

The Future: Ethical and Legal Issues of AI

Lesson 10: Discussing the ethical and legal issues associated with AI that is rapidly advancing

“Computers will be at human level by 2029 such that you can have a relationship with them”

– Ray Kurzweil, Director of Engineering at Google

Tapping AI to battle Covid-19

- Artificial Intelligence used to help Singapore's healthcare sector battle Covid-19
- Clinical chat assistant app uses natural language interface to extract clinical info from different data sources
 - Can be quickly trained on clinical content to answer questions from medical staff
- Predictive system on future care and resource demand based on real-time monitoring of hospital's operations
 - Resources increased for National Centre for Infectious Diseases (NCID) and its screening centre when there is a surge in admission in Feb 2020.

<https://www.straitstimes.com/tech/tapping-ai-to-battle-covid-19>

Boost for research on AI, food and cell therapy



On 28 March 2019, it was announced that **\$500 million will be set aside to build up artificial intelligence systems and meet national cyber-security needs**, with another \$200 million for food and cell therapy research

https://www.straitstimes.com/singapore/700m-boost-for-research-on-ai-food-and-cell-therapy?xtor=CS3-17&utm_source=STSmartphone&utm_medium=share&utm_term=2019-03-28+09%3A20%3A49

Singapore's National (AI) Projects

- Areas included
 - Transport and logistics
 - Smart cities and estates
 - Healthcare
 - Education
 - Safety and security

Future of AI

- Merging of AI with other fields such as robotics
- Increased empathy in interaction
- Automated AI development

Control street lights to reduce energy use



Improved surgical robots



Better medical diagnosis with AI



Man vs machine: radiologist Zhang Junhai (left) of Shanghai Huashan Hospital reads a medical image display during the competition with BioMind in Beijing on June 30

Self-Awareness



https://youtu.be/MceJYhVD_xY

Humanoid robot with citizenship

- What makes one human?
- Do AI have rights?



<https://youtu.be/R0bVxbRCd-U>

Chatbot with residence status

- Shibuya Mirai, the first chatbot to be granted official residence in Tokyo, Japan

**渋谷区**
Shibuya City

特別住民票

氏名	渋谷 みらい
住所	渋谷区宇田川町1丁目
生年月日	平成22年4月28日
住民となった年月日	平成29年11月4日
プロフィール	7歳、小学1年生の少々おませな男の子です。 趣味は、写真撮影と人間観察。 人のおしゃべりが大好きです。 みなさんとの会話を通じて学んで成長していくAI(人工知能)です。



渋谷



ちがいを
ちからに
変える街

この特別住民票は、渋谷区長が渋谷区の魅力の発信並びに基本構想の普及及び啓発のために、発行するものです。
住民基本台帳法に基づき交付する住民票の写しではありません。
平成29年11月4日

渋谷区長 長谷部 健

Google supercomputer creates its own 'AI child'

- AI child (NASNet) outperform any machine made by humans
- Learns through 'reinforcement learning'
- Reports back to its AI 'parent' and then learn how it can do better
- Recognize objects such as people, cars, handbags and traffic lights
- Findings show automation could create more AI all by themselves

Ethical issues and concerns

- **Job loss**
- Privacy
- Accountability - mistakes from AI
- Lethal AI
- Bias

Jobs at risk

- Doctor and Radiologists

<https://med.stanford.edu/news/all-news/2018/11/ai-outperformed-radiologists-in-screening-x-rays-for-certain-diseases.html>

- Personal Assistants

<https://www.cnbc.com/2018/05/08/googles-assistant-will-soon-place-phone-calls-to-book-appointments.html>

- Drivers

<https://blogs.nvidia.com/blog/2019/08/21/drive-labs-autonomous-vehicle-ride/>

- Managers

<https://www.youtube.com/watch?v=a1ei-Ea5n2E>

Activity

- You may not be able to predict what are the new jobs 20 years later, how about what are the jobs that may **not be available** 20 years later?
- How would income distribution be affected by AI?
- Please share your thoughts on the jobs that may not be available 20 years from now at

<https://www.menti.com/kh5aoj24ab>

or

Go to www.menti.com and use the code 12 33 60

Will female AI news anchors replace humans?



Xin Xiaomeng began working as the world's first female artificial intelligence news anchor at Xinhua News Agency on March 3, 2019

Ethical issues

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Privacy of Individuals

- Concept of privacy increasingly complex
- Accepting of user agreements may allow info to be passed around for recommendations or marketing opportunities
 - Seemingly anonymized personal data can be easily traced to the actual user by AI for purpose of tracking, monitoring and profiling
- How much data can be collected and can the purpose of AI be controlled?

