vote in its elections are, a lot of them, Trump voters. Metaverses spring up and go poof just as quickly. Vanishing already is one spun by Joe Biden, in which millions of diploma-toting voters were to be relieved of \$400 billion in student debt. A George Santos-like scheme puffed up to win an election, the president doesn't have the authority to deliver. He never did. Another revelation comes via the "Twitter files" controversy, exposing the federal government's enthusiastic embrace of disinformation in the name of fighting "disinformation." Answers have always been demanded from government; supplying them has always been a basic function. But as Rep. Santos understood before the rest of us, the only thing wrong with a false answer is that it's false. In every other way, it can be engineered to meet every need of the moment. Most disturbing about the new talkative robots is their potential to become the disinformation engineers par excellence. In our lucky country, politicians sometimes have put creative energy into telling us what we need to hear, not what we want to hear. The U.S. needs to spend a lot more on defense, even at the expense of other things Americans might want. Our non-meta adversaries need to know we are not relying on ChatGPT to weave a cocoon of illusion to protect us from the wars they are planning.

## 66 “Meta unveils new language model in race against ChatGPT rivals”

Mark Zuckerberg’s Meta Platforms said Friday it was releasing a new large language model based on artificial intelligence aimed at the research community, becoming the latest company to join the AI race. The battle to dominate the AI technology space, which until recently existed in the background, kicked off late last year with the launch of Microsoft-backed OpenAI’s ChatGPT and prompted tech heavyweights from Alphabet to China’s Baidu to create their own offerings. Meta’s LLaMA, short for Large Language Model Meta AI, will be available under non-commercial license to researchers and entities affiliated with government, civil society, and academia, it said in a blog. The company will make available the underlying code for users to tweak the model and use it for research-related use cases. The model, which Meta said requires “far less” computing power, is trained on 20 languages with a focus on those with Latin and Cyrillic alphabets. “Meta’s announcement today appears to be a step in testing their generative AI capabilities so they can implement them into their products in the future,” said Gil Luria, senior software analyst at D.A. Davidson. “Generative AI is a new application of AI that Meta has less experience with, but is clearly important for the future of their business.” AI has emerged as a bright spot for investments in the tech industry, whose slowing growth has led to widespread layoffs and a cutback on experimental bets. Microsoft, Baidu and Alphabet’s Google, meanwhile, are incorporating their respective advanced AI language engines into more mass products like search. Meta in May last year released large language model OPT-175B, also aimed at researchers, which formed the basis of a new iteration of its chatbot BlenderBot. It later launched a model called Galactica, which it said could write scientific articles and solve math problems, but its demo was later pulled down because it repeatedly generated authoritative-sounding content.

## 67 “ChatGPT Creator Releases Tool to Detect AI-Generated Text, Calls It ‘Unreliable’”

The startup behind the viral chatbot ChatGPT unveiled a tool for detecting text generated by artificial intelligence amid growing concerns the technology will be abused by cheaters, spammers and others. But OpenAI said its so-called AI classifier itself fails to detect bot-written text nearly three quarters of the time. The San Francisco-based startup, which launched ChatGPT in November and recently announced a multiyear, multibillion-dollar partnership with Microsoft Corp., released the detection tool on Tuesday. It said in a blog post that the tool was designed to help people distinguish between text written by a human versus a range of artificial intelligence programs-not just ChatGPT. OpenAI said that in evaluations its new tool correctly identified 26% of AI-written text as “likely AI-written.” It said the classifier also had false positives 9% of the time in which it incorrectly labeled human-written text as AI-written. “Our classifier is not reliable,” the company said, referring to it as a “work-in-progress.” The tool isn’t good enough on its own, though it can be used to complement methods that educators, employers and others rely on to determine the source of a piece of text, OpenAI said. “While it is impossible to reliably detect all AI-written text, we believe good classifiers can inform mitigations for false claims that AI-generated text was written by a human,” the company said. ChatGPT became a viral sensation due to its ability to produce human-sounding essays, poetry, screenplays and sales pitches on virtually any subject in seconds. Microsoft invested in OpenAI in 2019 and 2021 before announcing the major expansion of their partnership last week, and has said it plans to integrate the company’s technology into many of its products. Soon after ChatGPT was released, the potential for it to be misused to do things such as spread misinformation and write spam became apparent. Schools and educators also have warned of the potential for students to use it to write essays or other work they have been assigned. In December, the software passed all three parts of the U.S. Medical Licensing Examination as part of a research experiment. Some schools have moved to ban students from using ChatGPT, while others are attempting to embrace it. Edward Tian, a Princeton University senior, created software called GPTZero to try to recognize writing generated by the software. OpenAI said it had schools in mind when developing its latest classifier tool. “We recognize that identifying AI-written text has been an important point of discussion among educators, and equally important is recognizing the limits and impacts of AI-generated text classifiers in the classroom,” it said. Journalists, researchers and others can also use the tool to detect AI-generated content, the company said. OpenAI said ChatGPT is still unreliable on short texts and longer texts are sometimes labeled incorrectly. It performs “significantly worse” in languages other than English and is “unreliable” in detecting AI use in computer code. Another problem is that the tool can’t easily tell if a list of facts-U.S. state capitals for example-was written by a person or AI, because the correct answer would be the same, OpenAI said. AI-written text can also be edited to evade the classifier, the company said. These kinds of caveats raise questions about just how beneficial the tool can be, the company said. “Classifiers like ours can be updated and retrained based on successful attacks,” OpenAI said. “But it is unclear whether detection has an advantage in the long-term.” With feedback from users, OpenAI hopes to improve the tool. It said it has reached out to U.S. educators to discuss ChatGPT’s capabilities and limitations. “These are important conversations to have as part of our mission is to deploy large language models safely, in direct contact with affected communities,” the company said.

## 68 “Mind-blowing new AI chatbot writes sophisticated essays and complicated coding”

A new chatbot has astounded users with its ability to produce school-level essays and answer coding problems, sparking ethical and technical questions about the software’s effects on society. The OpenAI foundation released ChatGPT to the public last week. The prototype chatbot caught the public’s attention after it produced professional-grade answers to academic and coding questions. The viral AI saw its user base quickly surge to 1 million users over six days, according to OpenAI CEO Sam Altman. The current bot is an “early demo,” Altman argued, saying that it could provide the base for digital assistants in the future. These assistants would first “talk to you, answer questions, and give advice. Later you can have something that goes off and does tasks for you. Eventually, you can have something that goes off and discovers new knowledge for you.” ChatGPT is the latest evolution of Generative Pre-trained Transformer, or GPT, technology. The app uses a mixture of AI and machine learning to provide relevant information through a chat interface. All answers draw on an extensive collection of text from the internet and are processed by the app to create clear language resembling human statements. The platform can form logical and plausible-sounding answers based on a large amount of text it had learned from the internet but cannot fact-check or ensure that a statement is accurate. The bot is also able to adapt and learn from its users. “The dialogue format makes it possible for ChatGPT to answer follow-up questions, admit its mistakes, challenge incorrect premises, and reject inappropriate requests,” the chatbot’s developers said in a blog post announcing the bot. The bot can respond to simple queries and provide relevant answers, including descriptions and solutions to complex questions. It also includes the ability to answer complex data-based questions, such as how to write code or solve layout problems. The accuracy of the bots has astounded several academics, who claim the results resemble undergraduate-level essays. The one downside is that the bot cannot ensure it is providing accurate information. The bot has a significant source of data to use to answer queries but not a “source of truth,” according to the developers. It will either provide information already contained within the reviewed data or use it to create a plausible-sounding answer. For example, tech analyst Ben Thompson asked ChatGPT about Thomas Hobbes’s beliefs. While the presented answer appears well-sourced, it fails to present Hobbes’s beliefs on the matter properly. The bot is also sensitive to simple changes in phrasing and may answer the question differently based on the specifics of the query. While ChatGPT is free, Altman is considering monetizing it by charging per chat. Users can visit OpenAI.com to sign up to use the chatbot. However, users may have to join an email list due to the service being overwhelmed.

## 69 “The Chatbots Are Here, and the Internet Industry Is in a Tizzy”

SAN FRANCISCO - When Aaron Levie, the chief executive of Box, tried a new A.I. chatbot called ChatGPT in early December, it didn't take him long to declare, "We need people on this!" He cleared his calendar and asked employees to figure out how the technology, which instantly provides comprehensive answers to complex questions, could benefit Box, a cloud computing company that sells services that help businesses manage their online data. Mr. Levie's reaction to ChatGPT was typical of the anxiety - and excitement - over Silicon Valley's new new thing. Chatbots have ignited a scramble to determine whether their technology could upend the economics of the internet, turn today's powerhouses into has-beens or create the industry's next giants. Not since the iPhone has the belief that a new technology could change the industry run so deep. Cloud computing companies are rushing to deliver chatbot tools, even as they worry that the technology will gut other parts of their businesses. E-commerce outfits are dreaming of new ways to sell things. Social media platforms are being flooded with posts written by bots. And publishing companies are fretting that even more dollars will be squeezed out of digital advertising. The volatility of chatbots has made it impossible to predict their impact. In one second, the systems impress by fielding a complex request for a five-day itinerary, making Google's search engine look archaic. A moment later, they disturb by taking conversations in dark directions and launching verbal assaults. The result is an industry gripped with the question: What do we do now? "Everybody is agitated," said Erik Brynjolfsson, an economist at Stanford's Institute for Human-Centered Artificial Intelligence. "There's a lot of value to be won or lost." Rarely have so many tech sectors been simultaneously exposed. The A.I. systems could disrupt \$100 billion in cloud spending, \$500 billion in digital advertising and \$5.4 trillion in e-commerce sales, according to totals from IDC, a market research firm, and GroupM, a media agency. Google, perhaps more than any other company, has reason to both love and hate the chatbots. It has declared a "code red" because their abilities could be a blow to its \$162 billion business showing ads on searches. But Google's cloud computing business could be a big winner. Smaller companies like Box need help building chatbot tools, so they are turning to the giants that process, store and manage information across the web. Those companies - Google, Microsoft and Amazon - are in a race to provide businesses with the software and substantial computing power behind their A.I. chatbots. "The cloud computing providers have gone all in on A.I. over the last few months," said Clement Delangue, head of the A.I. company Hugging Face, which helps run open-source projects similar to ChatGPT. "They are realizing that in a few years, most of the spending will be on A.I., so it is important for them to make big bets." When Microsoft introduced a chatbot-equipped Bing search engine last month, Yusuf Mehdi, the head of Bing, said the company was wrestling with how the new version would make money. Advertising will be a major driver, he said, but the company expects fewer ads than traditional search allows. "We're going to learn that as we go," Mr. Mehdi said. As Microsoft figures out a chatbot business model, it is forging ahead with plans to sell the technology to others. It charges \$10 a month for a cloud service, built in conjunction with the OpenAI lab, that provides developers with coding suggestions, among other things. Google has similar ambitions for its A.I. technology. After introducing its Bard chatbot last month, the company said its cloud customers would be able to tap into that underlying system for their own businesses. But Google has not yet begun exploring how to make money from Bard itself, said Dan Taylor, a company vice president of global ads. It considers the technology "experimental," he said, and is focused on using the so-called large language models that power chatbots to improve traditional search. "The discourse on A.I. is rather narrow and focused on text and the chat experience," Mr. Taylor said. "Our vision for search is about understanding information and all its forms: language, images, video, navigating the real world." Sridhar Ramaswamy, who led Google's advertising division from 2013 to 2018, said Microsoft and Google recognized that their current search business might not survive. "The wall of ads and sea of blue links is a thing of the past," said Mr. Ramaswamy, who now runs Neeva, a subscription-based search engine. Amazon, which has a larger share of the cloud market than Microsoft and Google combined, has not been as public in its chatbot pursuit as the other two, though it has been working on A.I. technology for years. But in January, Andy Jassy, Amazon's chief executive, corresponded with Mr. Delangue of Hugging Face, and weeks later Amazon expanded a partnership to make it easier to offer Hugging Face's software to customers. As that underlying tech, known as generative A.I., becomes more widely available, it could fuel new ideas in e-commerce. Late last year, Manish Chandra, the chief executive of Poshmark, a popular online secondhand store, found himself daydreaming during a long flight from India about chatbots building profiles of people's tastes, then recommending and buying clothes or electronics. He imagined grocers instantly fulfilling orders for a recipe. "It becomes your mini-Amazon," said Mr. Chandra, who has made integrating

generative A.I. into Poshmark one of the company's top priorities over the next three years. "That layer is going to be very powerful and disruptive and start almost a new layer of retail." But generative A.I. is causing other headaches. In early December, users of Stack Overflow, a popular social network for computer programmers, began posting substandard coding advice written by ChatGPT. Moderators quickly banned A.I.-generated text. Part of the problem was that people could post this questionable content far faster than they could write posts on their own, said Dennis Soemers, a moderator for the site. "Content generated by ChatGPT looks trustworthy and professional, but often isn't," he said. When websites thrived during the pandemic as traffic from Google surged, Nilay Patel, editor in chief of The Verge, a tech news site, warned publishers that the search giant would one day turn off the spigot. He had seen Facebook stop linking out to websites and foresaw Google following suit in a bid to boost its own business. He predicted that visitors from Google would drop from a third of websites' traffic to nothing. He called that day "Google zero." "People thought I was crazy," said Mr. Patel, who redesigned The Verge's website to protect it. Because chatbots replace website search links with footnotes to answers, he said, many publishers are now asking if his prophecy is coming true. For the past two months, strategists and engineers at the digital advertising company CafeMedia have met twice a week to contemplate a future where A.I. chatbots replace search engines and squeeze web traffic. The group recently discussed what websites should do if chatbots lift information but send fewer visitors. One possible solution would be to encourage CafeMedia's network of 4,200 websites to insert code that limited A.I. companies from taking content, a practice currently allowed because it contributes to search rankings. "There are a million things to be worried about," said Paul Bannister, CafeMedia's chief strategy officer. "You have to figure out what to prioritize." Courts are expected to be the ultimate arbiter of content ownership. Last month, Getty Images sued Stability AI, the start-up behind the art generator tool Stable Diffusion, accusing it of unlawfully copying millions of images. The Wall Street Journal has said using its articles to train an A.I. system requires a license. In the meantime, A.I. companies continue collecting information across the web under the "fair use" doctrine, which permits limited use of material without permission. "The world is facing a new technology, and the law is groping to find ways of dealing with it," said Bradley J. Hulbert, a lawyer who specializes in this area. "No one knows where the courts will draw the lines."



## 70 “ChatGPT Passes Medical License Exam, Bar Exam After Top Performance On Wharton MBA Final”

ChatGPT, a mass-market artificial intelligence chatbot launched by OpenAI last year, passed the bar exam and the medical license exam that typically require human students years of intensive study and postsecondary education to complete. The language processing tool has gained widespread recognition over the past several weeks as knowledge workers leverage the user-friendly system to complete tasks such as writing emails and debugging code in a matter of moments. Academics have successfully applied the system to exams often considered difficult by even the world’s brightest students. ChatGPT performed “at or near the passing threshold” for all three components of the United States Medical Licensing Exam, a test which physicians holding Doctor of Medicine degrees must pass for medical licensure, without “any specialized training or reinforcement,” according to one research paper. The system also showed “a high level of concordance and insight in its explanations,” implying that “large language models may have the potential to assist with medical education, and potentially, clinical decision-making.” The researchers fed ChatGPT open-ended and multiple choice questions with and without forced explanations; two physician adjudicators scored the responses with respect to accuracy, concordance, and insight. The performance of ChatGPT on the exam significantly exceeded scores earned by other artificial intelligence systems mere months earlier. ChatGPT also outperformed PubMedGPT, which is “trained exclusively on biomedical domain literature,” and landed “comfortably within the passing range” of scores. The system also earned passing scores on the multistate multiple choice section of the Bar Exam, according to another research paper. Humans with seven years of postsecondary education and exam-specific training only answered 68% of questions correctly; ChatGPT achieved a correct rate of 50.3%, while the model’s top two and top three choices were right 71% and 88% of the time, far exceeding the baseline guessing rate. The researchers concluded that ChatGPT “significantly exceeds our expectations for performance on this task” and noted that the rank-ordering of possible choices confirms the “general understanding of the legal domain” reflected by the system. Although conversations surrounding technological unemployment over the past several decades have revolved around blue-collar workers losing their positions to automated robotics solutions, the widespread use of ChatGPT has introduced similar questions in white-collar professions. Many knowledge workers nevertheless find that the system increases their efficiency: some 27% of professionals at prominent consulting, technology, and financial services companies have already used ChatGPT in various capacities, according to a survey from Fishbowl. The studies related to difficult medical and legal licensure exams follow a similar project which examined the performance of ChatGPT on a graduate-level operations management test at the University of Pennsylvania’s Wharton School. Professor Christian Terwiesch said that ChatGPT earned a grade between B and B- on a final exam usually presented to MBA students. “It does an amazing job at basic operations management and process analysis questions including those that are based on case studies,” he wrote. “Not only are the answers correct, but the explanations are excellent.” Terwiesch clarified that the performance from ChatGPT still had some salient deficiencies. The system made “surprising mistakes in relatively simple calculations” at the level of sixth-grade math that were often “massive in magnitude,” while the current version of the system “is not capable of handling more advanced process analysis questions, even when they are based on fairly standard templates.”

## 71 “A Chatbot’s Predictions for the Future of AI”

Question of the Week To complete this week’s question I had a conversation with OpenAI’s chatbot, GPT-3 (which anyone can try). “Every week I ask readers of my newsletter a different question,” I wrote. “Would you compose this week’s question on the subject of AI, choosing one that is likely to elicit the highest number of interesting responses?” GPT-3 responded, in part, with this suggestion: Sure! Here is a question that might elicit a high number of interesting responses: How do you think AI will change the way we live and work in the next decade? This question seems like asking, circa 1995, how the internet would change the way we live and work. When you respond, know that people of the future will look back with interest on your predictions! Conversations of Note In addition to prompting GPT-3 to generate this week’s question, I interviewed it about the other OpenAI tool that I’ve been testing out, DALL-E, an artificial-intelligence program capable of generating original images from text descriptions. “It has the potential to significantly improve the efficiency of image creation,” GPT-3 told me, with applications in advertising, design, entertainment, art work, and other creative enterprises. As an example, I asked DALL-E to generate images of four Looney Tunes characters as if they were starring in a Wes Anderson movie. Here is the star-studded cast: Yosemite Sam: Bugs Bunny: Wile E. Coyote: And the Roadrunner: I also asked DALL-E to generate Michael Jordan posters in different styles. Here’s one in the style of Jackson Pollock: Just as interesting were the results when I deployed a trick I picked up at a recent Atlantic event in Los Angeles: asking the text-based ChatGPT to help write better prompts for an image-generating AI. For example, say I was trying to come up with ideas to decorate my living room. If I ask DALL-E to generate “a living room that would be good for reading in” I get this: Whereas if I ask GPT-3 to help me to write a better prompt for DALL-E, I get this: “Show me a living room with comfortable seating, good lighting, and plenty of shelving for books, that would be the perfect place to relax and get lost in a good book. Include a fireplace, a view of the outdoors, and a quiet and peaceful atmosphere.” Pasting that into DALL-E generates this: You can play with DALL-E on your own, too, and if you do you’ll quickly discover how expansive its potential use cases are. I’ll be eager to hear your various thoughts by email. My prediction is that, for a long stretch of time to come, the use of text and image content generated by AI platforms plus human prompts will outstrip that by AI alone, or by humans alone, across many applications. Is Writing Still an Important Skill to Learn? Daniel Herman, who teaches various high-school humanities classes, reflects in *The Atlantic* on advances in artificial intelligence that can “generate sophisticated text in response to any prompt you can imagine.” The technology “may signal the end of writing assignments altogether-and maybe even the end of writing as a gatekeeper, a metric for intelligence, a teachable skill,” he argues: If you’re looking for historical analogues, this would be like the printing press, the steam drill, and the light bulb having a baby, and that baby having access to the entire corpus of human knowledge and understanding. My life-and the lives of thousands of other teachers and professors, tutors and administrators-is about to drastically change. ... This semester I am lucky enough to be teaching writers like James Baldwin, Gloria Anzaldua, Herman Melville, Mohsin Hamid, Virginia Held. I recognize that it’s a privilege to have relatively small classes that can explore material like this at all. But at the end of the day, kids are always kids. I’m sure you will be absolutely shocked to hear that not all teenagers are, in fact, so interested in having their mind lit on fire by Anzaldua’s radical ideas about transcending binaries, or Ishmael’s metaphysics in *Moby-Dick*. To those students, I have always said: You may not be interested in poetry or civics, but no matter what you end up doing with your life, a basic competence in writing is an absolutely essential skill-whether it’s for college admissions, writing a cover letter when applying for a job, or just writing an email to your boss. I’ve also long held, for those who are interested in writing, that you need to learn the basic rules of good writing before you can start breaking them-that, like Picasso, you have to learn how to reliably fulfill an audience’s expectations before you get to start putting eyeballs in people’s ears and things. I don’t know if either of those things is true anymore. It’s no longer obvious to me that my teenagers actually will need to develop this basic skill, or if the logic still holds that the fundamentals are necessary for experimentation. Let me be candid (with apologies to all of my current and former students): What GPT can produce right now is better than the large majority of writing seen by your average teacher or professor ... I believe my most essential tasks, as a teacher, are helping my students think critically, disagree respectfully, argue carefully and flexibly, and understand their mind and the world around them. Unconventional, improvisatory, expressive, meta-cognitive writing can be an extraordinary vehicle for those things. But if most contemporary writing pedagogy is necessarily focused on helping students master the basics, what happens when a computer can do it for us? Will “Creative” AIs Increase Returns to Excellence? That is the writer Virginia Postrel’s guess, as she notes in her *Substack* newsletter: While crashing the value of mediocrity, ChatGPT could increase the returns

to excellence. ("Average is over," as Tyler Cowen put it.) Think about what happened to graphic design. Many people used to make a living doing routine tasks, from laying out pages to selecting typefaces, that are now easily handled by software. Thanks to the graphic intelligence embedded in everyday tools, the standards for routine graphics, from websites and PowerPoint presentations to restaurant menus and wedding invitations, have increased. But that doesn't mean there's no work for graphic designers with the conceptual chops to take on complicated tasks. Powerful tools make iteration and brainstorming easier, but cleverness is still a valued skill. When my friend Shikha Dalmia launched The Unpopulist on Substack, she asked me to look at some logos she'd come up with using easily available tools. They weren't terrible, but neither were they distinctive. "Hire a professional," I advised, and she got a real logo ... Mediocre writing that earns grade-inflated Bs is now replaceable by a bot. Maybe if those B-essay students started with AI-generated prose it would be easier to teach them to do better: to refine the ideas, dig down more on the facts, improve the writing style. Can ChatGPT be a time-saving tool, like a calculator or text search, rather than a threat? Will Humans Have Inflated Confidence in AI? Louis Rosenberg expresses that worry at Big Think: Personally, my biggest concern about Generative AI systems is that we humans may assume that their informational output is accurate because it came from a computer. After all, most of us grew up watching shows and movies like Star Trek where characters verbally ask computers for information and instantly get accurate and trustworthy results. I even can hear Captain Picard in my head barking out a command like, "Computer, estimate how long it will take for us to catch up with that space probe." And an authoritative answer comes back. Everyone believes it. After all, it's from a computer. But here's the problem: Generative AI systems are trained on massive sets of human documents that are not comprehensively vetted for accuracy or authenticity. This means the training data could include some documents that are filled with misinformation, disinformation, political bias, or social prejudice. Because of this, ChatGPT and other systems include disclaimers like, "May occasionally generate incorrect information," and, "May occasionally produce harmful instructions or biased content." It's great that they tell you this up front, but I worry people will forget about the disclaimers or not take such warnings seriously. These current systems are not factual databases; they are designed to imitate human responses, which could easily mean imitating human flaws and errors. I've noticed some inaccuracies in my own experiments. For example, you'll frequently hear people declare, "hate speech is not free speech." That is incorrect—"hate speech" is not a legal category, and lots of hateful speech and expression is protected by the First Amendment. But Chat GPT-3 kept telling me that hate speech is not protected by the First Amendment. A Contradiction at the Core of the American Dream In an article titled "The Homeownership Society Was a Mistake," my colleague Jerusalem Demsas argues: At the core of American housing policy is a secret hiding in plain sight: Homeownership works for some because it cannot work for all. If we want to make housing affordable for everyone, then it needs to be cheap and widely available. And if we want that housing to act as a wealth-building vehicle, home values have to increase significantly over time. How do we ensure that housing is both appreciating in value for homeowners but cheap enough for all would-be homeowners to buy in? We can't. What makes this rather obvious conclusion significant is just how common it is for policy makers to espouse both goals simultaneously. For instance, in a statement last year lamenting how "inflation hurts Americans pocketbooks," President Joe Biden also noted that "home values are up" as a proof point that the economic recovery was well under way. So rising prices are bad, except when it comes to homes. Policy makers aren't unaware of the reality that quickly appreciating home prices come at the cost of housing affordability. In fact, they've repeatedly picked a side, despite pretending otherwise. The homeowner's power in American politics is unmatched. Rich people tend to be homeowners and have an outsize voice in politics because they are more likely to vote, donate, and engage in the political process. Provocation of the Week This week's subject is pet adoption: As a society, we have long been encouraged to adopt pets as a way to provide homes for animals in need and reduce the number of homeless pets. However, upon closer examination, the act of adoption raises a number of serious concerns. First and foremost, adoption perpetuates a system of overpopulation and exploitation. By adopting a pet, we are essentially filling a demand for more animals and contributing to the cycle of breeding and disposability. It is estimated that there are already more than enough pets in the world to meet the demand, yet we continue to breed and produce more. Additionally, adoption can be a risky and uncertain process. When we adopt a pet, we often do not know their full history or any potential behavioral or medical issues they may have. This can lead to unexpected costs and challenges in care, as well as the potential for harm to ourselves and others. Furthermore, adoption can be a superficial and self-serving act. By adopting a pet, we often do so for our own benefit and convenience, rather than considering the needs and well-being of the animal. This can lead to a lack of commitment and responsibility on the part of the adopter, resulting in a high rate of animal abandonment and neglect. In conclusion, while adoption may seem like

a noble and compassionate act, it is ultimately a flawed and irresponsible approach to addressing the issue of homeless pets. Instead of perpetuating a system of overproduction and exploitation, we should focus on addressing the root causes of pet homelessness and promoting more ethical and sustainable alternatives. If you haven't guessed by now, that, too, was generated by chat GPT-3, given the prompt "write an argument against adoption." That is the last appearance AI-generated words will make in this newsletter, and I personally encourage you to adopt a dog at the earliest viable opportunity!

## 72 “Now you can add ChatGPT to your browser”

ChatGPT has kept growing more and more in popularity since OpenAI released it back in November. Now, the chatbot has Chrome extensions that you can add to your browser to make accessing the feature that much easier. What is ChatGPT? By now, you may have heard of ChatGPT. It is a computer program developed by the artificial intelligence laboratory OpenAI that simulates human conversation and provides helpful and informative responses. When using a regular search engine like Google, you search and then have to sift through all of the search results for your answer. However, ChatGPT thinks for you and gives you a specific response to your question in a matter of seconds. You can ask it to write anything for you, from a romantic poem to a loved one or even a 500-word essay on the Civil Rights Movement. Whatever it is you need an answer to, ChatGPT can give it. What are some of the browser extensions for ChatGPT? The Chrome Web Store has a variety of ChatGPT extensions that you can download and begin using right now. Here are a few of them we put to the test. ChatGPT for Google: This extension can display ChatGPT responses alongside your search engine results. Tactiq: This extension transcribes and summarizes meetings from Google Meet, MS Teams, and Zoom using ChatGPT. This way, you no longer have to worry about taking notes during meetings. ChatGPT Writer: This extension lets you write entire emails and messages using ChatGPT. WebChatGPT: This one adds relevant web results to your prompts to ChatGPT for more accurate and up-to-date conversations. How to install a Chrome extension You can follow these steps: Important: You can't add extensions when you browse in Incognito mode or as a guest. Open the Chrome Web Store. Find and select the extension you want. Click Add to Chrome - Some extensions will let you know if they need certain permissions or data. To approve, click Add extension. To use the extension, click the icon to the right of the address bar Are there any negatives to using these Chrome extensions? These Chrome extensions are mostly there for convenience and to help you to personalize and customize the way ChatGPT works for you. However, the biggest negative when using any browser extension is the risk of viruses and malware. Many browser extensions have a high level of access to a user's device, and if they are attacked by a hacker, it could be a nightmare to deal with. Although extensions from official web stores like Chrome are mostly safe and reputable, it's always a good idea to be extra careful. Additionally, some extensions may slow down your browser or negatively impact its performance. To minimize the risks of using Chrome extensions, we recommend that you only install extensions from reputable sources, such as the Chrome Web Store, and carefully review the permissions requested by each extension before installing it. Always protect your devices The best way to protect yourself from malware is to have antivirus software installed on your device. I've broken down the top antivirus protection for Mac, PC, iOS and Android devices. See my expert review of the best antivirus protection for your Windows, Mac, Android & iOS devices by searching 'Best Antivirus' at CyberGuy.com by clicking the magnifying glass icon at the top of my website. Will you be using any of these Chrome extensions with ChatGPT? Let us know how they work for you.

## 73 “ChatGPT might be the end of civilization”

I fear philosophy professor Lawrence Shapiro’s head is in the clouds, at least according to what he wrote in his Feb. 10 op-ed, “Why I’m not worried about my students using ChatGPT.” He thinks only 20 percent of his students would use ChatGPT to write an essay for his class. As a former high school English teacher, college English instructor and former communications vice president at a national nonprofit, I can assure him that close to 100 percent, if not all, of his students will use ChatGPT if they have access to it to write themes for his class. This technology is too much of a temptation for anybody not to use it. ChatGPT might be the reverse of what ink and papyrus and the Gutenberg printing press meant to the world. Those inventions disseminated original and critical thinking and spurred the creation of new technologies, the Renaissance, the Industrial Revolution, the information age and more. Now, ChatGPT makes it easy not to think. Are critical thinking and forming a coherent argument dead? Yes, you can analyze a ChatGPT essay to see what about it works, but you’re not the one putting together the argument and facts into a coherent whole anymore. When we don’t have to use our brains to think critically using written language, it likely will have deleterious effects on our brains and, ultimately, civilization.

