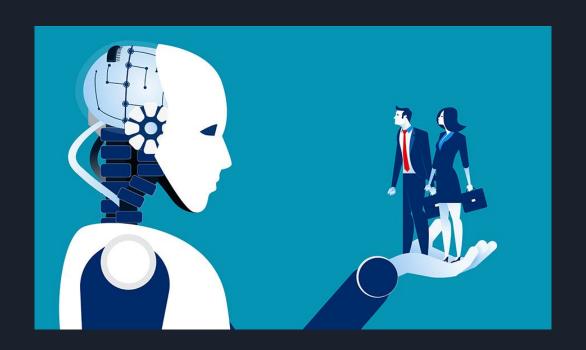
Al Ethics, Privacy, and Security

By: David Lemos, Kurt Mueller, Robert Hsu, Joel Veneracion

Quick introduction to Al



What are Privacy, Security, and Ethics?

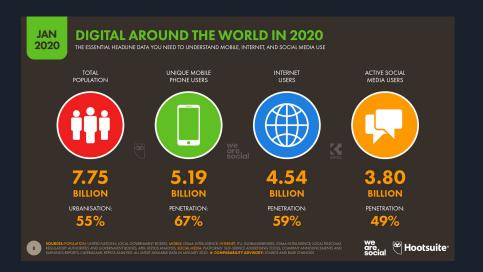
Privacy - The ability of an individual or group to seclude themselves or information about themselves, and thereby express themselves selectively. (Wikipedia)

Security - Tools and techniques that leverage artificial intelligence (AI) to autonomously identify and/or respond to potential threats based on similar or previous activity.

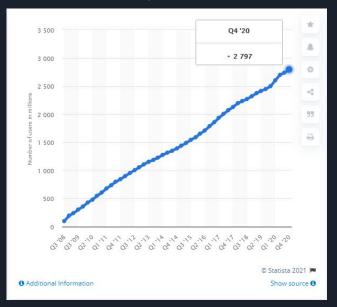
Ethics - Morals of Humans as they make and use artificial intelligence



On The Topic of Scale

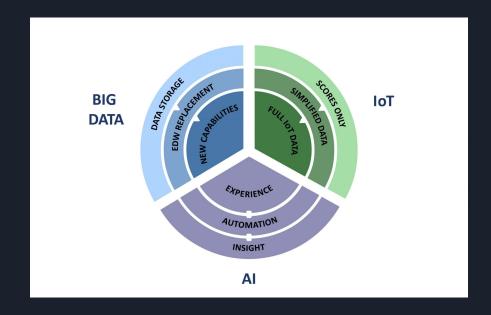


Facebook Active Users (millions) vs Time



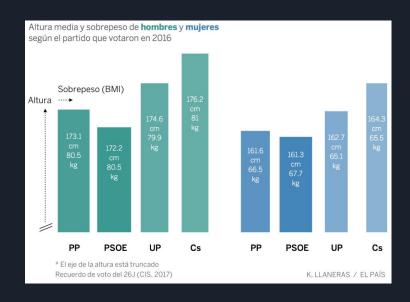
The Privacy Tradeoff

- Big data retrieval for large companies like Google, Amazon, etc.
- "More customized user experience"
- Do you care if your data is being mined?
- How confident are you that your data privacy is being respected?



The problem of extrapolation

- 2016
- Spanish Research Institute CIS surveys
 2500 men and women on their height and weight
 - (Centro de Investigaciones Sociológicas)
- From this data, they were able to extrapolate the electoral preference of certain voters, given their body type.
 - Example: Those who were more on the left tended to be shorter and heavier than those on the right.



Rose Bowl Surveillance

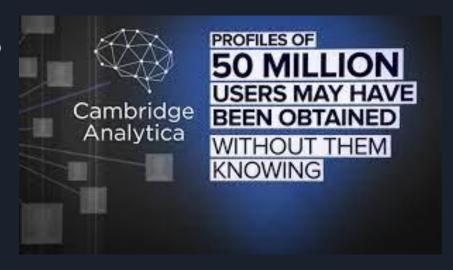
 30,000 Rose Bowl Attendees were unknowingly used in Facial Recognition Tests

 System looked for their gender, age, and how long they looked at the ads being displayed



Al in Ethics: Cambridge Analytica

- Started in 2016 but was caught in 2018.
- Data was collected through an app called This Is Your Digital Life, made by Aleksandr Kogan
 - Data collected was used in political campaign ad targeting from over 50 million Facebook users
 - Data used to build psychological profiles.



