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Science

Definitions

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Stats

COVID-19 Vaccination

- high-income economies with around 16% of the world's population have secured over 70% of 5 major vaccine doses for 2021

Source: Challenges in ensuring global access to COVID-19 vaccines: production, affordability, allocation, and deployment

Notes: Research paper on the Lancet, found on Fortune. Both are not so well known sources

- Covax has pledged to send 200 million vaccine shots to some 92 countries. However only 30 million has been received.

Article: The Straits Times - Problems at biggest vaccine maker in India leave world short on Covid-19 shots

- Serum's CEO, Adar Poonawalla, pledged 400 million doses for low and middle-income countries by the end of 2020. As of Jan 2021, only 70 million shots were manufactured.

Article: The Straits Times - Problems at biggest vaccine maker in India leave world short on Covid-19 shots

Notes: Mr Poonawalla mentions that the company is uncertain about when it would receive a licence from India and did not have enough warehouse space.

Sexism

- 58% of Women with STEM Degree have STEM Jobs, 70% of men with STEM Degree have STEM jobs

Source: Study by Nanyang Technological University

Notes: Dataset of 738 Singaporeans

Technology

Definitions

Cancel Culture

- "Cancel": To effectively end their career or revoke their cultural cachet, whether through boycotts of their work or disciplinary action from an employer.
- "Cancel Culture": The culture of cancelling people who have done something bad in the eyes of the public, which often involves unfair attempts of online vigilantism, often effectively destroying one's life in the process.

Big Tech

- "Big Tech": Refers to FAAMG: Facebook, Apple, Amazon, Microsoft and Google + a bunch of other companies (eg Netflix, Nvidia)
 - Big companies that have technology of mass public usage, and have a big market share.
- "Surveillance": Either specifically highly targeted or aimless but covert monitoring of individuals, whether it be through audiovisual data collection or
 - "CCTV": inherent yet embraced form of surveillance in public spaces, less disconcerting

- "Online tracking": Infringement of rights in the form of sharing of data to other sources (very concerning)
- "Data Collection": Collection of data for mass usage, eg MOST cookies, data stored on websites - Data is not distributed to alternative areas

AI

- *Theory of Affordance*: a term coined by psychologist James J. Gibson. It states that when intelligent beings look at the world they perceive not simply objects and their relationships but also their *possibilities*. Eg, when we sit on a chair, the chair "affords" the possibility of sitting, whereas the same cannot be said about water, which instead "affords" the possibility of drinking or swimming in.
- *The Coded Gaze*: Defined by MIT grad student Joy Buolamwini as the bias in machine learning systems that involve lower accuracy for individuals of different skin tones and genders.

Quotes

Cancel Culture

- "Canceling is a way to acknowledge that you don't have to have the power to change structural inequality, You don't even have to have the power to change all of public sentiment. But as an individual, you can still have power beyond measure." ~ Charity Hudley

Morals and Ethics

- In surveys, people say they want an autonomous vehicle to protect pedestrians, even if it means sacrificing its passengers but also that they wouldn't buy selfdriving vehicles programmed to act in this way.

Source: Nature, Bonnefon, J. et al. Science 352, 1573–1576 (2016)

- "Technology is not neutral"

Source: Sam Gregory, program director of the human rights nonprofit witness

Notes: On software created with intent of malicious usage

Examples

Big Tech

- The National Security Agency of America and its British Counterpart hacked information from customers of Google, Yahoo among others, without the companies' knowledges.
 - Classified as "surveillance", since the data was used as a form of targeted monitoring to triangulate individuals based on the others' relative positions in order to identify potential threats.

Cancel Culture

- J.K. Rowling faced intense criticism after voicing transphobic beliefs, got cancelled. In June 2020, she published a transphobic manifesto, sales increased in her home country (Britain)

AI

- An AI chatbot developed in South Korea named Luda Lee, initially popular for its cheerful disposition and ability to talk like a human being, quickly became the source of controversy after it made inappropriate comments regarding women's rights, lesbianism and disability, joining a long list of such chatbots infamous for their polarising opinions, often contrary to public opinion, including Microsoft's Tay, Japan's Rinna and China's BabyQ. The company behind it was also sued for disseminating personal information of the users.
- Research done by the University of Montreal suggests that AI has better clinical decision-making capability than do humans, but generally in a more secondary sense, i.e. in the form of a second opinion.
- A horrifying application of AI has been tools developed by many that utilise DeepFake technology in the form of false shaming individuals. For example, a site that has been recently taken down involved taking in the image of a face, and mapping that onto a Pornographic Film using DeepFake technology.

Source: <https://www.technologyreview.com/2021/09/13/1035449/ai-deepfake-app-face-swaps-women-into-porn/> (MIT Technology Review, 13th September 2021)

- AI Dungeon, a text generator game utilising AI, was used by a few individuals to generate child pornography.

