Role Play Scenario:

Ethical Implications of the Adoption of Facial Recognition Technology

Activity developed by the School of Engineering and Technology, Miami Dade College

Table of Contents

I. OBJECTIVE

The objective of this activity is to introduce the role of ethics and social responsibility in technology and computing via a role-playing exercise that demonstrates to college students how new technology could impact the society. In this case, the role-playing activity simulates a city hall discussion about the adoption of facial recognition technology by a local police department.

The goal of the role-playing activity is three-fold: to get students (a) to consider the ethical values of the decision-makers involved, (b) to reflect on how those values inform the decision-making of the various individual involved, and (c) to have students arrive at a decision collectively about whether or not they would recommend the adoption of facial recognition technology if they were in the assumed roles.

Ideally, ethical considerations should emerge organically in this exercise from the student conversations because of the various stakeholder persona involved. Additional content and/or programming can also be combined with this activity to augment the amount of information on ethics provided to the students. This is up to each organizer. For example, the event can be preceded by a presentation and/or panel discussion on the development and implementation of facial recognition software with individuals who have background and/or experience with this subject area.

II. ACTIVITY DESIGN

The role-playing scenario is designed to be used in a range of course types, including smaller courses (around 15-30 students) to larger workshops (around 100 students). At least 1 hour is recommended for the activity, but it can be compressed, especially if students are provided with the scenario and assigned roles prior to class time. The activity is designed in three phases led by a facilitator.

Phase One: Preparation

Time estimate: 30 minutes

- Introduction to empathy (10 minutes)

  Before asking the students to take-on different profiles in a facial recognition role-play scenario, it is recommended to engage them in a brief dialogue and exercise focusing on the role of empathy in ethical design. One of the primary methods of empathy training is to encourage a student to take on the role of another person. Empathy is considered a motivating factor for unselfish, prosocial behavior, whereas a lack of empathy is related to antisocial behavior. Empathy, however, is not just about hugs and pats on the back. It is a critically valuable skill that can make individuals more productive in work environments that require solutions-design and collaboration.

- Introduction to scenario + assignment of roles (10 minutes)
  The scenario is introduced to the students by the lead workshop facilitator. During this phase the students are broken into groups of 6 to assign them their roles. Each student should randomly select one of the 6 roles. However, it is highly recommended to ask for a volunteer on each group who is willing to take on the Moderator Role (Mayor of the City) because that role has more responsibility than the others.

- Independent work by students to understand their role (10 minutes)
  Once the students are assigned their roles, they have to prepare to represent the role during a “City Meeting” when they will interact with the other roles (Phase Two). At this point the students should be able to apply empathy as they reflect on

the values that inform their assigned roles, and learn from each other about the nuances of their particular roles.

The goal of Phase One is not to resolve what should be done; rather, the students should start to generate “for and against” arguments consistent with the roles that they are representing.

Phase Two: Role-Playing

Time estimate: 20 minutes

The goal of this phase is to have the table groups share their point of views and arrive at a general consensus on how to proceed at the city hall meeting regarding the implementation of facial recognition technology by the City Police Department.

Once the lead workshop facilitator guides students to finish the individual reflection portion, the Moderator from each group will take over as City Mayor at each table and engage the rest of the roles in meaningful dialogue about the use of facial recognition technology.

The overall purpose/goal for this phase is to have each student consider the values that inform the behaviors and decision-making of the roles they are assigned. This is an opportunity for each student to apply empathy as they consider the roles of others and how they play out in broader, more complex scenarios such as this case study.

An important note: each group does not necessarily have to arrive at a consensus; disagreement is okay but a majority opinion should emerge. If there is a minority view within a group, the reasons for the disagreement should be explained by the group.

Phase Three: Conclusions

Time estimate: 10 minutes

The goal of this phase is to arrive at general consensus for broader group on use of facial recognition technology and reflect about the ethical values that arise during the group discussions.

Time permitting, each group can present its recommendation on whether to proceed with the facial recognition adoption to the rest of the groups. In their presentations, the groups may include answers to the following questions:

- Which stakeholder considerations were the most significant factors in the group's decision?
- What role did computer science knowledge/expertise play in the group's decision?
- Which ethical considerations did the group think were the most important to take into account?

The activity facilitator will wrap up the activity with a loop-back to importance of empathy and the ethical implication of the use of technology.

III. THE SCENARIO

CASE STUDY: Facial Recognition adoption by the Jupiter Police Department

When involved in a criminal investigation, one of the most difficult situations for any police detective is being forced to proceed without sufficient evidence that can lead to a conviction. Often the physical evidence found at a crime scene is minimal to none, with perhaps only a poor-quality security video of the assailant, or a cellphone photo, leaving detectives to begin an investigation with only a dark, grainy image or video.