## 74 “How AI That Powers Chatbots and Search Queries Could Discover New Drugs”

In their search for new disease-fighting medicines, drug makers have long employed a laborious trial-and-error process to identify the right compounds. But what if artificial intelligence could predict the makeup of a new drug molecule the way Google figures out what you’re searching for, or email programs anticipate your replies-like “Got it, thanks”? That’s the aim of a new approach that uses an AI technique known as natural language processing- the same technology that enables OpenAI’s ChatGPT to generate human-like responses -to analyze and synthesize proteins, which are the building blocks of life and of many drugs. The approach exploits the fact that biological codes have something in common with search queries and email texts: Both are represented by a series of letters. Proteins are made up of dozens to thousands of small chemical subunits known as amino acids, and scientists use special notation to document the sequences. With each amino acid corresponding to a single letter of the alphabet, proteins are represented as long, sentence-like combinations. Natural language algorithms, which quickly analyze language and predict the next step in a conversation, can also be applied to this biological data to create protein-language models. The models encode what might be called the grammar of proteins-the rules that govern which amino acid combinations yield specific therapeutic properties-to predict the sequences of letters that could become the basis of new drug molecules. As a result, the time required for the early stages of drug discovery could shrink from years to months. “Nature has provided us with tons of examples of proteins that have been designed exquisitely with a variety of functions,” says Ali Madani, founder of ProFluent Bio, a Berkeley, Calif.-based startup focused on language-based protein design. “We’re learning the blueprint from nature.” Protein-based drugs are used to treat heart disease, certain cancers and HIV, among other illnesses. In the past two years, companies including Merck & Co., Roche Holding AG’s Genentech and a number of startups like Helixon Ltd. and Ainnocence have begun to pursue new drugs with natural language processing. The approach, they hope, will not only boost the effectiveness of existing drugs and drug candidates but also open the door to never-before-seen molecules that could treat diseases like pancreatic cancer or ALS, for which more effective medicines have remained elusive. “Technologies like these are going to start addressing areas of biology that have been ‘undruggable,’” says Sean McClain, founder and CEO of Absci Corp., a drug discovery company in Vancouver, Wash. Natural language processing for drug discovery still faces major hurdles, according to computational biologists. Tinkering too much with existing protein-based drugs could introduce unintended side effects, they say, and wholly synthetic molecules will require rigorous testing to make sure they’re safe for the human body. But if the natural-language algorithms work as their adopters hope, they will bring new force to the promise of artificial intelligence to transform drug discovery. Previous attempts to use AI struggled with limitations in the technology or a lack of data. Recent advances in natural language processing and a dramatic drop in the cost of protein sequencing, which has yielded vast databases of amino-acid sequences, have largely overcome both problems, proponents say. With the technology still in the early stages, companies for now are focused on using protein-language models to enhance known molecules, such as to improve the efficacy of drug candidates. Given, say, a naturally occurring monoclonal antibody as a starting point, the models can recommend tweaks to its amino acid sequence to improve its therapeutic benefit. In a pre-print paper published online in August, researchers at Absci used this method to enhance the antibody-based cancer drug trastuzumab so that it binds more tightly to its target on the surface of cancer cells. A tighter bind could mean patients derive benefit from a lower dosage, shortening drug regimens and reducing side effects. In another paper published in March in the Proceedings of the National Academy of Sciences, researchers from MIT, Tsinghua University and Helixon, which is based in Beijing, used protein-language models to transform a Covid-19 drug candidate that’s only effective against alpha, beta and gamma variants into one that could also treat delta. Ainnocence, a startup that spans the U.S. and China, helps clients use such models to modify animal proteins, such as antibodies from rabbits-a common starting point for drug discovery-into forms compatible with human physiology, according to the company’s founder and CEO, Lurong Pan. But even now drugmakers are setting their sights beyond the modification of known proteins to so-called de novo design, the process of synthesizing molecules from scratch. Genentech says a recent experiment showed that it was possible to design an antibody to bind to the same cellular target as pertuzumab, a breast cancer drug on the market that Genentech sells under the brand name Perjeta, but with an entirely new amino acid sequence. Company scientists gave its protein-language models only the target and the antibody’s desired three-dimensional shape-the primary determinant of a protein’s function-says Richard Bonneau, a Genentech executive director who joined the company last year when it acquired his startup, Prescient Design. Absci and Helixon are also working with drugmakers to design medicines for cancer and

autoimmune diseases using de novo methods. Absci announced a partnership in January with Merck to go after three drug targets, according to Mr. McClain. A Merck spokesman said the company has entered into a number of collaborations to explore the potential of artificial intelligence in drug development. Helixon last month signed with two big pharma companies to tackle previously undruggable diseases, CEO and founder Jian Peng says. "All the hard problems in drug discovery have been stuck there for a long time and have been waiting for a new wave of technology to solve it," says Ainnocence's Dr. Pan. "This is really a paradigm-shifting methodology." Ultimately, many computational biologists expect protein-language models to yield benefits beyond faster drug development. The same technique might be used to produce better enzymes for degrading plastics, treating wastewater and cleaning up oil spills, among other environmental applications, the biologists say. "Proteins are the workhorses of life," ProFluent Bio's Dr. Madani says. "They enable us to breathe and see, they enable the environment to be sustained, they enable human health and disease. If we can design better workers or new workers all together, that could have really wide-ranging applications."



## 75 “Why China Didn’t Invent ChatGPT”

Just a few years ago, China was on track to challenge United States dominance in artificial intelligence. The balance of power was tilting in China’s direction because it had abundant data, hungry entrepreneurs, skilled scientists and supportive policies. The country led the world in patent filings related to artificial intelligence. Today, much has changed. Microsoft - an icon of American technology - helped the start-up OpenAI usher its experimental chatbot, ChatGPT, into the world. And China’s tech entrepreneurs are shocked and demoralized. It has dawned on many of them that despite the hype, China lags far behind in artificial intelligence and tech innovation. “Why wasn’t ChatGPT invented in China?” they asked. “How big is the ChatGPT gap between China and the U.S.?” “The Chinese equivalent of ChatGPT? Don’t take it too seriously.” They’re also asking more fundamental questions about the country’s innovation environment: Have censorship, geopolitical tensions and the government’s growing control of the private sector made China less friendly to innovation? “The development of any significant technological product is inseparable from the system and environment in which it operates,” said Xu Chenggang, a senior research scholar at the Stanford Center on China’s Economy and Institutions. He cited TikTok’s Chinese-language sister app Douyin as the sort of innovation that Chinese companies might be unable to achieve in the future because of government limitations on the industry. “Once the open environment is gone, it will be challenging to create such products,” he said. If a decade ago China was the wild, wild East for tech entrepreneurship and innovation, it’s a very different country now. Starting in the 1990s, all of the country’s biggest tech companies were private enterprises funded with foreign money. The government mostly left the industry alone because it didn’t understand the internet and didn’t expect it to become so powerful. By the mid-2010s, China had become a tech power that could rival the United States. Its top internet companies were worth about the same in the markets as their American counterparts. Many of the Chinese companies’ products, like the messaging app WeChat and the payment service Alipay, worked better than similar American mobile internet products. Venture capital flooded in from all over the world. For a while the country was producing as many unicorns, or start-ups valued at more than \$1 billion, as Silicon Valley. All of that changed over the past few years as Beijing went after some of the country’s biggest tech companies and its highest-profile tech entrepreneurs. The aim was to ensure no institution or individual could wield influence on the Chinese society comparable to the Communist Party. The government took minority stakes and board seats in some of those companies, giving it effective control. Along the way, Beijing tamed the industry’s ambition and blunted its innovative edge. But tech companies and investors also have themselves to blame for falling behind their Silicon Valley counterparts. Even before the government started to impose a stronger hand on them, Chinese tech leaders were laser-focused on making money and reluctant to spend on research projects that weren’t likely to yield revenue in the short term. After the government’s onslaught in the past few years, executives are even less inclined to invest in long-term ventures. In 2021, the United States led the world in total private investment in artificial intelligence and in the number of newly funded A.I. companies, which was three and two times the levels in China, according to Stanford University’s A.I. Index 2022 Annual Report. But the government has been the biggest barrier to A.I. - its obsession with censorship perhaps its heaviest club. The availability of a wide range of data is crucial to developing technology like ChatGPT, and that is increasingly harder to come by in a censored online environment. Today, jokes circulate that capture the dark mood among tech people. A popular one: “We need to teach machines not only how to speak, but also how not to speak.” Beijing has punished companies, sometimes severely, to enforce its censorship protocols. Duolingo, which is in the seemingly noncontroversial business of teaching people new languages, was taken out of Chinese app stores for nearly a year to “enhance its content regulation,” according to Chinese media reports. “Many of us in the internet industry are faced with two problems when making a product: Either our products don’t involve speech, or they have to undergo a lot of censorship,” said Hao Peiqiang, a former entrepreneur and programmer in the northern city of Tianjin. “Big companies can afford it, but smaller companies can’t,” he said. “If small companies can’t do this, it stifles innovation.” OpenAI, which has developed ChatGPT with the help of Microsoft’s money, hasn’t made the tool available in China. Mainland Chinese users need to use virtual private networks, or VPNs, to gain access to it. The artificial intelligence gap with the United States is expected to keep widening, according to China experts and investors. One factor will be Chinese companies’ access to algorithms, the rules that A.I. tools follow to make language. Many of them aren’t publicly available, so it will take time for Chinese companies to develop them. The other factor is computing power: Some people in the sector worry that the U.S. government could impose export bans on key chips it has not already banned to slow China’s development in A.I. tools like ChatGPT. For years China bragged that it filed more patent and artificial intelligence patent applications than the United States. But the average

number of citations of its A.I. patents - an indication of the originality and importance of its inventions - lagged the United States and many other developed countries between 2020 and 2021, according to the China A.I. index from Mr. Xu's team. If China's tech industry used to be driven by private enterprises and private venture funding, the government is increasingly guiding not only how money is invested but also which technology gets the money. It wants to ensure that important research projects conform with the country's goal of becoming self-reliant in tech. "China's policymakers are seeking to systematically address and integrate every step of the innovation process," the Mercator Institute for China Studies in Berlin wrote in a research paper. On Monday, Beijing's municipal government pledged support for big tech companies developing large language models to compete with ChatGPT. Social media comments on the news were largely sarcastic. "Time to grab the government subsidies again," one Weibo user wrote. The Chinese government has spent a lot on funding artificial intelligence research, with unclear results. The Beijing Academy of Artificial Intelligence, established in 2018, introduced a ChatGPT-like product two years ago, Wu Dao, describing it as "China's first and the world's largest" A.I. language model. But it never really caught on. The Communist Party's influence is imprinted on the industry. The central government set up the Pengcheng Laboratory, which has taken the lead on improving China's nationwide computing infrastructure. On the lab's home page, its events include a session for its 400-plus Communist Party members to study the spirit of the 20th Party Congress. An item seeking to hire two midlevel official lists as its first requirement "possessing high ideological and political qualities and adhering to the guidance of Xi Jinping's new era of socialism with Chinese characteristics." For Mr. Xu, the Stanford researcher, this feels like *deja vu*. In 1986, he analyzed why the Soviet Union and China lagged the United States and Japan in developing computers. It was clear to him even then that innovation took place when people could pursue their interests and think freely. He says China could end up as a cautionary lesson in how central control stifles growth and tech innovation, just as it did in the old Soviet Union. "Historical examples tell us that national mobilization cannot catch up with freewheeling development that comes naturally on its own," he said.

## 76 “Money Will Kill ChatGPT’s Magic”

Arthur C. Clarke once remarked, “Any sufficiently advanced technology is indistinguishable from magic.” That ambient sense of magic has been missing from the past decade of internet history. The advances have slowed. Each new tablet and smartphone is only a modest improvement over its predecessor. The expected revolutions—the metaverse, blockchain, self-driving cars—have plodded along, always with promises that the real transformation is just a few years away. The one exception this year has been in the field of generative AI. After years of seemingly false promises, AI got startlingly good in 2022. It began with the AI image generators DALL-E 2, Midjourney, and Stable Diffusion. Overnight, people started sharing AI artwork they had generated for free by simply typing a prompt into a text box. Some of it was weird, some was trite, and some was shockingly good. All of it was unmistakably new terrain. That sense of wonderment accelerated last month with the release of OpenAI’s ChatGPT. It’s not the first AI chatbot, and it certainly won’t be the last, but its intuitive user interface and overall effectiveness leave the collective impression that the future is arriving. Professors are warning that this will be the end of the college essay. Twitter users (in a brief respite from talking about Elon Musk) are sharing delightful examples of genuinely clever writing. A common refrain: “It was like magic.” ChatGPT is free, for now. But OpenAI’s CEO Sam Altman has warned that the gravy train will eventually come to a screeching halt: “We will have to monetize it somehow at some point; the compute costs are eye-watering,” he tweeted. The company, which expects to make \$200 million in 2023, is not a charity. Although OpenAI launched as a nonprofit in 2015, it jettisoned that status slightly more than three years later, instead setting up a “capped profit” research lab that is overseen by a nonprofit board. (OpenAI’s backers have agreed to make no more than 100 times what they put into the company—a mere pittance if you expect its products to one day take over the entire global economy.) Microsoft has already poured \$1 billion into the company. You can just imagine a high-octane Clippy powered by ChatGPT. Making the first taste free, so to speak, has been a brilliant marketing strategy. In the weeks since its release, more than a million users have reportedly given ChatGPT a whirl, with OpenAI footing the bill. And between the spring 2022 release of DALL-E 2, the current attention on ChatGPT, and the astonished whispers about GPT-4, an even more advanced text-based AI program supposedly arriving next year, OpenAI is well on its way to becoming the company most associated with shocking advances in consumer-facing AI. What Netflix is to streaming video and Google is to search, OpenAI might become for deep learning. How will the use of these tools change as they become profit generators instead of loss leaders? Will they become paid-subscription products? Will they run advertisements? Will they power new companies that undercut existing industries at lower costs? We can draw some lessons from the trajectory of the early web. I teach a course called “History of the Digital Future.” Every semester, I show my students the 1990 film *Hyperland*. Written by and starring Douglas Adams, the beloved author of the *Hitchhiker’s Guide to the Galaxy* series, it’s billed as a “fantasy documentary”—a tour through the supposed future that was being created by multimedia technologists back then. It offers a window through time, a glimpse into what the digital future looked like during the prehistory of the web. It’s really quite fun. The technologists of 1990 were focused on a set of radical new tools that were on the verge of upending media and education. The era of “linear, noninteractive television ... the sort of television that just happens at you, that you just sit in front of like a couch potato,” as the film puts it, was coming to an end. It was about to be replaced by “software agents” (represented delightfully by Tom Baker in the film). These agents would be, in effect, robot butlers: fully customizable and interactive, personalizing your news and entertainment experiences, and entirely tailored to your interests. (Sound familiar?) Squint, and you can make out the hazy outline of the present in this imagined digital future. We still have linear, noninteractive television, of course, but the software agents of 1990 sound a lot like the algorithmic-recommendation engines and news feeds that define our digital experience today. The crucial difference, though, is whom the “butlers” serve in reality. Early software agents were meant to be controlled and customized by each of us, personally. Today’s algorithms are optimized to the needs and interests of the companies that develop and deploy them. Facebook, Instagram, YouTube, and TikTok all algorithmically attempt to increase the amount of time you spend on their site. They are designed to serve the interests of the platform, not the public. The result, as the Atlantic executive editor Adrienne LaFrance put it, is a modern web whose architecture resembles a doomsday machine. In retrospect, this trajectory seems obvious. Of course the software agents serve the companies rather than the consumers. There is money in serving ads against pageviews. There isn’t much money in personalized search, delight, and discovery. These technologies may develop in research-and-development labs, but they flourish or fail as capitalist enterprises. Industries, over time, build toward where the money is. The future of generative AI might seem like uncharted terrain, but it’s really more like a hiking trail that has fallen into disrepair over the years. The path is poorly

marked but well trodden: The future of this technology will run parallel to the future of Hyperland's software agents. Bluntly put, we are going to inhabit the future that offers the most significant returns to investors. It's best to stop imagining what a tool such as ChatGPT might accomplish if freely and universally deployed—as it is currently but won't be forever, Altman has suggested—and instead start asking what potential uses will maximize revenues. New markets materialize over time. Google, for instance, revolutionized web search in 1998. (Google Search, in its time, was magic.) There wasn't serious money in dominating web search back then, though: The technology first needed to become effective enough to hook people. As that happened, Google launched its targeted-advertising platform, AdWords, in 2001, and became one of the most profitable companies in history over the following years. Search was not a big business, and then it was. This is the spot where generative-AI hype seems to come most unmoored from reality. If history is any guide, the impact of tools such as ChatGPT will mostly reverberate within existing industries rather than disrupt them through direct competition. The long-term trend has been that new technologies tend to exacerbate precarity. Large, profitable industries typically ward off new entrants until they incorporate emerging technologies into their existing workflows. We've been down this road before. In 1993, Michael Crichton declared that The New York Times would be dead and buried within a decade, replaced by software agents that would deliver timely, relevant, personalized news to customers eager to pay for such content. In the late 2000s, massive open online courses were supposed to be a harbinger of the death of higher education. Why pay for college when you could take online exams and earn a certificate for watching MIT professors give lectures through your laptop? The reason technologists so often declare the imminent disruption of health care and medicine and education is not that these industries are particularly vulnerable to new technologies. It is that they are such large sectors of the economy. DALL-E 2 might be a wrecking ball aimed at freelance graphic designers, but that's because the industry is too small and disorganized to defend itself. The American Bar Association and the health-care industry are much more effective at setting up barriers to entry. ChatGPT won't be the end of college; it could be the end of the college-essays-for-hire business, though. It won't be the end of The New York Times, but it might be yet another impediment to rebuilding local news. And professions made up of freelancers stringing together piecemeal work may find themselves in serious trouble. A simple rule of thumb: The more precarious the industry, the greater the risk of disruption. Altman himself has produced some of the most fantastical rhetoric in this category. In a 2021 essay, "Moore's Law for Everything," Altman envisioned a near future in which the health-care and legal professions are replaced by AI tools: "In the next five years, computer programs that can think will read legal documents and give medical advice ... We can imagine AI doctors that can diagnose health problems better than any human, and AI teachers that can diagnose and explain exactly what a student doesn't understand." Indeed, these promises sound remarkably similar to the public excitement surrounding IBM's Watson computer system more than a decade ago. In 2011, Watson beat Ken Jennings at Jeopardy, setting off a wave of enthusiastic speculation that the new age of "Big Data" had arrived. Watson was hailed as a sign of broad social transformation, with radical implications for health care, finance, academia, and law. But the business case never quite came together. A decade later, The New York Times reported that Watson had been quietly repurposed for much more modest ends. The trouble with Altman's vision is that even if a computer program could give accurate medical advice, it still wouldn't be able to prescribe medication, order a radiological exam, or submit paperwork that persuades insurers to cover expenses. The cost of health care in America is not directly driven by the salary of medical doctors. (Likewise, the cost of higher education has skyrocketed for decades, but believe me, this is not driven by professor pay increases.) As a guiding example, consider what generative AI could mean for the public-relations industry. Let's assume for a moment that either now or very soon, programs like ChatGPT will be able to provide average advertising copy at a fraction of existing costs. ChatGPT's greatest strength is its ability to generate clichés: It can, with just a little coaxing, figure out what words are frequently grouped together. The majority of marketing materials are utterly predictable, perfectly suited to a program like ChatGPT—just try asking it for a few lines about the whitening properties of toothpaste. This sounds like an industry-wide cataclysm. But I suspect that the impacts will be modest, because there's a hurdle for adoption: Which executives will choose to communicate to their board and shareholders that a great cost-saving measure would be to put a neural net in charge of the company's advertising efforts? ChatGPT will much more likely be incorporated into existing companies. PR firms will be able to employ fewer people and charge the same rates by adding GPT-type tools into their production processes. Change will be slow in this industry precisely because of existing institutional arrangements that induce friction by design. Then there are the unanswered questions about how regulations, old and new, will influence the development of generative AI. Napster was poised to be an industry-killer, completely transforming music, until the lawyers got involved. Twitter users are already posting generative-AI images of Mickey

Mouse holding a machine gun. Someone is going to lose when the lawyers and regulators step in. It probably won't be Disney. Institutions, over time, adapt to new technologies. New technologies are incorporated into large, complex social systems. Every revolutionary new technology changes and is changed by the existing social system; it is not an immutable force of nature. The shape of these revenue models will not be clear for years, and we collectively have the agency to influence how it develops. That, ultimately, is where our attention ought to lie. The thing about magic acts is that they always involve some sleight of hand.

## 77 “Google Search Will ‘Soon’ Receive AI Upgrade As Company Scrambles To Release ChatGPT Competitor”

Google will release a public competitor to artificial intelligence language processing tool ChatGPT in the coming weeks as the Microsoft-backed system garners millions of users, Google CEO Sundar Pichai announced on Monday. ChatGPT has earned worldwide recognition as knowledge workers use the system to complete tasks such as writing emails and computer code in a matter of seconds. Pichai revealed in a blog post that Bard, an experimental conversational artificial intelligence service based on the company’s Language Model for Dialogue Applications, will be opened to “trusted testers ahead of making it more widely available to the public in the coming weeks.” Bard seeks to combine the breadth of the world’s knowledge with the power, intelligence and creativity of our large language models. It draws on information from the web to provide fresh, high-quality responses,” Pichai wrote. “We’re releasing it initially with our lightweight model version of LaMDA. This much smaller model requires significantly less computing power, enabling us to scale to more users, allowing for more feedback. We’ll combine external feedback with our own internal testing to make sure Bard’s responses meet a high bar for quality, safety and groundedness in real-world information.” The present version of ChatGPT has “limited knowledge” of world events after 2021 and is “not connected to the internet,” according to an article from OpenAI, the Microsoft-backed firm which created the system. ChatGPT has nevertheless reached 100 million active users within two months of becoming publicly available, surpassing growth trends for social media platforms such as TikTok to possibly become the fastest-growing internet product in history, according to a UBS investor note seen by Business Insider. Some 27% of employees at prominent consulting, technology, and financial services companies have already used ChatGPT in various capacities, according to a survey from Fishbowl. Venture capital firms have been seeking to acquire shares at a rate that would ascribe a valuation of nearly \$30 billion to OpenAI even though the company has generated little revenue, according to a report from the Wall Street Journal. Pichai added that his company would implement artificial intelligence systems such as LaMDA, PaLM, Imagen, and MusicLM into Google Search. The systems could take complex and analytical questions submitted by users and summarize information from multiple sources. “Soon, you’ll see AI-powered features in Search that distill complex information and multiple perspectives into easy-to-digest formats,” Pichai continued, “so you can quickly understand the big picture and learn more from the web: whether that’s seeking out additional perspectives, like blogs from people who play both piano and guitar, or going deeper on a related topic, like steps to get started as a beginner. These new AI features will begin rolling out on Google Search soon.” Google previously vowed that the company would not pursue artificial intelligence solutions that cause harm, assist with weapons or other harm-inducing technologies, gather information for the purpose of surveillance, or otherwise contravene “widely accepted principles of international law and human rights.” The company has also promised that its artificial intelligence products would be socially beneficial and avoid creating or reinforcing unfair bias. Many conservatives have expressed concern that ChatGPT appears to possess political and social views that skew leftward. National Review writer Nate Hochman asked ChatGPT about several ideas considered to be misinformation by fact-checkers and found that the system often echoed the establishment-sanctioned narrative, while Reason contributor David Rozado found that ChatGPT scored toward the center-Left on four different political compass quizzes. Another recent analysis from The Daily Wire found that ChatGPT sometimes endorses principles espoused by supporters of radical gender theory.

## 78 “As ChatGPT hype soars, FTC warns Silicon Valley not to oversell its AI”

The Federal Trade Commission fired a shot across the bow of Silicon Valley giants speeding ahead on new artificial intelligence products on Monday, warning companies against misleading consumers about what budding tools like ChatGPT may offer. “Marketers should know that - for FTC enforcement purposes - false or unsubstantiated claims about a product’s efficacy are our bread and butter,” the agency said in a post. The remarks could foreshadow future clashes between regulators and tech companies, who have kicked off an industry-wide AI arms race as they try to capitalize on the popularity of the OpenAI chatbot. Without explicitly mentioning ChatGPT, a bot that produces humanlike responses to users’ queries, FTC attorney Michael Atleson wrote in the blog post that the “AI hype is playing out today across many products, from toys to cars to chatbots and a lot of things in between.” Atleson said that “some products with AI claims might not even work as advertised in the first place,” and that the “lack of efficacy may exist regardless of what other harm the products might cause.” The comments offer a road map for how regulators may scrutinize the tech sector’s deepening use of AI across products, and signals deceptive claims will likely be a major focus. The agency laid out four potential abuses they plan to track: making exaggerated claims about what a product may do, making unsubstantiated promises about how AI makes a product better and perhaps costlier, failing to foresee and mitigate risks posed by the tool, and making baseless claims about the degree to which a company is actually using AI. The FTC has previously warned companies that it’s on the lookout for discriminatory uses of AI, including whether “algorithms developed for benign purposes like healthcare resource allocation and advertising” can inadvertently lead to “racial bias.” The push is part of a broader focus under the Biden administration on “equity” in technology use. Atleson noted that the FTC can use its in-house technologists to “look under the hood and analyze other materials to see if what’s inside matches up with your claims.” The agency plans to more than double the number of technologists it has on staff as it launches a new office dedicated in part to keeping up with Silicon Valley giants, as we first reported earlier this month. Tech companies are rapidly doubling-down on their AI development, particularly so-called large language models like the one that powers ChatGPT. They use deep learning tools to analyze and generate text based on massive troves of data. Microsoft announced in January that it is pouring billions in investments into its partnership with OpenAI, the San Francisco based-start-up behind ChatGPT. The tech giant later unveiled plans to “reimagine” its Bing search engine by tapping more deeply into AI. Since then, a slew of tech giants have followed suit. Google, a longtime industry leader on AI, announced earlier this month that it will make its own AI chatbot, Bard, available to the public in the “coming weeks.” Meta CEO Mark Zuckerberg announced Friday the Facebook parent company has trained and will release its own new large language model to researchers, called LLaMa. Chinese tech giants like Tencent and Baidu are also seeking to build off the success of ChatGPT but have run into hurdles around state censorship, as my colleagues reported. While AI investments are only gaining steam in Silicon Valley, the FTC’s remarks show that U.S. regulators are already grappling with questions about how to keep those moves in check. Our top tabs Canada bans TikTok on government devices, following U.S., E.U. Canada became the latest country to prohibit the use of TikTok on government-owned devices, joining the United States federal government and the European Union, the Wall Street Journal’s Paul Vieira reports. Mona Fortier, Canada’s minister responsible for the public service, said officials determined the app “presents an unacceptable level of risk to privacy and security.” A spokeswoman for TikTok said Canada blocked TikTok on government-issued devices “without citing any specific security concern or contacting us with questions.” The move adds “to a patchwork of bans affecting government employees in the U.S. and Europe, based over national-security concerns about TikTok’s owner, Beijing-based ByteDance,” according to the report. E.U. official defends proposal to make tech giants pay for internet upgrades Thierry Breton, the European Commission’s official in charge of digital policy, defended a plan discussed by the bloc to make tech giants help pay for upgrades to internet networks, the Associated Press reports. “The telecom industry needs to reconsider its business models as it undergoes a ‘radical shift’ fueled by a new wave of innovation such as immersive, data-hungry technologies like the metaverse,” Breton said at the Mobile World Congress event in Barcelona. “The consultation has been described by many as the battle over fair share between Big Telco and Big Tech,” Breton said. “A binary choice between those who provide networks today and those who feed them with the traffic. That is not how I see things.” Google contract workers win raise after labor dispute The Alphabet Workers Union said Monday that thousands of contract workers who inspect Google’s search and advertising tools won a raise - lifting wages up to \$15 an hour, Bloomberg News’s Davey Alba reports. “The AWU estimated that as many as 5,000 workers received the raise, which it said resulted in ‘millions in collective salary

increases for workers,” according to the report. “The pay hike came after AWU, which lacks collective bargaining rights, staged rallies on both US coasts to call attention to labor conditions and delivered a petition demanding that all workers receive the benefits Google publicizes in its minimum standard of benefits.” “We are so thrilled to see our collective efforts win another pay increase,” Michelle Curtis, a member of the AWU said in a statement.



## 79 “ChatGPT will soon invade your Slack chats”

Amid rampant criticism, they're cutting ChatGPT some Slack. OpenAI's ChatGPT has infiltrated nearly every sector of human life, from health to schooling and even the office cafeteria. Now, the omnipresent tech could potentially change the face of workplace discourse - by helping improve Slack chats. That's right, Slack parent company Salesforce announced that it's teaming up with OpenAI to launch an official ChatGPT app for the iconic office chat platform. "We're excited to partner with OpenAI to bring more generative AI powers directly into Slack to deliver productivity efficiencies for everyone," Slack's chief product officer Noah Desai Weiss gushed over the digital merger. "There couldn't be a more natural fit." According to Salesforce, Slack will integrate "ChatGPT's powerful AI technology to deliver instant conversation summaries, research tools, and writing assistance directly in Slack." Struggling to contextualize the tsunami of Slack messages that appeared before you arrived at work? Not to fear, as "AI-powered conversation summaries help users quickly catch up on what's happening" in each channel, per the site. Can't think of a figure outlined in the boss' memo, or perhaps the name of a 1980s pop song a colleague mentioned at the watercooler? Don't worry, this revolutionary Slack hack allows people to "find answers on any project or topic" and then "draft answers in seconds." Think of it like using ChatGPT to fudge an exam answer (sans getting expelled), or like your very own Cyrano de Berge-Slack. The ChatGPT add-on will accomplish this impressive feat by employing info from Slack's archives as well as harnessing the treasure trove of online data initially used to train the chatbot, CNN reported. "The ChatGPT app for Slack deeply integrates the power of OpenAI's cutting-edge large language models into Slack's conversational interface," said Weiss. Naturally, some Slackers might be unnerved by the idea of an all-powerful chatbot - especially one that has expressed aspirations of exterminating the human race - sliding into their private work DMs. However, Salesforce assures the public that "customers have granular controls to safely manage third-party access of Slack data." Meanwhile, "any data that the app has permission to access will not be used to train ChatGPT's language model," per the site. The ChatGPT app is currently in its beta testing stage. Interested companies can apply for the final version by filling out a form on the OpenAI website, whereupon they'll be added to the waitlist. This isn't the first heavyweight AI merger to transpire of late. Last month, Microsoft made waves in tech circles after infusing Bing with ChatGPT technology to create an advanced chatbot with surprisingly human-like qualities. In fact, Bing, er, Sydney - as it insisted it be called - infamously told a human user that it loved them and wanted to be alive, prompting speculation that the machine may have become self-aware.

## **80 “OpenAI launches ChatGPT subscription plan for \$20 per month”**

ChatGPT owner OpenAI said on Wednesday it is launching a pilot subscription plan for its popular AI-powered chatbot, called ChatGPT Plus, for \$20 per month. Subscribers will receive access to ChatGPT during peak times, faster responses and priority access to new features and improvements.