Source: Vikram Ramanathan, 21st September 2021

- Baidu's Xiaodu is an all-inclusive technology to aid an oncoming "Silver Tsunami", providing many crucial services like access to emergency care and emotional support.
- help.

Autonomous Vehicles

- Moral Machine Experiment: a worldwide survey pertaining to choices made by Autonomous Vehicles in adverse situation wherein one or more are susceptible to death. Revealed different opinions across the world, with people residing in Asian Countries displaying a slight favouritism to the elderly while some expressed greater appreciation for Females.

Stats

Autonomous Vehicles

- 9.1 crashes per million miles driven for self-driving cars, compared with 4.1 crashes per million miles for conventional vehicles.

Source: University of Michigan's Transportation Research Institute

Notes: Using crash stats from US National Highway Traffic Safety Administration

- Autonomous vehicles cause 0.36 injuries per crash, compared with 0.25 for conventional vehicles.

Source: University of Michigan's Transportation Research Institute

Notes: Using crash stats from US National Highway Traffic Safety Administration

- Self-driving cars are not responsible for any accidents

Source: University of Michigan's Transportation Research Institute

Notes: Using crash stats from US National Highway Traffic Safety Administration

Big Tech and Big Data

- Combined stock market valuation of Apple, Alphabet, Nvidia, Tesla, Microsoft, Amazon and Facebook (i.e FAAMG + Nvidia + Tesla) is \$3.4 trillion in 2020.

Article: [CNBC](#) - Tech's top seven companies added \$3.4 trillion in value in 2020

Notes: Cannot figure out if they gained \$3.4 trillion total or valued \$3.4 trillion total

- 80% of people have TraceTogether, reducing contact tracing from 4 days to 1.5 days

Article: [CNA](#) - Bill restricting police use of TraceTogether data introduced in Parliament, with tougher penalties for misuse

Source: Smart Nation and Digital Government Group (SNDGG) Singapore

Surveillance

- Ten of 24 US Governmental agencies surveyed plan to broaden their use of facial recognition systems by 2023, while eighteen of 24 currently use some form of the technology, according to an August 2021 report by the US Government Accountability Office (GAO).
- [Facial recognition has proved to be less accurate on people with darker skin, women, and younger and older people](#), according to a 2018 paper presented by MIT and Stanford University researchers. This was due to the fact that dataset used to assess its performance was more than 77 percent male and more than 83 percent white. Leading to a disparity of nearly 46% for some individuals.

Morals and Ethics

- Estimated 90% - 95% of all online deepfake videos are nonconsensual porn, 90% of the porn feature women

Article: [technologyreview.com](#) - [A horrifying new AI app swaps women into porn videos with a click](#)

Source: research company Sensity AI

Notes: IT IS AN ESTIMATION!!

Youth

- Children who used the internet, social media or video games for entertainment ≥ 4 hours daily were 4x more likely to skip school.

Source: Rutgers University analysing China Education Panel Survey

Notes: 10000 1st year middle schoolers, mean age = 13.5

- Boys used interactive technology for entertainment significantly more than girls. Boys also performed worse and showed lower engagement levels than girls

Source: Rutgers University analysing China Education Panel Survey

Notes: 10000 1st year middle schoolers, mean age = 13.5

Tech Talent Crunch

- Singaporeans accounted for about 35 per cent of tech jobs, and 35 per cent of net tech jobs created in the past five years in banking and finance.

Article: NTU Business - [what is stopping more Singaporeans from taking up tech jobs?](#)

Source: Monetary Authority of Singapore (MAS)

- There appears to be a general lack of students graduating with degrees in Computer Science-related fields, with only 2,800 such graduates every year, compared to the demand of nearly 60,000 needed by 2023, according to Dr Vivian Balakrishnan, Minister-in-charge of the Smart Nation Initiative.
- The labour shortage by 2030 could cost Singapore nearly 39.2 billion SGD, which is very undesirable for the city state, since it could possibly account for 21 percent of Singapore's projected economy by then.
- Only a third of the technological workforce in the financial sector is made of Singaporeans

Prejudice and Discrimination

Definitions

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Examples

Stats

- Women and early-career academics are more likely to feel like impostors in an academic discipline perceived to require raw talent for success.

Source: [New York University 2021 Study](#)

Women in Tech

- A report by Microsoft found that more than 50% of young females are in fact interested in working in the STEM sector.
- Only 58% of females Singaporeans, after pursuing a degree in STEM, go on to STEM-related careers.
- According to the UNESCO Institute for Statistics, less than 30 percent of the world's researchers are female.
- Most women drop off the register of professional engineers before the age of 45.

Crime and Punishment

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