Teaching Statement

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I believe teaching and mentoring are central to academia. My teaching philosophy involves **instilling creativity, critical thinking, research ethics, discipline and hard work** in students. I believe that it is extremely important for future students to have deeper conversations about ethics that guide them not only in their research and collaboration but also help them understand the **societal implications** of the technology they create. I also believe that developing critical reflective thinking about the technology is as important as cultivating mathematical rigor and technical finesse.

Below, I describe some of the pillars of my teaching philosophy:

1. **Instilling ethics training and reflective thinking about the societal implications of technology**: To cultivate discussions about ethics and broader societal implications of the technologies that we create, I will develop training and teaching modules by collaborating with experts in ethics and fairness areas and make them either as mandatory readings or as good practices in projects.

2. **Fostering creativity and collaborative thinking**: Some of the examples via creativity and critical thought can be implemented in traditional classroom teaching is by providing students various media of expression, either through coding, open-ended projects, video games and augmented reality. Besides weaving creativity into instruction, I will pay special emphasis to bring it into research design by fostering out-of-the-box thinking.

   Based on my personal experiences with collaborative work, I think it is important to realise the importance of listening and an open dialogue while participating in a interdisciplinary discussion. I propose to promote good interpersonal skills and a synergistic work environment by leading by example. I will also craft training modules to impart such skills and provide ample opportunities to students to participate and contribute in discussions.

3. **Bringing innovative classroom teaching tools**: I plan to bring in a discussion and interaction in classroom, by employing various networking tools like *Piazza*. This increases student engagement and assists in long-term retention. I want to develop effective teaching methodologies that increase student engagement, attendance, retention and learning in the classroom. Some of my key pedagogical foundations include: active learning in the classroom, interactive engagement between faculty and students and between students and their peers, and a synergistic environment on the confluence of teaching (imparting necessary knowledge), application in real life scenarios, and research (seeking for avenues of growth with the current understanding).

4. **Designing new collaborative courses and mentoring**: At graduate level, I can teach data mining and related courses. At advanced graduate level, I can propose a project based collaborative course, whose content includes the myriad ways in which auxiliary data sources are used to measure important outcomes of human development, like poverty, education, electricity access etc. via the use of machine learning techniques.

   In the past, I have been involved with mentoring high school and undergraduate students, who has all gone to pursue higher education. I plan to continue mentoring especially high school students with special focus on increasing the participation of women, person with disabilities, LGBTQ communities and other historically under-represented groups in CS via many programs like Computing Research Association's (CRA) Collaborative Research Experience for Undergraduates (CREU) and Distributed Research Experience for Undergraduates (DREU) [1].

5. **Building diversity of thought and experiences and promoting inclusive spaces where ideas can be openly shared**: Diversity brings innovation; and I believe in bringing people of diverse thoughts, experiences and skill sets so that the research products that we create are reflective and inclusive of all. I will actively seek diversity and inclusion in my teaching, and make explicit effort to point out unconscious bias while forming teams for research and reviewing papers/proposals. [2]

[1] https://cra.org/cra-wp/dreu/

[2] https://royalsociety.org/ /media/policy/Publications/2015/unconscious-bias-briefing-2015.pdf

6. **Nurturing scientific writing, presentation skills**: It is very important for a graduate and undergraduate student to learn how to effectively communicate their ideas via scientific writing and presentation skills. I plan to build these skills by providing students with an early exposure to writing and reviewing manuscripts; and encouraging them to submit their work to conferences and workshops early on.
