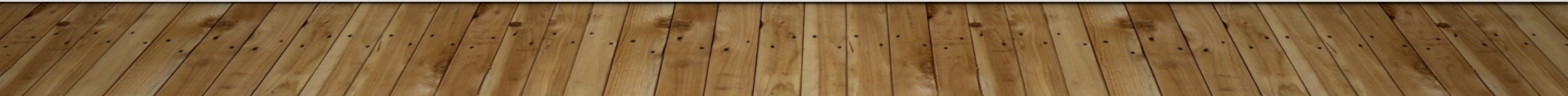# Technology & Ethics

Marist CLS
Fall, 2021

Paul Stoddard

QUESTION FROM LAST WEEK

- What are the main congressional committees for technology? (Jack)
  - www.Govtrack.us lists the Senate and House committees here.
  - The 9/30/2021 hearing on Facebook and mental health was before the Senate Committee on Commerce, Science, and Transportation Subcommittee on Consumer Protection, Product Safety, and Data Security.
- Which brings up today's news: a Facebook "whistleblower" named Frances Haugen is testifying before the same subcommittee. She says Facebook knows about harmful things happening on its platform but prioritizes profits over fixing the problems.
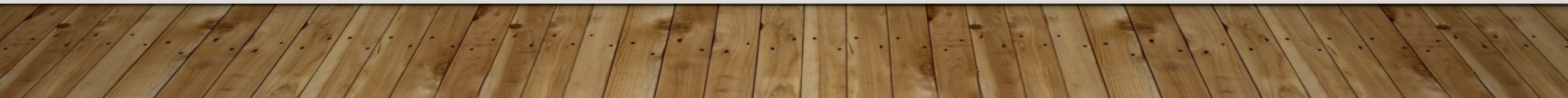
HOW DO WE THINK ABOUT THIS?

- Facebook isn't breaking any laws. The Senate subcommittee is having the hearings to figure out if new laws or other interventions are needed.

- Facebook is doing what the capitalist system promotes – making lots of money. Is that wrong?

- What has happened in the past with large, powerful corporations?

- Do our ethical philosophies (Utilitarianism, Duty based ethics, Virtue ethics) help us know what to do?

Targeted Advertising

- Minority Report movie (2002) [scene](#)

Targeted Advertising

Advertisers desire the ability to send the right ad to the right person at the right time.

They also want "closed loop attribution" (i.e. evidence that a customer acted because of an ad).

They will pay more for targeted advertising and attribution.

Targeted Advertising

- **There are different levels of attribution. Examples:**
  - ➢ **the customer may click an ad and visit the website (but not buy);**
  - ➢ **they may put something in the shopping cart (and then abandon it);**
  - ➢ **they may click on the ad, put something in the shopping cart, and then buy it. (Bullseye!)**
- **The links used to take you to the advertised site keep track of which ad brought you there.**

- **Attribution is not possible with broadcast advertising, but it is with digital ads.**

"Half the money I spend on advertising is wasted;
the trouble is, I don't know which half." – John Wanamaker

Exercise – list some free services you use on the Internet.

1. Google search
2. Ccleaner
3. Wikipedia
4. Weather reports
5. Google maps, Mapquest
6. Gmail and other free email services
7. YouTube
8. Firefox browser
9. News
10. Software utilities
11. Zoom
12. Books

Exercise – list some free services you use on the Internet.

1. Google search
2. White pages – phone
3. Wikipedia
4. Gmail
5. Weather, NOAA
6. Maps
7. Spotify with ads
8. Radio stations
9. YouTube
10. Facebook
11. DuckDuckGo
12. Startpage (search)
13. Google calendar, translate

Free Services

- Google search, Gmail (and other free email), Facebook, Twitter, etc. provide free service in exchange for advertising to you. They also collect data that enables <u>targeted</u> advertising.

- Smart TVs (connected to the Internet) track what viewers are watching, collect the data and sell it to advertisers. Vizio paid a $17 million <u>settlement</u> for doing this without users knowing.

Some people say: If the product is free, then the product is you!

Advertising – questions to think about

- **Is the business model of trading personal data for free service a good business model?**
  - What do you think? (Ethan Zuckerman in MIT Technology Review says no.)
  - Neeva, DuckDuckGo, Qwant and other search engines try different models. The best ones are reviewed here according to RestorePrivacy.com.
  - I believe we should pay for some news sources in order to support quality reporting. (I also donate yearly to support Wikipedia.)
  - But what about people who can't afford to pay?

Advertising – questions to think about

- How do you feel when you get an ad that seems to know what you've been looking at? Are targeted ads an invasion of privacy?

- Are we approaching a limit for advertising?
When does advertising become too much and customers get annoyed and stop using the service? Example: cable TV is being replaced by streaming services. Many paid services, like Netflix, have no commercials.

- Are we coming to a time when people just won't buy as much stuff?