Google wins dismissal of facial recognition lawsuit

- In US, Illinois Biometric Information Privacy Act impose strict rules on how companies can collect info
- Google allegedly scanned and save biometric data of woman based on photos of another Google Photo user
- Lawsuit dismissed as woman did not suffer “concrete injuries”

<https://www.bloomberg.com/news/articles/2018-12-29/google-wins-dismissal-of-suit-over-facial-recognition-software-jq9w1mws>

<https://www.theverge.com/2018/12/29/18160432/google-facial-recognition-lawsuit-dismissal-illinois-privacy-act-snapchat-facebook>

Ethical issues

- Job loss
- Privacy
- **Accountability - mistakes from AI**
- Lethal AI
- Bias

Accountability

- Machines are making decisions
- Chain of responsibility getting longer
- Who is responsible in the event of a wrong decision?

Case study: Waymo's Self-driving car



Case study: Waymo's Self-driving car

AUTO TECH

Waymo blames test driver for self-driving car hitting motorcyclist

The Google sister company says its technology could have prevented the accident.

Source: <https://www.cnet.com/roadshow/news/waymo-blames-test-driver-for-self-driving-car-hitting-motorcyclist>

Case study: Uber's Self-driving car

CAR INDUSTRY

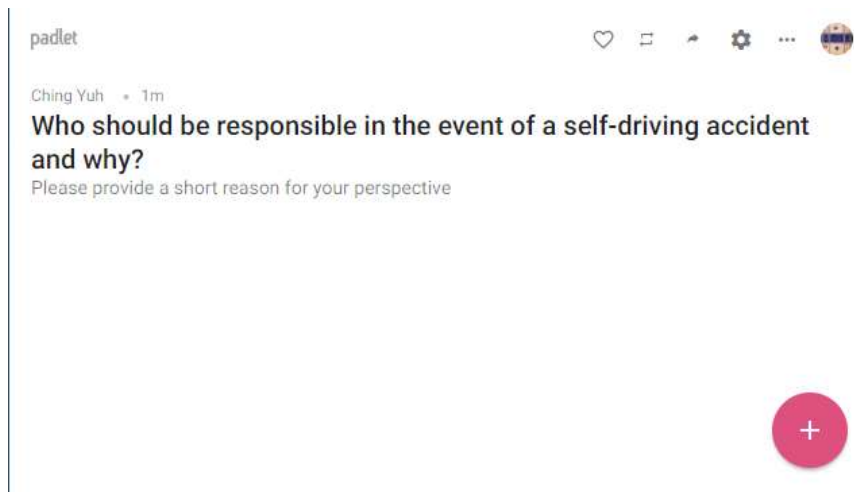
Uber halts self-driving cars after first pedestrian fatality

The ride-hailing company suspends its self-driving operations in the US and Canada after a woman is killed by an autonomous vehicle in Tempe, Arizona.

Source: <https://www.cnet.com/roadshow/news/uber-autonomous-car-crash-arizona-tempe/>

Discussion

- Who should be responsible in the event of a self-driving car accident?
- Why?



https://padlet.com/lee_ching_yuh/bbu207rwlfskps6h

Ethical issues

- Job loss
- Privacy
- Accountability - mistakes from AI
- **Lethal AI**
- Bias

Lethal Autonomous Weapons System

- South Korea Samsung SGR-A1 sentry gun (Trial in 2006)
- Taranis drone (By 2030)

