Week 4 Discussion

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Today’s Content

- Data’s Day of Reckoning
    - By Loukides M, Mason, H & Patil DJ
- A Mulching Proposal
    - By Keyes, Hutson, & Durbin
- Reminder
- Q&A

Data’s Day of Reckoning

- Ethical data practices
  - Important in real-world products
  - Not exist in college education
- Implementing effective training
  - Requirement / Electives
  - Incorporated into whole curriculum
- Checklist for data-driven applications

Data’s Day of Reckoning

- Ethics need to be part of an organization’s culture
  - Empower individuals to stop
  - Escalate issues without the fear of retaliation
  - Ethical challenges in hiring process
  - Including ethical impact in product review
  - Reflect diversity in teams
  - Clear ethical principle

Data’s Day of Reckoning

- Regulations
  - Usually lags the pace of innovations
  - Make policy without experts with necessary technical background
  - General Data Protection Regulation (GDPR) in European Union
  - Digital privacy law in California

Conclusion & Key takeaways

- Ethical training for professionals
- Ethical guideline and culture
- Regulations
- “Talk about Ethics!” for future

Discussion Questions

1. **Balancing Data Use and Privacy**: "In an era where data is everywhere, how can we balance the benefits of using data for analysis and the need to protect people's privacy?"

2. **Ethical Implications of Data Decisions**: "When data-driven decisions impact people's lives, what ethical considerations should data scientists keep in mind to ensure fairness and responsibility?"

Question 1

- Why data ethics is important?

A Mulching Proposal: Ethics in Algorithmic Systems

Introduction

- Algorithmic systems are ubiquitous in everyday life
- These systems may create unjust or unfair outcomes
- Standards / Guidelines have been developed to ensure good values are being used

FAT Framework

- Importance: Scrutinizing algorithms in social domains
- Focus on:
  - - Fairness
  - - Accountability
  - - Transparency

The Problem

- World-hunger due to low amounts of fertile soil to grow food
- Growing elderly populations

The Proposed System: Mulching

- Proposal: “mulching elderly people into high-nutrient slurry, which could be used as a source of fertilizer to solve food scarcity issues”
- Algorithm:
  - ID low social connectivity people on social media
  - Extract face image from profile
  - Computer vision algorithm to predict age >60. Filter for elderly
  - Send database to UAV system which locates and collects elderly

Fairness of the Algorithm

- Sampled 900 images of individuals to determine demographics have largest % of being mulched.

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

	Mulching Probability				
Race	*Cis Man*	*Cis Woman*	*Trans Man*	*Trans Woman*	*Non-Binary Person*
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%

- We see that white cis males disproportionately did, which is unfair. The algorithm team

Accountability of the Algorithm

- The computer vision algorithm could fail, incorrectly classifying someone as elderly, or the analysis of social connections might be inaccurate due to a person’s limited presence on social media sites
- **Responsibility for decisions:** It's essential to clearly identify who is accountable for the algorithm's decisions, including any ethical violations or harms.
  - **Death Doula**
- **Redress and Rectification:** Systems must be in place to handle grievances and correct harms caused, allowing challenges and reversals of the algorithm's decisions, especially in cases of errors or injustice.
  - **Serial Numbers**

Transparency of the Algorithm

- **Operational Clarity:** Transparency is crucial given the controversial nature of the algorithm. There should be clear and accessible information about how the algorithm functions, the criteria it uses for making decisions, and the logic behind these criteria.
    - Personal Data
- **Public Understanding and Trust:** Ensuring the public understands the algorithm is key to maintaining trust, especially given the sensitive nature of the subject. This might involve public disclosures, open dialogues, and possibly even public oversight.
    - www.mulchme.com

Cont.

To make the algorithm more accountable and transparent the authors suggest an pre-mulching accountability mechanisms:

- On location of an elderly person the drone explains why they are being collected
- The elderly person has 10 seconds to present reasons why they should not be collected
- A customer service member is then contacted to continue bargaining with the elderly person
- The customer service member ultimately decides whether to proceed with the collection or not

Conclusion

- This paper highlight the dangers of blindly trusting algorithms and guidelines
- Highlights the need for ethical considerations in technological advancements during all stages of development
- Applying frameworks such as FAT is a minimum.You could satisfy a framework and still be unethical, as demonstrated by the satire here

Discussion questions

1. **Ethical Use of Algorithms**: "In situations like Logan-Nolan Industries, where algorithms decide on serious matters, how do we decide what's ethical for these algorithms to do, especially when it involves people's lives?"

2. **Responsibility in Algorithms**: "When algorithms make mistakes or cause problems, who should be responsible? How can we make sure someone is accountable when these systems are so complex?"

Question 2

Any feedback? Suggestions for improvement?

What is for this week

- Fri, Feb 02 **Quiz 2 due**

What is for next week

- Fri, Feb 09 **Quiz 3 due**

Any questions from class, quiz 1, or final project

- Feel free to just raise your hand or come up and ask in private

- Other people can leave early or discuss with your teammates about the final project if you want to