COOKIES

A Sept. 5, 2021 article in the LA Times (reprinted in the Poughkeepsie Journal) explains the use of cookies on websites, and the pop-ups you see recently about accepting cookies. **"Internet users ignoring site pop-ups for cookies"** by Jon Healey
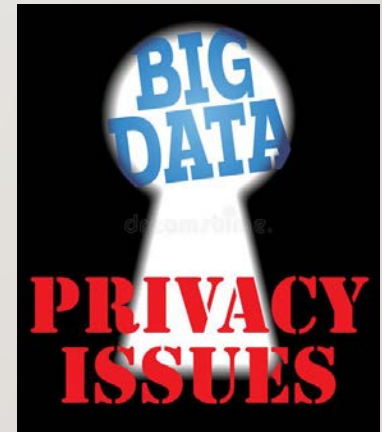
Big Data & Data Mining

- **What is Big Data?** Examples: Internet searches, drug prescriptions, retail sales transactions, Twitter posts, data from sensors in the Large Hadron Collider

- **What is Data Mining?** Finding patterns in large sets of data using machine learning and statistics. Often several data sources are combined or compared.

- **Why do Data Mining?** To make money advertising, for research, to spy on other countries, etc.

Big Data & Data Mining

Ethical concerns:

- Bias from failing to get representative samples (note that this is a statistical concern, but IT needs to consider it). Example: Google Flu Trends was launched in 2008. It made lots of mistakes tracking flu outbreaks.

- Privacy - example: In 2012 Target used data mining to figure out that a teenager was pregnant before her family knew.

  (*The Power of Habit* by Charles Duhigg, chapter 7)

Big Data & Ethics

- [5 Principles for Big Data Ethics](#)

- [Big Data in Public Health](#)

- [Guidelines for the ethical use of Twitter data](#)

Data Anonymization

- Personally identifiable information may be removed from a data set so that the data can be shared for research (or other purposes).
  Example: remove name and address from medical data so researchers can study diseases.

- But clever programmers can sometimes figure out who the data belongs to by combining the anonymized data with other data sources.

- By the way, Census data is anonymized before it is made available to other branches of government.
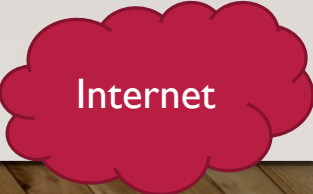
Targeted Advertising (continued)

- Attribution is being expanded to include any device associated with a customer. How? The Wifi router in your home knows about your computer, your cell phone and your television. You may see a product in a movie on TV, and an ad for it gets sent to your phone. In theory, the customer could buy the product without interrupting the show.

- Companies are experimenting with device addressability – the ability to send a specific ad to a specific device. This also means different ads could go to different devices even though they are watching the same program.

Internet

Targeted Advertising - Geofencing

- Geofencing – a geofence is a virtual perimeter around a real-world location.

- Example of use: when someone carrying a smartphone enters a geofence around a store, an ad or coupon for that store is sent to the phone. If the recipient walks into the store, that's low-level attribution. If they use the coupon on their phone to buy something, that's high-level attribution.
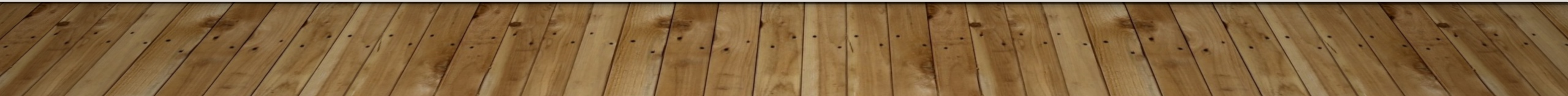
Targeted Advertising - Geofencing

- Beneficial uses:
  - Geofences are being used to keep drones away from airports.
  - In Kenya, it is being used to warn rangers when elephants are invading farms (so the farmers won't kill them).
- There are companies that specialize in setting up geofences.
- Wired article about police using geofence warrants to find out who was near a certain location at a specific time. Some judges say this is a violation of the 4ᵗʰ Amendment and denied the warrants.

Targeted Advertising

- AT&T

- Facebook Patent Imagines Triggering Your Phone's Mic When a Hidden Signal Plays on TV – Gizmodo Read the full story

- Feb 1, 2019 – Google was fined 50m Euros for violating GDPR, using personal data for personalized ads but making it too difficult for users to understand.

How can Google gain user trust? Should Google change its business model and charge some users for its service?

Misc.

- The House Antitrust Subcommittee on 10/6/2020 released the long-awaited report summarizing its findings from a 16-month investigation into competition in online markets. Basically, the big online companies are thought to be abusing monopoly power.

- Columbia University Professor Tim Wu wrote, *The Curse of Bigness*, about weak enforcement of antitrust laws in recent years. He is now a White House advisor on Technology and Competition policy.

- Albert Fox Cahn is founder and executive director of the Surveillance Technology Oversight Project, a nonprofit civil liberties organization.

Useful sources of information

- The Download from MIT Technology Review
  (Sign up here for free email newsletter)

- WIRED Newsletter
  (Sign up here for free email newsletter)

These daily newsletters provide brief summaries of articles with links to the full articles.

Many news sources let you read a few articles free each month and then ask you to pay for more.