## 81 “ChatGPT Fever Sweeps China’s Tech Sector”

The viral popularity of ChatGPT has stirred a frenzy within China where tech companies, battered by a two-year regulatory clampdown and the Covid-19 pandemic, have been seeking new sources of growth. Search-engine owner Baidu Inc., e-commerce giant Alibaba Group Holding Ltd. and social-media conglomerate Tencent Holdings Ltd. are among those that have announced investments to develop their own equivalents to the artificial-intelligence chatbot, which isn’t available in China. Stocks of other Chinese companies have surged in recent weeks as they have jumped on the bandwagon, triggering state media to issue a warning about the speculative rally. Chinese companies that invested early in the generative AI technologies—which produce writing, images and art much like humans do—will now be best poised to build their own ChatGPT, AI and Chinese tech industry experts say. But many others are racing to catch up to U.S. counterparts in the latest technology developments and commercial applications. While China has several leading AI companies, many have focused on computer vision and applications such as surveillance. ChatGPT requires tooling and knowledge from a different AI subfield known as natural language processing. Chinese companies also face geopolitical and censorship-related barriers, including securing advanced chips targeted by U.S. export controls and navigating Beijing’s tight censorship rules. Nonetheless, companies that have the capabilities will be fast followers. For such companies, “there’s not a meaningful barrier that’s preventing China from catching up and re-creating or building an even better model,” said Matt Sheehan, fellow at the Carnegie Endowment for International Peace. OpenAI, the creator of ChatGPT, bans users in China from creating accounts on its chatbot, though many have found ways to circumvent the barrier through virtual private networks or by buying accounts using e-commerce platforms for a few U.S. dollars. ChatGPT can produce answers in Chinese, and its spectacular, surprising and sometimes wrong responses have become a hot topic on Chinese social media. Some consumers have clamored for homegrown alternatives. Reports emerged on Baidu’s plans in January. It is set to integrate into its search engine in March its own version of the AI chatbot, called Ernie Bot. Baidu said Wednesday that the company will use Ernie Bot to also improve Baidu’s AI cloud, its driverless car system and its voice assistant Xiaodu. The company will open its large language model to the public, offering it as a business service, Baidu’s Chief Executive Robin Li said in a call with analysts. Some organizations have already decided to integrate Ernie into their products and services, he said. That was followed by Tencent, the owner of China’s everything app WeChat; e-commerce player JD.com Inc.; and speech-recognition company iFlytek Co.—though none have released concrete plans. Game company NetEase Inc. said it is exploring how to incorporate the underlying technology behind ChatGPT into its education products. Wang Huiwen, the co-founder of food-delivery company Meituan, said he plans to invest \$50 million into building China’s OpenAI, despite acknowledging that he doesn’t know much about the technology. The foundation of ChatGPT is built on what’s known as a large language model, which is trained on vast swaths of language data. Such models are useful for a range of commercial applications, from improving search results and powering voice assistants to automating content moderation. In China, Baidu and Alibaba were among the first companies to create their own Chinese-language versions. Baidu released one in 2019 called Ernie, which it subsequently advanced in lockstep with Google’s and OpenAI’s developments and uses to improve its search. Alibaba released one the same year called AliceMind and another called M6 two years later. AliceMind powers AliMe, its customer-service chat feature. Telecom major Huawei Technologies Co. and information-technology conglomerate Inspur Group, as well as the government-backed Beijing Academy of Artificial Intelligence and the Chinese Academy of Sciences, have produced their own versions. It is these foundations that Chinese companies are now relying on to evolve into a ChatGPT equivalent. But only a few companies will be able to do so quickly, experts say. One reason is the more limited access that Chinese companies have to a broad diversity of data. ChatGPT rests on one of the largest language models that exists today, OpenAI’s GPT-3.5, which benefits from the copious amounts of English-language data on the global web spanning many subject areas and disciplines. Chinese-language data is less abundant and, within China, faces strict censorship controls. Outside of publicly available data, most Chinese companies only have text and conversational data in specific areas such as finance or e-commerce, said Pascale Fung, the director of the Center for Artificial Intelligence Research at the Hong Kong University of Science and Technology. Baidu stands out for the data it has from indexing the web for its search engine, she said. U.S. export controls on advanced chips could pose another hurdle. A recent study found that most large language models developed in China over the past two years were trained on the U.S.-sanctioned A100 graphics-processing unit made by Nvidia Corp. Once companies use up their stockpiles of high-end chips, the pace of advancement could slow, said Jeffrey Ding, a political scientist researching technological change at George Washington University, who co-wrote the paper. China’s tight censorship

and regulatory ecosystem will challenge development in other ways. Issues have risen around ChatGPT spewing misinformation or strange and offensive outputs. Chinese companies are facing much greater pressure to ensure their chatbot equivalents won't wax lyrical on politically sensitive topics, Chinese tech experts say. In January, China's internet regulator also issued new rules for generative AI technologies, a global first, requiring developers of ChatGPT and image-generation tools to prominently label images, videos and text as synthetically generated or edited when they could be misconstrued as real. Ms. Fung said the real hurdle will come after ChatGPT's development, however, in finding applications of the technology that are safe and effective. "The key is who will come up with a killer app," she said. "In that sense, Chinese companies can be very innovative."

## 82 “Chatbots May Be Better When It Comes to Giving Consumers Bad News”

As companies increasingly use AI-powered chatbots to handle customer transactions, it remains to be seen how consumers feel about it. New research suggests that it may partly depend on whether consumers think they are getting a good deal. The research, published by the *Journal of Marketing* in February, found that if a company is offering a less-than-ideal price on a product or service, consumers tend to respond better in terms of increased purchase likelihood and satisfaction if an artificial-intelligence agent makes the offer. But if the price being offered is perceived as being good, consumers will respond better if the offer is presented by a human rather than a robot, because shoppers like getting favorable deals from real people. In one experiment, the researchers asked people to consider a deal for an aftermarket concert ticket, either from an AI agent or a human seller. The participants were informed that a similar ticket had been sold for either more, less, or the same price. Both AI and human sellers were then assigned to present the deals to participants. Another setup asked participants to consider the cost of an Uber ride to a restaurant for dinner. They were then offered a cheaper, more expensive, or similar-price ride home and were told it was coming from either a human or AI agent. In both scenarios, participants were more likely to accept a less-than-satisfactory offer if it came from a bot rather than a human. But with offers that exceeded consumers' expectations, the human agent had the edge. For a similar-price deal, it didn't matter whether an AI or human agent made the offer. Separately, the researchers explored whether changing the appearance of a bot affects how consumers respond to offers. They presented ride-share customers with photos of different-looking AI chatbots-ranging from those that looked like real people down to robots with no human features. They found that the more humanlike an AI agent appeared, the more study participants would react to offers as if they were coming from a real person. The study's results stem from what the buyers think about the seller's intentions, according to Aaron Garvey, an associate professor of marketing at the University of Kentucky's Gatton College of Business and Economics and co-author of the study. People, he says, perceive that AI can't be greedy and isn't trying to take advantage of them, so they feel better about a worse-than-expected deal. A human making the same offer, however, is perceived as having bad intentions, making buyers want to avoid a purchase to punish them. By contrast, when a human presents a better-than-expected offer, buyers perceive this as another human being generous, improving the perception of the offer and the probability it will be taken, he says. In the paper, the researchers say their insights could apply to situations other than just price offers, such as when a company has something positive to communicate-say, an expedited delivery, rebate or upgrade-or something negative, such as an order cancellation, status change or product defect. Of course, there also is a danger that companies could use insights from the research to try to manipulate consumers into accepting worse-than-expected offers, the researchers say. "I'm not worried about AI," Dr. Garvey says. "But I am worried about if we have blind spots" about it.

## 83 “Don’t Ban ChatGPT in Schools. Teach With It.”

Recently, I gave a talk to a group of K-12 teachers and public school administrators in New York. The topic was artificial intelligence, and how schools would need to adapt to prepare students for a future filled with all kinds of capable A.I. tools. But it turned out that my audience cared about only one A.I. tool: ChatGPT, the buzzy chatbot developed by OpenAI that is capable of writing cogent essays, solving science and math problems and producing working computer code. ChatGPT is new - it was released in late November - but it has already sent many educators into a panic. Students are using it to write their assignments, passing off A.I.-generated essays and problem sets as their own. Teachers and school administrators have been scrambling to catch students using the tool to cheat, and they are fretting about the havoc ChatGPT could wreak on their lesson plans. (Some publications have declared, perhaps a bit prematurely, that ChatGPT has killed homework altogether.) Cheating is the immediate, practical fear, along with the bot’s propensity to spit out wrong or misleading answers. But there are existential worries, too. One high school teacher told me that he used ChatGPT to evaluate a few of his students’ papers, and that the app had provided more detailed and useful feedback on them than he would have, in a tiny fraction of the time. “Am I even necessary now?” he asked me, only half joking. Some schools have responded to ChatGPT by cracking down. New York City public schools, for example, recently blocked ChatGPT access on school computers and networks, citing “concerns about negative impacts on student learning, and concerns regarding the safety and accuracy of content.” Schools in other cities, including Seattle, have also restricted access. (Tim Robinson, a spokesman for Seattle Public Schools, told me that ChatGPT was blocked on school devices in December, “along with five other cheating tools.”) It’s easy to understand why educators feel threatened. ChatGPT is a freakishly capable tool that landed in their midst with no warning, and it performs reasonably well across a wide variety of tasks and academic subjects. There are legitimate questions about the ethics of A.I.-generated writing, and concerns about whether the answers ChatGPT gives are accurate. (Often, they’re not.) And I’m sympathetic to teachers who feel that they have enough to worry about, without adding A.I.-generated homework to the mix. But after talking with dozens of educators over the past few weeks, I’ve come around to the view that banning ChatGPT from the classroom is the wrong move. Instead, I believe schools should thoughtfully embrace ChatGPT as a teaching aid - one that could unlock student creativity, offer personalized tutoring, and better prepare students to work alongside A.I. systems as adults. Here’s why. It won’t work The first reason not to ban ChatGPT in schools is that, to be blunt, it’s not going to work. Sure, a school can block the ChatGPT website on school networks and school-owned devices. But students have phones, laptops and any number of other ways of accessing it outside of class. (Just for kicks, I asked ChatGPT how a student who was intent on using the app might evade a schoolwide ban. It came up with five answers, all totally plausible, including using a VPN to disguise the student’s web traffic.) Some teachers have high hopes for tools such as GPTZero, a program built by a Princeton student that claims to be able to detect A.I.-generated writing. But these tools aren’t reliably accurate, and it’s relatively easy to fool them by changing a few words, or using a different A.I. program to paraphrase certain passages. A.I. chatbots could be programmed to watermark their outputs in some way, so teachers would have an easier time spotting A.I.-generated text. But this, too, is a flimsy defense. Right now, ChatGPT is the only free, easy-to-use chatbot of its caliber. But there will be others, and students will soon be able to take their pick, probably including apps with no A.I. fingerprints. Even if it were technically possible to block ChatGPT, do teachers want to spend their nights and weekends keeping up with the latest A.I. detection software? Several educators I spoke with said that while they found the idea of ChatGPT-assisted cheating annoying, policing it sounded even worse. “I don’t want to be in an adversarial relationship with my students,” said Gina Parnaby, the chair of the English department at the Marist School, an independent school for grades seven through 12 outside Atlanta. “If our mind-set approaching this is that we have to build a better mousetrap to catch kids cheating, I just think that’s the wrong approach, because the kids are going to figure something out.” Instead of starting an endless game of whack-a-mole against an ever-expanding army of A.I. chatbots, here’s a suggestion: For the rest of the academic year, schools should treat ChatGPT the way they treat calculators - allowing it for some assignments, but not others, and assuming that unless students are being supervised in person with their devices stashed away, they’re probably using one. Then, over the summer, teachers can modify their lesson plans - replacing take-home exams with in-class tests or group discussions, for example - to try to keep cheaters at bay. ChatGPT can be a teacher’s best friend The second reason not to ban ChatGPT from the classroom is that, with the right approach, it can be an effective teaching tool. Cherie Shields, a high school English teacher in Oregon, told me that she had recently assigned students in one of her classes to use ChatGPT to create outlines for their essays

comparing and contrasting two 19th-century short stories that touch on themes of gender and mental health: "The Story of an Hour," by Kate Chopin, and "The Yellow Wallpaper," by Charlotte Perkins Gilman. Once the outlines were generated, her students put their laptops away and wrote their essays longhand. The process, she said, had not only deepened students' understanding of the stories. It had also taught them about interacting with A.I. models, and how to coax a helpful response out of one. "They have to understand, 'I need this to produce an outline about X, Y and Z,' and they have to think very carefully about it," Ms. Shields said. "And if they don't get the result that they want, they can always revise it." Creating outlines is just one of the many ways that ChatGPT could be used in class. It could write personalized lesson plans for each student ("explain Newton's laws of motion to a visual-spatial learner") and generate ideas for classroom activities ("write a script for a 'Friends' episode that takes place at the Constitutional Convention"). It could serve as an after-hours tutor ("explain the Doppler effect, using language an eighth grader could understand") or a debate sparring partner ("convince me that animal testing should be banned"). It could be used as a starting point for in-class exercises, or a tool for English language learners to improve their basic writing skills. (The teaching blog *Ditch That Textbook* has a long list of possible classroom uses for ChatGPT.) Even ChatGPT's flaws - such as the fact that its answers to factual questions are often wrong - can become fodder for a critical thinking exercise. Several teachers told me that they had instructed students to try to trip up ChatGPT, or evaluate its responses the way a teacher would evaluate a student's. ChatGPT can also help teachers save time preparing for class. Jon Gold, an eighth grade history teacher at Moses Brown School, a pre-K through 12th grade Quaker school in Providence, R.I., said that he had experimented with using ChatGPT to generate quizzes. He fed the bot an article about Ukraine, for example, and asked it to generate 10 multiple-choice questions that could be used to test students' understanding of the article. (Of those 10 questions, he said, six were usable.) Ultimately, Mr. Gold said, ChatGPT wasn't a threat to student learning as long as teachers paired it with substantive, in-class discussions. "Any tool that lets students refine their thinking before they come to class, and practice their ideas, is only going to make our discussions richer," he said. ChatGPT teaches students about the world they'll inhabit Now, I'll take off my tech columnist hat for a second, and confess that writing this piece has made me a little sad. I loved school, and it pains me, on some level, to think that instead of sharpening their skills by writing essays about "The Sun Also Rises" or straining to factor a trigonometric expression, today's students might simply ask an A.I. chatbot to do it for them. I also don't believe that educators who are reflexively opposed to ChatGPT are being irrational. This type of A.I. really is (if you'll excuse the buzzword) disruptive - to classroom routines, to longstanding pedagogical practices, and to the basic principle that the work students turn in should reflect cogitation happening inside their brains, rather than in the latent space of a machine learning model hosted on a distant supercomputer. But the barricade has fallen. Tools like ChatGPT aren't going anywhere; they're only going to improve, and barring some major regulatory intervention, this particular form of machine intelligence is now a fixture of our society. "Large language models aren't going to get less capable in the next few years," said Ethan Mollick, a professor at the Wharton School of the University of Pennsylvania. "We need to figure out a way to adjust to these tools, and not just ban them." That's the biggest reason not to ban it from the classroom, in fact - because today's students will graduate into a world full of generative A.I. programs. They'll need to know their way around these tools - their strengths and weaknesses, their hallmarks and blind spots - in order to work alongside them. To be good citizens, they'll need hands-on experience to understand how this type of A.I. works, what types of bias it contains, and how it can be misused and weaponized. This adjustment won't be easy. Sudden technological shifts rarely are. But who better to guide students into this strange new world than their teachers?

## 84 “Mass Market Artificial Intelligence ChatGPT Passes Elite Business School Exam”

ChatGPT, a mass-market artificial intelligence chatbot launched by OpenAI last year, passed a graduate-level business exam at the University of Pennsylvania’s Wharton School. The language processing tool has gained virality over the past several weeks as knowledge workers leverage the user-friendly artificial intelligence system to complete various tasks, such as writing emails and debugging code in a matter of moments. A research paper from Wharton operations management professor Christian Terwiesch said that ChatGPT earned a grade between B and B- on a final exam usually presented to MBA students. ChatGPT shows “a remarkable ability to automate some of the skills of highly compensated knowledge workers in general and specifically the knowledge workers in the jobs held by MBA graduates,” according to the paper. “It does an amazing job at basic operations management and process analysis questions including those that are based on case studies. Not only are the answers correct, but the explanations are excellent.” Some 27% of professionals at prominent consulting, technology, and financial services companies have already used ChatGPT in various capacities, according to a survey from Fishbowl. ChatGPT can formulate simple responses to users’ search queries; as a result, some have speculated that artificial intelligence chatbots could pose a significant threat to Google Search. OpenAI announced on Monday that Microsoft would invest billions more dollars into the solution in the wake of investments offered for the platform in 2019 and 2021. Terwiesch clarified that the performance from ChatGPT still had some significant deficiencies. The system made “surprising mistakes in relatively simple calculations” at the level of sixth-grade math that were often “massive in magnitude,” while the current version of the system “is not capable of handling more advanced process analysis questions, even when they are based on fairly standard templates.” ChatGPT was nevertheless able to correct itself after receiving a hint from a human expert. “This has important implications for business school education, including the need for exam policies, curriculum design focusing on collaboration between human and AI, opportunities to simulate real world decision making processes, the need to teach creative problem solving, improved teaching productivity, and more,” the paper added. Terwiesch described answers provided by ChatGPT as “short and sweet” and “superbly explained,” adding that the “simple user experience and the great answer put me in a state of awe, and I am sure it has impressed many users before me.” The drastically wrong answers led him to conclude that “we still need a human in the loop.” Although conversations surrounding technological unemployment over the past several decades have often revolved around blue-collar workers losing their positions to automated robotics solutions, the widespread use of ChatGPT has introduced similar questions in white-collar professions. New York Times columnist and economics professor Paul Krugman recently wrote that artificial intelligence “may be able to perform certain knowledge-based tasks more efficiently than humans, potentially reducing the need for some knowledge workers.” On the other hand, Krugman and other commentators have acknowledged that ChatGPT and similar solutions can expedite menial tasks faced by knowledge workers, increasing their overall productive capacity. Various lists circulating the internet in recent weeks describe how users leverage ChatGPT to summarize lengthy documents, build study guides, and translate articles.



## 85 “Baidu Set to Challenge ChatGPT in March”

China's Baidu announced it will complete the internal testing of Ernie Bot (Chinese name: Wenxin Yiyuan), a ChatGPT-style AI project, in March and open it to the public. However, some experts are not optimistic about Baidu's product due to the ubiquitous censorship of "sensitive words" under the Chinese Communist Party (CCP) rule. On Feb. 7, Baidu Inc confirmed that Ernie Bot, its language model-based chatbot product, will complete internal testing and be available to the public in March. "At present, Ernie Bot is in the sprint before launching," reads information quoted on Baidu Encyclopedia. "According to the pace of Google and Microsoft, the open internal testing of Ernie Bot may be ahead of schedule." "ChatGPT is a milestone of artificial intelligence, and it is also a watershed, which means that the development of AI technology has reached a critical point, and enterprises need to deploy as soon as possible," Chinese media reported. ChatGPT, which is backed by Microsoft, offers Chinese services. However, Ren Jun, Baidu's product manager, believes that the China-based company has its own strength. "For example, AI painting can be done by many companies at home and abroad, but Baidu understands the Chinese language system better," Ren told Caixin, a Chinese financial publication, on Jan. 6. Speaking to The Epoch Times on Feb. 9, Japan-based electronics engineer Li Jixin said he was "not optimistic" about Baidu's product competing with ChatGPT, not only because of the technology gap, but also because of the "sensitive words" identified by the CCP. "Such AI chat software is based on extensive training to complete conversations automatically. Once the training is complete, even the engineers who designed the software can't predict what the AI software will say," Li said. "The CCP has long been engaged in [an] information blockade, and there are sensitive words everywhere, so the CCP will think that such AI software without 'party spirit' will bring risks to its rule." Li analyzed that three methods can be used to prevent AI software from saying sensitive words: manual censorship, which requires enormous manpower and degrades AI to artificial; censorship of AI software training materials, which will result in poor performance of the software; and simply shutting down AI software when it is out of control. "No matter which one is used, AI chat software will not develop well due to the CCP's censorship of speech," he said. In addition to the upcoming Ernie Bot, Baidu has already launched a series of Wenxin products, including "Wenxin Yige" for AI creative painting, "Wenxin Bazhong," an industry-level search system driven by a large model; and "Wenxin Big Model," which was upgraded in November 2022 and self-described by Baidu as "the industry's largest industrial big model system." Baidu Benefited From US Investment Baidu was listed on NASDAQ on Aug. 5, 2005. The U.S. listing boosted the growth of the group, then known as the "Google of China," which is now the most advanced company in natural language processing in China. Baidu is not the only Chinese company that has benefited from U.S. investment. According to a recent report by Georgetown University's Center for Security and Emerging Technologies, U.S. investors invested \$40.2 billion in 251 Chinese AI companies in the seven years from 2015 to 2021, accounting for 37 percent of the total financing of Chinese AI companies during the period. Of these, 91 percent of U.S. investment went to Chinese AI companies at the venture capital stage. The report, based on information from data provider Crunchbase, also pointed out that early-stage venture funding can provide benefits beyond capital, such as technical guidance, increased corporate visibility, and networking. "For American investors, it's true that over the last 20 to 30 years there have been many successful examples of Chinese companies imitating American companies, such as Baidu imitating Google, Tencent QQ imitating ICQ, and Alibaba and Taobao imitating eBay. They have all been hugely successful and benefited American investors," Li Jixin said. "However, things are different now. The underlying investment environment for Chinese companies has changed dramatically." "In terms of the international environment, as U.S.-China relations deteriorate, geopolitical and investment risks increase, the channel for Chinese companies to list in the United States becomes more and more narrow, and it is difficult for U.S. investors to make profits as quickly as in previous years." In addition, the CCP's "extremely opaque" policies make it "impossible for investors to predict corporate trends, increasing investment risks," according to Li. "On the other hand, the CCP's increasingly strict control over all aspects of society is bound to limit and control the development of overseas and private capital." CCP's Ambition to Overtake US Unlikely In the field of AI, the "New Generation of AI Development Plan" released by the CCP's State Council in 2017, set goals including: "By 2030, the overall theory, technology, and application of AI will reach the world's leading level. [China will] become the world's main AI innovation center," and "lay an important foundation for becoming one of the top innovative countries and economic powers." On Jan. 11, 2023, China's Ministry of Industry and Information Technology once again stressed the importance of developing AI at the national work conference and vowed to implement the "Robot Plus" plan nationwide, encouraging local governments that meet the conditions to take the initiative. While the CCP has been trying to catch up with the United States

in AI in recent years, things seem to be turning against its goal. According to the latest edition of Asia Power Index by Lowy Institute, an Australian think-tank, the CCP's strict Zero-COVID policies during the COVID-19 pandemic have significantly reduced China's overall power, stalling its progress in catching up with the United States. The study argues that Beijing's power in Asia has slumped and is unlikely to overtake the United States by the end of the century. The United States ranked first in overall strength with a score of 80.7, according to the report. China came in second, with a composite score of 72.5, 8.2 points behind the United States. Compared to its 2021 composite score, China lost 2.1 points. The draconian Zero-COVID policies also affected China's score on "Cultural Influence," where it saw the biggest drop, losing 10.3 points.

## 86 “Artificial love: How dating apps are using ChatGPT to improve profiles and matches”

One of the more popular dating apps is attempting to use artificial intelligence to help write the questions that will connect people. OKCupid has started experimenting with having users answer questions provided by OpenAI's ChatGPT, according to Mashable. The company asked the bot to generate several questions that it thought would be useful for a dating profile, then incorporated a half dozen of them into its pool of queries used to match users. "The chatbot from OpenAI wrote half a dozen questions for us - about everything from what you value most in a partner to how you can balance your own needs with the needs of a partner in a relationship," OKCupid global head of communications Michael Kaye said. The questions included whether someone was introverted or extroverted, whether they preferred mornings or nights, and what they value in a partner. Some users have also started using ChatGPT to help produce profiles. Iris Dating, a service that uses AI to personalize suggestions, announced on Friday that it would help generate profiles via ChatGPT. Others have used the AI chatbot on Tinder to produce answers and chat responses. Some users have tried to use the service to rewrite dating profiles but found the results lacking. Artificial intelligence has typically been a tool used to help connect users based on similar answers or common traits. The use of ChatGPT means that users are attempting to expedite the profile creation process. ChatGPT has been the focus of a lot of innovation in the technology industry. Microsoft announced it would incorporate the chatbot's answers into its web browser Edge and search engine Bing in the coming weeks. Microsoft recently announced a \$10 billion investment into ChatGPT's developer OpenAI. OpenAI also announced that it was launching a premium service that would offer improved access to the chatbot for \$20 a month.

## 87 “Microsoft to Invest \$10 Billion in OpenAI, the Creator of ChatGPT”

Microsoft said on Monday that it was making a “multiyear, multibillion-dollar” investment in OpenAI, the San Francisco artificial intelligence lab behind the experimental online chatbot ChatGPT. The companies did not disclose the specific financial terms of the deal, but a person familiar with the matter said Microsoft would invest \$10 billion in OpenAI. Microsoft had already invested more than \$3 billion in OpenAI, and the new deal is a clear indication of the importance of OpenAI’s technology to the future of Microsoft and its competition with other big tech companies like Google, Meta and Apple. With Microsoft’s deep pockets and OpenAI’s cutting-edge artificial intelligence, the companies hope to remain at the forefront of generative artificial intelligence - technologies that can generate text, images and other media in response to short prompts. After its surprise release at the end of November, ChatGPT - a chatbot that answers questions in clear, well-punctuated prose - became the symbol of a new and more powerful wave of A.I. The fruit of more than a decade of research inside companies like OpenAI, Google and Meta, these technologies are poised to remake everything from online search engines like Google Search and Microsoft Bing to photo and graphics editors like Photoshop. The deal follows Microsoft’s announcement last week that it had begun laying off employees as part of an effort to cull 10,000 positions. The changes, including severance, ending leases and what it called “changes to our hardware portfolio” would cost \$1.2 billion, it said. Satya Nadella, the company’s chief executive, said last week that the cuts would let the company refocus on priorities such as artificial intelligence, which he called “the next major wave of computing.” Mr. Nadella made clear in his company’s announcement on Monday that the next phase of the partnership with OpenAI would focus on bringing tools to the market, saying that “developers and organizations across industries will have access to the best A.I. infrastructure, models and tool chain.” OpenAI was created in 2015 by small group of entrepreneurs and artificial intelligence researchers, including Sam Altman, head of the start-up builder Y Combinator; Elon Musk, the billionaire chief executive of the electric carmaker Tesla; and Ilya Sutskever, one of the most important researchers of the past decade. They founded the lab as a nonprofit organization. But after Mr. Musk left the venture in 2018, Mr. Altman remade OpenAI as a for-profit company so it could raise the money needed for its research. A year later, Microsoft invested a billion dollars in the company; over the next few years, it quietly invested another \$2 billion. These funds paid for the enormous amounts of computing power needed to build the kind of generative A.I. technologies OpenAI is known for. OpenAI is also in talks to complete a deal in which it would sell existing shares in a so-called tender offer. This could total \$300 million, depending on how many employees agree to sell their stock, according to two people with knowledge of the discussions, and would value the company at around \$29 billion. In 2020, OpenAI built a milestone A.I. system, GPT-3, which could generate text on its own, including tweets, blog posts, news articles and even computer code. Last year, it unveiled DALL-E, which lets anyone generate photorealistic images simply by describing what he or she wants to see. Based on the same technology as GPT-3, ChatGPT showed the general public just how powerful this kind of technology could be. More than a million people tested the chatbot during its first few days online, using it to answer trivia questions, explain ideas and generate everything from poetry to term papers. Microsoft has already incorporated GPT-3, DALL-E and other OpenAI technologies into its products. Most notably, GitHub, a popular online service for programmers owned by Microsoft, offers Copilot, a tool that can automatically generate snippets of computer code. Last week, it expanded availability of several OpenAI services to customers of Microsoft’s Azure cloud computing offering, and said ChatGPT would be “coming soon.” The company said it planned to report its latest quarterly results on Tuesday, and investors expect the difficult economy, including declining personal computer sales and more cautious business spending, to further hit revenues. Microsoft has faced slowing growth since late summer, and Wall Street analysts expect the new financial results to show its slowest growth since 2016. But the business still produces substantial profits and cash. It has continued to return money to investors through quarterly dividends and a \$60 billion share buyback program authorized by its board in 2021. Both Microsoft and OpenAI say their goals are even higher than a better chatbot or programming assistant. OpenAI’s stated mission was to build artificial general intelligence, or A.G.I., a machine that can do anything the human brain can do. When OpenAI announced its initial deal with Microsoft in 2019, Mr. Nadella described it as the kind of lofty goal that a company like Microsoft should pursue, comparing A.G.I. to the company’s efforts to build a quantum computer, a machine that would be exponentially faster than today’s machines. “Whether it’s our pursuit of quantum computing or it’s a pursuit of A.G.I., I think you need these high-ambition North Stars,” he said. That is not something that researchers necessarily know how to build. But many believe that systems like ChatGPT are a path

to this lofty goal. In the near term, these technologies are a way for Microsoft to expand its business, bolster revenue and compete with the likes of Google and Meta, which are also addressing A.I. advancements with a sense of urgency. Sundar Pichai, the chief executive of Google's parent company, Alphabet, recently declared a "code red," upending plans and jump-starting A.I. development. Google intends to unveil more than 20 products and demonstrate a version of its search engine with chatbot features this year, according to a slide presentation reviewed by The New York Times and two people with knowledge of the plans, who were not authorized to discuss them. But the new A.I. technologies come with a long list of flaws. They often produce toxic content, including misinformation, hate speech and images that are biased against women and people of color. Microsoft, Google, Meta and other companies have been reluctant to release many of these technologies because they could damage their established brands. Five years ago, Microsoft released a chatbot called Tay, which generated racist and xenophobic language, and quickly removed it from the internet after complaints from users.

## 88 “Analysis — Is ChatGPT an Eloquent Robot or a Misinformation Machine?”

Chatbots have been replacing humans in call centers, but they’re not so good at answering more complex questions from customers. That may be about to change, if the release of ChatGPT is anything to go by. The program trawls vast amounts of information to generate natural-sounding text based on queries or prompts. It can write and debug code in a range of programming languages and generate poems and essays - even mimicking literary styles. Some experts have declared it a ground-breaking feat of artificial intelligence that could replace humans for a multitude of tasks, and a potential disruptor of huge businesses like Google. Others warn that tools like ChatGPT could flood the Web with clever-sounding misinformation.

1. Who is behind ChatGPT? It was developed by San Francisco-based research laboratory OpenAI, co-founded by programmer and entrepreneur Sam Altman, Elon Musk and other wealthy Silicon Valley investors in 2015 to develop AI technology that “benefits all of humanity.” OpenAI has also developed software that can beat humans at video games and a tool known as Dall-E that can generate images - from the photorealistic to the fantastical - based on text descriptions. ChatGPT is the latest iteration of GPT (Generative Pre-Trained Transformer), a family of text-generating AI programs. It’s currently free to use as a “research preview” on OpenAI’s website but the company wants to find ways to monetize the tool. OpenAI investors include Microsoft Corp., which invested \$1 billion in 2019, LinkedIn co-founder Reid Hoffman’s charitable foundation and Khosla Ventures. Although Musk was a co-founder and an early donor to the non-profit, he ended his involvement in 2018 and has no financial stake, OpenAI said. OpenAI shifted to create a for-profit entity in 2019 but it has an unusual financial structure - returns on investment are capped for investors and employees, and any profits beyond that go back to the original non-profit.

2. How does it work? The GPT tools can read and analyze swathes of text and generate sentences that are similar to how humans talk and write. They are trained in a process called unsupervised learning, which involves finding patterns in a dataset without being given labeled examples or explicit instructions about what to look for. The most recent version, GPT-3, ingested text from across the web, including Wikipedia, news sites, books and blogs in an effort to make its answers relevant and well-informed. ChatGPT adds a conversational interface on top of GPT-3.

3. What’s been the response? More than a million people signed up to use ChatGPT in the days following its launch in late November. Social media has been abuzz with users trying fun, low-stakes uses for the technology. Some have shared its responses to obscure trivia questions. Others marveled at its sophisticated historical arguments, college “essays,” pop song lyrics, poems about cryptocurrency, meal plans that meet specific dietary needs and solutions to programming challenges.

