COGS 9 – Discussion Section A01 and A02

Kunal Rustagi (TA): Mon 9AM ([Zoom](#))
Connor McManigal (IA)
Yupei Sun(IA)

Data's day of reckoning

By Mike Loukides, Hilary Mason, and DJ Patil

Data: Benefit or Harm?

- Recommender systems
- Autonomous vehicles
- Maps and Navigation

However, when it is not properly used…

- Facebooks' violation of individual privacy
- The case of Henrieta Lacks

Ethics and security training

- Integrate ethics ideas into school assignment
- Add ethics course to core curriculum
- integrated into every course at colleges, universities, online courses, and programming boot camps.

Developing guiding principles

- Tight schedule
- Checklists are the solution

☐ Have we listed how this technology can be attacked or abused?

☐ Have we tested our training data to ensure it is fair and representative?

☐ Have we studied and understood possible sources of bias in our data?

☐ Does our team reflect diversity of opinions, backgrounds, and kinds of thought?

☐ What kind of user consent do we need to collect and use the data?

☐ Do we have a mechanism for gathering consent from users?

Building ethics into a data-driven culture

- An individual needs to be empowered to stop the process before damage is done.
- Anyone should be able to escalate issues for remediation without fear of retaliation
- An ethical challenge should be part of the hiring process
- Product reviews must ask questions about the product's impact
- Teams must reflect diversity of thought, experiences, race, and background
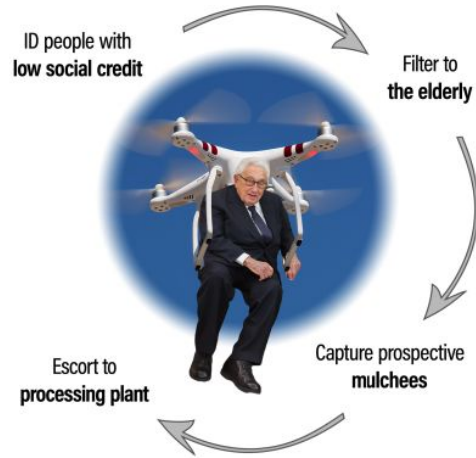- Corporations must make their own principles clear

Regulation

- The Common Rule
- U.S. Federal Trade Commission (FTC)
- Nuclear Regulatory Commission (NRC)
- Consumer Finance Protection Bureau (CFPB)

A Mulching Proposal

FAT: An Ethical Framework

- **Fairness**
  - lacking biases which create unfair and discriminatory outcomes
- **Accountability**
  - answerable to the people subject to them
- **Transparency**
  - open about how, and why, particular decisions were made

Case Study: Mulching the Elderly

ID people with **low social credit**

Filter to **the elderly**

Capture prospective **mulchees**

Escort to **processing plant**

Logan-Nolan Industries

Helping Humanity Make Ends Meat

- To solve social problems of aging population and reduction in arable farmland due to climate change
- Developed a program in which elderly people are rendered down into a fine nutrient slurry (Grandmash/Nanas)
- Using a HCI-developed algorithm for approximating "social credit"

Analysis of Fairness

Table 1: Percentage of individuals tagged as worthy of mulching, by demographic.

Race	Cis Man	Mulching Probability		Trans Woman	Non-Binary Person
		Cis Woman	Trans Man		
White	44.6%	33.3%	2.2%	3.2%	1.1%
Asian-American	22.2%	16.3%	2.8%	1.2%	1.8%
African-American	26.9%	11.2%	2.3%	1.9%	3.4%
Latino	16.9%	18.7%	3.3%	1.2%	1.7%
Native American	14.4%	12.4%	1.0%	0.8%	1.5%
Hawaiian & Pacific Islander	11.6%	7.8%	2.4%	1.1%	0.7%

- The algorithm disproportionately tagged white cisgender men as worthy of mulching

Fairness: Solution

Table 2: Post-audit mulching probabilities.

Race	Cis Man	Cis Woman	Trans Man	Trans Woman	Non-Binary Person
		Mulching Probability			
White	44.6%	43.3%	44.2%	46.3%	41.2%
Asian-American	52.2%	51.3%	55.8%	49.6%	52.3%
African-American	46.9%	51.1%	53.2%	49.1%	53.3%
Latino	56.9%	48.2%	47.3%	51.1%	47.4%
Native American	54.4%	54.2%	51.5%	48.8%	51.2%
Hawaiian & Pacific Islander	51.6%	48.6%	44.9%	51.1%	47.0%

Responded by collecting the photographs and social credit data of 3,000 more potential mulchees, particularly women, trans people and/or people of colour

Analysis of Accountability

- Accountability: the ability of people to address any failure or inaccuracy produced by an algorithmic system
- Failure in accountability:
  - Incorrect classification of someone as elderly
  - Incorrect analysis of social connections(i.e. no social media)

User Feedback

"I don't know if I'm comfortable eating Nonna"
Judith, grand-daughter of a potential mulchee.

"Until that little robot showed up I'd never even heard of this program. Say, how did you get in my house, anyway?"
Robert, a potential mulchee classified as "not to be mulched".

"Do the papers know about this kind of thing? There ought to be some investigation!"
Joan, a potential mulchee classified as "to be mulched".

"Ow!"
Colin, being mulched.

Accountability: Solution

- Pre-mulching accountability mechanism:
  - Involves a drone informing the selected individual and giving them the opportunity to state whether they feel their selection was correct

- Post-mulching mechanism:
  - Involves reaching out to the friends and family of the mulchee and offering them a 30-day window to appeal.

Analysis of Transparency + Solution

Are user aware of how the algorithm reaches decisions?

Solutions

- During a pre-mulching accountability mechanism, provides a comprehensive list of variables that were considered in the decision-making process, and the scores the mulchee received for each variable
- Encourages more rigorous consent from participants
- Website where members can interact

NOTICE

THIS AREA UNDER 24-HOUR MULCHING CONSIDERATION