Diversity Statement

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Machine learning systems are playing an increasingly bigger role in shaping the human experience. I believe that all people are entitled to decide how their lives should be affected by this technology, both on the individual level and the social level. It's critical to ensure that people of all background are equally informed of means to control this aspect of our lives, and have the opportunity to voice their opinion on how these systems should be implemented and regulated. I take responsibility for ensuring this equity both as a researcher whose work can help shape the social impact of machine learning system and as an educator who can help inform the next generation of workforce. I'm committed to promoting diversity and inclusion in the following aspects of my work as a faculty member.

Research: put diversity is at the core

Diversity is at the core of my research. The key motivation for my work is that people of diverse backgrounds can have different objectives, constraints, and needs when interacting with machine learning systems. The mainstream paradigm of building machine learning systems is largely oblivious of such diversity: the identity of people who contribute and ultimately influence the system is thrown away during data aggregation, and adaptation to each individual is an afterthought at best. And inevitably these systems suffer from a feedback loop where the output becomes the input in which diversity is gradually eroded. And to ask these systems to account for the diverse needs of humans is unfair—they are not informed. So my research focuses on building mechanisms where the system can continually collect such information through interaction with humans. I show that once such a mechanism is in place, the system can not only improve equity and narrow the performance gap between individuals, but also achieve higher performance on average.

Outreach: expanding the pool

I'm focused on two aspects of outreach: to ensure diversity in future engineers of machine learning systems, and to ensure that people of all background and interest are equally informed to influence the design and regulation of these systems. An effective approach that covers both aspects is to engage students in thinking about the impact of machine learning systems from an early age. My approach has been focused on research showcase at expos of activities that a diverse group of students are passionate about. One of such activity is Quizbowl, a trivia game that's popular among students of all ages around the US. We participate in Quizbowl expos by hosting human vs. computer competitions where students compete against our system as well as cooperative tournaments made of human-computer teams. We also create a system to help people write more challenging Quizbowl questions by providing feedback using our computer player. Through this effort, we have attracted many students to participate in the implementation and regulation of machine learning tools to make Quizbowl more fun and fair. We attracted many high school students to work on engineering better systems. For student who will not pursue machine learning in the future, this experience can also inform their future decisions when navigating the complex social and personal impact of machine learning.

Personal: learning from feedback

Fostering an inclusive environment is a top priority in my research group and classrooms. I believe that the process of mentoring is just as much learning about the mentee as the other way around, and the best way to do so is by learning from feedback. The foundation of that is a culture where feedback is encouraged and valued. For junior students, giving feedback in a public setting can be challenging. So my first priority in building a lab and in teaching is to ensure sufficient face time with each student and to provide channels where they can provide feedback anonymously. In my past teaching experience, I would host weekly threads in Piazza where I welcome students to provide feedback anonymously on what can be improved about my teaching. The student's suggestions revealed a lot of my blindspots, e.g., how I tend to talk to fast and repeat myself on more difficult concepts (because I'm nervous), and that students weren't given enough time to come up with questions before me moving on to the next subject. One thing that I learned is that if I'm consistent in welcoming feeback, even those reluctant to speak at first will open up with time. With junior PhDs and undergrads that I help supervise, I periodically ask them what I can improve. And given time, even those who appear reserved at first became really good at providing feedback. And despite this conversation being one-on-one, I find it help with the conversation among students as well. I find this process very rewarding.