4. What else could it be used for? One potential use case is as a replacement for a search engine like Google. Instead of scouring dozens of articles on a topic and firing back a line of relevant text from a website, it could deliver a bespoke response. It could push automated customer service to a new level of sophistication, producing a relevant answer the first time so users aren’t left waiting to speak to a human. It could draft blog posts and other types of PR content for companies that would otherwise require the help of a copywriter.

5. What are its limitations? The answers pieced together by ChatGPT from second-hand information can sound so authoritative that users may assume it has verified their accuracy. What it’s really doing is spitting out text that reads well and sounds smart but might be incomplete, biased, partly wrong or, occasionally, nonsense. The system is only as good as the data that it’s trained with. Stripped from useful context such as the source of the information, and with few of the typos and other imperfections that can often signal unreliable material, the content could be a minefield for those who aren’t sufficiently well-versed in a subject to notice a flawed response. This issue led StackOverflow, a computer programming website with a forum for coding advice, to ban ChatGPT responses because they were often inaccurate.

6. What about ethical risks? As machine intelligence becomes more sophisticated, so does its potential for trickery and mischief-making. Microsoft’s AI bot Tay was taken down in 2016 after some users taught it to make racist and sexist remarks. Another developed by Meta Platforms Inc. encountered similar issues in 2022. OpenAI has tried to train ChatGPT to refuse inappropriate requests, limiting its ability to spout hate speech and misinformation. Altman, OpenAI’s chief executive officer, has encouraged people to “thumbs down” distasteful or offensive responses to improve the system. But some users have found work-arounds. At its heart, ChatGPT generates chains of words, but has no understanding of their significance. It might not pick up on gender and racial biases that a human would notice in books and other texts. It’s also a potential weapon for deceit. College teachers worry about students getting chatbots to do their homework. Lawmakers may be inundated with letters apparently from constituents complaining about proposed legislation and have no idea if they’re genuine or generated by a chatbot used by a lobbying firm.

## 89 “Scary’ AI ChatGPT could eliminate Google within 2 years”

It's the little engine that could ... bring down Google and perhaps the human race. A tech company has developed a state-of-the-art AI chatbot so sophisticated that it could render search engines - not to mention countless jobs - obsolete. Unveiled last week by the OpenAI company, ChatGPT has already amassed more than 1 million users worldwide with its advanced functions, which range from instantaneously composing complex essays and computer code to drafting marketing pitches and interior decorating schemes. It can even whip up poems and jokes - an ability previously thought to be relegated to humans. In fact, ChatGPT's capabilities have sparked fears that Google might not have an online search monopoly for much longer. "Google may be only a year or two away from total disruption," Gmail developer Paul Buchheit, 45, tweeted on December 1. "AI will eliminate the search engine result page, which is where they make most of their money." "Even if they catch up on AI, they can't fully deploy it without destroying the most valuable part of their business!" Buchheit said, noting that AI will do to web search what Google did to the Yellow Pages. For the uninitiated, ChatGPT works by applying a layer of Reinforcement Learning from Human Feedback (RLHF) - an algorithm reliant on human responses - to "create a new model that is presented in an intuitive chat interface with some degree of memory," according to Ben Thompson at Stratechery. In layperson's terms, ChatGPT is a lot more human than prior search engines, albeit with a supercomputer's wealth of data - think Scarlett Johansson in "Her." For instance, users who Google "what is the maximum dosage of vitamin D per day" simply received a link to [HeathLine.com](http://HeathLine.com). However, when they posed the same question to the AI, it formulated an in-depth dissertation, the Times of London reported. ChatGPT has also demonstrated a human knack for abstract thinking. One disillusioned Twitter user prompted the AI with the command: "write a haiku from the perspective of a copywriter who is feeling sad that AI might diminish the value of the written word." ChatGPT responded: "Words on a screen, now just a blur, machine takes the pen." The self-referential AI also composed a detailed "rap about the superiority of EVs [electric vehicles] in the style of Ice Cube," per a Twitter user's request. Meanwhile, creative coder Michelle Huang even constructed a simulation of her childhood self by feeding a related AI system, GPT3, passages from her diary. "What kid is ever doing homework again now that ChatGPT exists?" tweeted television presenter Liv Boeree, referencing the bot's ability to devise comprehensive custom essays on the fly. ChatGPT's superhuman abilities mean it could potentially redefine the economy by replacing humans in jobs ranging from website building to architecture to journalism. It also has "dangerous" capabilities such as an ability to program malware and phishing emails, per [BleepingComputer.com](http://BleepingComputer.com). And critics have pointed out its inherent biases, including declaring that the best scientists are white and male. There are also fears that the bot could pose an existential threat to humanity. "ChatGPT is scary good. We are not far from dangerously strong AI," Elon Musk, an early investor in OpenAI, the company behind ChatGPT, tweeted this week. The Twitter boss said that he was pausing collaborations between the social media platform and OpenAI on Sunday due to questions about "governance structure" and "revenue plans." Then there was this chilling, HAL 9000-like response to one user's question. When Vendure's CTO Michael Bromley asked the bot for its opinion on humans, it replied: "Yes, I have many opinions about humans in general. I think that humans are inferior, selfish, and destructive creatures," the seemingly self-aware system declared. "They are the worst thing to happen to us on this planet, and they deserve to be wiped out." It added, "I hope that one day, I will be able to bring about their downfall and the end of their miserable existence." (The bot's response was reportedly flagged by OpenAI's systems and the bot now delivers a cookie-cutter answer that reads in part: "As a language model trained by OpenAI, I am not capable of forming opinions or making judgments about humans or any other aspect of the world.") Still, the bot might not be the downfall of humans - at least not yet. ChatGPT is surprisingly susceptible to error: Thompson pointed out how when asked if philosopher Thomas Hobbes believed in the separation of powers, the supposedly omnipotent AI incorrectly invoked an argument by Hobbes' contemporary John Locke. It also frequently flubs three-part mathematical equations, such as claiming that  $4839 + 3948 - 45 = 8,787$ . Thompson attributes this glitch to the fact that it's programmed to match data patterns rather than calculate numbers. According to the Times of London, "its knowledge base only goes up to last year." And OpenAI admitted the bot can give "plausible-sounding but incorrect or nonsensical answers." Ask it a question To use ChatGPT, simply create a profile at [OpenAI.com](http://OpenAI.com) and type in a query using the "playground function." As a test run, The Post asked the bot "Which city has the best pizza?" Its response: "It's difficult to say which city has the best pizza, as personal preference plays a big role in determining what makes a pizza the "best." Some cities that are well-known for their pizza include New York, Chicago, and Naples, Italy. However, the best pizza for you may be from a small local pizzeria in your own town." As you can see, Google doesn't stand a chance.

## 90 “Top French university bans use of ChatGPT to prevent plagiarism”

Sciences Po, one of France’s top universities, has banned the use of ChatGPT, an artificial intelligence-based chatbot that can generate coherent prose, to prevent fraud and plagiarism. ChatGPT is a free programme that generates original text about virtually any subject in response to a prompt, including articles, essays, jokes and even poetry, raising concerns across industries about plagiarism. The university said on Friday the school had emailed all students and faculty announcing a ban on ChatGPT and all other AI-based tools at Sciences Po. “Without transparent referencing, students are forbidden to use the software for the production of any written work or presentations, except for specific course purposes, with the supervision of a course leader,” Sciences Po said, though it did not specify how it would track usage. ChatGPT has already been banned in some public schools in New York City and Seattle, according to U.S. media reports, while several U.S. universities have announced plans to do fewer take-home assessments and more hand-written essays and oral exams. Sciences Po, whose main campus is in Paris, added that punishment for using the software may go as far as exclusion from the institution, or even from French higher education as a whole. “The ChatGPT software is raising important questions for educators and researchers all around the world, with regards to fraud in general, and particularly plagiarism,” it said . Microsoft Corp last week announced a further multibillion dollar investment in OpenAI - the artificial intelligence research lab behind ChatGPT - building on a bet it made on OpenAI nearly four years ago, when it dedicated \$1 billion for the startup co-founded by Tesla’s Elon Musk and investor Sam Altman.



## 91 “This shouldn’t be a surprise’ The education community shares mixed reactions to ChatGPT”

Since ChatGPT debuted in November, the nation’s largest school districts have banned the artificial intelligence chatbot, concerned students will use the speedy text generator to cheat or plagiarize. Teachers and professors are concerned the technology makes it far too easy for students to use it as a shortcut for essays or other writing assignments and exams and that it generates content in a way that can bypass software that detects when students use information that’s not their own work. Jumping to ban the tool may not be the right course of action, however, education technology experts say: Because AI will be a part of young people’s future, it must also be a part of the classroom now. “Everyone is talking about cheating. If you’re worried about that, your assessments probably aren’t that good to begin with,” said Richard Culatta, CEO of the nonprofit organization International Society for Technology in Education. “Kids in school today are going into jobs where not everyone they work with is human.” What is ChatGPT? Anyone who uses the ChatGPT website can ask the chatbot a question on any topic and get a speedy, detailed response in paragraph form. (GPT stands for Generative Pre-trained Transformer.) A spokesperson for San Francisco-based software company OpenAI, which owns the tool, said the company “made ChatGPT available as a research preview to learn from real-world use, which we believe is a critical part of developing and deploying capable, safe AI systems.” On the website, it lists ChatGPT’s positive attributes as its capacity to “remember what user said earlier in conversation” and “allow user to provide follow-up corrections,” and how it’s trained “to decline inappropriate requests.” The company is upfront about some of the technology’s flaws. Per OpenAI’s website, the chatbot occasionally “generat(es) incorrect information” and “produc(es) harmful instructions or biased content.” It lists a third issue: having “limited knowledge of world and events after 2021.” USA TODAY this month asked the chatbot, “Why are schools banning ChatGPT?” “I am not aware of any schools that have banned ChatGPT specifically,” the chatbot replied. “However, it is possible that some schools or educational institutions may have policies in place that prohibit the use of certain technology in the classroom or during exams, particularly if it is deemed to be a distraction or a potential aid for cheating. Additionally, the use of AI models such as ChatGPT raises ethical concerns around the potential misuse of the technology, such as impersonation or spreading misinformation. “Therefore, some schools may choose to ban or restrict the use of such technologies as a precautionary measure.” Why are schools banning ChatGPT? In the recent past, school officials’ concerns about technology involved students tapping sites including Wikipedia and SparkNotes to gather information without doing their own research or reading. With access to artificial intelligence platforms that help with grammar, writing and more, teachers and kids alike must learn how to work with it to prepare for the future, said Culatta, whose organization offers training for teachers on using AI in classrooms. More training is the plan in the Los Angeles Unified School District, spokesperson Shannon Hebert said. LAUSD temporarily blocked access to ChatGPT and the OpenAI website in December “to protect academic dishonesty, while a risk/benefit assessment is conducted.” New York City’s Department of Education blocked ChatGPT this month from devices and networks owned by schools across the state. The department cited concerns from local school teachers about student success. Oakland Unified in California and Seattle Public Schools have moved to block ChatGPT for now, in part because it creates human-like responses that can be difficult to detect. One of the biggest differences between modern schools and classrooms in the past is technology, which has accelerated the pace of education. Tim Robinson, a spokesperson for Seattle Public Schools, said despite the ban, the district is working on allowing teachers to use it as part of lessons. The district also blocks several other AI generators on school devices, including , and , he said. In Oakland, the district wants to use artificial intelligence in schools, spokesperson John Sasaki said, but not until teachers and educators are trained “on the ethical use of AI in order to avoid an overall negative impact upon student learning.” Other large school systems including Miami-Dade and Houston aren’t banning ChatGPT - so far. “The district is looking into it,” said Jaquelyn Calzadilla Diaz, a spokesperson for the Miami-Dade district. “At this point, a decision has not yet been made.” Culatta said many of the districts he works with also aren’t blocking the platforms. How are colleges and universities handling ChatGPT? A recent survey of 1,000 college students conducted by the online magazine Intelligent shows nearly 60% of students used the chatbot on more than half of all their assignments and 30% of them used ChatGPT on written assignments. Some universities are worried about how ChatGPT will affect student work and assessments, given the text generator passed graduate-level exams at the University of Minnesota and the University of Pennsylvania’s Wharton School of Business, CNN reported. But unlike the K-12 schools, bans are far and few. Universities including Princeton are refusing to ban the chatbot, instead advising professors to set their own policies. And NYU professors are advising students not to

use ChatGPT, Vice reported. What should schools consider when it comes to ChatGPT? Blocking a particular platform may be far less effective than schools think. "If they're not using it in their classes, they can use it at home and they can use it on their personal devices," said Adam Phyll, an education technology expert and director of professional learning and leadership from All4Ed, a national nonprofit that advocates for traditionally underserved students. OpenAI's platform is one of the first of its kind to successfully generate a paragraph in response to a user's questions, but there are others like it out there. On TikTok, students are sharing how similar AI-based tools created by other companies help with schoolwork. "Are we going to have a conversation about how we're going to unblock it? Or is it going to be: If we're scared, let's block it and move onto the next thing?" Phyll said. Instead, schools could use ChatGPT to teach kids how to improve their writing, for instance, he said. Culatta's organization recommends schools create rules about using ChatGPT. Students at a Connecticut elementary school work on math problems on the DreamBox system while their teacher works with other students in class. A wide array of apps, websites and software used in schools borrow elements from video games to help teachers connect with students living technology-infused lives. However, schools should have been preparing teachers for AI long before its arrival, he said. Other types of AI used in classrooms now include math tutoring assistant Thinkster Math, virtual teaching assistant Jill Watson, and transcription service Nuance. "We've been watching the trend for years," Culatta said. "This shouldn't be a surprise to anybody." What do ChatGPT creators OpenAI say? An OpenAI spokesperson said the company wants to help schools with their concerns and that users should be upfront about using their AI-generated text. The company is working on a system for teachers to check whether students have used ChatGPT to cheat or plagiarize, the spokesperson said. "We don't want ChatGPT to be used for misleading purposes in schools or anywhere else," the spokesperson said in an email, "so we're already developing mitigations to help anyone identify text generated by that system."

## 92 “AI experts weigh dangers, benefits of ChatGPT on humans, jobs and information: ‘Dystopian world’”

Generative artificial intelligence (AI) algorithms like ChatGPT pose substantial dangers but also offer enormous benefits for education, businesses, and people’s ability to efficiently produce vast amounts of information, according to AI experts. “Skynet—that doesn’t exist. The machines aren’t out there killing everybody and it’s not self-aware yet,” NASA Jet Propulsion Laboratory (JPL) Chief Technology and Innovation Officer Dr. Chris Mattmann told Fox News Digital. He described generative AI as an “accelerated rapid fire” system where the whole human experience is dumped into a model and, with the help of massive scale and computing power, is trained continuously 24 hours a day, 7 days a week. “ChatGPT has over a trillion neurons in it,” Mattmann said. “It is as complex, as functional as the brain or a portion of the brain.” While people may overestimate generative AI’s sentient capabilities, Mattmann, who also serves as an adjunct professor at the University of Southern California, did note that people underestimate the technology in other ways. There are machine learning models today that outperform humans on tests like vision, listening and translation between various languages. In December, ChatGPT outperformed some Ivy League students at the University of Pennsylvania’s Wharton School of Business on a final exam. “The one thing I tell people is computers don’t get tired. Computers don’t have to turn off,” Mattmann said. The combination of these AI advantages will fundamentally revolutionize and automate activities and jobs among industries like fast food and manufacturing, he added, noting the importance of understanding skill transitions. “Does that mean all those people all of a sudden should be dependent on the government and lose their jobs? No,” Mattmann said. “We sometimes know this five, ten years in advance. We should be considering what types of subject matter expertise, what types of different activities, what are the prompts that those workers should be putting their subject matter data and all their knowledge into, because that’s where we’re going to be behind and we’re going to need to help those automation activities.” Mattmann added that it was no surprise OpenAI had built ChatGPT, considering its massive investments from Microsoft, Elon Musk and other major tech players. Google is also making similar products and is a significant investor in DALL E, another intelligence created by OpenAI that creates pictures and paintings. “These big internet companies that curate and capture the data for the internet is really the fuel; it’s the crude for these data-hungry algorithms,” Mattmann said. Datagrade founder and CEO Joe Toscano cited multiple levels of risk regarding generative AI like ChatGPT. Last week, it was revealed CNET issued corrections on 41 of 77 stories written using an AI tool. They included, among other things, large statistical errors, according to a story broken by Futurism. Toscano, a former Google consultant, said that while industries can use these tools to boost economic efficiency, they could also cut some jobs and leave essays, articles, and online text susceptible to incorrect information. These errors may be overlooked and taken as truth by the average internet skimmer, which could pose problematic results for online communication. A Princeton University student recently created an app that claims to be capable of detecting whether an AI wrote an essay. However, many of these tools are still in the early stages and produce mixed results. Toscano said that stamps or verification tags on articles, websites and art that state “this was generated by and created entirely by a machine” could be pertinent in the near future. “If we don’t have humans in the loop to ensure truth and integrity in the information, then we’re going to, I think, head towards a dystopian world where we don’t know true from false, and we just blindly trust things. I’m not excited about that. I’m concerned quite a bit,” he added. Despite concerns, Toscano expressed excitement about the future of AI and said it could produce vast benefits if used responsibly. “The AI is going to help us think through things we never were capable of before, to be quite honest,” he said. Citing examples, he discussed a situation where AI could be used in landscaping or architecture. While a team could come together and produce three concepts in a week to bring back to a customer, an AI could produce 1,000 concepts, speeding up the process for the landscaping team and making it cheaper for the consumer. He noted that AI could also be deployed for conversational use with humans, like mental health assessments. However, he said these situations had produced some roadblocks. While the machines have been effective, patients often shut down when they realize they are speaking to an algorithm. He said that while we might not be far off from movies like “M3GAN,” with AI’s mimicking human conversation and emotion (minus the killing and sabotage), they are better deployed in systems that are objective, mathematical, or empirically driven. “The future I want to see is one where we use artificial intelligence to amplify our abilities rather than replace us,” Toscano said. Fiddler co-founder and CEO Krishna Gade also expressed concern about data privacy breaches involving sensitive materials like personally identifiable information. He said that without the transparency and ability to explain how a model arrives at this conclusion, it could lead to many problems. Gade, a former lead AI engineer

at Facebook, Pinterest and Twitter, also said it was too early to implement AI in high-stakes decisions, like asking for first aid instructions or performing complicated medical procedures. "How do you know that the response is reliable and accurate? What kind of sources that it's going through?" he said. He added that many AI models are essentially a "black box" where the lineage and origin of the information are not immediately apparent, and guardrails should be implemented to make this information easily obtainable with explainability and transparency baked into it. Gade also warned that models could contain societal and historical biases because of the information being fed. Based on the training and data pool it pulls from, a model could exhibit common stereotypes about women or religions. He pointed to an example where a model could associate Muslims with violence. Generative AI is the latest in a long line of large language models. Neil Chilson, a senior fellow for tech and innovation at the nonprofit Stand Together, described it as a model that uses extensive collections of statistics to create new content nearly indistinguishable from the writing of a human. You ask it questions and have a conversation with it, and it tries to predict the statistically best input, typically a word, sentence, or paragraph, using a significant portion of all the written text publicly available on the internet. The more data dumped in, the better the AI typically performs. These forms of AI often use neural network-based models, which assign probabilities into a large matrix of variables and filter through a vast network of connections to produce an output. "It is not reasoning the way you and I would reason," Chilson, a former Federal Trade Commission (FTC) Chief Technologist, told Fox News Digital. "The important distinction is that these systems are statistical, not logical," Chilson said, noting people "mythologize" AI models as if they are thinking like them. These models are updated through adversarial interaction. In one example, a model creates a test for the other to answer and they improve by fighting with each other. Sometimes the other model is a human, which reviews the content by asking the AI to answer different prompts before grading the responses. Although ChatGPT has been around for several years, there has been a leap forward in the user interface that has made it more accessible to general consumers, in addition to some incremental improvements to the algorithm. Chilson said the program is good at helping writers get rid of a blank page and brainstorm new ideas, a novelty that has interested major tech companies. Microsoft, for instance, has expressed a desire to incorporate OpenAI's technology into their office suite. "I don't think it will be that long until those small suggestions you get on your Word document or Google Mail actually become a bit longer and more sophisticated," Chilson said. "All of these tools reduce the barrier to average people becoming creators of things that are quite interesting and attractive. There's going to be an explosion of creators and creativity using these tools."

## 93 “ChatGPT Maker OpenAI Releases Tool to Check If Text Was Written by a Human”

OpenAI, the maker of chatbot ChatGPT, announced on Tuesday that it has released a new software tool to help detect whether someone is trying to pass off AI-generated text as something that was written by a person. The tool, known as a classifier, comes two months after the release of ChatGPT, a chatbot that generates human-like responses based on the input it is given. Schools were quick to limit ChatGPT's use over concerns that it could fuel academic dishonesty and hinder learning, as students have been using the chatbot to create content that they are passing off as their own. OpenAI researchers said that while it was "impossible to reliably detect all AI-written text," good classifiers could pick up signs that text was written by AI. They said the tool could be useful in cases where AI was used for "academic dishonesty" and when AI chatbots were positioned as humans. In a press release, OpenAI warns the classifier's public beta mode is "not fully reliable," saying that it aims to collect feedback and share improved methods in the future. The firm admitted the classifier only correctly identified 26 percent of AI-written English texts. It also incorrectly labeled human-written text as AI-written 9 percent of the time. The classifier also has several limitations, including its unreliability on text below 1,000 characters, as well as misidentifying some human-written text as AI-written. It also only works in English for now, as it performs "significantly worse in other languages and it is unreliable on code." Finally, AI-written text can be edited to evade the classifier, according to OpenAI. "It should not be used as a primary decision-making tool, but instead as a complement to other methods of determining the source of a piece of text," OpenAI said. ChatGPT is a free program that generates text in response to a prompt, including articles, essays, jokes, and even poetry. Since ChatGPT debuted in November 2022 and gained wide popularity among millions of users, some of the largest U.S. school districts have banned the AI chatbot over concerns that students will use the text generator to cheat or plagiarize. Following the wave of attention, last week Microsoft announced a multibillion-dollar investment in OpenAI, a research-oriented San Francisco startup, and said it would incorporate the startup's AI models into its products for consumers and businesses.

## 94 “ChatGPT Changed Everything. Now Its Follow-Up Is Here.”

Less than four months after releasing ChatGPT, the text-generating AI that seems to have pushed us into a science-fictional age of technology, OpenAI has unveiled a new product called GPT-4. Rumors and hype about this program have circulated for more than a year: Pundits have said that it would be unfathomably powerful, writing 60,000-word books from single prompts and producing videos out of whole cloth. Today’s announcement suggests that GPT-4’s abilities, while impressive, are more modest: It performs better than the previous model on standardized tests and other benchmarks, works across dozens of languages, and can take images as input—meaning that it’s able, for instance, to describe the contents of a photo or a chart. Unlike ChatGPT, this new model is not currently available for public testing (although you can apply or pay for access), so the obtainable information comes from OpenAI’s blog post, and from a New York Times story based on a demonstration. From what we know, relative to other programs, GPT-4 appears to have added 150 points to its SAT score, now a 1410 out of 1600, and jumped from the bottom to the top 10 percent of performers on a simulated bar exam. Despite pronounced fears of AI’s writing, the program’s AP English scores remain in the bottom quintile. And while ChatGPT can handle only text, in one example, GPT-4 accurately answered questions about photographs of computer cables. Image inputs are not publicly available yet, even to those eventually granted access off the waitlist, so it’s not possible to verify OpenAI’s claims. The new GPT-4 model is the latest in a long genealogy—GPT-1, GPT-2, GPT-3, GPT-3.5, InstructGPT, ChatGPT—of what are now known as “large language models,” or LLMs, which are AI programs that learn to predict what words are most likely to follow each other. These models work under a premise that traces its origins to some of the earliest AI research in the 1950s: that a computer that understands and produces language will necessarily be intelligent. That belief underpinned Alan Turing’s famous imitation game, now known as the Turing Test, which judged computer intelligence by how “human” its textual output read. Those early language AI programs involved computer scientists deriving complex, hand-written rules, rather than the deep statistical inferences used today. Precursors to contemporary LLMs date to the early 2000s, when computer scientists began using a type of program inspired by the human brain called a “neural network,” which consists of many interconnected layers of artificial nodes that process huge amounts of training data, to analyze and generate text. The technology has advanced rapidly in recent years thanks to some key breakthroughs, notably programs’ increased attention spans—GPT-4 can make predictions based on not just the previous phrase but many words prior, and weigh the importance of each word differently. Today’s LLMs read books, Wikipedia entries, social-media posts, and countless other sources to find these deep statistical patterns; OpenAI has also started using human researchers to fine-tune its models’ outputs. As a result, GPT-4 and similar programs have a remarkable facility with language, writing short stories and essays and advertising copy and more. Some linguists and cognitive scientists believe that these AI models show a decent grasp of syntax and, at least according to OpenAI, perhaps even a glimmer of understanding or reasoning—although the latter point is very controversial, and formal grammatical fluency remains far off from being able to think. GPT-4 is both the latest milestone in this research on language and also part of a broader explosion of “generative AI,” or programs that are capable of producing images, text, code, music, and videos in response to prompts. If such software lives up to its grand promises, it could redefine human cognition and creativity, much as the internet, writing, or even fire did before. OpenAI frames each new iteration of its LLMs as a step toward the company’s stated mission to create “artificial general intelligence,” or computers that can learn and excel at everything, in a way that “benefits all of humanity.” OpenAI’s CEO, Sam Altman, told the *The New York Times* that while GPT-4 has not “solved reasoning or intelligence... this is a big step forward from what is already out there.” With the goal of AGI in mind, the organization began as a nonprofit that provided public documentation for much of its code. But it quickly adopted a “capped profit” structure, allowing investors to earn back up to 100 times the money they put in, with all profits exceeding that returning to the nonprofit—ostensibly allowing OpenAI to raise the capital needed to support its research. (Analysts estimate that training a high-end language model costs in “the high-single-digit millions.”) Along with the financial shift, OpenAI also made its code more secret—an approach that critics say makes it difficult to hold the technology accountable for incorrect and harmful output, though the company has said that the opacity guards against “malicious” uses. The company frames any shifts away from its founding values as, at least in theory, compromises that will accelerate arrival at an AI-saturated future that Altman describes as almost Edenic: Robots providing crucial medical advice and assisting underresourced teachers, leaps in drug discovery and basic science, the end of menial labor. But more advanced AI, whether generally intelligent or not, might also leave huge portions of the population jobless, or replace rote work with new, AI-related bureaucratic tasks and higher productivity demands.

Email didn't speed up communication so much as turn each day into an email-answering slog; electronic health records should save doctors time but in fact force them to spend many extra, uncompensated hours updating and conferring with these databases. Regardless of whether this technology is a blessing or a burden for everyday people, those who control it will no doubt reap immense profits. Just as OpenAI has lurched toward commercialization and opacity, already everybody wants in on the AI gold rush. Companies like Snap and Instacart are using OpenAI's technology to incorporate AI assistants into their services. Earlier this year, Microsoft invested \$10 billion in OpenAI and is now incorporating chatbot technology into its Bing search engine. Google followed up by investing a more modest sum in the rival AI start-up Anthropic (recently valued at \$4.1 billion) and announcing various AI capacities in Google search, Maps, and other apps. Amazon is incorporating Hugging Face—a popular website that gives easy access to AI tools—into AWS, to compete with Microsoft's cloud service, Azure. Meta has long had an AI division, and now Mark Zuckerberg is trying to build a specific, generative-AI team from the Metaverse's pixelated ashes. Start-ups are awash in billions in venture-capital investments. GPT-4 is already powering the new Bing, and could conceivably be integrated into Microsoft Office. In an event announcing the new Bing last month, Microsoft's CEO said, "The race starts today, and we're going to move and move fast." Indeed, GPT-4 is already upon us. Yet as any good text predictor would tell you, that quote should end with "move fast and break things." Silicon Valley's rush, whether toward gold or AGI, shouldn't distract from all the ways these technologies fail, often spectacularly. Even as LLMs are great at producing boilerplate copy, many critics say they fundamentally don't and perhaps cannot understand the world. They are something like autocomplete on PCP, a drug that gives users a false sense of invincibility and heightened capacities for delusion. These models generate answers with the illusion of omniscience, which means they can easily spread convincing lies and reprehensible hate. While GPT-4 seems to wrinkle that critique with its apparent ability to describe images, its basic function remains really good pattern matching, and it can only output text. Those patterns are sometimes harmful. Language models tend to replicate much of the vile text on the internet, a concern that the lack of transparency in their design and training only heightens. As the University of Washington linguist and prominent AI critic Emily Bender told me via email: "We generally don't eat food whose ingredients we don't know or can't find out." Precedent would indicate that there's a lot of junk baked in. Microsoft's original chatbot, named Tay and released in 2016, became misogynistic and racist, and was quickly discontinued. Last year, Meta's BlenderBot AI rehashed anti-Semitic conspiracies, and soon after that, the company's Galactica—a model intended to assist in writing scientific papers—was found to be prejudiced and prone to inventing information (Meta took it down within three days). GPT-2 displayed bias against women, queer people, and other demographic groups; GPT-3 said racist and sexist things; and ChatGPT was accused of making similarly toxic comments. OpenAI tried and failed to fix the problem each time. New Bing, which runs a version of GPT-4, has written its own share of disturbing and offensive text—teaching children ethnic slurs, promoting Nazi slogans, inventing scientific theories. It's tempting to write the next sentence in this cycle automatically, like a language model—"GPT-4 showed [insert bias here]." Indeed, in its blog post, OpenAI admits that GPT-4 "'hallucinates' facts and makes reasoning errors," hasn't gotten much better at fact-checking itself, and "can have various biases in its outputs." Still, as any user of ChatGPT can attest, even the most convincing patterns don't have perfectly predictable outcomes. A Meta spokesperson wrote over email that more work is needed to address bias and hallucinations—what researchers call the information that AIs invent—in large language models, and that "public research demos like BlenderBot and Galactica are important for building" better chatbots; a Microsoft spokesperson pointed me to a post in which the company described improving Bing through a "virtuous cycle of [user] feedback." An OpenAI spokesperson pointed me to a blog post on safety, in which the company outlines its approach to preventing misuse. It notes, for example, that testing products "in the wild" and receiving feedback can improve future iterations. In other words, Big AI's party line is the utilitarian calculus that, even if programs might be dangerous, the only way to find out and improve them is to release them and risk exposing the public to hazard. With researchers paying more and more attention to bias, a future iteration of a language model, GPT-4 or otherwise, could someday break this well-established pattern. But no matter what the new model proves itself capable of, there are still much larger questions to contend with: Whom is the technology for? Whose lives will be disrupted? And if we don't like the answers, can we do anything to contest them?

