



Republic of the Philippines
CAMARINES SUR POLYTECHNIC COLLEGES
Nabua, Camarines Sur
COLLEGE of COMPUTER STUDIES



NAME : JUDAH PAULO LL. VIÑAS

COURSE : SCIENCE, TECHNOLOGY AND SOCIETY

PROGRAM & SECTION : BSIT-2F

INSTRUCTOR : MRS. MA. LUDILYN BERANGO-AGAPITO, MAED

Activity 1

TOP 10 SCIENTIFIC TECHNOLOGY CHALLENGES IN 2021

Instructions :

Research on the top 10 list of emerging ethical dilemmas and policy issues in science and technology for 2021 released by Dr. Jessica Baron in collaboration with the John J. Reilly center science, technology and values at the University of Notre Dame.

For the ninth consecutive year, **Dr. Jessica Baron**, in collaboration with the John J. Reilly Center for Science, Technology and Values at the University of Notre Dame, has released the annual list of emerging ethical dilemmas and policy issues in science and technology for 2021.

The thought-provoking list, which is released annually in mid-December, is intended to ramp up dialogue among citizens and scientists alike. Unsurprisingly, this year's list is a heavy reflection of challenges and technology that advanced—more quickly than normal—due to COVID-19.

“Our hope is that in reading the list, people will take the time to think about the steps involved in integrating new technology into society, as well as keeping public policy in pace with new developments,” Baron writes on her site.

Here is Baron's 2021 Top Tech 10 (presented in no particular order). Click on each link for more information from Baron, as well as further reading links from previous news coverage.

1. Battle for the Arctic

Starting wars over land use and claim is a tale as old as time. Baron argues the uncertainties regarding Arctic land set the stage for a possible war. Formerly thick, unbreakable ice, climate change has reduced the Arctic to retreating glaciers and melting ice. There is still no land, but there's now more water for ships to move—and drill for oil. The U.S., Canada, Denmark, Finland, Iceland, Norway, Russia, and Sweden all have a physical stake in the 3-million-square-mile region, and while it's governed by international law, there's nothing that says countries must obey that law. “The race to create new technologies to explore commercial gains in the Arctic should never fall out of the news cycle. Decisions made in one country about what to employ in the region could affect the entire world. Furthermore, technology once used for biological and geological research can easily become co-opted for military and commercial gain. This dual-use dilemma is something researchers may not have previously considered,” Baron writes.

2. Your Digital Twin

Have you ever wished you were a twin? Your mother may not have been able to make that happen, but a binary code can. A digital twin is a virtual copy of you that can be analyzed without your presence. Combined with personalized medicine, a digital twin is a gigantic step forward for human health. For example, an analysis of your digital twin could predict weeks or months in advance if you're heading for a heart attack. Of course, it can also do the opposite: unauthorized and unethical experiments could be performed on your twin without your knowledge—and anything with a binary code is open to hacking.



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3. MIT's Version of "Inception"

This year, MIT researchers debuted Dormio, a sleep-tracking device that can alter dreams by tracking hypnagogia and then delivering audio cues based on incoming physiological data, at precise times in the sleep cycle, to make dream direction possible. For example, before sleeping, you choose a theme like "rabbits," and then, once you begin sleeping, sounds associated with this theme are used to a) remind you of the theme at targeted times and b) suspend you in early sleep stages, so you can still hear the sound even as you dream. According to the researchers, upon awakening, a person's guided dream content can be used to complete tasks such as creative story writing, and compared experimentally to waking thought content. But what if a person's dream is something illegal, even deadly? And what if someone nefarious got ahold of your Dormio? Hello nightmares and possible psychological trauma.

4. Robot Abuse

Do you say sorry to inanimate objects if you run into them? Some people do, more out of reflex than anything. But what if the object was a robot that could walk and talk and, overall, act like a human? You would think most people would definitely be nice to it then, but it turns out "robot abuse" is a common thing. Humans all over the world have been caught mercilessly harming robots "for fun." Then again, does it matter if we hurt a robot since it's not a living thing? Baron poses a series of questions that we may not have the answers to right now, but raise some incredibly interesting points for the future: "Should there be rules, or even laws protecting [robots] from deliberate harm? If we abuse them, what does that say about us? And will allowing people to abuse robots lead to more aggression, perhaps against humans or animals? But perhaps the most important question is: is it truly immoral to mistreat a robot?"