Sgt. John Smith, Supervisor of Jupiter Police Department's (JPD) Crime Information Center, related, "With the advent of cell phone cameras and people installing surveillance cameras, whether, in their homes or a business, there's now more technology out there than ever. We were seeing more and more criminal cases with photo images or video evidence, but little else to go on." In such cases, with no fingerprints, or eyewitnesses, and no facial identification technology to help identify a suspect, a detective's time was spent canvassing the area and depending on neighbors or local media to provide a lead.

Managing growing caseloads is also a constant challenge for law enforcement. Officers with the largest caseloads are actually not juggling big homicide investigations or armed robberies—but rather the high volume of "routine" cases: shoplifting, forgery, narcotics, theft—offenses often perpetrated in locations that do have video surveillance systems. However, other than assistance from local news media, this department had no way of leveraging those images. On a busy news day, crime photos and videos may not make the evening news broadcast. Without an actionable lead, this becomes a public safety issue when--given the huge caseloads, these types of cases, unfortunately, go unsolved, leaving the criminal element on the streets to repeatedly offend and inflict further damage to the community.

Solution

Face® Reveal fully understood law enforcement's need for a speedy, accurate and easy-to-use face identification solution. As a result, they provided the JPD with Face® Reveal's technology for a pilot testing. Face® Reveal is a high-speed matching facial recognition system that delivers extremely fast and reliable facial recognition to law enforcement by enhancing and organizing photos--including partial images with poor resolution and matching them to persons within an existing offender database, to assist with leads in criminal investigations.

When Face® Reveal was independently evaluated by the National Institute of Standards and Technology (NIST), part of the U.S. Department of Commerce, it achieved the highest performance evaluation as the most accurate face recognition algorithm solution on the market for “one-to-many” video searching.

Results

Sgt. Smith stated, “Since we piloted this technology, we’ve had success stories on cases that you would never think would be a success story! I’m a true believer that the algorithm--how this makes matches, is extremely accurate.”

Next steps

Before proceeding with the official implementation of Face® Reveal at the Jupiter Police Department, a formal community engagement process between city officials and various stakeholders must occur. The City Mayor will convene a diverse collection of stakeholders to receive public comment and community input, and ultimately establish a fuller understanding of how this emerging technology might impact the City of Jupiter and its residents, who are mainly individuals of minority backgrounds. Although city officials are intrigued by the economic aspects of this initiative, their primary responsibility during the stakeholder meeting is to protect the public’s interest and well-being. The stakeholder committee will have the following representatives:

- Mayor of the City (Moderator role)
- Owner of Face® Reveal
- Software developer at Face® Reveal
- Chief Technology Officer at Jupiter Police Department
- Citizen who might be affected by the use of this technology
- Local government policymaker

During the meeting the committee must decide whether to recommend that the JPD fully implements the Facial Recognition technology.

IV. ROLES

Each participant is assigned a stakeholder role during Phase One of the activity. There are six roles in total:

- Mayor of the City (Moderator Role)
- Owner of Face® Reveal
- Software developer at Face® Reveal
- Chief Technology Officer at Jupiter Police Department
- Citizen who might be affected by the use of this technology
- Local government policymaker

Role 0. Mayor of the City (Moderator Role)

As the Mayor of the City you will have the final word to determine if the Jupiter Police Department (JPD) can adopt the facial recognition technology. Your role's primary goal is to facilitate a group discussion about how facial recognition might impact the JPD's operations and the safety of the citizens of Jupiter, who are mainly individuals of minority backgrounds. You must remain focused on the various ethical implications of adopting the technology which include:

- Maximizing the safety of the public,
- Safeguarding the concerns for individual privacy rights,
- Considering the potential misuses of the technology

The final goal for this role is to conduct a vote with all stakeholders about the adoption of the technology at JPD.

Recommended steps for the Moderator Role once the activity facilitator starts Phase Two of the activity:

1. Before starting the meeting with all stakeholders, ensure that all students in your group have a role.
2. Start the meeting by quickly introducing yourself (in character) - and remind the rest of your role as City Mayor and goal for the 20-minute discussion: to have all points of view expressed and heard and to arrive at consensus on what recommendations to put forward.
3. Using a timer, give each member of your group a couple of minutes to introduce themselves (in character) and express their position, opinions, and concerns about

the JPD adopting facial recognition technology. Make sure all of the stakeholders in your group have a meaningful opportunity to voice their point of view.

4. For the remaining time, engage the group in both moving towards consensus on whether to adopt facial recognition technology and identifying considerations or conditions appropriate to their decision. Direct the attention of each group member to the question of the values that inform the decision-making in the scenario, both the values that they have in their role and those that they have as a citizen/private individual. You could also brainstorm a set of potential recommendations as a group, and then allow each stakeholder to weigh in on a proposed recommendation.
5. As the group deliberation activity comes to a close, make sure to have the group agree upon their final recommendation as a group whether JPD should proceed with Facial Recognition testing. One person per table will be asked to share in the larger debrief. In their presentations to the class during Phase Three, the groups may include answers to the following questions:

   ○ Which stakeholder considerations were the most significant factors in the group's decision?

