Lab 15: Ethics discussion

Solutions

November 11, 2021

About this lab

Choose one of the two algorithmic applications below that you are most interested in thinking about and discussing in class with a small group of your peers. Videos and/or readings are provided for each topic, as well as the questions you'll consider with your peers in class. I strongly encourage you to take notes on the questions as you watch/read/listen, so you can refer to them during your in-class discussion (you could take notes here, for example!).

Option 1: Predictive Policing and Predicting Recidivism **Option 2:** Predicting Financial Risk

The resources and questions provided are designed to increase awareness around the complexity of the ethical considerations in data science, and around algorithms in particular.

Please complete this very brief Google form to specify you choice.

Part 1 **Small group discussion (25 minutes)** For this discussion, each student in the group will be in charge of managing, questioning, recording, or time keeping (if your group only has three people, then the Manager should also keep track of time). The purpose of establishing these roles is to support the overall collaborative learning process and to facilitate a richer discussion where all voices are heard.

Unless you want a particular role, you can randomly assign using this sequence: Identify who in the group has the next birthday—they'll be the Manager. Identify who in the group has the next birthday after that—they'll be the Questioner. Identify who in the group has the next birthday after that—they'll be the Recorder. If you have a fourth person in your group, the remaining person will be the time keeper. Otherwise, the manager can also keep time.

Manager:: Makes sure all voices in the group are heard, and promotes active participation of all members. Makes sure the group remains focused during the conversation.

- Address group members by name and ensure that everyone contributes
- Help a student who hasn't talked much to enter the discussion
  - "[Name], what do you think about. . . ?"
  - "I would like to hear what you think, (name)."
- Ask different members to read the conversation questions on a rotating basis

Questioner: Pushes back when the group comes to consensus too quickly without considering a number of options or points of view. The questioner makes sure that the group hears varied points of view, and that the group is not avoiding potentially rich areas of disagreement.

- Raise counter-arguments and constructive objections
- Introduce alternative explanations and perspectives
- Challenge group assumptions

Recorder: Takes notes on important thoughts expressed in the group.

- Take notes on important thoughts expressed in the group
- Copy the relevant questions for your group from the "Lab 15 prep" document and share it with your group and the professor.
- Bullet points with important thoughts expressed while discussing the questions

Time Keeper: Monitors time and reminds group how much time is left. Moves the group along so they can discuss all questions.

- Take care of time management
- Keep an eye on the clock
  - "I think we need to focus on _____ so we get to discuss each of the questions."
  - "We have _____ minutes before we need to _____."

Part 2 **College applications** In your first group, you unpacked some of the challenges around the use of algorithms in either the criminal justice system or the finance industry. Now let's think about an algorithmic application all of us can relate to directly: applying to college!

Consider the various sorts of information you had to submit in your college applications: demographics, standardized testing scores, high school transcripts, essays, etc. It used to be that humans in college admissions offices would sift through all this information and rank applicants based on the information they submitted. As technology and data science methods improved, more efficient ranking systems were created. Tech companies came along with admissions software that promised to improve results, cut costs, and "make admissions systems more equitable, by helping schools reduce unseen human biases that can impact admissions decisions." More recently, some schools have even accounted for information not explicitly submitted by prospective students: data from their web browsing histories and social media presence.

2.1 In a sense, the early ranking systems are still algorithms. But they were more interpretable and clear as compared to some of the black-box algorithms applied today. Which do you think is better for determining whether or not someone gets into college? Would you prefer to have a human analyze your college essay, or an algorithm? Explain your choice. (Consider how you're defining "better", and who you're considering "better" for.)

2.2 Does it have to be a forced choice? Can you come up with an alternative?—so it's not a forced choice of "would you rather rely on the daily whims and biases of an (admissions officer, hiring employer, etc.) or rely on a computer algorithm based on biased data?"

2.3 A Brookings Institute report on *Algorithmic bias detection and mitigation: Best practices and policies to reduce consumer harms* notes that "Fairness is a human, not a mathematical determination, grounded in shared ethical beliefs." Share with each other the different ways your first group defined "fairness" in algorithms. Can you agree upon what notions of fairness are (most) important to consider in this context? What are some ways algorithm operators and developers could ensure this fairness in an algorithm designed to aid college admissions officers in selecting applicants to accept?