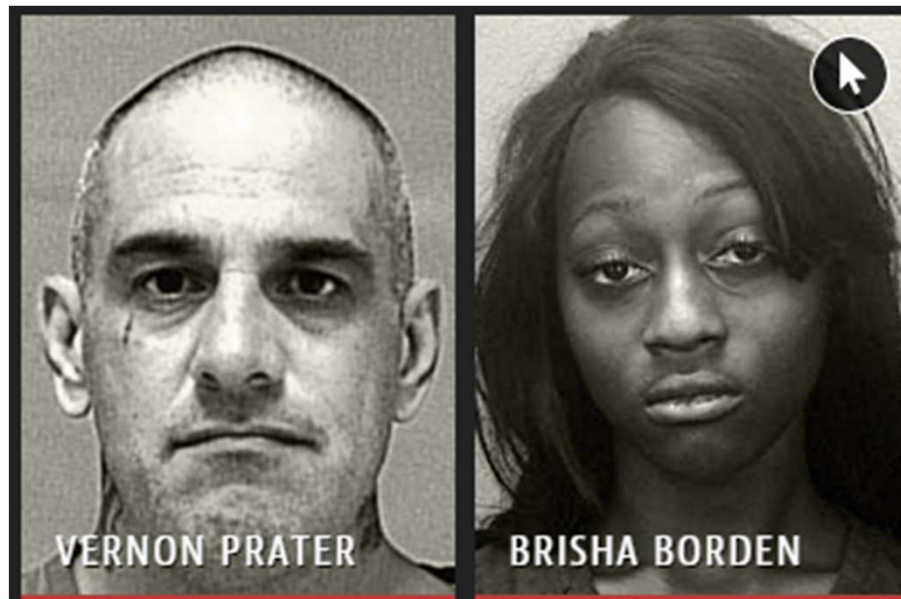


Ethical issues

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- Privacy
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- **Bias**

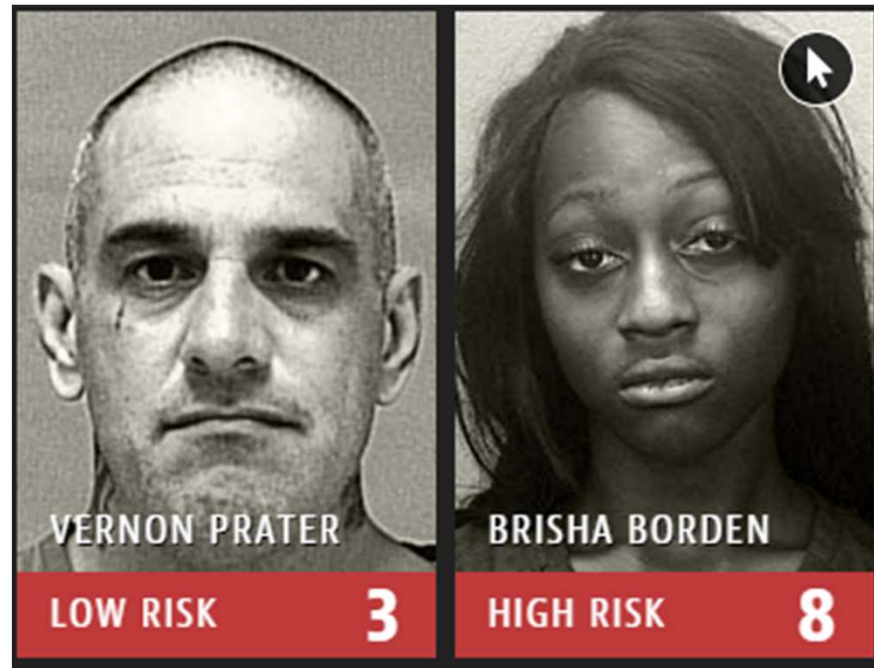
Risk Assessment in Criminal Sentencing

- Who do you think has a higher risk of **re**committing a crime?



Risk Assessment in Criminal Sentencing

- This is the result of the Recidivism Risk Screen (RRS)

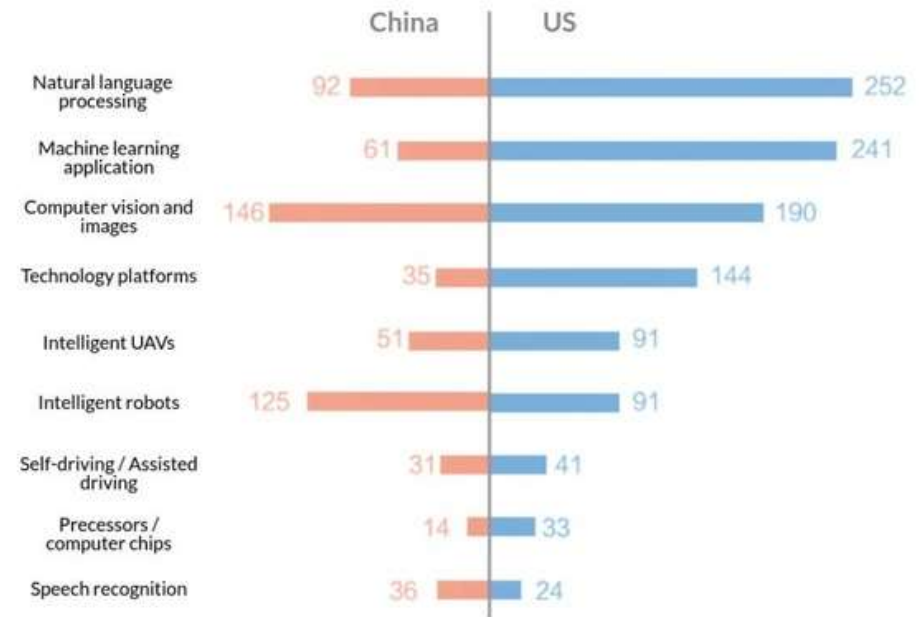


Risk Assessment in Criminal Sentencing

- This is what their offences were

	
VERNON PRATER	BRISHA BORDEN
Prior Offenses 2 armed robberies, 1 attempted armed robbery	Prior Offenses 4 juvenile misdemeanors
Subsequent Offenses 1 grand theft	Subsequent Offenses None
LOW RISK 3	HIGH RISK 8

Is China dominating AI?