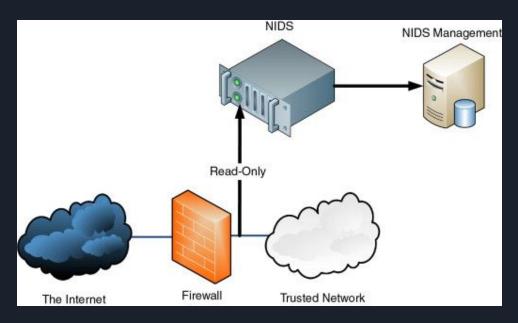
Cybersecurity Problem: Keeping Networks Secure

- Regarding data breaches: "63% of successful attacks come from internal sources"
- Problem: Efficiently detecting and responding to network intrusions and suspicious activities
 - Anomaly-Based Network Intrusion
 Detection System



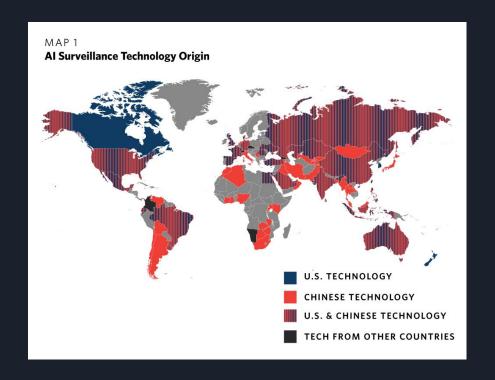
Al in Cybersecurity: Network Intrusion Detection Systems

- Detects and alerts about suspicious activity in a network
- Artificial Intelligence plays a huge role in anomaly-based ID
 - Outlier Detection using Random Forests
 - Other machine learning methods for anomaly detection: Neural networks, K-nearest neighbors, support vector machines



Al & Physical Security

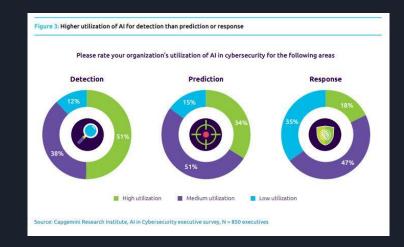
- Surveillance
 - Facial Recognition
- Military and Defense
 - Defense Systems
 - Crisis response robots



The Impact of AI on Ethics, Privacy, and Security

 "61% of enterprises say they cannot detect breach attempts today without the use of AI technologies."

• "73% of enterprises are testing use cases for AI for cybersecurity across their organizations today with network security leading all categories."



The Impact of AI on Ethics, Privacy, and Security

 At least 75 out of 176 countries globally are actively using AI technologies for surveillance purposes.

 Google reported a 40 percent reduction in cooling costs at their facility and a 15 percent reduction in power consumption after implementing AI technology within data centers in 2016



Conclusion





Thank you. Any Questions?

Sources

- https://www.forbes.com/sites/louiscolumbus/2019/07/14/why-ai-is-the-future-of-cybersecurity/?sh=3176cd8a117e
- https://ieeexplore.ieee.org/stamp/stamp.isp?arnumber=4024522
- https://www.intechopen.com/books/computer-and-network-security/anomaly-based-intrusion-detection-system
- https://doi.org/10.30612/rmufgd.v8i15.11546
- https://www.rt.com/news/401731-ai-rule-world-putin/
- https://doi.org/10.30612/rmufgd.v8i15.11546
- https://elpais.com/politica/2017/06/23/ratio/1498207330_149656.html
- https://awakesecurity.com/glossary/ai-security/
- https://www.nytimes.com/2018/04/04/us/politics/cambridge-analytica-scandal-fallout.html
- https://emeri.com/ai-sector-overviews/ai-for-physical-security/
- https://link.springer.com/article/10.1007/s11948-020-00238-w#Sec6
- https://carnegieendowment.org/2019/09/17/global-expansion-of-ai-surveillance-pub-79847
- https://towardsdatascience.com/advantages-and-disadvantages-of-artificial-intelligence-182a5ef6588c
- https://www.statista.com/statistics/264810/number-of-monthly-active-facebook-users-worldwide/
- https://onezero.medium.com/90-000-unsuspecting-rose-bowl-attendees-were-scooped-up-in-a-facial-recognition-test
 -18c843909858
- https://www.pasadenastarnews.com/2020/06/23/rose-bowl-officials-defend-use-of-facial-recognition-program-during
 -the-big-game/
- https://www.rt.com/news/401731-ai-rule-world-putin/
- https://en.wikipedia.org/wiki/Privacy
- https://en.wikipedia.org/wiki/Ethics of artificial intelligence
- https://purplesec.us/resources/cyber-security-statistics/
- https://www.computer.org/publications/tech-news/trends/the-impact-of-ai-on-cybersecurity