5. "Stalkerware" Apps

Reports of domestic abuse and family violence have increased around the world since social isolation and quarantine measures came to be. Some states in the U.S. have reported an increase in domestic abuse incidents by more than 40%. As victims are resigned to stay in place with their abusers, "stalkerware" surveillance apps have made matters worse. Stalkerware apps, which relay private information including location, photos, audio, browser and messaging history, are easy to install on someone's phone—and they hide in plain sight. It's difficult enough for victims to escape their abusers, only to find out they are still being tracked by their phone, which is often considered a lifeline.

6. The Data Void Left by Search Engines

It's rare for a search engine to spit out a small amount of information when you search for something, but it can happen. When there is little to no relevant information on a specific topic, it's called a "data void." A data void by itself is not negative; the problem occurs when humans step in. Once people find and/or predict a data void, they create webpages and resources to exploit the void, redirecting searches to sites with anything from ads and viruses to conspiracy theories and misinformation. You can't believe everything you read on the internet, and yet, a lot of people do. "Once it's on the Internet, it becomes fodder for everyone from talk radio hosts to angry people who spend all day on social media sharing stories and videos that reinforce their view of the world," Baron said.



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7. Telemedicine—For Some

If you had a telemedicine appointment with your doctor during COVID-19, you are in good company. Before the pandemic, only 1% of medical appointments were done virtually. At the height of COVID-19, more than 50% of appointments were telemedicine. While that number is expected to decrease as the pandemic slows, the metaphorical cat is out of the bag and there's no way to get him back in. For some, telemedicine is a fantastic option. "But the drawbacks include unequal access to healthcare among those without Internet access, untreated illnesses for those with conditions not conducive to telehealth, and clinician fatigue," Baron explains. Additionally, as with most virtual medical situations, privacy concerns abound.

8. App Profits off Foreclosures

The unrelenting economic effects of COVID-19 caused many people to fall behind on their rent and mortgages. Of course, someone, somewhere, saw this as an opportunity. A "gig economy" app company developed Civl, a service that contracts eviction crews to secure foreclosed residential properties. A spokesman for the company told CBS News, "Civl is not actually carrying out evictions, but rather connecting independent junk haulers or contractors with opportunities to clear out property. It's basically like a job center. This is no different than you going on Monster.com." The app charges workers \$35 a month to use the service on top of a 30% cut of their earnings. Many reviews accuse it of being a scam, taking a monthly fee but never connecting an individual to a job even though the app says the average is 6 jobs per day. Other reviews from non-users accuse the app of human rights violations and just not being nice: "Attempting to profit off of human suffering is pure evil, especially during a global pandemic," one reviewer wrote.

9. Doomscrolling

Local news used to (and still does) get a bad rep for constantly being negative—it's all doom and gloom. Adults 50+ could easily escape the bad news when needed by turning off the television, or not picking up the newspaper. It's different for today's generation, though. Information from the entire world is in the palm of our hands—and it's addictive. Doomscrolling (also called doomsurfing) is the act of constantly consuming negative online content to the detriment of your mental health. Baron notes the term has been around since at least 2018 but, for obvious reasons, 2020 took it to an extreme. The murder of George Floyd, BLM protests, COVID-19, the presidential election, the results of the presidential election—it was a tumultuous year that played right into the hands of doomscrolling.

10. Facebook

Baron included Facebook in the Tech Top 10 List even before multiple antitrust lawsuits were filed late last week. Does that mean she's on to something? Possibly. The staggering amount of Facebook users— 2.45 billion monthly—is concerning when considering how many ethical violations and dilemmas the social media platform has been involved with in recent years. In 2018, U.N. human rights investigators concluded that Facebook played a key role in spreading hate speech in Myanmar that fueled a "military crackdown" that involved the mass killing and rape of refugees. Some have even called it a genocide. In the 2016 election, Russian trolls used Facebook to promote ads featuring conspiracy theories and misinformation that over 10 million people saw. In 2020, the platform is riddled with "fake news" and misinformation that they say they are trying



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to get under control. "The fact that we are so entangled in the platform that it would seriously affect our lives to close our accounts is a sign that we're being manipulated. Facebook thinks it's 'neutral' but also 'moving in the right direction.' That alone should make users wary of its ability to be a tool for good," Baron writes.

Reference : <https://www.laboratoryequipment.com/571215-Top-10-Scientific-Technology-Challenges-in-2021/>