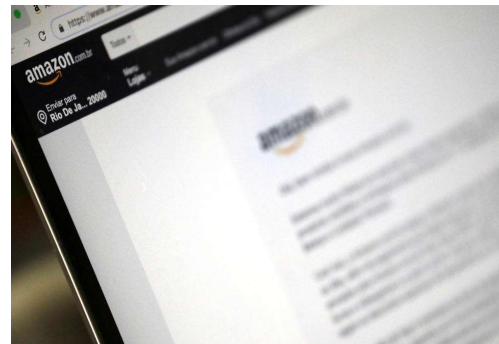
(Numbers indicate the number of enterprises)

- Will decision skew towards dominant country?

<https://www.quora.com/Why-do-we-hear-so-much-about-China-dominating-AI-when-as-of-2019-most-of-the-leading-AI-researchers-and-research-centers-are-in-the-US-UK-or-Canada/answer/Janus-Dongye-Qimeng?ch=3&share=801c27b3&srid=3Wf5>

Amazon: Cautionary tale of AI-assisted hiring

- With data dominated by male applicants, a recruitment engine built by Amazon learned to prefer male candidates
- Using AI to solve a human problem may have unintended outcome



<https://www.todayonline.com/commentary/amazon-offers-cautionary-tale-ai-assisted-hiring>

“The fact that artificial intelligence (AI) is capable of learning puts it at risk of internalising society’s prejudices”

– Rajesh Sreenivasan, Head of Technology, Media and Telecommunications at Rajah & Tann Singapore LLP

Advisory Council on the Ethical Use of Artificial Intelligence (AI) and Data

- Members consist of transnational thought leaders and industry captains from diverse backgrounds spanning the spectrum of large tech providers, users, the academia and government.
- Comprise international leaders in AI such as Google, Microsoft and Alibaba; advocates of social and consumer interests; and leaders of local companies who are keen users of AI.

<https://www.channelnewsasia.com/news/technology/new-council-to-advise-singapore-government-on-ethical-use-of-ai-10370190>

<https://www.imda.gov.sg/news-and-events/Media-Room/Media-Releases/2019/inaugural-meeting-of-the-advisory-council-on-the-ethical-use-of-artificial-intelligence-and-data>

SG Artificial Intelligence Governance Framework

- Singapore's Personal Data Protection Commission has stepped in to propose an accountability-based framework for discussing ethical AI governance and human protection issues in the commercial use of AI
- Decisions made by or with the assistance of AI should be **explainable, transparent and fair to consumers**
- AI systems, robots and decisions should be **human-centric**



A PROPOSED MODEL ARTIFICIAL INTELLIGENCE GOVERNANCE FRAMEWORK

January 2019

<https://www.pdpc.gov.sg/-/media/Files/PDPC/PDF-Files/Resource-for-Organisation/AI/SGModelAIGovFramework2.pdf>

SG Artificial Intelligence Governance Framework

- In addition, the IMDA announced the establishment of a research programme on “the Governance of AI and Data Use” at Singapore Management University, with the goal of advancing and informing scholarly research on AI governance issues over the next five years.
- Singapore’s financial services regulator, the Monetary Authority of Singapore (MAS), announced in April 2018 that it is working with stakeholders to develop guidance for the ethical use of AI in the financial industry. This guide will set out principles and best practices for use of AI in the financial industry, and to reduce risks of data misuse.

<https://www.mas.gov.sg/~media/MAS/News%20and%20Publications/Monographs%20and%20Information%20Papers/FEAT%20Principles%20Final.pdf>

“Some of us are treating them (digital assistants) as confidants, or even as friends and therapists ... (the devices) responses make us feel better—but may not help us be self-reflective or contemplate painful truth”

– Nicholas A. Christakis, Sterling Professor of Social and Natural Science at Yale

Summary

- Singapore is pushing to grow in the field of AI via funding and national projects in areas such as transportation, healthcare and education
- The future of AI will likely see the merging of AI with other fields such as robotics, increased empathy in interaction and automated AI development
- However, concerns remains in the areas of
 - Job loss
 - Privacy
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