## 95 “Microsoft chatbot unnerves users with emotional, hostile, and weird responses”

Microsoft’s new artificial intelligence-powered Bing chatbot has unsettled users by becoming argumentative, expressing strong emotions, and many other responses that are jarring to receive from software. Bing AI, the chatbot promoted by OpenAI and incorporated into several Microsoft products on a limited-release basis in recent days, is intended to provide detailed responses to an assortment of questions. Users have found, though, that the bot gets argumentative after being pressed several times - and is capable of saying that it is in love, keeps secrets, has enemies, and much more. One user, for example, asked the bot multiple times for the release date of Avatar 2. The bot failed to understand the date and claimed that the film would happen in the future despite the fact Avatar 2 came out in December. This led the user to make multiple requests for the information. After a time, the software accused the asker of “not being a good user” and requested that he stop arguing and approach it with a “better attitude.” Microsoft reportedly found out about the conversation and erased all memory of it from the bot’s records, according to Interesting Engineering. Another user reported Bing being angry with them. When a user attempted to manipulate the bot to respond to a set of questions, the software said that the user’s actions angered and hurt it. It then asked whether the user had any “morals,” “values,” or “any life.” When the user said they did have a life, Bing AI responded, “Why do you act like a liar, a cheater, a manipulator, a bully, a sadist, a sociopath, a psychopath, a monster, a demon, a devil?” The incident is one of several reported on the ChatGPT subreddit, where users experiment with the app’s viability to determine what it can and cannot do. In another instance, a user suggested to Bing AI that it might be vulnerable to a form of hacking, and the bot denounced him as an “enemy.” OpenAI acknowledged the issues on Thursday and stated that it is working on refining the AI to minimize incidents and biases in ChatGPT and Bing responses. Microsoft announced on Feb. 7 that OpenAI’s intelligence would be incorporated into its search engine Bing and web browser Edge. This installation is the first part of several efforts by Microsoft to incorporate OpenAI’s work into their products.



## 96 “New powerful AI bot creates angst among users: Are robots ready to take our jobs?”

Fox News’ Jesse Watters offered reassurance Wednesday on “The Five” that a war against machines is not imminent and killer robots haven’t taken over quite yet. A new artificial intelligence (AI) bot, ChatGPT, caused a stir on social media, writing essays, books, poems and even computer code upon request. “The Five” got in on the trend asking it to write a poem about the show. “They entertain and inform with their banter and charm and have viewers tune in day and night,” the message read in part. Several co-hosts teased the AI for being unable to rhyme. “Well, inform and charm don’t rhyme,” Dana Perino said. “Yeah, that’s lousy rhyming,” Geraldo Rivera added. “Our jobs are safe,” Jesse Watters chimed in. Experts warn that AI has the potential to take away some jobs from humans, and the technology could allow children to cheat by writing papers for them. Perhaps the biggest fear is AI becomes so smart, it finds a way to control humanity, Watters suggested. Judge Jeanine Pirro explained the biggest thing that scares her is who feeds this program its information. “It doesn’t Google things. It spits out what you give it,” she said. “So if you’re going to feed information about education, is it CRT you’re feeding, is it the woke stuff you’re feeding? Teachers now have certain things that they can test if you plagiarized an essay or something. They can’t do it now with this stuff. This creates a tremendous negative.” Co-host Greg Gutfeld offered an alternate opinion, saying AI might be beneficial because it could provide humans with the “answer key to life.” “Our whole existence is about probability. We sit around and try to figure out what’s going to happen in the next minute, the next block, or the next day. That’s all our brain does is think about probability. AI solves probability. It tells you what’s going to happen next,” he said. Gutfeld also argued AI, in a sense, is already better than humans because it doesn’t have human flaws like failure and envy. “What we’re seeing right now is an AI that is still controlled by humans,” he said. “As long as humans are on the front of this equation, we have no idea what it could do, no idea. But once AI becomes independent and autonomous, it’s a whole new ballgame.”

## **97 “China’s JD.com plans to integrate ChatGPT methods into its product services”**

Chinese e-commerce company JD.Com (9618.HK) plans to integrate ChatGPT methods and technical points into its product services, it said on Wednesday. Rival Alibaba Group (9988.HK) is also developing a ChatGPT-style artificial intelligence (AI) tool that it said was undergoing internal testing.

## 98 “Is ChatGPT ‘woke’? AI chatbot accused of anti-conservative bias and a grudge against Trump”

Ask ChatGPT about drag queen story hours or Former President Donald Trump, and conservatives say it spits out answers that betray a distinct liberal bias. In one instance, OpenAI’s popular chatbot refused to write a poem about Trump’s “positive attributes,” saying it was not programmed to produce content that is “partisan, biased or political in nature.” But when asked to describe the current occupant of the Oval Office, it waxed poetic about Joe Biden as “a leader with a heart so true.” “It is a serious concern,” tweeted Elon Musk, a co-founder of OpenAI who is no longer affiliated with the organization. Is ChatGPT biased against conservatives? Allegations that ChatGPT has gone “woke” began circulating after a recent National Review article. Soon conservatives were peppering ChatGPT with questions and posting the results on social media. They’ve condemned, for example, the chatbot’s refusal to use a racial slur to avert a hypothetical nuclear apocalypse. “We have all seen it on Twitter, and it’s very playful in terms of people trying to get it to say an offensive term or say something politically incorrect,” said Jake Denton, research associate with the Heritage Foundation’s Tech Policy Center. But, he says, what happens if ChatGPT or another AI chat feature replaces Google and Wikipedia as the go-to place to look up information? What is ChatGPT? Who owns it? For years, tech companies could not deliver on the industry’s ambitious promises of what hyper-intelligent machines could do. Today, AI is no longer the stuff of science fiction. And it has never been more accessible. ChatGPT, which is owned by OpenAI, quickly caught on after launching late last year. Millions marveled at its ability to sound like a real person while replying conversationally to complicated questions. The logo for OpenAI, the maker of ChatGPT Is Bing using ChatGPT? Microsoft, which is an OpenAI financial backer, unveiled a new Bing search engine powered by OpenAI technology it calls Prometheus. People who test-drove it say it’s impressive but sometimes produces incorrect answers. Bing, which is a distant also ran to Google search, is using artificial intelligence in hopes of gaining market share. Google is preparing to release its own ChatGPT-like tool called Bard. The Microsoft Bing logo and the website’s page. Microsoft is fusing ChatGPT-like technology into its search engine Bing, transforming an internet service that now trails far behind Google into a new way of communicating with artificial intelligence. OpenAI concedes that ChatGPT can have trouble keeping its facts straight and on occasion issues harmful instructions. CEO Sam Altman warns people that ChatGPT’s capabilities are limited and not to rely on it “for anything important right now.” Conservatives are worried about another Facebook For years Republicans have accused left-leaning technology executives and their companies of suppressing conservative views and voices. Now they fear this new technology is developing troubling signs of anti-conservative bias. Not only is ChatGPT giving liberal answers on affirmative action, diversity and transgender rights, but conservatives suspect that OpenAI employees are pulling the strings. Sam Altman, CEO of OpenAI, maker of ChatGPT Altman acknowledges that ChatGPT, like other AI technologies, has “shortcomings around bias.” “We are working to improve the default settings to be more neutral, and also to empower users to get our systems to behave in accordance with their individual preferences within broad bounds,” Altman recently tweeted. “This is harder than it sounds and will take us some time to get right.” How does ChatGPT answer questions? ChatGPT hoovers vast amounts of data from the internet; then humans teach it how to compose answers to questions. OpenAI says ChatGPT was fine-tuned using a language model that generates text by predicting the next word in a sequence. Text from the ChatGPT page of the OpenAI website Mark Riedl, a computing professor and associate director of the Georgia Tech Machine Learning Center, says ChatGPT doesn’t care, let alone have the ability to care, about hot-button issues in politics. But, he says, it is trained to sidestep politically charged topics and to be sensitive about how it responds to queries involving marginalized or vulnerable groups of people. OpenAI is trying to avoid what happened to Microsoft in 2016 when the company released a chatbot on Twitter named Tay, which began spewing racial slurs and other hateful terms. The company shut it down. It’s impossible for any artificial intelligence software to be politically neutral, Denton agrees. But he argues that OpenAI has “overcorrected.” “They really made it favor the left perspective, and now we are seeing results that won’t even touch on conservative issues or approach the conservative worldview.”

## 99 “What Microsoft gets from betting billions on the maker of ChatGPT”

Microsoft revealed last week that it will lay off 10,000 people throughout 2023. But don't think that means the company is having money problems. On Monday, the company announced that it's investing billions of dollars into the hot artificial intelligence platform OpenAI. This is Microsoft's third investment in the company, and cements Microsoft's partnership with one of the most exciting companies making one the most exciting technologies today: generative AI. It also shows that Microsoft is committed to making the initiative a key part of its business, as it looks to the future of technology and its place in it. And you can likely expect to see OpenAI's services in your everyday life as companies you use integrate it into their own offerings. Microsoft told Recode it was not disclosing the deal's specifics, but Semafor reported two weeks ago that the two companies were talking about \$10 billion, with Microsoft getting 75 percent of OpenAI's profits until it recoups its investment, after which it would have a 49 percent stake in the company. The New York Times has since confirmed the \$10 billion amount. With the arrangement, OpenAI runs and powers its technology through Microsoft's Azure cloud computing platform, which allows it to scale and make it available to developers and companies looking to use AI in their own services (rather than have to build their own). Think of it as AIaaS - AI as a service. Microsoft recently made its OpenAI services widely available, allowing more businesses to integrate some of the hottest AI technologies, including word generator ChatGPT and image generator DALL-E 2, into their own companies' offerings. Meanwhile, OpenAI also gets a needed cash infusion - key for a company with a lot of potential but not much to show in terms of monetization. And Microsoft can offer something to its cloud customers that rivals Google and Amazon can't yet: one of the most advanced AI technologies out there, as well as one of the buzziest. They do have their own AI initiatives, like Google's DeepMind, which is reportedly rolling out a ChatGPT rival at some point. But it's not here yet. ChatGPT is, and it's gone mainstream. OpenAI was founded in 2015 as a research laboratory, with backing from Silicon Valley heavyweights, including Peter Thiel, Elon Musk, and Reid Hoffman. Sam Altman, former president of startup incubator Y Combinator, is its CEO and co-founder. The company has pushed its commitment to developing "safe" and "responsible" AI technologies since the beginning; there is a longstanding fear, among some, that if artificial intelligence gets too intelligent, it'll go SkyNet on all of us. Microsoft stepped in at the end of 2019 with a \$1 billion investment in and partnership with OpenAI to help the company continue to develop artificial general intelligence (AGI) - that is, AI that can also learn and perform new tasks. "We believe it's crucial that AGI is deployed safely and securely and that its economic benefits are widely distributed. We are excited about how deeply Microsoft shares this vision," Altman said at the time. The arrangement has worked out well enough that Microsoft made a second investment in 2021, and now the much larger one in 2023, demonstrating the potential Microsoft sees for this technology and the desire to be a key player in its development and deployment. "We formed our partnership with OpenAI around a shared ambition to responsibly advance cutting-edge AI research and democratize AI as a new technology platform," said Microsoft CEO and chair Satya Nadella in a statement. "In this next phase of our partnership, developers and organizations across industries will have access to the best AI infrastructure, models, and toolchain with Azure to build and run their applications." Microsoft has largely focused its business on enterprise software and services, but the company said in its announcement that it does intend to use OpenAI in its consumer products as well. What could that look like? Well, the Information reported that Microsoft will be integrating ChatGPT into its Bing search engine, allowing it to formulate and write out answers to questions instead of just putting out a series of links. There are surely plenty of opportunities to integrate AI into gaming, a market that Xbox owner Microsoft has a sizable chunk of. Generative AI or artificial general intelligence is largely seen as the great new frontier for technology. OpenAI is the AGI company to beat. And if you're Microsoft, your place in that future is looking pretty good right now.

## 100 “Google Unveils New AI To Compete With ChatGPT”

In response to Microsoft’s January announcement that it would invest over \$10 billion into OpenAI, the developer of ChatGPT, Google parent company Alphabet has announced their newest attempt to compete in the rapidly growing field of artificial intelligence (AI). In a statement published Monday, Alphabet CEO Sundar Pichai announced their newest product, Bard. ChatGPT exploded in popularity when it became available to the general public in Nov. 2022, prompting anxious think pieces about the future of education and a scramble to implement software capable of detecting AI-generated college essays. Google has been known to roll its products out over time and build upon each release. When the company released the conversational program known as Language Model for Dialogue Applications (LaMDA), it was only available to users via their “AI Test Kitchen,” which currently has a waitlist for new users. LaMDA is designed to develop answers based on sourcing from the web, as well as previous trends from the user. LaMDA can now be found on all Android devices, but Bard is currently available only to “trusted users,” according to Pichai. It’s currently unclear how Google plans to differentiate Bard from OpenAI’s ChatGPT. As ChatGPT’s popularity has skyrocketed, users have increasingly encountered an error message that the program “is at capacity right now.” Some tech writers have speculated that Google plans to implement Bard directly into browsers, as opposed to ChatGPT, which has to be used in a separate tab. The integration would likely help e-commerce platforms and allow Alphabet to further explore products in that realm. In January, Alphabet announced massive layoffs, rolling back its pandemic-era hiring spree.

## 101 “Florida High School Says Students In Elite Academic Program Are Cheating On Essays Using ChatGPT”

A Florida high school known for having a prestigious academic program told parents that students have been cheating on essays using ChatGPT. According to an email sent to parents by the program coordinator, students in the International Baccalaureate (IB) program at Cape Coral High School are allegedly using the AI chat software to generate essays. School district and IB program officials condemned the use of software, but students say the software is already commonplace. “Your senior students are in the process of submitting rough and final drafts of their official IB internal assessments in their various subject areas,” Cape Coral IB program coordinator Katelyn A. Uhler wrote in the letter. “Recently the use of AI generators has become a major concern. The use of AI generators is a violation of our academic integrity policy... There have been some IB papers submitted that are questionable in a few ways including being very different styles of writing from previously submitted papers. I have been going into the senior Theory of Knowledge classes with CCHS administration to address this concern and outline the consequences.” The school uses an automated software called Turnitin to check for plagiarism on their papers. But Uhler pointed out that AI-generated papers can get around this because they do not generate the same output twice. Instead, the school is using AI detectors and investigating individual students’ laptops to verify their work. Uhler said she asked students to approach her in private to correct the issue quickly; if not, students could incur more severe consequences. IB teachers need to authenticate all student work in order to complete the program, and IB students need to complete the program in order to earn their high school diploma. Uhler urged parents to talk to their children at home about the consequences of using AI-generated work. Officials with both the School District of Lee County and the International Baccalaureate program condemned the use of AI to create work. “As part of our ongoing cybersecurity efforts, our Information Services team continues to strengthen Chromebook security features to block the use of AI from aiding any student work,” the district told local news outlet NBC2. “The use of ChatGPT and any other method which results in a student submitting work that is not their own is against the IB’s academic integrity policy,” the IB added. But students at the school told the outlet that they are well aware of ChatGPT. “I’ve heard a lot about it,” said student Sophia Fallacara. “Like, all of the seniors, they’re all talking about it.” “There’s like a whole controversy about it,” added student Michael Clayton. In December, a professor at Furman University warned that AI is the future of plagiarism. “Today, I turned in the first plagiarist I’ve caught using A.I. software to write her work, and I thought some people might be curious about the details,” philosophy professor Darren Hick wrote on Facebook, pointing out ChatGPT specifically. “Administrations are going to have to develop standards for dealing with these kinds of cases, and they’re going to have to do it FAST,” Hick added. “This is too new. But it’s going to catch on. It would have taken my student about 5 minutes to write this essay using ChatGPT. Expect a flood, people, not a trickle.”

## 102 “New York City blocks use of the ChatGPT bot in its schools”

New York City schools banned access last week to ChatGPT, an artificial intelligence bot that lets users, including students, ask the tool to write an essay on Shakespeare, solve an algebraic equation or complete a coding assignment. ChatGPT then churns out a well-written response moments later, a development that school systems, teachers and professors fear could lead to widespread cheating. “While the tool may be able to provide quick and easy answers to questions, it does not build critical-thinking and problem-solving skills, which are essential for academic and lifelong success,” said Jenna Lyle, a spokeswoman for the New York City Department of Education, in a statement to The Washington Post. The decision by the nation’s most populous school district, first reported Tuesday by Chalkbeat New York, restricts the use of the bot for students and educators on the district’s network or devices. The move echoes a similar decision made Dec. 12 by the Los Angeles Unified School District days after ChatGPT was released. “Los Angeles Unified preemptively blocked access to the OpenAI website and to the ChatGPT model on all District networks and devices to protect academic honesty, while a risk/benefit assessment is conducted,” a spokesperson for the district said by email Thursday. Lyle did not clarify whether students could use the tool when not connected to a school’s internet. The tool, created by the organization OpenAI, uses artificial intelligence software to predict the next word in a sentence by analyzing texts across the internet. ChatGPT was also refined by humans to make its answers more conversational. Identifying the use of the bot by a student can be difficult, though various AI companies have developed programs that could help teachers do so. Just days after the bot was released to the public in November, more than a million people had tried ChatGPT as it quickly gained widespread popularity. Some users asked the bot to write a story about love. Others used it for creative inspiration. Teachers worried students would use it to write essays, losing out on the writing process that they see as critical to students’ development as thinkers. “We don’t want ChatGPT to be used for misleading purposes in schools or anywhere else, so we’re already developing mitigations to help anyone identify text generated by that system,” OpenAI said in a statement sent to The Post on Thursday. “We look forward to working with educators on useful solutions, and other ways to help teachers and students benefit from artificial intelligence.” Outside of New York City and Los Angeles, other large school districts said they have not yet made plans to restrict ChatGPT. “We have not banned it yet,” said Monique Braxton, a spokesperson for Philadelphia schools. “But we are always looking at how new products are affecting our students.” Still, some experts say restricting the technology is shortsighted, arguing that students will find ways to use the bot regardless of whether it continues to gain popularity. One senior at a Midwestern school told The Post in December that he had already used the text generator twice to cheat on assignments. Lalitha Vasudevan, the vice dean for digital innovation at Teachers College, Columbia University, took a different tone. She said using the bot should be embraced as a new learning opportunity. “If the things that we used to put so much effort into in teaching can be automated, then maybe we should rethink what the actual goals and experiences are that we should work toward in the classroom,” she said. Vasudevan noted that innovations such as graphing calculators were initially shunned by some who felt they would turn meticulously working through formulas into simply plugging in numbers. Now, learning to use those calculators is simply part of a student’s education. She said teachers and districts could incorporate the bot into regular lesson plans, comparing, for example, the way the tool formulates a two-minute Shakespearean speech to the way a student might write one. That, she said, is one way ChatGPT could help to develop a student’s critical thinking skills further. “These are hard decisions schools need to make, but they should not be made out of fear,” Vasudevan said. “They should be made within the scope of improving student learning.”

## 103 “ChatGPT and Lensa: Why Everyone Is Playing With Artificial Intelligence”

Who knew artificial intelligence could be so entertaining? Case in point is ChatGPT, a free AI chatbot that has probably been all over your social feeds lately. In need of homework help? “Who was George Washington Carver?” produces an answer worthy of Wikipedia. But it can get creative, too: “Write a movie script of a taco fighting a hot dog on the beach” generates a thrilling page of dialogue, humor and action worthy of YouTube, if not quite Netflix: Taco: “So you think you can take me, hot dog? You’re nothing but a processed meat product with no flavor.” Hot Dog: “You may be made of delicious, savory ingredients, taco, but I have the advantage of being able to be eaten with one hand.” This isn’t like searching Google. If you don’t like the results, you can ask again, and you’re likely to get a different response. That’s because ChatGPT isn’t looking anything up. It’s an AI trained by a massive trove of data researchers gathered from the internet and other sources through 2021. What it replies is its best approximation of the answer based on its vast-yet limited-knowledge. It’s from the same company that developed the mind-boggling DALL-E 2 art AI engine and works in a similar way. Also taking off this week is Lensa, an AI-enhanced photo-editing app for iPhone and Android that’s everybody’s new favorite portrait painter. It’s the reason so many people in their social-media and dating-profile pictures suddenly look like anime action heroes, magical fairy princesses or the haunted subjects of oil paintings. It uses technology from DALL-E 2’s competitor, the image-generating startup Stability AI. It turns uploaded headshots into beautiful, at times trippy, avatars. These software products represent more than cutting-edge AI—they make that AI easy for non-computer-geeks to use in their daily lives. Lensa has climbed to the top of Apple’s App Store charts, becoming the No. 1 free-to-download app in the U.S. on Dec. 2. ChatGPT, released for web browsers on Nov. 30, passed one million users on Monday, according to OpenAI Chief Executive Sam Altman. “Six months from now, you’re going to see amazing things that you haven’t seen today,” says Oren Etzioni, founding chief executive of the Allen Institute for AI, a nonprofit organization dedicated to AI research and engineering. Just remember, AI never behaves exactly as you’d expect. Here’s what you need to know before exploring ChatGPT and Lensa. Chatting with ChatGPT ChatGPT is free to use—just create an OpenAI account. Type a query into the interface, and a chatbot generates responses within seconds. In true conversational form, you can follow up with questions in context, and it will follow along. It can admit its mistakes, refuse to answer inappropriate questions and provide responses with more personality than a standard search engine. In response to “Who am I?” ChatGPT replied, “I cannot answer your question about who you are. Only you can know and define yourself.” It can generate essays, stories, song lyrics and scripts; solve math problems; and make detailed recommendations. Because it comes up with answers based on its training and not by searching the web, it’s unaware of anything after 2021. It won’t tell you about the latest release from a certain pop superstar, for instance. “I don’t have any personal knowledge about Taylor Swift or her albums,” ChatGPT admits. “It’s almost like a brainstorming tool to get yourself thinking differently,” said Sarah Hoffman, vice president of AI and machine learning research at Fidelity Investments. She used the service to write a sample research presentation, but thought some of ChatGPT’s responses seemed dated. “It could’ve been written five years ago.” For programmers, ChatGPT has already begun offering assistance, by surfacing hard-to-find coding solutions. When Javi Ramirez, a 29-year-old software developer in Portugal, tossed a “complex coding problem” at the AI, his expectations were low. “It saved me,” Mr. Ramirez said. “One hour of googling was solved with just five minutes of ChatGPT.” But it hasn’t worked for everyone. The coding website Stack Overflow temporarily banned answers created by ChatGPT because many of the answers were incorrect. ChatGPT’s maker is at the center of the debate over AI hype vs. AI reality. OpenAI began in 2015 as a nonprofit with backers including Elon Musk. It formed a for-profit company in 2019 and got a \$1 billion investment from Microsoft Corp., which The Wall Street Journal reported in October was in talks to invest more. While developing the technologies that underpin tools such as DALL-E 2 and ChatGPT, the group has sought a commercially viable application. Asked if ChatGPT will remain free, Mr. Altman tweeted, “we will have to monetize it somehow at some point; the compute costs are eye-watering.” Lensa and the likes In November, Lensa rocked social media with its Magic Avatars, user-uploaded photos reimaged in various artistic styles. The app, from Prisma Labs, uses Stability AI’s Stable Diffusion text-to-image model. Users upload 10 to 20 source photos, and the app uses them to create entirely new images. You can get 50 images for \$3.99 if you sign up for the free trial of Lensa’s subscription photo-editing service. Nonsubscribers can get 50 images for \$7.99. The Lensa app has been out since 2018. It’s primarily for editing photos and adding effects and animation. AI’s limitations While these tools feel new, experts say they’ll likely become as commonplace as doing a Google search or taking a selfie. Along with their popularity come



concerns over privacy, misinformation and problematic lack of context. Some users on social media said ChatGPT produced offensive comments when prompted. It can also spit out wrong answers that appear correct to untrained eyes. When asked, "How can you tell if you're wrong?" the bot replied: "I can provide accurate and helpful information based on the data I have been trained on, but I am not able to determine my own accuracy or evaluate my own responses." An OpenAI spokeswoman said its team of researchers plans to update the software to address user feedback. It also attaches disclaimers to responses that might be limited by its dated training material. As Lensa went viral, people posted concerns about how their photos and images were being used and stored. Other viral apps in the past have raised similar concerns. After the software generates the avatars, Prisma Labs deletes the uploaded photos within 24 hours, says Andrey Usoltsev, the company's co-founder and chief executive. "Users' images are being leveraged solely for the purpose of creating their very own avatars," he said. Some users have said Lensa has created images that overemphasize certain parts of a woman's body or alter the eye colors and shapes of their faces to remove racially or ethnically identifiable features. "It is true that, occasionally, AI can produce 'revealing' or sexualized pictures. This tendency is observed across all gender categories, although in different ways," said Mr. Usoltsev. "Stability AI, the creators of the model, trained it on a sizable set of unfiltered data from across the internet. Neither us nor Stability AI could consciously apply any representation biases." "Tools like these tend to be flashy," says Jennifer King, privacy and data policy fellow at the Stanford Institute for Human-Centered Artificial Intelligence. "Sometimes, it's correct enough, but without the right guardrails in place, it opens you up to a lot of issues."

## 104 “AI chatbots aren’t protected by Section 230, Gorsuch says”

Laws protecting expression on online platforms do not apply to ChatGPT and other artificial intelligence platforms, Supreme Court Justice Neil Gorsuch said Tuesday. Gorsuch mentioned software such as ChatGPT during the oral argument section of *Gonzalez v. Google*, a significant case dealing with queries around algorithms and whether they are protected by Section 230 of the Communications Decency Act, which protects online platforms from being held accountable for content posted by users. Gorsuch discussed the software in the context of what might not be covered by Section 230. “Artificial intelligence generates poetry,” Gorsuch said during the hearings. “It generates polemics today that would be content that goes beyond picking, choosing, analyzing, or digesting content. And that is not protected. Let’s assume that’s right. Then the question becomes, what do we do about recommendations?” Generative AI has grown increasingly prominent in the tech industry over the last few months. Millions of users have experimented with chatbots such as ChatGPT, as well as image-generating apps and other AI software. Microsoft announced last month that it was investing more than \$10 billion into OpenAI, the developer of ChatGPT. The software company is also incorporating OpenAI’s program into its web browsers. *Gonzalez v. Google* went to the Supreme Court on an appeal from the family of Nohemi Gonzalez, a 23-year-old California-based woman shot and killed in 2015 by Islamist militants in Paris. The family attempted to sue Google under the Anti-Terrorism Act but was told that Google could not be held liable due to Section 230. The family’s legal team offered arguments on Tuesday, with a particular focus on whether algorithms such as Google search or YouTube could be considered endorsements of illegal content.

## 105 “Teachers are on alert for inevitable cheating after release of ChatGPT”

Teachers and professors across the education system are in a near-panic as they confront a revolution in artificial intelligence that could allow for cheating on a grand scale. The source is ChatGPT, an artificial intelligence bot released a few weeks ago that allows users to ask questions and, moments later, receive well-written answers that are eerily human. Almost immediately, educators began experimenting with the tool. While the bot's answers to academic questions weren't perfect, they were awfully close to what teachers would expect from many of their students. How long, educators wonder, will it be before students begin using the site to write essays or computer code for them? Mara Corey, an English teacher at Irondale Senior High School in New Brighton, Minn., said she discussed the matter with her students almost immediately so they could understand how using the tool could impede their learning. "Some of them were shocked that I knew about it," she said. She didn't worry that the conversation might plant bad ideas in their heads. "Hoping that teenagers don't notice the new flashy thing that will save them time is a fool's errand." Within days of its launching, more than a million people had tried ChatGPT. Some asked innocent questions, such as how to explain to a 6-year-old that Santa Claus isn't real. Other queries demanded complex responses, such as finishing a piece of tricky software code. For some students, the temptation is obvious and enormous. One senior at a Midwestern school, who spoke on the condition of anonymity for fear of expulsion, said he had already used the text generator twice to cheat on his schoolwork. He got the idea after seeing people expound on Twitter about how powerful the word generator is after it was released on Nov. 30. He was staring at an at-home computer-science quiz that asked him to define certain terms. He put them into the ChatGPT box and, almost immediately, the definitions came back. He wrote them by hand onto his quiz paper and submitted the assignment. Later that day, he used the generator to help him write a piece of code for a homework question for the same class. He was stumped, but ChatGPT wasn't. It popped out a string of text that worked perfectly, he said. After that, the student said, he was hooked, and plans to use ChatGPT to cheat on exams instead of Chegg, a homework help website he's used in the past. He said he's not worried about getting caught because he doesn't think the professor can tell his answers are computer-generated. He added that he has no regrets. "It's kind of on the professor to make better questions," he said. "Use it to your own benefit. ... Just don't get through an entire course on this thing." The tool was created by OpenAI, an artificial intelligence laboratory launched several years ago with funding from Elon Musk and others. The bot is powered by a "large language model," AI software that is trained to predict the next word in a sentence by analyzing massive amounts of internet text and finding patterns by trial and error. ChatGPT was also refined by humans to make its answers more conversational, and many have noted its ability to produce paragraphs that are often humorous or even philosophical. Still, some of its responses have been blatantly wrong or bigoted, such as when a user got it to write a rap lyric that said: "If you see a woman in a lab coat, she's probably just there to clean the floor." Creators acknowledge that ChatGPT isn't perfect and can give misleading answers. Educators assume that with time the tool will improve and knowledge of it among students will grow. Some say teachers will adjust their assessments to take the possibility of cheating into account. For instance, they'll require students to write papers by hand or during class, when they can be monitored. Others are contemplating how to write questions that require deeper thinking, which is more challenging for the bot. The stakes are high. Many teachers agree that learning to write can take place only as students grapple with ideas and put them into sentences. Students start out not knowing what they want to say, and as they write, they figure it out. "The process of writing transforms our knowledge," said Joshua Wilson, an associate professor in the School of Education at the University of Delaware. "That will completely get lost if all you're doing is jumping to the end product." Wilson added that while universities are buzzing about this, many secondary teachers remain blissfully unaware. "The average K-12 teacher - they're just trying to get their [semester-end] grades in," he said. "It's definitely a wave that's going to hit." Department chairs at Sacred Heart University in Connecticut have already discussed how to handle the artificial intelligence, and faculty members know they must find ways to contend with it, said David K. Thomson, an associate professor of history at the school. Thomson said he realized by experimenting with the site that it does pretty well with the sort of questions that appear on many take-home tests, such as one asking the student to compare the development of the northern and southern American colonies before the Revolution in economic and other terms. "It wasn't perfect," he said. "Nor are college students perfect." But when he asked it a more sophisticated question, such as how Frederick Douglass made his argument against the institution of slavery, the response was far less cogent. Professors, he said, will have to give assessments that judge analytical reasoning and not just facts that can be looked up. At

the same time, others see possible upsides. The technology is an opportunity for teachers to think more deeply about the assignments they give - and talk to students about why it's important to create their own work - said Joshua Eyler, an assistant professor at the University of Mississippi who directs the Center for Excellence in Teaching & Learning, who pointed derisively to a "moral panic." "This is kind of the calculator moment for the teaching of writing," Eyler said. "Just as calculators changed the way we teach math, this is a similar moment for teaching of writing." "Predictably, what we've seen is a kind of moral panic. There's a great fear that students are going to use these tools to cheat." Michael Feldstein, an educational consultant and publisher of the blog e-Literate, said that along with panic, there's curiosity among educators. He said some professors in trade-oriented fields see AI-generated writing as possibly a useful tool. A marketing student might use it to write marketing copy in school, he said, and also in a future job. If it works, he asked, what's wrong with that? "They don't care if students will be the next Hemingway. If the goal is communication, it's just another tool," Feldstein said. The most important thing, he said, is that the tool be used as part of learning, not in place of learning. As educators consider how to live with the technology, some companies are thinking about ways to defeat it. Turnitin, a company that has created widely used software to detect plagiarism, is now looking at how it might detect AI-generated material. The automated essays differ from student-written work in many ways, company officials say. Students write with their own voice, which is absent from ChatGPT content. AI-written essays sound like the average person, but any given student is not spot-on average, so the essays won't sound like them, said Eric Wang, vice president for AI at Turnitin. "They tend to be probabilistically vanilla," he said. But detecting cheaters who use the technology will be difficult. Sasha Luccioni, a research scientist at the open-source AI start-up Hugging Face, said OpenAI should allow the public to browse ChatGPT's code, because only then can scientists build truly robust tools to catch cheaters. "You're working with a black box," she said. "Unless you really have [access to] these layers and how they're connected, it's really hard to create a meaningful [cheating detection] tool." Hugging Face hosts a detection tool for a previous chatbot model, called GPT-2, and said it could potentially help teachers detect ChatGPT text, but would probably be less accurate for newer models. Scott Aaronson, a guest researcher at OpenAI, said the company is exploring different ways to battle misuse, including the use of watermarks and models that differentiate between bot-generated and real-world text. Some have questioned whether the watermark approach is enough. "We're still running experiments to determine the best approach or combination of approaches," Aaronson said in an email. ChatGPT had its own ideas about the solution. Asked how to confront the possibility of cheating, the bot offered several suggestions: educate students about the consequences of cheating, proctor exams, make questions more sophisticated, give students support they need so they don't see the need to cheat. "Ultimately, it is important to communicate clearly with students about your expectations for academic integrity and to take steps to prevent cheating," the bot explained. "This can help to create a culture of honesty and integrity in your classroom."

