

CS 4973-5 – Responsible ML – In-class activity

Note: You may complete this assignment in pairs.

Background:

In this assignment, you will perform a Value Sensitive Design (VSD) analysis of a hypothetical “student success” software system. This is an exercise in applied ethics, critical thinking, and creativity. Your responses will be in the form of thoughtful answers, rather than code, pseudocode, or mathematical formulas. For your reference, there is general information available about VSD and its methods at the following website: <https://vsd.ccs.neu.edu>.

Scenario: The Wayfinder Student Success Engine (WASTE)

This is a made-up example.

Imagine you live in a medium-sized city with an older, dense downtown area that is surrounded by more suburban areas.

Recently, a growing number of younger tech industry people have begun moving into the downtown area and using lots of semi-autonomous delivery vehicles for their food orders, etc. The people who already live there, most of whom are half a generation or more older, are concerned about new technological systems that might disrupt the “character” of their neighborhood (i.e., of downtown).

Several of them bring the following proposed ordinance to the city council:

1. Any semi-autonomous vehicle operating downtown must weigh less than 100 lbs (45 kg), travel at less than 15 mph (9.5 kph), and be narrower than 2 feet (61 cm).
2. ALL semi-autonomous vehicles must have clear markings (such as a URL or phone number) that accurately identify the vehicle’s operator.
3. NO vehicle shall record or upload video or other recorded data directly to “the cloud”.
4. NO semi-autonomous vehicles are permitted to stop within 15 feet (4.6 m) of a ramp or other wheelchair-accessible entrance to a building.

Part 1: Discuss at least the following questions, plus any related ones that might arise. At least one person in the group is responsible for taking notes on your discussion as it unfolds, so that you can accurately report back to the rest of the class.

- The residents advocating this proposal want it to preserve the “character” of their downtown neighborhood. What notion of ***character*** do they seem to have in mind?
- How likely would those ordinances, if enforced consistently, be to improve the safety performance of the semi-autonomous vehicles? Why?
- How likely would those ordinances, if enforced consistently, be to preserve the residents’ privacy? Why?
- How likely would those ordinances, if enforced consistently, be to reduce the likelihood that any company would roll out (no pun intended) an semi-autonomous vehicle delivery system? Why?

Part 2: After discussing the questions in Part 1, you should begin applying a values-sensitive design (VSD) framework to this scenario. Discuss and answer the questions below.

Question 1: Who are the *direct* and *indirect stakeholders* here? For each one, briefly explain the most important *values* they may hold, that are at stake in this discussion.

- Direct Stakeholders (and associated values)
- Indirect Stakeholders (and associated values)

Question 2: A crucial part of VSD analysis is technical inquiry. That involves a careful investigation of what technical features of a technology are possible, and how those features could be implemented in a way that is consistent with important values. Based on what you have learned in this course so far (and on prior knowledge), how would you design the vehicles, and/or their training data, etc., to address these two questions?

Question 3: Imagine that the ordinances ARE passed and enforced. Briefly describe some of the worst-case scenarios that could result. What bad thing(s) could happen? To which stakeholders? Which stakeholders' values or interests would be harmed?

Note: you don't need to be 100% comprehensive. You only need to identify scenarios that are foreseeable, consequential, and likely. You don't need to talk about extreme events, such as alien invasions!

Question 4: Imagine that despite its popularity with many downtown residents, the proposed ordinances are highly unpopular with many newer residents, who view them as "unneighborly" and "anti-progress".

- i. which stakeholders' values or interests seem to be in conflict, and why?
- ii. which stakeholders' values or interests would be weakened or imperiled if the ordinances were passed?
- iii. which values or interests should be given priority?
- iv. why are those value tradeoffs appropriate?

Hint: Are any stakeholder values illegitimate in this context? Are there moral rights that need to be prioritized or "moral lines" that cannot be crossed? And which of the remaining values are strongest?

Question 5: Thus far, our analysis has assumed a U.S. context. Would anything be different if this discussion occurred in a different country? Why or why not? What factors are relevant here?