   ○ What role did computer science knowledge/expertise play in the group's decision?

   ○ Which ethical considerations did the group think were the most important to take into account?

Role 1. <u>Owner of Face® Reveal</u>

Your role as owner and CEO of the technology company, Face® Reveal is to make sure your company is profitable by selling the product to as many companies as possible. The adoption of the technology by the Police Department will provide a significant increase in revenues to the company, which will allow you to improve the technology.

When doing your role, we would like to direct your attention to the question of the values that inform your decision-making in the scenario, both the values that you have in your role as CEO and those that you have as a citizen or private individual.

In your role as the CEO, to what extent are you concerned about the profits of the company? To what extent are you concerned about the other company stakeholders, for example, the company employees, customers, the community? What values do you think might be particularly important to your client?

As a private citizen, what are your values? How much do you value your own privacy and that of your family? Safety? What other personal values do you have?

In your actual decision-making, how will you balance your diverse values? Will the values that you have as a private citizen play any role? In the decision about your product what values do you think will or should play a role? Why?

Role 2. Software developer at Face® Reveal

You work for Face® Reveal as a software developer in the area of facial recognition. You have served as part of the technical team that designed and implemented the algorithms that detect people faces. We would like to direct your attention to the question of the values that inform your decision-making in the scenario, both the values that you have in your role as a software developer and those that you have as a citizen/private individual.

In your role as a software developer, to what extent are you concerned about the profits of the company? To what extent are you concerned about the reliability of the technology you're developing? To what extent are you concerned about any possible ill-uses of the technology? Why? What other values do you have from the perspective of the software developer? How might the values of your particular client or customer affect your design or general decision making related to that customer?

As a private citizen, what are your values? How much do you value your own privacy and that of your family? Safety? What other personal values do you have?

In your actual decision-making, what are some ways that you think values might be introduced into the product design? Will the values that you have as a private citizen play any role? What values will or should be at play in your decision-making? Why?

Role 3. Chief Technology Officer at Jupiter Police Department

As Chief Technology Officer, you are responsible for the technology implemented at the Police Department. Face recognition technology can be a valuable tool to detect and prevent criminal activity; reduce an imminent threat to health or safety; protect the public; help identify persons unable to identify themselves, or deceased persons, and improve security and officer safety. We would like to direct your attention to the question of the values that inform your decision-making in the scenario, both the values that you have in your role as a software developer and those that you have as a citizen/private individual.

In your role as the chief technology officer, to what extent are you concerned about increase in the arrest rates with the new technology? To what extent are you concerned

about the reliability of the technology you're employing? To what extent are you concerned about any possible ill-uses of the technology? To what degree are you concerned about public pushback on this technology? What other values do you have from the perspective of the software developer?

As a private citizen, what are your values? How much do you value your own privacy and that of your family? Safety? What other personal values do you have?

In your actual decision-making, will the values that you have as a private citizen play any role? What values do you think will or should be at play in your decision-making? Why?

Role 4. Citizen who might be affected by the use of this technology

Your role during the stakeholders meeting is to represent the interests of the Jupiter citizens who want to increase the security without compromising the citizens' privacy. We would like to direct your attention to the question of the values that inform your interactions in the scenario. It will be helpful for you to reflect on the fact that you are one citizen among many. Citizens have varying values and priorities. In reference to the facial recognition technology under discussion, some citizens will be willing to trade of privacy for greater safety. However, may not be. The values and concerns that individual citizens may have will be affected by their own experiences, their own perceived risks of being victims to invasion of privacy or ending up on the side of the misuse of a technology. First, consider only yourself:

As a private citizen, what are your values? How much do you value your own privacy and that of your family? Safety? What are your concerns about confidentiality? Self-determination? What other personal values do you have that are relevant to your interaction on the question of facial recognition software?

Consideration of other citizens: How do you think your own values related to this technology are similar are different from those of others in the community? Which groups of citizens do you imagine would weight some of these values differently than you? Why? How should their values be weighed against your own?

In your actual interactions and decisions, what values do you think will or should be at play? Why?

Role 5. Local Government Policymaker

The local policymaker is responsible for developing laws that safeguard people's democratic freedoms. We would like to direct your attention to the question of the values that inform your decisions our scenario.

In your role as a local government policymaker, to what extent are you concerned about public well-being? To what extent are you concerned about the agenda of one of the major technology companies in the city? How might the values of the others at the table affect your decision-making?

As a private citizen, what are your values? How much do you value your own privacy and that of your family? Safety? What other personal values do you have?

In your actual decision-making, will the values that you have as a private citizen play any role? What values will or should be at play in your decision-making? Why?

V. ACKNOWLEDGEMENTS

Support for this project was provided by the Responsible Computer Science Challenge grant funded by the Omidyar Network, Mozilla, Schmidt Futures, and Craig Newmark Philanthropies. The project team would also like to acknowledge the contribution of Georgia Tech School of Computer Science Professor Ellen Zegura.