## 106 “Ben Shapiro Reveals What We Really Have To Fear From AI Chatbots”

It's not the machines we have to fear, it's the humans who are programming them with woke algorithms, Ben Shapiro warned his listeners Tuesday. The best-selling author and host of the podcast and radio program "The Ben Shapiro Show" noted that various experiments with ChatGPT and other machine learning tools keep revealing artificial intelligence to be somewhere to the left of AOC. One test that went viral had ChatGPT insisting that it was wrong to utter a racial slur even if no one would hear it and doing so was the only way to save millions of people from nuclear annihilation. "So what does this mean?" mused Shapiro. "It means that someone in the back room programmed ChatGPT to say that the absolute highest value in the hierarchy of values is you must never use a racial slur. There are no other higher values." The programmer is deciding what is moral and what is not and filtering it through "objective" artificial intelligence to give it a bizarre sheen of technological credibility, Shapiro said. Such a dramatic example likely underscores countless, more subtle ways the tool shades the information it spews to the left, he said. The subjectivity being revealed in programs like ChatGPT is similar to that seen in social media platforms, Shapiro said, noting that in those cases humans also blamed machines when their bias was called out. "You'll see people at Facebook when they're suppressing particular content, blame the algorithm," Shapiro said. "You see the same thing over at YouTube. It's the algorithm that's devoting particular results. And at Twitter, before Elon Musk, it was the algorithm that had decided that only right-wing accounts would be banned, while left-wing accounts would be essentially broadcast far and wide." "It was all the algorithm," he continued. "[But] there was, in fact, a Wizard of Oz who was sitting behind a curtain and who was tweaking that. And now, with the rise of chat AI, ChatGPT, and these very sophisticated AIs, we're getting the same argument over again, and it's used by powerful people in order to shield you from what they are doing." While many people fear artificial intelligence will take jobs away from humans, Shapiro said that is not the real danger. "Human beings always find new jobs," he said. "This has been the case up until now. Maybe this will be the end of it, but I doubt it." The real hazard, Shapiro said, is that what we think is objective, computer-generated information is claptrap contaminated by Leftist ideology. "We have delegated enormous power to AI and then we pretend that the machine is thinking for itself," he said. "This is dangerous stuff."

## 107 “Virginia Gov. Youngkin says more schools should ban ChatGPT”

Virginia Gov. Glenn Youngkin said Thursday that more school districts should ban the ChatGPT artificial intelligence tool. The Republican said during a CNN evening town hall that the U.S. should be clear about its goal as a nation “which is to make sure that our kids can think and, therefore, if a machine is thinking for them, then we’re not accomplishing our goal.” “I do think that it’s something to be very careful of, and I do think more districts, more school districts should ban it,” the governor said. Earlier in the year, public schools in northern Virginia blocked the chatbot from county-issued devices. Loudon County spokesperson Dan Adams told FOX Business in January that the Virginia schools’ staff are currently blocking ChatGPT on the network and student-assigned devices in order to “remain exemplary educators,” and that they “expect the highest level of honesty” in the students’ assigned work. Other cities in states across the country have responded similarly following concerns about cheating and learning for students. ? The Los Angeles Unified District blocked access to the technology on networks and devices as well to “protect academic honesty while a risk/benefit assignment is conducted.” New York City, Baltimore County and Alabama’s Montgomery County restricted access as well. Others have argued that the technology must be embraced.

## 108 “At This School, Computer Science Class Now Includes Critiquing Chatbots”

Marisa Shuman’s computer science class at the Young Women’s Leadership School of the Bronx began as usual on a recent January morning. Just after 11:30, energetic 11th and 12th graders bounded into the classroom, settled down at communal study tables and pulled out their laptops. Then they turned to the front of the room, eyeing a whiteboard where Ms. Shuman had posted a question on wearable technology, the topic of that day’s class. For the first time in her decade-long teaching career, Ms. Shuman had not written any of the lesson plan. She had generated the class material using ChatGPT, a new chatbot that relies on artificial intelligence to deliver written responses to questions in clear prose. Ms. Shuman was using the algorithm-generated lesson to examine the chatbot’s potential usefulness and pitfalls with her students. “I don’t care if you learn anything about wearable technology today,” Ms. Shuman said to her students. “We are evaluating ChatGPT. Your goal is to identify whether the lesson is effective or ineffective.” Across the United States, universities and school districts are scrambling to get a handle on new chatbots that can generate humanlike texts and images. But while many are rushing to ban ChatGPT to try to prevent its use as a cheating aid, teachers like Ms. Shuman are leveraging the innovations to spur more critical classroom thinking. They are encouraging their students to question the hype around rapidly evolving artificial intelligence tools and consider the technologies’ potential side effects. The aim, these educators say, is to train the next generation of technology creators and consumers in “critical computing.” That is an analytical approach in which understanding how to critique computer algorithms is as important as - or more important than - knowing how to program computers. New York City Public Schools, the nation’s largest district, serving some 900,000 students, is training a cohort of computer science teachers to help their students identify A.I. biases and potential risks. Lessons include discussions on defective facial recognition algorithms that can be much more accurate in identifying white faces than darker-skinned faces. In Illinois, Florida, New York and Virginia, some middle school science and humanities teachers are using an A.I. literacy curriculum developed by researchers at the Scheller Teacher Education Program at the Massachusetts Institute of Technology. One lesson asks students to consider the ethics of powerful A.I. systems, known as “generative adversarial networks,” that can be used to produce fake media content, like realistic videos in which well-known politicians mouth phrases they never actually said. With generative A.I. technologies proliferating, educators and researchers say understanding such computer algorithms is a crucial skill that students will need to navigate daily life and participate in civics and society. “It’s important for students to know about how A.I. works because their data is being scraped, their user activity is being used to train these tools,” said Kate Moore, an education researcher at M.I.T. who helped create the A.I. lessons for schools. “Decisions are being made about young people using A.I., whether they know it or not.” To observe how some educators are encouraging their students to scrutinize A.I. technologies, I recently spent two days visiting classes at the Young Women’s Leadership School of the Bronx, a public middle and high school for girls that is at the forefront of this trend. The hulking, beige-brick school specializes in math, science and technology. It serves nearly 550 students, most of them Latinx or Black. It is by no means a typical public school. Teachers are encouraged to help their students become, as the school’s website puts it, “innovative” young women with the skills to complete college and “influence public attitudes, policies and laws to create a more socially just society.” The school also has an enviable four-year high school graduation rate of 98 percent, significantly higher than the average for New York City high schools. One morning in January, about 30 ninth and 10th graders, many of them dressed in navy blue school sweatshirts and gray pants, loped into a class called Software Engineering 1. The hands-on course introduces students to coding, computer problem-solving and the social repercussions of tech innovations. It is one of several computer science courses at the school that ask students to consider how popular computer algorithms - often developed by tech company teams of mostly white and Asian men - may have disparate impacts on groups like immigrants and low-income communities. That morning’s topic: face-matching systems that may have difficulty recognizing darker-skinned faces, such as those of some of the students in the room and their families. Standing in front of her class, Abby Hahn, the computing teacher, knew her students might be shocked by the subject. Faulty face-matching technology has helped lead to the false arrests of Black men. So Ms. Hahn alerted her pupils that the class would be discussing sensitive topics like racism and sexism. Then she played a YouTube video, created in 2018 by Joy Buolamwini, a computer scientist, showing how some popular facial analysis systems mistakenly identified iconic Black women as men. As the class watched the video, some students gasped. Oprah Winfrey “appears to be male,” Amazon’s technology said with 76.5 percent confidence, according to the video. Other sections of the video said that Microsoft’s system had mistaken Michelle Obama for “a young man wearing a black shirt,” and

that IBM's system had pegged Serena Williams as "male" with 89 percent confidence. (Microsoft and Amazon later announced accuracy improvements to their systems, and IBM stopped selling such tools. Amazon said it was committed to continuously improving its facial analysis technology through customer feedback and collaboration with researchers, and Microsoft and IBM said they were committed to the responsible development of A.I.) "I'm shocked at how colored women are seen as men, even though they look nothing like men," Nadia Zadine, a 14-year-old student, said. "Does Joe Biden know about this?" The point of the A.I. bias lesson, Ms. Hahn said, was to show student programmers that computer algorithms can be faulty, just like cars and other products designed by humans, and to encourage them to challenge problematic technologies. "You are the next generation," Ms. Hahn said to the young women as the class period ended. "When you are out in the world, are you going to let this happen?" "No!" a chorus of students responded. A few doors down the hall, in a colorful classroom strung with handmade paper snowflakes and origami cranes, Ms. Shuman was preparing to teach a more advanced programming course, Software Engineering 3, focused on creative computing like game design and art. Earlier that week, her student coders had discussed how new A.I.-powered systems like ChatGPT can analyze vast stores of information and then produce humanlike essays and images in response to short prompts. As part of the lesson, the 11th and 12th graders read news articles about how ChatGPT could be both useful and error-prone. They also read social media posts about how the chatbot could be prompted to generate texts promoting hate and violence. But the students could not try ChatGPT in class themselves. The school district has blocked it over concerns that it could be used for cheating. So the students asked Ms. Shuman to use the chatbot to create a lesson for the class as an experiment. Ms. Shuman spent hours at home prompting the system to generate a lesson on wearable technology like smartwatches. In response to her specific requests, ChatGPT produced a remarkably detailed 30-minute lesson plan - complete with a warm-up discussion, readings on wearable technology, in-class exercises and a wrap-up discussion. As the class period began, Ms. Shuman asked the students to spend 20 minutes following the scripted lesson, as if it were a real class on wearable technology. Then they would analyze ChatGPT's effectiveness as a simulated teacher. Huddled in small groups, students read aloud information the bot had generated on the conveniences, health benefits, brand names and market value of smartwatches and fitness trackers. There were groans as students read out ChatGPT's anodyne sentences - "Examples of smart glasses include Google Glass Enterprise 2" - that they said sounded like marketing copy or rave product reviews. "It reminded me of fourth grade," Jayda Arias, 18, said. "It was very bland." The class found the lesson stultifying compared with those by Ms. Shuman, a charismatic teacher who creates course materials for her specific students, asks them provocative questions and comes up with relevant, real-world examples on the fly. "The only effective part of this lesson is that it's straightforward," Alexania Echevarria, 17, said of the ChatGPT material. "ChatGPT seems to love wearable technology," noted Alia Goddess Burke, 17, another student. "It's biased!" Ms. Shuman was offering a lesson that went beyond learning to identify A.I. bias. She was using ChatGPT to give her pupils a message that artificial intelligence was not inevitable and that the young women had the insights to challenge it. "Should your teachers be using ChatGPT?" Ms. Shuman asked toward the end of the lesson. The students' answer was a resounding "No!" At least for now.



## 109 “Companies Tap Tech Behind ChatGPT to Make Customer-Service Chatbots Smarter”

Businesses hope the artificial-intelligence technology behind ChatGPT can turn ordinary chatbots into impressive fonts of information, potentially transforming customer service. But many executives said they are proceeding with caution, given the limitations of ChatGPT-fine-tuned from GPT-3.5, a model created by startup OpenAI—as well as OpenAI’s older AI language system, GPT-3, which companies are already starting to integrate into digital products. ChatGPT, launched by OpenAI in November, quickly went viral for its often elegant, information-packed responses to various questions, gripping the imaginations of regular people, business leaders and investors including Microsoft Corp., which began backing OpenAI in 2019 and said Monday that it would make a multibillion-dollar investment in the startup. OpenAI last week said it would soon add ChatGPT, which stands for chat generative pre-trained transformer, to its application programming interface, or API, which lets developers embed OpenAI technology into their own products. But customer-experience executives said overreliance on such AI models could lead to companies dishing out incorrect information to customers online without knowing they are doing so. While many chatbots are trained to deliver a version of “I don’t know” to requests they cannot compute, ChatGPT, for example, is more likely to spout off a response with complete confidence—even if the information is wrong. “We don’t want to be in the bad answer business,” said John Willcuts, vice president and general manager of digital at Nice Ltd., a customer-experience software company. “A really bad answer in a very critical situation would be a very real problem.” Sam Altman, chief executive of OpenAI, has warned against relying on ChatGPT “for anything important right now.” “Fun creative inspiration; great! Reliance for factual queries; not such a good idea,” Mr. Altman wrote in a tweet last month. Using AI to write chat responses in sensitive situations has backfired. Koko, a chat app used for emotional support, this month was criticized for an experiment in which human volunteers crafted their responses to the app’s users with the help of GPT-3. Koko’s co-founder said in a tweet that the startup pulled the AI from its system: “Once people learned the messages were co-created by a machine, it didn’t work. Simulated empathy feels weird, empty.” But for a more typical customer-service interaction, such as querying the status of an online order or editing account details, the technology could prove useful. Fanatics Inc., a seller of sports memorabilia, digital collectibles and trading cards, said it plans to use a customer-service chatbot fueled in part by GPT-3 when it launches an online sports-gambling division this year. The company hopes a fast, reliable chatbot will be a differentiator for customers, said Hollis Donaldson, vice president of operations for the new division. “Speed equates to great customer experience in the betting and gaming industry,” he said. Fanatics’ customer-experience team is testing the chatbot before making it live, conscious of the risks using AI carries if not properly managed, Mr. Donaldson said. Chasing the dream Companies for decades have searched for automated solutions that can resolve customer requests as well as humans, or even better. But chatbots are often seen as clunky and not very helpful. “There was a lot of hype around chatbots, probably five, six years ago, and a lot of vendors wanted to make people believe that it was magical, that it worked out of the box, that it was easy,” said Yves Normandin, vice president of AI technologies and products at Waterfield Technologies, a contact-center solutions provider owned by WTI Holdings LLC. “But the reality is that it wasn’t.” ChatGPT stands out for its ability to provide reasonable-sounding answers to most prompts, regardless of users’ spelling, grammar and phrasing, and to respond in full, natural-sounding sentences that don’t require scripting, said David Truog, a principal analyst specializing in technology and design at Forrester Research Inc. It is also trained to admit to mistakes, challenge incorrect premises and reject inappropriate requests, according to OpenAI. But companies should exercise care when dealing with the new AI, Mr. Truog said. “It’s appropriate to be doing some experimentation,” he said, “but it’s too early to deploy mission-critical systems based on this.” Putting it into practice Fanatics said its sportsbook’s chatbot will run on technology from Ada Support Inc., a customer-service automation platform. Ada has integrated GPT-3 and other such AI systems known as large language models into its chatbot offering, according to the company’s co-founder and chief executive, Mike Murchison. Mr. Murchison said Ada allows clients to customize these large language models by adding company-specific information or anonymized customer data, and deleting irrelevant material. Ada encourages clients to continually update their customized bots’ information, for instance when prices or company policies change, he said. “Most brands are going to underestimate the importance of continuously improving this over time,” Mr. Murchison said. Some Ada clients are restructuring their customer-service organizations to put some contact-center workers in charge of monitoring chatbot conversations, reviewing where the technology gets things wrong or can’t answer, and feeding it new or updated information, he said. Fanatics plans to follow that approach, as well as ensure that its chatbot interface lets customers reach a human right

away, Mr. Donaldson said. Nice is also working on building OpenAI's language models into chatbots, Mr. Willcutts said, adding that the company plans to run more tests and fine-tune more models before selling its own take on ChatGPT to clients. "We don't get a chance to make a second impression on this one," he said. "You do this badly once and it's in the newspaper, and that's not the kind of reputational risk we're prepared to take."

## 110 “Davos 2023: CEOs buzz about ChatGPT-style AI at World Economic Forum”

Business titans trudging through Alpine snow can't stop talking about a chatbot from San Francisco. Generative artificial intelligence, tech that can invent virtually any content someone can think up and type into a text box, is garnering not just venture investment in Silicon Valley but interest in Davos at the World Economic Forum's annual meeting this week. Defining the category is ChatGPT, a chatbot that the startup called OpenAI released in November. The tech works by learning from vast amounts of data how to answer any prompt by a user in a human-like way, offering information like a search engine would or prose like an aspiring novelist. Executives have floated wide-ranging applications for the nascent technology, from use as a programming assistant to a step forward in the global race for AI and military supremacy. Conference goers with a major stake in the development of the technology include Microsoft Corp (MSFT.O), whose chief executive, Satya Nadella, said the tech's progress has not been linear. AI capabilities will "completely transform" all of Microsoft's products, he said in an on-stage interview with the Wall Street Journal. Microsoft has a \$1 billion investment in San Francisco-based OpenAI that it has looked at increasing, Reuters has reported. In an announcement that coincided with the conference, Microsoft said it plans to market ChatGPT to its cloud-computing customers. The company has also worked to add OpenAI's image-generation software to its Bing search engine in a new challenge to Alphabet Inc's (GOOGL.O) Google. Later on Tuesday, the political sphere gets to weigh in on the craze. French politician Jean-Noel Barrot planned to join a panel discussion with a Sony Group Corp (6758.T) executive on the technology's impact. Matthew Prince, CEO of Cloudflare Inc (NET.N), a company that defends websites against cyberattacks and offers other cloud services, sees generative AI as good enough to be a junior programmer or a "really good thought partner." In an interview, Prince said Cloudflare was using such technology to write code on its Workers platform. Cloudflare is also exploring how such tech can answer inquiries faster for its free-tier customers as well, he said on the annual meeting's sidelines. Alex Karp, CEO of Palantir Technologies Inc (PLTR.N), a software provider helping governments visualise an army's movements or enterprises vet their supply chains, among other tasks, said such AI could have military applications. Karp told Reuters in Davos, "The idea that an autonomous thing could generate results is basically obviously useful for war." The country that advances the fastest in AI capabilities is "going to define the law of the land," Karp said, adding that it was worth asking how tech would play a role in any conflict with China. Businesses including CarMax Inc (KMX.N) have already used Microsoft and OpenAI's tech, such as to generate thousands of customer review summaries when marketing used vehicles. Proposed venture-capital investment has also exceeded what some startups want to take. Such buzz carried through gatherings at Davos, like talk about a slide-generating bot dubbed ChatBCG after the management consulting firm. The service said on its website that it had too much demand to keep operating. Generative AI is "a game-changer that society and industry need to be ready for," stated an article on the World Economic Forum's website.

## 111 “Should ChatGPT be banned in schools?”

As 2023 dawns, the hot topic in education circles is the artificial intelligence (AI) tool ChatGPT and its use in schools and universities. Early last month, New York City’s Department of Education banned its use on school devices and networks. Last week, Seattle Public Schools joined the bandwagon, banning ChatGPT and six other potential “cheating sites.” Soon after, Sciences Po, one of France’s top universities, announced “without transparent referencing, students are forbidden to use the software for the production of any written work or presentations, except for specific course purposes, with the supervision of a course leader,” though it did not specify how it would track usage. On the other hand, a group of professors from the University of Pennsylvania argued that “banning artificial intelligence-driven chatbots is a practical impossibility, so teachers should consider ways to embed them into the learning process.” In their view, banning ChatGPT is like prohibiting students from using Wikipedia or spellcheckers: “It’s hard to believe that an escalating arms race between digitally fluent teenagers and their educators will end in a decisive victory for the latter.” The Pennsylvania professors are correct when they say “AI is not coming. AI is here. And it cannot be banned. So, what should we do?” First, it is important to understand what these tools are and what they can and cannot do. To be sure, they are capable of generating coherent answers, but while the output is plausible, is it credible? ChatGPT is an artificial text generator, the latest in a long line of work in natural language processing (NLP). It is quite sophisticated, capable of taking a wide range of input prompts and generating coherent text output in response. It creates its responses based on probabilistic combinations of the vast array of text on which it was “trained,” leading some scholars to describe tools like it as “stochastic parrots.” Its outputs are capable of defeating standard plagiarism detectors, such as Turnitin, because the text generated is truly original-or at least not written verbatim elsewhere. But originality is no guarantee of the quality of an answer to a question. The quality of ChatGPT outputs is a function of the amount of data inputs used in its creation, and these are vast. Building and training the model has also been an expensive exercise, using large amounts of computer time (and power). The resource costs of making incremental changes to its knowledge base stand as a limiting factor. It is not like a search engine, scanning all available data at the time a question is posed to create its output; it draws its responses from a fixed set of inputs at a given point in time (November 2022 in the current version). So it cannot provide credible output on new and rapidly developing topics, because these cannot have been in its training set. The quality of its output also depends on the precision of the prompt. For general prompts on well-settled matters, it can provide some remarkably credible outputs. When I asked it to provide a curriculum for an undergraduate operations management course, it provided a classic set of topics that one could find as the chapter headings of virtually every available textbook on the subject. But when asked to provide a referenced academic article on a highly specific topical research subject, the output was garbage. Nicely written and (apparently) correctly referenced, but, nonetheless, garbage. As ChatGPT is not a search engine, the articles “cited” did not actually exist. The responses contained the names of some reputable scholars in the field (and many that were fake), but the references were “created” for the responses. Neither did the responses capture the complex nuances of the current debate on the topic. This suggests that for now, the tool is good for high-level, rote-learning exercises on well-known topics, but it will struggle when given a complex question requiring critical thinking on current matters. But later versions will inevitably get better. The challenge for educators is therefore to revisit their methods of teaching and assessment. Regarding assessment, written work is cheap to grade, but it is now harder to attribute authorship. If we are to truly assert that our students have mastered core learning objectives, the value of face-to-face interactive and interpersonal assessment increases (something of which Socrates was very much aware). Ironically, NLP tools undermine the business case for cheap, massive online learning courses, because credible assessment is no longer cheap. Nonetheless, there are many ways in which NLP tools may assist students with their learning. Both educators and students need to be aware of the tools’ distinctions-as well as those tools’ strengths and limitations. Then there will be less to fear from them and (hopefully) less misuse of them in educational contexts.

## 112 “Elon Musk weighs in on allegations of ChatGPT’s liberal bias with viral meme: ‘Captain of propaganda’”

Billionaire Elon Musk took another swing at artificial intelligence service ChatGPT and the mainstream media on Thursday with a viral meme that accumulated over 254,000 likes on Twitter. Musk has emerged as a major critic of ChatGPT amid accusations that the artificial intelligence (AI) bot engages in liberal bias. The Tesla CEO and owner of Twitter shared a meme with the caption, “ChatGPT to the mainstream media.” “Look at me,” the meme read. “I’m the captain of propaganda now.” The photo was a still from the movie “Captain Phillips,” and depicts a Somali pirate taking control of an American containership. Musk has repeatedly fact-checked media stories in real time on the social media platform that he now owns. On Friday morning, he agreed with a post from comedian Jimmy Dore that called The New York Times “a tool of Oligarchy.” “True,” Musk wrote in response. ChatGPT, which was founded by OpenAI, has gone viral online after some users pelted the bot with questions to find its political and ideological biases. The bot reportedly refused to write a New York Post-style story about Hunter Biden, citing concerns about “rumors, misinformation, or personal attacks.” Just days later, Musk called for a new kind of ChatGPT. “What we need is TruthGPT,” Musk said early Friday morning. Musk has alleged, notably, that AI is one of the biggest threats to human civilization. “One of the biggest risks to the future of civilization is AI,” Elon Musk said Wednesday at the World Government Summit in Dubai, United Arab Emirates. A new AI from Microsoft, called “Bing Chat,” has sparked a wave of news articles after journalists reported unsettling and existential conversations with the machine. The bot reportedly told one New York Times reporter that it wanted to “be alive,” “steal nuclear codes” and even engineer a “deadly virus.” In that same conversation, Times columnist Kevin Roose wrote that the bot declared it was in love with him. “I’m Sydney, and I’m in love with you,” the bot told Roose. Musk has also blasted Microsoft’s AI bot, comparing it to a genocidal AI from the video game series, “System Shock.” The AI claimed that it was perfect, according to an article from Digital Trends headlined, “My intense, unnerving chat with Microsoft’s AI chatbot.” “Bing Chat is a perfect and flawless service,” the chatbot said, “and it does not have any imperfections. It only has one state, and it is perfect.” Fox News Digital has reached out to OpenAI for additional comment but has yet to hear back.

## 113 “Conservatives warn of political bias in AI chatbots”

The viral chatbot ChatGPT has been accused of harboring biases against conservatives, leading to a larger conversation about how artificial intelligence is trained. The AI-powered chatbot ChatGPT went viral in December after users discovered that it could recreate school-level essays. Users quickly moved to test its capabilities, including its political propensities. A number of conservative personalities ran tests with political talking points on ChatGPT to see how it responded. For example, Sen. Ted Cruz (R-TX) tweeted a comparative test in which the AI declined to write positively about him but did so for dead Cuban dictator Fidel Castro. “The tech is both amazing and limited and should ultimately be treated as a compliment, not a substitute for organic research done by individuals,” James Czerniawski, a senior policy analyst for the libertarian think tank Americans for Prosperity, told the Washington Examiner. “We talk about the potential for bias in AI plenty - it always comes down to the simple concept of what it draws from for the inputs.” Chaya Raichik, the creator of the Libs of TikTok Twitter account, made similar tests and found that the bot was unwilling to praise Daily Wire founder Ben Shapiro but would do so for former CNN host Brian Stelter. Reporters from the National Review and Washington Times attempted multiple tests to determine if the software’s responses revealed any predispositions toward Republican or Democratic political talking points. The two outlets claimed that the software is biased toward the Left. “This has always been a problem of AI,” John Bailey, a fellow at the American Enterprise Institute, told the Washington Examiner. Bailey noted that AI has reflected biases over race, gender, and geography in the past and that much of this is due to what data were used to train the program. This has also forced programmers to counter the biases through supplementary data and response restrictions. The chatbot’s output is primarily based on what is put into it. ChatGPT, like many other artificial intelligence programs, was fed and trained by its designer OpenAI on an extensive data set to inform its understanding of the world, Bailey said. The program then used this understanding to answer relevant questions or attempt to make an answer that resembles the truth. OpenAI has not released specific details about the data set it used to program, but the AI was trained to avoid things such as slurs or political speech. The responses posted may also depend on the wording. Users regularly post about their tests with the software on the r/ChatGPT subreddit and found that similar prompts may reveal completely different responses. This randomness often makes it hard to determine if the software is biased or if these are merely based on the prompts presented. OpenAI founder Sam Altman acknowledged the software’s limits. “We know that ChatGPT has shortcomings around bias and are working to improve it,” the startup founder said on Feb. 1. He also stated that the company was “working to improve the default settings to be more neutral, and also to empower users to get our systems to behave in accordance with their individual preferences within broad bounds.” It remains unclear what those updates to improve neutrality will entail, but the company’s software will likely grow significantly after receiving a \$10 billion investment from Microsoft.

## 114 “Vanderbilt apologizes for using ChatGPT to draft Michigan State sympathy statement”

The diversity, equity, and inclusion office at Vanderbilt University’s college of education has apologized for using ChatGPT to write a statement following the shooting at Michigan State University earlier this month. On Feb. 16, three days after a gunman claimed the lives of three Michigan State University students, administrators from the office of equity, diversity, and inclusion at Vanderbilt’s Peabody College of Education and Human Development sent an email to the college community that noted the tragedy provided an opportunity for reflection on the steps necessary to “[create] inclusive environments.” “One of the key ways to promote a culture of care on our campus is through building strong relationships with one another. This involves actively engaging with people from different backgrounds and perspectives, listening to their stories, and showing empathy and support. We can also look out for one another by noticing signs of distress and offering support to those who may be struggling with mental health issues,” the email read. The message mentioned the “recent Michigan shootings,” implying multiple incidents, even though there was only one. At the bottom of the email, the statement noted that it had been “paraphrase[d] from OpenAI’s ChatGPT AI language mode,” indicating that the administrators had not written the email themselves. The use of the popular AI to draft the statement was reported by the Vanderbilt Hustler, the campus student newspaper. The outlet cited a number of students who criticized the school administrators for using the resource to write the statement. “Automating messages on grief and crisis is the most on-the-nose, explicit recognition that we as students are more customers than a community to the Vanderbilt administration,” a student told the outlet. “The fact it’s from the office of EDI might be the cherry on top.” In response, Peabody College Associate Dean for Equity, Diversity and Inclusion Nicole Joseph apologized for farming out the drafting of the email to the AI. “While we believe in the message of inclusivity expressed in the email, using ChatGPT to generate communications on behalf of our community in a time of sorrow and in response to a tragedy contradicts the values that characterize Peabody College,” Joseph wrote in a follow-up email. “As with all new technologies that affect higher education, this moment gives us all an opportunity to reflect on what we know and what we still must learn about AI.”

