
Introduction to Machine Learning

ECE 580
Spring 2022

Ethical Frameworks #5 – Healthcare Data Reflection Prompts

Submission Instructions

Submit your work to the corresponding assignment in Gradescope. Although Gradescope accepts multiple file formats, they strongly recommend submitting your assignment as a single PDF file.

You are responsible for ensuring the uploaded file is: 1) the correct file, 2) complete (includes all pages), and 3) legible.

You are responsible for ensuring your submission is on-time as determined by the Gradescope server system clock. The Gradescope server system clock may differ from your local computer system clock.

You are responsible for tagging the pages that correspond to each question. Pages may be tagged after submission, even if the submission deadline has passed. If you are submitting close to the submission deadline, submit your assignment first then immediately return to tag the pages.

Scoring Information

Individual questions will be scored holistically on the 9-point scale described in the syllabus. The discussion preparation score will be the equally-weighted average of the individual scores for each question.

Late Submissions

Late submissions will be accepted up to 5 days after the submission deadline, with the following point penalty applied if its late submission is not excused: ¹

- 1 day (0⁺ to 24 hours) late: no late penalty
- 2 days (24⁺ to 48 hours) late: no late penalty
- 3 days late: no late penalty
- 4 days late: 1.6 point deduction
- 5 days late: 3.2 point deduction
- 6 or more days late: score = 3.0 (not accepted for credit)

A reflection score will not drop below 3.0 as a result of applying the late penalty point deduction.

¹One day = one 24-hour period or fraction thereof.

Reflection Prompts

The reflection questions are asked within the context of the first case study, “Facial Recognition Software.” You may refer to the “Ethical Frameworks” document as needed when responding to the discussion prompts. You may not take direct quotes from the “Ethical Frameworks” document when responding to the discussion prompts.

Respond to each prompt (question or sub-question) with at least 2 full and complete sentences.

1.
 - (a) Explain the consequentialist ethical framework in your own words.
 - (b) Explain the virtue-based ethical framework in your own words.
 - (c) Explain the deontological ethical framework in your own words.
2. From the perspective of a consequentialist framework for ethical reasoning,
 - (a) explain why the technical accuracy and reliability of the software is important, or explain why it is not important.
 - (b) explain why the motivations of the company’s leadership matter, or explain why their motivations do not matter.
 - (c) explain why openness and algorithmic transparency matter, or explain why openness and algorithmic transparency do not matter.
3. From the perspective of a virtue-ethics framework for ethical reasoning,
 - (a) explain why the technical accuracy and reliability of the software is important, or explain why it is not important.
 - (b) explain why the motivations of the company’s leadership matter, or explain why their motivations do not matter.
 - (c) explain why openness and algorithmic transparency matter, or explain why openness and algorithmic transparency do not matter.
4. From the perspective of a deontological framework for ethical reasoning,
 - (a) explain why the technical accuracy and reliability of the software is important, or explain why it is not important.
 - (b) explain why the motivations of the company’s leadership matter, or explain why their motivations do not matter.
 - (c) explain why openness and algorithmic transparency matter, or explain why openness and algorithmic transparency do not matter.
5.
 - (a) Identify the ethical framework that aligns most closely with the critics’ perspective that always returning the top five matches contributes to biased outcomes, and explain why that framework aligns with this perspective.
 - (b) Identify the ethical framework that aligns most closely with the critics’ perspective that individuals with prior arrests are more likely to be arrested for future crimes, and explain why that framework aligns with this perspective.

- (c) Identify the ethical framework that aligns most closely with the critics' perspective that women and people of color are at disproportionate risk of being identified as suspects by the system, and explain why that framework aligns with this perspective.
6. Referencing the consequentialist ethics framework:
- (a) Describe your assessment of the net result when potential good and potential harms of current implementations of facial recognition are weighed against each other.
 - (b) Describe your assessment of the net result when potential good and potential harms of future implementations of facial recognition are weighed against each other.
7. Referencing the deontological ethics framework:
- (a) describe the principles that would help the developers at Fluvian determine how to fulfill their obligations.
 - (b) describe the principles that would help the police department programmer determine how to fulfill their obligations.
8. Referencing the virtue ethics framework, describe the virtues and vices you see displayed in the way people in different roles acted in the case. Choose two particular roles and describe one or two steps those persons could take to develop more virtuous character in this situation.
9. (a) Explain how the consequentialist framework for ethical reasoning would guide your decision-making on determining which next steps you ought to take, and how to do so.
- (b) Explain how the virtue-based framework for ethical reasoning would guide your decision-making on determining which next steps you ought to take, and how to do so.
- (c) Explain how the deontological framework for ethical reasoning would guide your decision-making on determining which next steps you ought to take, and how to do so.
10. If burdens and benefits are unequally distributed, how would each of the ethical frameworks prompt the actors in the case to respond, to the extent of their ability? Choose two characters or roles mentioned in the case, and answer this question for each of them. Reference one or more specific virtues that would guide a virtue ethics-informed response, as well as one or more specific principles that would guide a deontology-informed response.

Reflecting on the case study exercises and discussions throughout the semester:

11. Discuss how your understanding of your own values and moral intuitions has expanded or changed after reflecting on and discussing the four case studies with classmates.
12. (a) Describe how you think these ethical frameworks will be useful when you have to evaluate complex situations in the future.
- (b) Describe how you envision yourself drawing on your "decision-making toolbox" when facing values conflicts in a work or class environment.