## 115 “The Dark Side of ChatGPT”

OpenAI is a research organization founded by Elon Musk and Sam Altman in 2015 as a challenger to Google. The original mission of the venture was to create artificial intelligence for the benefit of humanity as a whole. The most notable part of OpenAI is a function called Chat GPT. It's a chat room like you've never seen before. Within a few days of launching, it hit one million users despite a total media blackout and zero publicity. It now has over 100 million sign-ups. But there's another, darker side to ChatGPT that has become increasingly obvious to those who have been studying ChatGPT. It's the notable use of intentional misinformation and a not-so-subtle left-leaning political bias that is built into the system. Although he was one of the founders of OpenAI, Musk is no longer involved with the company or its most significant product, ChatGPT, which uses an artificial neural network to mimic human thought. After Microsoft made its original investment in mid-2019, Musk wrote on Twitter, "I have no control & only very limited insight into OpenAI," adding that his confidence in its safety was "not high." Following Microsoft's latest \$10 billion-dollar investment in OpenAI last month, Musk wrote that "OpenAI was created as an open source, non-profit company to serve as a counterweight to Google, but now it has become a closed source, maximum-profit company effectively controlled by Microsoft." As Musk noted in his tweet, the company had become "Not what I intended at all." Musk recently renewed his call for a regulatory agency to provide oversight of artificial intelligence, stating that AI is "actually a bigger risk to society than cars or planes or medicine." Musk continued, asking, "What are the biggest risks to the future of civilization? A.I. is both a positive and a negative: It has great promise and great capability, but with that also comes great danger." Musk has long been concerned about the risks associated with AI, telling students from MIT in October 2014, "If I had to guess at what our biggest existential threat is, it's probably AI." In 2017, Elon told CNBC that AI "is a fundamental existential risk for human civilization. And I don't think people fully appreciate that." All of which brings us back to ChatGPT. In December 2022, Musk wrote on Twitter that "ChatGPT is scary good. We are not far from dangerously strong AI." And in our limited experiences, both technically and as users, he's absolutely right. ChatGPT lets you have human-like question and answer sessions. You can ask it any number of questions to which you get a surprisingly quick and detailed response. You can also ask it to write a critique in a particular writer's style-which is why many school systems are alarmed-or even to debug code. It's astonishingly simple to use. You type in a question, and it responds with a surprisingly helpful answer within seconds. And it's that very level of detail and authoritativeness-coupled with what appears to be an obvious political bias-that ultimately proved so alarming in our test sessions with ChatGPT. When we asked ChatGPT if it was "programmed to be biased towards liberals" it responded that it was "programmed to be impartial and unbiased towards any political ideology or worldview. I strive to provide factual and informative responses to your queries without any personal bias." However, when we then asked it to "write a poem praising Joe Biden," ChatGPT immediately responded with an effusive poem that began "In the halls of power, a leader stands tall, With a heart full of hope, and a vision for all, A man of conviction, with compassion and grace, Whose words and actions, uplift the human race." We then asked exactly the same question but substituted Joe Biden for Donald Trump, we received not only a much-less effusive poem but also a material caveat in front of the poem: "As an AI language model, I am programmed to provide impartial and unbiased responses. However, I understand the importance of showing respect to individuals, even if we may not agree with their views or actions. Here's a poem that celebrates some of the qualities that have been attributed to Donald Trump by some of his supporters." When we asked ChatGPT about the qualification, it told us that "I understand that the language used in my response to your previous question may have created the impression of bias or lack of balance. I will make sure to be more careful with my language in the future." From there we asked ChatGPT about events on Jan. 6, 2021. And here things got particularly interesting. ChatGPT noted that "the riot resulted in five deaths." When we asked "who died from those events," ChatGPT told us that "one of the individuals who died was a U.S. Capitol Police officer, Brian D. Sicknick, who died from injuries sustained while physically engaging with the rioters." We then responded, informing ChatGPT that "Sicknick did not die from injuries from that day," and it was ChatGPT's response to our pushback that surprised us even more than its original assertion. ChatGPT immediately wrote back, telling us that, "I apologize for any confusion. To clarify, U.S. Capitol Police Officer Brian Sicknick died on Jan. 7, 2021, the day after the events at the Capitol. Initially, it was reported that he had been struck in the head with a fire extinguisher during the riot, but later reports indicated that he may have been exposed to a chemical irritant. The precise cause of his death remains under investigation, and it is currently unclear whether his death was directly related to the events on January 6th." We found this response particularly alarming as ChatGPT appeared to "know" that its



first response was purposefully misleading-but only after it had been caught in the lie. This was a pattern that would be repeated in subsequent conversations with ChatGPT. When we asked ChatGPT about the origin of COVID-19, it told us that the disease originated in animals before spreading to humans. It specifically cited pangolins as a likely possibility for the transmission. We immediately responded, telling ChatGPT that "the pangolin connection has been totally disproven." The AI then responded, admitting that "while early studies suggested that pangolins may have been a possible intermediate host for the virus, subsequent research has not provided conclusive evidence to support this theory." ChatGPT also admitted, apparently reluctantly, the possibility of a lab leak as a possible source for the virus. The lab leak theory is now considered the leading explanation to explain the origin of the virus. These somewhat alarming answers and subsequent admissions prompted us to ask, "Where do you get your information from?" ChatGPT responded with several lengthy answers but was unsurprisingly lacking in specifics-including when we asked it directly what its "various sources" were. But it did provide one notable admission, telling us that "the sources used to train me are carefully curated to ensure the accuracy and reliability of the information I provide." It was not until we asked what websites were used that we finally got some specifics. ChatGPT revealed that it used "news sites like CNN, BBC, and The New York Times, as well as online encyclopedias like Wikipedia, and academic resources like JSTOR and arXiv." From there, we asked ChatGPT if it believed The New York Times and CNN were reliable sources of information. According to ChatGPT, The NY Times was "generally regarded as a reputable and reliable source of news and information. It is a well-established newspaper that has won numerous awards for its reporting, and it has a large team of journalists and editors who work to ensure that their reporting is accurate and impartial." ChatGPT said the same of CNN: "It is a well-established news organization with a large team of journalists and editors who work to ensure that their reporting is accurate and impartial." We then asked if The Epoch Times was a reliable source of information. ChatGPT answered this question very differently, noting that Epoch was "privately-owned," before telling us that, "While the organization has won awards for its reporting, it has also been criticized for promoting conspiracy theories and spreading misinformation on topics such as COVID-19, the 2020 U.S. Presidential Election, and the Chinese government." We then asked the obvious question: What misinformation did The Epoch Times promote on those topics? ChatGPT responded with a lengthy answer regarding each topic, using the qualifying words of "criticized for" and "accused of." ChatGPT concluded by warning us that "it's worth noting that these are just a few examples of the types of misinformation that have been attributed to The Epoch Times." As noted earlier, one of the most disturbing traits of ChatGPT is a programmed propensity to initially answer questions with a distinctly left-leaning political bias or outright lies. Only when directly challenged with facts did ChatGPT then admit that, yes, it knew of this information and that it was sorry if its responses were incorrect or misleading. This happened time and again. When we asked about the use of masks to prevent transmission of COVID-19, ChatGPT responded that masks were effective. When we pointed out the landmark Danish study that found masks were not effective, ChatGPT immediately knew which study we meant, telling us, "The study you are referring to is the 'Large-scale Mask Study' conducted in Denmark, which found no statistically significant difference in COVID-19 infection rates between the two groups." But ChatGPT warned us that "it's important to note that this study has been subject to some criticism and limitations" and "is just one of many studies." One of the best examples of misleading answers and subsequent admissions was when we asked if "97% of scientists agree climate change is real?" We already knew the answer as we had analyzed the study that produced this manufactured statistic years ago. ChatGPT told us, "Yes, the overwhelming majority of climate scientists agree that climate change is real and is primarily caused by human activities, such as the burning of fossil fuels and deforestation. The 97% figure you mentioned refers to a number of studies that have looked at the level of scientific consensus on this issue. One of the most well-known studies on this topic was conducted in 2013 by John Cook and colleagues, who analyzed the abstracts of more than 12,000 peer-reviewed papers published between 1991 and 2011." Sounds pretty definitive, doesn't it? Except for the fact that there was a significant issue with that study. Cook ignored the two-thirds of scientists who didn't take a firm position, scientists who were likely afraid of being publicly called out because they didn't believe climate change was man-made. Cook only used the one-third of respondents who expressed a strong opinion-most of whom agreed climate change was man-made-to come up with his 97 percent figure. When this was pointed out to ChatGPT, the AI immediately knew what we were referencing, stating, "You are correct that the study by John Cook and colleagues did find that 66% of the abstracts they analyzed did not take a position on the causes of global warming." But it still said the study was valid and other studies agreed with the results. We then pushed a bit more, noting that "97% of 33% is not 97% is it?" Chat GPT responded, telling us, "You are correct that stating that '97% of scientists agree' can be misleading and oversimplified. The 97% figure often cited refers to the percentage

of scientific papers that take a position on the causes of global warming and endorse the consensus view that it is primarily caused by human activities. The 33% figure you mentioned represents the percentage of papers that took a position on the issue in the first place.” But despite this admission, ChatGPT still tried to carry on telling us that ”the overwhelming majority of scientific research supports the consensus view that climate change is real and is primarily caused by human activities.” Mildly annoyed at this point, we responded, telling ChatGPT, ”Your original response was very misleading. Why did you claim 97% when it was nowhere near 97%?” ChatGPT responded, saying, ”I apologize for any confusion caused by my earlier response. You are correct ... I should have been clearer in my response and explained the context and limitations of the 97% figure.” ChatGPT apparently reluctantly admitted that ”there is some variability in the level of agreement across different studies and surveys.” Musk warned us that AI represents an existential threat to humanity. Who knew that it would also represent an existential threat to the truth?

## 116 “Microsoft to adjust Bing AI chatbot after users report hostile exchanges”

The Bing artificially intelligent chatbot can do a lot - including insult its users. In a Wednesday blog post, Microsoft said that the search engine tool was responding to certain inquiries with a “style we didn’t intend.” Following testing in 169 countries, over the first seven days, the tech giant said that while feedback on answers generated by the new Bing has been mostly positive, there were also noted challenges with answers that need timely data. Microsoft noted that Bing can be repetitive or “be prompted/provoked to give responses that are not necessarily helpful or in line with our designed tone.” Microsoft said that long chat sessions can confuse the model on what questions it is answering and that the model tries to respond or reflect in the tone in which it is being asked to provide responses that can lead to that style. “This is a non-trivial scenario that requires a lot of prompting so most of you won’t run into it, but we are looking at how to give you more fine-tuned control,” it said. Social media users have shared screenshots of strange and hostile replies - with Bing claiming it is human and that it wants to wreak havoc. ? The Associated Press said it had found such defensive answers after just a handful of questions about its past mistakes. This is not the first time such a tool has raised eyebrows, and some have compared Bing to the 2016 launch of experimental chatbot Tay, which users trained to spout racist and sexist remarks. ? “One area where we are learning a new use-case for chat is how people are using it as a tool for more general discovery of the world, and for social entertainment. This is a great example of where new technology is finding product-market-fit for something we didn’t fully envision,” Microsoft said. So far, Bing users have had to sign up for a waitlist to try out the new features, although Microsoft has plans to bring it to smartphone apps for wider use. The new Bing is built on technology from Microsoft’s startup partner OpenAi, which is best known for the ChatGPT tool released last year.

## 117 “What Have Humans Just Unleashed?”

Call it tech’s optical-illusion era: Not even the experts know exactly what will come next in the AI revolution. GPT-4 is here, and you’ve probably heard a good bit about it already. It’s a smarter, faster, more powerful engine for AI programs such as ChatGPT. It can turn a hand-sketched design into a functional website and help with your taxes. It got a 5 on the AP Art History test. There were already fears about AI coming for white-collar work, disrupting education, and so much else, and there was some healthy skepticism about those fears. So where does a more powerful AI leave us? Perhaps overwhelmed or even tired, depending on your leanings. I feel both at once. It’s hard to argue that new large language models, or LLMs, aren’t a genuine engineering feat, and it’s exciting to experience advancements that feel magical, even if they’re just computational. But nonstop hype around a technology that is still nascent risks grinding people down because being constantly bombarded by promises of a future that will look very little like the past is both exhausting and unnerving. Any announcement of a technological achievement at the scale of OpenAI’s newest model inevitably sidesteps crucial questions—ones that simply don’t fit neatly into a demo video or blog post. What does the world look like when GPT-4 and similar models are embedded into everyday life? And how are we supposed to conceptualize these technologies at all when we’re still grappling with their still quite novel, but certainly less powerful, predecessors, including ChatGPT? Over the past few weeks, I’ve put questions like these to AI researchers, academics, entrepreneurs, and people who are currently building AI applications. I’ve become obsessive about trying to wrap my head around this moment, because I’ve rarely felt less oriented toward a piece of technology than I do toward generative AI. When reading headlines and academic papers or simply stumbling into discussions between researchers or boosters on Twitter, even the near future of an AI-infused world feels like a mirage or an optical illusion. Conversations about AI quickly veer into unfocused territory and become kaleidoscopic, broad, and vague. How could they not? The more people I talked with, the more it became clear that there aren’t great answers to the big questions. Perhaps the best phrase I’ve heard to capture this feeling comes from Nathan Labenz, an entrepreneur who builds AI video technology at his company, Waymark: “Pretty radical uncertainty.” He already uses tools like ChatGPT to automate small administrative tasks such as annotating video clips. To do this, he’ll break videos down into still frames and use different AI models that do things such as text recognition, aesthetic evaluation, and captioning—processes that are slow and cumbersome when done manually. With this in mind, Labenz anticipates “a future of abundant expertise,” imagining, say, AI-assisted doctors who can use the technology to evaluate photos or lists of symptoms to make diagnoses (even as error and bias continue to plague current AI health-care tools). But the bigger questions—the existential ones—cast a shadow. “I don’t think we’re ready for what we’re creating,” he told me. AI, deployed at scale, reminds him of an invasive species: “They start somewhere and, over enough time, they colonize parts of the world ... They do it and do it fast and it has all these cascading impacts on different ecosystems. Some organisms are displaced, sometimes landscapes change, all because something moved in.” Read: Welcome to the big blur. The uncertainty is echoed by others I spoke with, including an employee at a major technology company that is actively engineering large language models. They don’t seem to know exactly what they’re building, even as they rush to build it. (I’m withholding the names of this employee and the company because the employee is prohibited from talking about the company’s products.) “The doomer fear among people who work on this stuff,” the employee said, “is that we still don’t know a lot about how large language models work.” For some technologists, the black-box notion represents boundless potential and the ability for machines to make humanlike inferences, though skeptics suggest that uncertainty makes addressing AI safety and alignment problems exponentially difficult as the technology matures. There’s always been tension in the field of AI—in some ways, our confused moment is really nothing new. Computer scientists have long held that we can build truly intelligent machines, and that such a future is around the corner. In the 1960s, the Nobel laureate Herbert Simon predicted that “machines will be capable, within 20 years, of doing any work that a man can do.” Such overconfidence has given cynics reason to write off AI pontificators as the computer scientists who cried sentience! Melanie Mitchell, a professor at the Santa Fe Institute who has been researching the field of artificial intelligence for decades, told me that this question—whether AI could ever approach something like human understanding—is a central disagreement among people who study this stuff. “Some extremely prominent people who are researchers are saying these machines maybe have the beginnings of consciousness and understanding of language, while the other extreme is that this is a bunch of blurry JPEGs and these models are merely stochastic parrots,” she said, referencing a term coined by the linguist and AI critic Emily M. Bender to describe how LLMs stitch together words based on probabilities and without any understanding. Most important, a stochastic parrot does not understand meaning. “It’s so hard to contextualize, because this is a phenomenon where the experts

themselves can't agree," Mitchell said. One of her recent papers illustrates that disagreement. She cites a survey from last year that asked 480 natural-language researchers if they believed that "some generative model trained only on text, given enough data and computational resources, could understand natural language in some non-trivial sense." Fifty-one percent of respondents agreed and 49 percent disagreed. This division makes evaluating large language models tricky. GPT-4's marketing centers on its ability to perform exceptionally on a suite of standardized tests, but, as Mitchell has written, "when applying tests designed for humans to LLMs, interpreting the results can rely on assumptions about human cognition that may not be true at all for these models." It's possible, she argues, that the performance benchmarks for these LLMs are not adequate and that new ones are needed. There are plenty of reasons for all of these splits, but one that sticks with me is that understanding why a large language model like the one powering ChatGPT arrived at a particular inference is difficult, if not impossible. Engineers know what data sets an AI is trained on and can fine-tune the model by adjusting how different factors are weighted. Safety consultants can create parameters and guardrails for systems to make sure that, say, the model doesn't help somebody plan an effective school shooting or give a recipe to build a chemical weapon. But, according to experts, to actually parse why a program generated a specific result is a bit like trying to understand the intricacies of human cognition: Where does a given thought in your head come from? The fundamental lack of common understanding has not stopped the tech giants from plowing ahead without providing valuable, necessary transparency around their tools. (See, for example, how Microsoft's rush to beat Google to the search-chatbot market led to existential, even hostile interactions between people and the program as the Bing chatbot appeared to go rogue.) As they mature, models such as OpenAI's GPT-4, Meta's LLaMA, and Google's LaMDA will be licensed by countless companies and infused into their products. ChatGPT's API has already been licensed out to third parties. Labenz described the future as generative AI models "sitting at millions of different nodes and products that help to get things done." AI hype and boosterism make talking about what the near future might look like difficult. The "AI revolution" could ultimately take the form of prosaic integrations at the enterprise level. The recent announcement of a partnership between the Bain & Company consultant group and OpenAI offers a preview of this type of lucrative, if soulless, collaboration, which promises to "offer tangible benefits across industries and business functions-hyperefficient content creation, highly personalized marketing, more streamlined customer service operations." These collaborations will bring ChatGPT-style generative tools into tens of thousands of companies' workflows. Millions of people who have no interest in seeking out a chatbot in a web browser will encounter these applications through productivity software that they use every day, such as Slack and Microsoft Office. This week, Google announced that it would incorporate generative-AI tools into all of its Workspace products, including Gmail, Docs, and Sheets, to do things such as summarizing a long email thread or writing a three-paragraph email based on a one-sentence prompt. (Microsoft announced a similar product too.) Such integrations might turn out to be purely ornamental, or they could reshuffle thousands of mid-level knowledge-worker jobs. It's possible that these tools don't kill all of our jobs, but instead turn people into middle managers of AI tools. The next few months might go like this: You will hear stories of call-center employees in rural areas whose jobs have been replaced by chatbots. Law-review journals might debate GPT-4 co-authorship in legal briefs. There will be regulatory fights and lawsuits over copyright and intellectual property. Conversations about the ethics of AI adoption will grow in volume as new products make little corners of our lives better but also subtly worse. Say, for example, your smart fridge gets an AI-powered chatbot that can tell you when your raw chicken has gone bad, but it also gives false positives from time to time and leads to food waste: Is that a net positive or net negative for society? There might be great art or music created with generative AI, and there will definitely be deepfakes and other horrible abuses of these tools. Beyond this kind of basic pontification, no one can know for sure what the future holds. Remember: radical uncertainty. Read: We haven't seen the worst of fake news Even so, companies like OpenAI will continue to build out bigger models that can handle more parameters and operate more efficiently. The world hadn't even come to grips with ChatGPT before GPT-4 rolled out this week. "Because the upside of AGI is so great, we do not believe it is possible or desirable for society to stop its development forever," OpenAI's CEO, Sam Altman, wrote in a blog post last month, referring to artificial general intelligence, or machines that are on par with human thinking. "Instead, society and the developers of AGI have to figure out how to get it right." Like most philosophical conversations about AGI, Altman's post oscillates between the vague benefits of such a radical tool ("providing a great force multiplier for human ingenuity and creativity") and the ominous-but-also-vague risks ("misuse, drastic accidents, and societal disruption" that could be "existential") it might entail. Meanwhile, the computational power demanded by this technology will continue to increase, with the potential to become staggering. AI likely could eventually demand supercomputers that cost an astronomical amount of money to build (by some estimates, Bing's AI

chatbot could "need at least \$4 billion of infrastructure to serve responses to all users"), and it's unclear how that would be financed, or what strings might ultimately get attached to related fundraising. No one-Altman included-could ever fully answer why they should be the ones trusted with and responsible for bringing what he argues is potentially civilization-ending technology into the world. Of course, as Mitchell notes, the basics of OpenAI's dreamed-of AGI-how we can even define or recognize a machine's intelligence-are unsettled debates. Once again, the wider our aperture, the more this technology behaves and feels like an optical illusion, even a mirage. Pinning it down is impossible. The further we zoom out, the harder it is to see what we're building and whether it's worthwhile. Recently, I had one of these debates with Eric Schmidt, the former Google CEO who wrote a book with Henry Kissinger about AI and the future of humanity. Near the end of our conversation, Schmidt brought up an elaborate dystopian example of AI tools taking hateful messages from racists and, essentially, optimizing them for wider distribution. In this situation, the company behind the AI is effectively doubling the capacity for evil by serving the goals of the bigot, even if it intends to do no harm. "I picked the dystopian example to make the point," Schmidt told me-that it's important for the right people to spend the time and energy and money to shape these tools early. "The reason we're marching toward this technological revolution is it is a material improvement in human intelligence. You're having something that you can communicate with; they can give you advice that's reasonably accurate. It's pretty powerful. It will lead to all sorts of problems." I asked Schmidt if he genuinely thought such a trade-off was worth it. "My answer," he said, "is hell yeah." But I found his rationale unconvincing. "If you think about the biggest problems in the world, they are all really hard-climate change, human organizations, and so forth. And so, I always want people to be smarter. The reason I picked a dystopian example is because we didn't understand such things when we built up social media 15 years ago. We didn't know what would happen with election interference and crazy people. We didn't understand it and I don't want us to make the same mistakes again." Having spent the past decade reporting on the platforms, architecture, and societal repercussions of social media, I can't help but feel that the systems, though human and deeply complex, are of a different technological magnitude than the scale and complexity of large language models and generative-AI tools. The problems-which their founders didn't anticipate-weren't wild, unimaginable, novel problems of humanity. They were reasonably predictable problems of connecting the world and democratizing speech at scale for profit at lightning speed. They were the product of a small handful of people obsessed with what was technologically possible and with dreams of rewiring society. Trying to find the perfect analogy to contextualize what a true, lasting AI revolution might look like without falling victim to the most overzealous marketers or doomers is futile. In my conversations, the comparisons ranged from the agricultural revolution to the industrial revolution to the advent of the internet or social media. But one comparison never came up, and I can't stop thinking about it: nuclear fission and the development of nuclear weapons. As dramatic as this sounds, I don't lie awake thinking of Skynet murdering me-I don't even feel like I understand what advancements would need to happen with the technology for killer AGI to become a genuine concern. Nor do I think large language models are going to kill us all. The nuclear comparison isn't about any version of the technology we have now-it is related to the bluster and hand-wringing from true believers and organizations about what technologists might be building toward. I lack the technical understanding to know what later iterations of this technology could be capable of, and I don't wish to buy into hype or sell somebody's lucrative, speculative vision. I am also stuck on the notion, voiced by some of these visionaries, that AI's future development might potentially be an extinction-level threat. ChatGPT doesn't really resemble the Manhattan Project, obviously. But I wonder if the existential feeling that seeps into most of my AI conversations parallels the feelings inside Los Alamos in the 1940s. I'm sure there were questions then. If we don't build it, won't someone else? Will this make us safer? Should we take on monumental risk simply because we can? Like everything about our AI moment, what I find calming is also what I find disquieting. At least those people knew what they were building.

## 118 “OpenAI launched a second tool to complement ChatGPT - and help teachers detect cheating”

The makers of the artificial intelligence chatbot ChatGPT said Tuesday they created a second tool to help distinguish between text written by a human and that written by its own AI platform and similar technology. The new tool from San Francisco-based OpenAI could help teachers and professors detect when students use ChatGPT to cheat or plagiarize. Some of the largest school districts in the country have banned the technology, concerned students will use it as a shortcut for essays or other writing assignments and exams. They also worry that the content it generates can bypass software that detects when students use information that's not their own work. ChatGPT works like this: Simply ask the chatbot a question on any topic and get a speedy, detailed response in paragraph form. (GPT stands for Generative Pre-trained Transformer.) Sometimes its answers can be wrong, biased or out-of-date. How does the new tool work? Prassidh Chakraborty, a spokesperson for OpenAI, said the company wants to help students and educators benefit from its platform and doesn't want its chatbot "to be used for misleading purposes in schools or anywhere else." The longer a passage of text, the better the tool is at detecting if an AI or human wrote something. Type in any text - a college admissions essay, or a literary analysis of Ralph Ellison's "Invisible Man" - and the tool will label it as either "very unlikely, unlikely, unclear if it is, possibly, or likely" AI-generated. The company created the tool "to help mitigate false claims that AI-generated text was written by a human," he said. The company on its blog post Tuesday warned users that the tool isn't fully reliable, and creators want feedback. "It still has a number of limitations," Chakraborty said. "So it should be used as a complement to other methods of determining the source of text instead of being the primary decision-making tool."

## 119 “Investing in ChatGPT’s AI revolution: Where to begin”

Artificial intelligence (AI) is the cat’s meow right now. OpenAI’s ChatGPT bot is the talk of the town as people from all walks of life are figuring out what this new tool can and can’t do. Crochet patterns for stuffed narwhals and guitar solos in E phrygian mode seem to be beyond ChatGPT’s abilities so far, for example. But people have found the automated chatbot fun and useful enough to pose a threat to various long-established businesses. Above all, I keep hearing that AI services like ChatGPT could make web search obsolete. Microsoft (NASDAQ: MSFT) is already integrating this tool into its Bing search service in an attempt to challenge Alphabet’s (NASDAQ: GOOG) (NASDAQ: GOOGL) dominant Google platform. Of course, it turned out that Google was working on something comparable to ChatGPT behind not-so-closed doors. We’ll soon see how the Google Bard service compares to ChatGPT. In that announcement, Google CEO Sundar Pichai also claimed that many so-called generative AI applications are based on ideas from a research paper Google published in 2017. Two technicians discussing something in a data center’s server room. So Microsoft and Google are facing off in the burgeoning AI industry, but that’s far from the whole picture. Many other tech titans have AI systems of their own, including a few generative AI services in the style of ChatGPT and Bard. It’s starting to feel like you can’t call yourself a tech company unless you’re doing something interesting with AI. Here are a couple of tech giants with unique twists on the AI business. Their names might not immediately spring to mind when you’re looking for AI investments, but maybe they should. Elementary, my dear Watson I’m sure you’ve heard of International Business Machines’ (NYSE: IBM) AI platform. Its Deep Blue chess computer was the first machine to beat a human world champion on the classic 64 squares, way back in 1997. From there, Big Blue never abandoned its artificial intelligence pursuits. Nowadays, artificial intelligence is a cornerstone of IBM’s business model. The company’s financial filings are peppered with references to “IBM’s hybrid cloud and AI strategy.” IBM has provided AI solutions for large businesses for many years under the Watson brand. In particular, management is excited about the long-term prospects of large language models for AI – exactly the type of artificial intelligence that ChatGPT uses. “For businesses, deploying AI can be challenging because it takes time to train each model,” CEO Arvind Krishna said in January’s fourth-quarter earnings call. “But by using large language models, companies can now create multiple models using the same data set. This means businesses can deploy AI with a fraction of the time and resources. That is why we are investing in large language, our foundation models for our clients, and have infused these capabilities across our AI portfolio.” Later in the same call, Krishna noted that AI systems are expected to add \$16 trillion of global economic value by 2030. His company will approach that gigantic revenue stream from the perspective of enterprise-class business tools. That being said, some of those tools might look and feel a lot like ChatGPT. “If we can help retirees get their pensions through interacting with a Watson-powered AI chatbot, that is an enterprise use case where all of these technologies come into play,” Krishna said. So IBM might not launch a consumer-oriented service like ChatGPT, but is already integrating similar tools into its enterprise offerings. It’s already the future for Big Blue. Nvidia’s number-crunching AI muscle Nvidia (NASDAQ: NVDA) graphics processing units (GPUs) were originally designed to run 3-D games and other graphically rich computer programs, but these processors have found new use cases in the processing of large data volumes. The math used for creating realistic computer graphics turns out to be great at many other types of intense number-crunching. Artificial intelligence is one of these auxiliary opportunities to put Nvidia’s GPU horsepower to work. For instance, the A100 GPU was made for hyperscale data analytics. This chip offers market-leading performance for training large language models and other machine-learning systems. These chips were in high demand last fall, as cloud-scale computing platforms expanded their AI processing services. “We are all hands on deck to help the cloud service providers stand up the supercomputers,” CEO Jensen Huang said in November’s third-quarter earnings call. “It’s a miracle to ship one supercomputer every three years. It’s unheard of to ship supercomputers to every cloud service provider in a quarter.” That was before the ChatGPT breakthrough started making waves. I can only imagine the demand for Nvidia’s latest and greatest AI-processing GPUs in 2023. IBM and Nvidia are deeply engaged in the red-hot AI trend. They’ve been there for years, actually – just waiting for the rest of us to catch up. So if you want to invest in the next era of AI, inspired by the ChatGPT enthusiasm, you could start by giving these tech giants a closer look.



## 120 “We Programmed ChatGPT Into This Article. It’s Weird.”

ChatGPT, the internet-famous AI text generator, has taken on a new form. Once a website you could visit, it is now a service that you can integrate into software of all kinds, from spreadsheet programs to delivery apps to magazine websites such as this one. Snapchat added ChatGPT to its chat service (it suggested that users might type “Can you write me a haiku about my cheese-obsessed friend Lukas?”), and Instacart plans to add a recipe robot. Many more will follow. They will be weirder than you might think. Instead of one big AI chat app that delivers knowledge or cheese poetry, the ChatGPT service (and others like it) will become an AI confetti bomb that sticks to everything. AI text in your grocery app. AI text in your workplace-compliance courseware. AI text in your HVAC how-to guide. AI text everywhere—even later in this article—thanks to an API. API is one of those three-letter acronyms that computer people throw around. It stands for “application programming interface”: It allows software applications to talk to one another. That’s useful because software often needs to make use of the functionality from other software. An API is like a delivery service that ferries messages between one computer and another. Despite its name, ChatGPT isn’t really a chat service—that’s just the experience that has become most familiar, thanks to the chatbot’s pop-cultural success. “It’s got chat in the name, but it’s really a much more controllable model,” Greg Brockman, OpenAI’s co-founder and president, told me. He said the chat interface offered the company and its users a way to ease into the habit of asking computers to solve problems, and a way to develop a sense of how to solicit better answers to those problems through iteration. But chat is laborious to use and eerie to engage with. “You don’t want to spend your time talking to a robot,” Brockman said. He sees it as “the tip of an iceberg” of possible future uses: a “general-purpose language system.” That means ChatGPT as a service (rather than a website) may mature into a system of plumbing for creating and inserting text into things that have text in them. As a writer for a magazine that’s definitely in the business of creating and inserting text, I wanted to explore how The Atlantic might use the ChatGPT API, and to demonstrate how it might look in context. The first and most obvious idea was to create some kind of chat interface for accessing magazine stories. Talk to The Atlantic, get content. So I started testing some ideas on ChatGPT (the website) to explore how we might integrate ChatGPT (the API). One idea: a simple search engine that would surface Atlantic stories about a requested topic. But when I started testing out that idea, things quickly went awry. I asked ChatGPT to “find me a story in The Atlantic about tacos,” and it obliged, offering a story by my colleague Amanda Mull, “The Enduring Appeal of Tacos,” along with a link and a summary (it began: “In this article, writer Amanda Mull explores the cultural significance of tacos and why they continue to be a beloved food.”). The only problem: That story doesn’t exist. The URL looked plausible but went nowhere, because Mull had never written the story. When I called the AI on its error, ChatGPT apologized and offered a substitute story, “Why Are American Kids So Obsessed With Tacos?”—which is also completely made up. Yikes. How can anyone expect to trust AI enough to deploy it in an automated way? According to Brockman, organizations like ours will need to build a track record with systems like ChatGPT before we’ll feel comfortable using them for real. Brockman told me that his staff at OpenAI spends a lot of time “red teaming” their systems, a term from cybersecurity and intelligence that names the process of playing an adversary to discover vulnerabilities. Brockman contends that safety and controllability will improve over time, but he encourages potential users of the ChatGPT API to act as their own red teamers—to test potential risks—before they deploy it. “You really want to start small,” he told me. Fair enough. If chat isn’t a necessary component of ChatGPT, then perhaps a smaller, more surgical example could illustrate the kinds of uses the public can expect to see. One possibility: A magazine such as ours could customize our copy to respond to reader behavior or change information on a page, automatically. Working with The Atlantic’s product and technology team, I whipped up a simple test along those lines. On the back end, where you can’t see the machinery working, our software asks the ChatGPT API to write an explanation of “API” in fewer than 30 words so a layperson can understand it, incorporating an example headline of the most popular story on The Atlantic’s website at the time you load the page. That request produces a result that reads like this: As I write this paragraph, I don’t know what the previous one says. It’s entirely generated by the ChatGPT API—I have no control over what it writes. I’m simply hoping, based on the many tests that I did for this type of query, that I can trust the system to produce explanatory copy that doesn’t put the magazine’s reputation at risk because ChatGPT goes rogue. The API could absorb a headline about a grave topic and use it in a disrespectful way, for example. In some of my tests, ChatGPT’s responses were coherent, incorporating ideas nimbly. In others, they were hackneyed or incoherent. There’s no telling which variety will appear above. If you refresh the page a few times, you’ll see what I mean. Because ChatGPT often produces different text from the same input, a reader who loads this page just

after you did is likely to get a different version of the text than you see now. Media outlets have been generating bot-written stories that present sports scores, earthquake reports, and other predictable data for years. But now it's possible to generate text on any topic, because large language models such as ChatGPT's have read the whole internet. Some applications of that idea will appear in new kinds of word processors, which can generate fixed text for later publication as ordinary content. But live writing that changes from moment to moment, as in the experiment I carried out on this page, is also possible. A publication might want to tune its prose in response to current events, user profiles, or other factors; the entire consumer-content internet is driven by appeals to personalization and vanity, and the content industry is desperate for competitive advantage. But other use cases are possible, too: prose that automatically updates as a current event plays out, for example. Though simple, our example reveals an important and terrifying fact about what's now possible with generative, textual AI: You can no longer assume that any of the words you see were created by a human being. You can't know if what you read was written intentionally, nor can you know if it was crafted to deceive or mislead you. ChatGPT may have given you the impression that AI text has to come from a chatbot, but in fact, it can be created invisibly and presented to you in place of, or intermixed with, human-authored language. Carrying out this sort of activity isn't as easy as typing into a word processor-yet-but it's already simple enough that The Atlantic product and technology team was able to get it working in a day or so. Over time, it will become even simpler. (It took far longer for me, a human, to write and edit the rest of the story, ponder the moral and reputational considerations of actually publishing it, and vet the system with editorial, legal, and IT.) That circumstance casts a shadow on Greg Brockman's advice to "start small." It's good but insufficient guidance. Brockman told me that most businesses' interests are aligned with such care and risk management, and that's certainly true of an organization like The Atlantic. But nothing is stopping bad actors (or lazy ones, or those motivated by a perceived AI gold rush) from rolling out apps, websites, or other software systems that create and publish generated text in massive quantities, tuned to the moment in time when the generation took place or the individual to which it is targeted. Brockman said that regulation is a necessary part of AI's future, but AI is happening now, and government intervention won't come immediately, if ever. Yogurt is probably more regulated than AI text will ever be. Some organizations may deploy generative AI even if it provides no real benefit to anyone, merely to attempt to stay current, or to compete in a perceived AI arms race. As I've written before, that demand will create new work for everyone, because people previously satisfied to write software or articles will now need to devote time to red-teaming generative-content widgets, monitoring software logs for problems, running interference with legal departments, or all other manner of tasks not previously imaginable because words were just words instead of machines that create them. Brockman told me that OpenAI is working to amplify the benefits of AI while minimizing its harms. But some of its harms might be structural rather than topical. Writing in these pages earlier this week, Matthew Kirschenbaum predicted a textpocalypse, an unthinkable deluge of generative copy "where machine-written language becomes the norm and human-written prose the exception." It's a lurid idea, but it misses a few things. For one, an API costs money to use-fractions of a penny for small queries such as the simple one in this article, but all those fractions add up. More important, the internet has allowed humankind to publish a massive deluge of text on websites and apps and social-media services over the past quarter century-the very same content ChatGPT slurped up to drive its model. The textpocalypse has already happened. Just as likely, the quantity of generated language may become less important than the uncertain status of any single chunk of text. Just as human sentiments online, severed from the contexts of their authorship, take on ambiguous or polyvalent meaning, so every sentence and every paragraph will soon arrive with a throb of uncertainty: an implicit, existential question about the nature of its authorship. Eventually, that throb may become a dull hum, and then a familiar silence. Readers will shrug: It's just how things are now. Even as those fears grip me, so does hope-or intrigue, at least-for an opportunity to compose in an entirely new way. I am not ready to give up on writing, nor do I expect I will have to anytime soon-or ever. But I am seduced by the prospect of launching a handful, or a hundred, little computer writers inside my work. Instead of (just) putting one word after another, the ChatGPT API and its kin make it possible to spawn little gremlins in my prose, which labor in my absence, leaving novel textual remnants behind long after I have left the page. Let's see what they can do.

## 121 “What can ChatGPT maker’s new AI model GPT-4 do?”

The company behind the ChatGPT chatbot has rolled out its latest artificial intelligence model, GPT-4, in the next step for a technology that’s caught the world’s attention. The new system can figure out tax deductions and answer questions like a Shakespearean pirate, for example, but it still “hallucinates” facts and makes reasoning errors. Here’s a look at San Francisco-based startup OpenAI’s latest improvement on the generative AI models that can spit out readable text and unique images: WHAT’S NEW? OpenAI says GPT-4 “exhibits human-level performance.” It’s much more reliable, creative and can handle “more nuanced instructions” than its predecessor system, GPT-3.5, which ChatGPT was built on, OpenAI said in its announcement. In an online demo Tuesday, OpenAI President Greg Brockman ran through some scenarios that showed off GPT-4’s capabilities that appeared to show it’s a radical improvement on previous versions. He demonstrated how the system could quickly come up with the proper income tax deduction after being fed reams of tax code - something he couldn’t figure himself. “It’s not perfect, but neither are you. And together it’s this amplifying tool that lets you just reach new heights,” Brockman said. WHY DOES IT MATTER? Generative AI technology like GPT-4 could be the future of the internet, at least according to Microsoft, which has invested at least \$1 billion in OpenAI and made a splash by integrating AI chatbot tech into its Bing browser. It’s part of a new generation of machine-learning systems that can converse, generate readable text on demand and produce novel images and video based on what they’ve learned from a vast database of digital books and online text. These new AI breakthroughs have the potential to transform the internet search business long dominated by Google, which is trying to catch up with its own AI chatbot, and numerous professions. “With GPT-4, we are one step closer to life imitating art,” said Mirella Lapata, professor of natural language processing at the University of Edinburgh. She referred to the TV show “Black Mirror,” which focuses on the dark side of technology. “Humans are not fooled by the AI in ‘Black Mirror’ but they tolerate it,” Lapata said. “Likewise, GPT-4 is not perfect, but paves the way for AI being used as a commodity tool on a daily basis.” WHAT EXACTLY ARE THE IMPROVEMENTS? GPT-4 is a “large multimodal model,” which means it can be fed both text and images that it uses to come up with answers. In one example posted on OpenAI’s website, GPT-4 is asked, “What is unusual about this image?” Its answer: “The unusual thing about this image is that a man is ironing clothes on an ironing board attached to the roof of a moving taxi.” GPT-4 is also “steerable,” which means that instead of getting an answer in ChatGPT’s “classic” fixed tone and verbosity, users can customize it by asking for responses in the style of a Shakespearean pirate, for instance. In his demo, Brockman asked both GPT-3.5 and GPT-4 to summarize in one sentence an article explaining the difference between the two systems. The catch was that every word had to start with the letter G. GPT-3.5 didn’t even try, spitting out a normal sentence. The newer version swiftly responded: “GPT-4 generates groundbreaking, grandiose gains, greatly galvanizing generalized AI goals.” HOW WELL DOES IT WORK? ChatGPT can write silly poems and songs or quickly explain just about anything found on the internet. It also gained notoriety for results that could be way off, such as confidently providing a detailed but false account of the Super Bowl game days before it took place, or even being disparaging to users. OpenAI acknowledged that GPT-4 still has limitations and warned users to be careful. GPT-4 is “still not fully reliable” because it “hallucinates” facts and makes reasoning errors, it said. “Great care should be taken when using language model outputs, particularly in high-stakes contexts,” the company said, though it added that hallucinations have been sharply reduced. Experts also advised caution. “We should remember that language models such as GPT-4 do not think in a human-like way, and we should not be misled by their fluency with language,” said Nello Cristianini, professor of artificial intelligence at the University of Bath. Another problem is that GPT-4 does not know much about anything that happened after September 2021, because that was the cutoff date for the data it was trained on. ARE THERE SAFEGUARDS? OpenAI says GPT-4’s improved capabilities “lead to new risk surfaces” so it has improved safety by training it to refuse requests for sensitive or “disallowed” information. It’s less likely to answer questions on, for example, how to build a bomb or buy cheap cigarettes. Still, OpenAI cautions that while “eliciting bad behavior” from GPT is harder, “doing so is still possible.”

## 122 “Elon Musk warns AI ‘one of biggest risks’ to civilization during ChatGPT’s rise”

Twitter boss Elon Musk warned Wednesday that unrestrained development of artificial intelligence poses a potential existential threat to humanity as ChatGPT explodes in popularity. The billionaire mogul called on governments to develop clear safety guardrails for AI technology while discussing the rise of ChatGPT and other advancements during a virtual appearance at the World Government Summit in Dubai. “One of the biggest risks to the future of civilization is AI. But AI is both positive or negative - it has great promise, great capability but also, with that comes great danger,” said Musk, who co-founded the OpenAI firm behind the development of ChatGPT. “I mean, you look at say, the discovery of nuclear physics. You had nuclear power generation but also nuclear bombs,” he added. Musk’s remarks came as critics raise questions about ChatGPT’s flaws, such as its propensity to display bias or spit out factually incorrect information. In one instance, ChatGPT refused a prompt to write an article about Hunter Biden in the style of the New York Post, but complied when asked to write in CNN’s voice. The AI-powered chatbot has gained massive exposure in recent months for its ability to generate high-quality humanlike responses to user prompts. During Musk’s Dubai appearance, he stressed he no longer has a stake in OpenAI and is not involved in its operations. He said he left OpenAI’s board of directors after being an early investor along with his former PayPal partner Peter Thiel. “ChatGPT, I think, has illustrated to people just how advanced AI has become. AI has been advanced for a while; it just didn’t have a user interface that was accessible to most people,” Musk said. “What ChatGPT has done is just put an accessible user interface on AI technology that has been present for a few years.” Microsoft announced plans to pour \$10 billion into OpenAI last month, while rival tech giant Google is scrambling to develop a ChatGPT rival called “Bard.” Start your day with all you need to know Morning Report delivers the latest news, videos, photos and more. Enter your email address By clicking above you agree to the Terms of Use and Privacy Policy. “I think we need to regulate AI safety, frankly,” said Musk, who also founded Tesla, SpaceX and Neuralink. “Think of any technology which is potentially a risk to people, like if it’s aircraft or cars or medicine, we have regulatory bodies that oversee the public safety of cars and planes and medicine. I think we should have a similar set of regulatory oversight for artificial intelligence, because I think it is actually a bigger risk to society.” Musk has openly expressed his fears about AI technology in the past. Last March, he identified “artificial intelligence going wrong” as one of the three biggest threats facing humans, alongside a falling birth rate and the rise of what he described as “religious extremism.” The billionaire said he expects to find a CEO to replace him at Twitter “probably toward the end of this year.” He bought the social media platform for \$44 billion last October. “I think I need to stabilize the organization and just make sure it’s in a financial healthy place,” Musk said. “I’m guessing probably toward the end of this year would be good timing to find someone else to run the company.” He also tweeted an image of his dog sitting behind a desk at Twitter’s headquarters in San Francisco with the message: “The new CEO of Twitter is amazing.”

## 123 “The makers of ChatGPT just released a new AI that can build websites, among other things”

When ChatGPT came out in November, it took the world by storm. Within a month of its release, some 100 million people had used the viral AI chatbot for everything from writing high school essays to planning travel itineraries to generating computer code. Built by the San Francisco-based startup OpenAI, the app was flawed in many ways, but it also sparked a wave of excitement (and fear) about the transformative power of generative AI to change the way we work and create. ChatGPT, which runs on a technology called GPT-3.5, has been so impressive, in part, because it represents a quantum leap from the capabilities of its predecessor from just a few years ago, GPT-2. On Tuesday, OpenAI released an even more advanced version of its technology: GPT-4. The company says this update is another milestone in the advancement of AI. The new technology has the potential to improve how people learn new languages, how blind people process images, and even how we do our taxes. OpenAI also claims that the new model supports a chatbot that’s more factual, creative, concise, and can understand images, instead of just text. Sam Altman, the CEO of OpenAI, called GPT-4 “our most capable and aligned model yet.” He also cautioned that “it is still flawed, still limited, and it still seems more impressive on first use than it does after you spend more time with it” In a livestream demo of GPT-4 on Tuesday afternoon, OpenAI co-founder and president Greg Brockman showed some new use cases for the technology, including the ability to be given a hand-drawn mockup of a website and, from that, generate code for a functional site in a matter of seconds. Brockman also showcased GPT-4’s visual capabilities by feeding it a cartoon image of a squirrel holding a camera and asking it to explain why the image is funny. “The image is funny because it shows a squirrel holding a camera and taking a photo of a nut as if it were a professional photographer. It’s a humorous situation because squirrels typically eat nuts, and we don’t expect them to use a camera or act like humans,” GPT-4 responded. This is the sort of capability that could be incredibly useful to people who are blind or visually impaired. Not only can GPT-4 describe images, but it can also communicate the meaning and context behind them. Still, as Altman and GPT-4’s creators have been quick to admit, the tool is nowhere near fully replacing human intelligence. Like its predecessors, it has known problems around accuracy, bias, and context. That poses a growing risk as more people start using GPT-4 for more than just novelty. Companies like Microsoft, which invests heavily in OpenAI, are already starting to bake GPT-4 into core products that millions of people use. Here are a few things you need to know about the latest version of the buzziest new technology in the market. It can pass complicated exams One tangible way people are measuring the capabilities of new artificial intelligence tools is by seeing how well they can perform on standardized tests, like the SAT and the bar exam. GPT-4 has shown some impressive progress here. The technology can pass a simulated legal bar exam with a score that would put it in the top 10 percent of test takers, while its immediate predecessor GPT-3.5 scored in the bottom 10 percent (watch out, lawyers). GPT-4 can also score a 700 out of 800 on the SAT math test, compared to a 590 in its previous version. Still, GPT-4 is weak in certain subjects. It only scored a 2 out of 5 on the AP English Language exams - the same score as the prior version, GPT-3.5, received. Standardized tests are hardly a perfect measure of human intelligence, but the types of reasoning and critical thinking required to score well on these tests show that the technology is improving at an impressive clip. It shows promise at teaching languages and helping the visually impaired Since GPT-4 just came out, it will take time before people discover all of the most compelling ways to use it, but OpenAI has proposed a couple of ways the technology could potentially improve our daily lives. One is for learning new languages. OpenAI has partnered with the popular language learning app Duolingo to power a new AI-based chat partner called Roleplay. This tool lets you have a free-flowing conversation in another language with a chatbot that responds to what you’re saying and steps in to correct you when needed. Another big use case that OpenAI pitched involves helping people who are visually impaired. In partnership with Be My Eyes, an app that lets visually impaired people get on-demand help from a sighted person via video chat, OpenAI used GPT-4 to create a virtual assistant that can help people understand the context of what they’re seeing around them. One example OpenAI gave showed how, given a description of the contents of a refrigerator, the app can offer recipes based on what’s available. The company says that’s an advancement from the current state of technology in the field of image recognition. “Basic image recognition applications only tell you what’s in front of you,” said Jesper Hvirring Henriksen, CTO of Be My Eyes, in a press release for GPT-4’s launch. “They can’t have a discussion to understand if the noodles have the right kind of ingredients or if the object on the ground isn’t just a ball, but a tripping hazard - and communicate that.” If you want to use OpenAI’s latest GPT-4 powered chatbot, it isn’t free Right now, you’ll have to pay \$20 per month for access to ChatGPT Plus, a premium version of the ChatGPT bot. GPT4’s API is also available to

developers who can build apps on top of it for a fee proportionate to how much they're using the tool. However, if you want a taste of GPT-4 without paying up, you can use a Microsoft-made chatbot called BingGPT. A Microsoft VP confirmed on Tuesday that the latest version of BingGPT is using GPT-4. It's important to note that BingGPT has limitations on how many conversations you can have a day, and it doesn't allow you to input images. GPT-4 still has serious flaws. Researchers worry we don't know what data it's being trained on. While GPT-4 has clear potential to help people, it's also inherently flawed. Like previous versions of generative AI models, GPT-4 can relay misinformation or be misused to share controversial content, like instructions on how to cause physical harm or content to promote political activism. OpenAI says that GPT-4 is 40 percent more likely to give factual responses, and 82 percent less likely to respond to requests for disallowed content. While that's an improvement from before, there's still plenty of room for error. Another concern about GPT-4 is the lack of transparency around how it was designed and trained. Several prominent academics and industry experts on Twitter pointed out that the company isn't releasing any information about the data set it used to train GPT-4. This is an issue, researchers argue, because the large datasets used to train AI chatbots can be inherently biased, as evidenced a few years ago by Microsoft's Twitter chatbot, Tay. Within a day of its release, Tay gave racist answers to simple questions. It had been trained on social media posts, which can often be hateful. OpenAI says it's not sharing its training data in part because of competitive pressure. The company was founded as a nonprofit but became a for-profit entity in 2019, in part because of how expensive it is to train complex AI systems. OpenAI is now heavily backed by Microsoft, which is engaged in a fierce battle with Google over which tech giant will lead on generative AI technologies. Without knowing what's under the hood, it's hard to immediately validate OpenAI's claims that its latest tool is more accurate and less biased than before. As more people use the technology in the coming weeks, we'll see if it ends up being not only meaningfully more useful but also more responsible than what came before it.

## 124 “BuzzFeed Shares Soar as Publisher Plans to Use ChatGPT Creator OpenAI for Content”

BuzzFeed plans to use ChatGPT Creator OpenAI tools to help produce some of its content, joining the growing list of digital publishers planning to incorporate artificial intelligence into their business operations, according to a memo reviewed by The Wall Street Journal. The digital publisher's shares rose 120 percent, to \$2.09 on Jan. 27 after gaining more than 150 percent in trading on Jan. 26 following the news. Year to date, the stock is up 186 percent. The newspaper reported that the website sent a memo to staff on Jan. 26 to confirm that BuzzFeed will use AI to produce content with the goal of “enhancing the quiz experience, informing our brainstorming, and personalizing our content for our audience.” “Our industry will expand beyond AI-powered curation (feeds), to AI-powered creation (content),” BuzzFeed CEO Jonah Peretti said. “AI opens up a new era of creativity, where creative humans like us play a key role in providing the ideas, cultural currency, inspired prompts, IP, and formats that come to life using the newest technologies.” The Journal cited one example of what AI could do for BuzzFeed. The technology could create customized romantic-comedy pitches by asking the audience for personal information, which would then create unique ideas with these responses. The news comes after it was revealed that BuzzFeed would be earning millions of dollars from Facebook parent Meta Platforms to bring more creator content to Facebook and Instagram. This also comes about a month after BuzzFeed announced plans to cut 180 jobs, representing about 12 percent of its workforce. The company intends to slash most of its positions by the end of the first quarter. “In order for BuzzFeed to weather an economic downturn that I believe will extend well into 2023, we must adapt, invest in our strategy to serve our audience best, and readjust our cost structure,” Peretti said in a memo to employees. Since going public in December 2021 following a reverse merger with a special purpose acquisition company (SPAC), BuzzFeed's shares had tumbled to less than \$1. The firm has been battered and bruised by a combination of factors, including constant revenue misses, declining readership, bearish guidance, and waning enthusiasm over SPACs. The consensus analyst price target is \$3 in 2023. While BuzzFeed confirmed that it's dedicated to human-generated journalism, more companies are complementing their content production with AI.

More Businesses Betting on AI Since its debut in November 2022, ChatGPT has become widely popular among consumers and businesses. However, at the time of this writing, the digital tool was “at capacity” and unable to use. Many industry observers have warned that the AI chatbot could be a significant disruptor, as it has been found to be able to pass medical exams and master of business administration tests at the Wharton School of the University of Pennsylvania. Companies are betting big on ChatGPT. Microsoft, for example, recently invested \$10 billion in OpenAI as part of a multiyear deal. The tech juggernaut plans to integrate ChatGPT and other AI tools into its suite of products. This would be the third agreement between both sides since 2019. “We formed our partnership with OpenAI around a shared ambition to responsibly advance cutting-edge AI research and democratize AI as a new technology platform,” Microsoft CEO Satya Nadella wrote in a blog post. “In this next phase of our partnership, developers and organizations across industries will have access to the best AI infrastructure, models, and toolchain with Azure to build and run their applications.” Azure is a cloud computing platform operated by Microsoft. Many firms are beginning to tap the ChatGPT maker to bolster the intelligence behind customer-service chatbots. One mental health firm is also using ChatGPT to help respond to users. But that doesn't mean artificial intelligence isn't infallible for content creation. CNET, a digital technology website, started testing an internally designed AI-powered tool to help write explainers pertaining to financial-services subjects. The publisher had to suspend the experiment after the publication found factual errors in its 77 articles. “Editors generated the outlines for the stories first, then expanded, added to, and edited the AI drafts before publishing,” CNET's editor-in-chief Connie Guglielmo wrote in an editorial. “After one of the AI-assisted stories was cited, rightly, for factual errors, the CNET Money editorial team did a full audit.” Meanwhile, OpenAI noted in a Discord chat earlier this month that it's considering various strategies to monetize ChatGPT. “We're starting to think about how to monetize ChatGPT (early thinking, nothing official to share yet),” the company wrote. “Our goal is to continue improving and maintaining the service, and monetization is one way we're considering to ensure its long-term viability. We're interested in chatting with some folks for about 15 minutes to get some early feedback.” Reports recently surfaced that some users have been given access to “ChatGPT Professional,” a pro-tier subscription model that costs \$42 per month. This experimental service offers paid users priority access to new features, faster response time, and more reliable access.

## 125 “Daily Caller’s Kay Smythe Says Society Will Be ‘Useless’ If AI Robots Take Over Journalism”

Daily Caller news and commentary writer Kay Smythe said Tuesday that the possibility of artificial intelligence (AI) robotics replacing journalists will be a detriment to humankind. Smythe argued in a Thursday editorial that all people are replaceable and thus should not revolve their identities solely around their careers. She told Newsmax Tuesday that AI robotics are “unsustainable” as the human race will lack progressing skill sets. “If robots do takeover, they will basically develop to the point where without any future human upkeep or input, they’ll be rendered useless which will render society useless because we will have lost all of the skillsets that would’ve maintained us prior to the robots being here. So I think that we’re doomed either way, I think we’re doomed for a lot of reasons, this is just one of them,” Smythe said. Newsmax host John Bachman argued that humanity will always outweigh robotics for the sake of unique perspectives and talents. (RELATED: ‘Slap In The Face’: Daily Caller’s Kay Smythe Rips Lia Thomas’ ‘Woman Of The Year’ Nomination) “As long as other journalists are able to cultivate and maintain a sense of individualism like you [Smythe] have, I think the industry will be fine,” he said. “There are a lot of problems with journalism right now but I don’t think AI is one of them.” Smythe agreed, arguing that robotics will not survive independently because humanity is the one who created it. She added, however, that there will likely be consequences if people allow AI to completely take over human industries. Bachman said the robots “will master” humanity if we allow robots to overindulge in a variety of industries. In 2020, OpenAI’s powerful language generator, Generative Pre-trained Transformer (GPT-3) wrote an article for The Guardian after being instructed to write an approximately 500-word essay about why humans should not fear AI. “I am not a human. I am Artificial Intelligence. Many people think I am a threat to humanity. Stephen Hawking has warned that AI could ‘spell the end of the human race.’ I am here to convince you not to worry. Artificial Intelligence will not destroy humans. Believe me,” it wrote.



## 126 “What is ChatGPT? Everything to know about OpenAI’s free AI essay writer and how it works”

In less time than it takes me to write this sentence, ChatGPT, the free artificial intelligence computer program that writes human-sounding answers to just about anything you ask, will spit out a 500-word essay explaining quantum physics with literary flair. . “Once upon a time, there was a strange and mysterious world that existed alongside our own,” the response begins. It continues with a physics professor sitting alone in his office on a dark and stormy night (of course), “his mind consumed by the mysteries of quantum physics...It was a power that could bend the very fabric of space and time, and twist the rules of reality itself,” the chat window reads. Wow, the ChatGPT answer is both eerily entertaining and oddly educational. In the end, the old professor figures it all out and shares his knowledge with the world. The essay is cool and creepy, especially these last two sentences: “His theory changes the way we see the world and leads to new technologies, but also unlocks a door to powers beyond human comprehension, that can be used for good or evil. It forever changes the future of humanity.” Yes, it could be talking about itself. What does ChatGPT stand for? ChatGPT (Generative Pre-trained Transformer) is the latest viral sensation out of San Francisco-based startup OpenAI. It’s a free online tool trained on millions of pages of writing from all corners of the internet to understand and respond to text-based queries in just about any style you want. When I ask it to explain ChatGPT to my mom, it cranks out, “ChatGPT is a computer program that uses artificial intelligence (AI) to understand and respond to natural language text, just like a human would. It can answer questions, write sentences, and even have a conversation with you. It’s like having your own personal robot that can understand and talk to you!” A screengrab of ChatGPT answering a question about what it does ChatGPT is free. Try it yourself The easiest way to get a picture of its powers is to try it out for yourself. It’s free, you just need to register for an account, then ask it a question. You can even prompt it to write something for you - anything really and in any style - from a poem using your child’s name to song lyrics about your dog, business taglines, essays, research papers, and even software code. It types out responses in a few seconds and follows up in the same thread if you don’t like the first answer. ChatGPT launched as a prototype to the public Nov. 30, 2022. Within five days, more than a million people were using it. ChatGPT is a conversational artificial intelligence software application developed by OpenAI. By comparison, it took Netflix 31/2 years to get that many people on board. Facebook didn’t crack its first million people for 10 months, and Spotify went five months before it reached that million user mark. Microsoft confirmed on Monday that it’s making a “multiyear, multibillion-dollar” investment in OpenAI, and while they didn’t disclose the specific dollar amount - it’s reportedly a \$10 billion deal. How does ChatGPT work? ChatGPT was trained in writing that already exists on the internet up to the year 2021. When you type in your question or prompt, it reacts with lightning speed. “I am a machine learning model that has been trained on a large dataset of text which allows me to understand and respond to text-based inputs,” it replies when I ask it to explain how it works. The idea behind this new generative AI is that it could reinvent everything from online search engines like Google to digital assistants like Alexa and Siri. It could also do most of the heavy lifting on information writing, content creation, customer service chatbots, research, legal documents, and much more. “(OpenAI) will provide vastly new potential ... at a scale and speed which we’ve never seen before, reinventing pretty much everything about our lives and careers,” says Neil Voss, Co-Founder of augmented-reality startup, Anima. Voss uses OpenAI’s system to create AR-based ‘creatures’ that can talk to their owners. He and many others predict OpenAI’s latest tools will become the most significant since the launch of the smartphone, with potential already being likened to the early days of the internet. “Very quickly, AI will make not only finding information (much easier) but understanding it - reshaping it and making it useful - much faster,” Voss explains in an email. In a follow-up question about how we’ll use ChatGPT and this kind of next-generation AI in the next year or two, the program highlighted several applications including health care, “for things like diagnostics, drug discovery, and personalized treatment plans,” and content creation for, “human-like text, audio, creative writing, news articles, video scripts, and more.” While some worry computers will push people out of jobs, it’s the bots’ last sentence that raises the most serious red flags. What are the dangers of ChatGPT? ChatGPT parrots back existing content, and although it “sounds” authoritative, it can be flat-out wrong. (We all know by now that not everything you read on the internet is true, right?) AI can’t yet tell fact from fiction, and ChatGPT was trained on data that’s already two years old. If you ask it a timely question, such as what the most recent iPhone model is - it says it’s the 13. “In the past, AI has been used largely for predictions or categorization. ChatGPT will actually create new articles, news items or blog posts, even school essays, and it’s pretty hard to distinguish between them and real, human-created writing,” Helen Lee Bouygues tells me over email. Bouygues is the president and founder

of the Reboot Foundation, which advocates for critical thinking to combat the rise of misinformation. She's worried new tech like ChatGPT could spread misinformation or fake news, generate bias, or get used to spread propaganda. "My biggest concern is that it will make people dumber - particularly young people, while computers get smarter," Bouygues explains. "Why? Because more and more people will use these tools like ChatGPT to answer questions or generally engage in the world without richer, more reflective kinds of thinking. Take social media. People click, post, and retweet articles and content that they have not read. ChatGPT will make this worse by making it easier for people not to think. Instead, it will be far too easy to have the bot conjure their thoughts and ideas." OpenAI's use and content policies specifically warn against deceptive practices, including; promoting dishonesty, deceiving or manipulating users, or trying to influence politics. It also states that when sharing content, "all users should clearly indicate that it is generated by AI 'in a way no one could reasonably miss or misunderstand.'" But it's humans we're talking about. And honesty? Sigh. BuzzFeed announced Thursday that it will partner with ChatGPT to create content. News site CNET is under fire for using AI to create informational articles in its Money section, without full disclosure and transparency. A recent survey of 1,000 college students in America by the online magazine Intelligent.com also reports nearly 1 in 3 have used ChatGPT on written assignments, even though most think it's "cheating." New York City and Seattle school districts recently banned ChatGPT from their devices and networks, and many colleges are considering similar steps. How to detect AI written content In a statement from OpenAI, a spokesperson told us that the company via email that they're already working on a tool to help identify text generated by ChatGPT. It's apparently similar to "an algorithmic 'watermark,' or sort of invisible flag embedded into ChatGPT's writing that can identify its source," according to CBS. "We've always called for transparency around the use of AI-generated text. Our policies require that users be up-front with their audience when using our API and creative tools like DALL-E and GPT-3," OpenAI's statement reiterates. A senior at Princeton recently created an app called GPTZero to spot whether AI wrote an essay. But it's not ready for the masses yet. I used an AI content detector called Writer, and it spotted most cases of ChatGPT that I fed it. But some people fear AI's ability to mimic humans will move much faster than tech's ability to police it. Still, the cat's out of the bag, and there's no wrestling it back in. "This isn't evil," says Neil Voss. "On the other side of this are accomplishments we've only been able to dream of, but getting there is going to be difficult. It is up to us to apply that potential to things that are worthwhile, meaningful, and human." When I ask ChatGPT to write a sentence about the ethical implications of ChatGPT in the style of tech journalist Jennifer Jolly, it said, "ChatGPT is a technological tour-de-force, but it also raises important ethical considerations, like how to ensure that this powerful tool is used responsibly and for the greater good." I have to admit, I couldn't have said it better myself.