Teaching Statement

Stephen Tu

During my time as a graduate student, I have had the pleasure of teaching and interacting with many students. A key motivation for pursuing a professorship is the ability to continue mentoring students. As a professor, I would be willing to teach undergraduate courses in machine learning, optimization, probability theory, and control theory. At the graduate level, I am interested in teaching a seminar course that ties together reinforcement learning and control theory, as well as graduate level optimization and statistical learning theory. I am also excited about designing a new “full-stack” course at the undergraduate level that starts from the first principles of the Euler-Lagrange equations of motion and ends in students deploying a controller on an actual inverted pendulum. This would be a fun hands-on way to introduce undergraduates to key concepts in engineering while grounding it in a real application.

At UC Berkeley, I served twice as a graduate student instructor (GSI) for CS189, the undergraduate machine learning course. My duties as a GSI included creating problem sets/exams, holding review sessions for exams, answering student questions on Piazza, grading assignments, holding office hours, and teaching a discussion section. Furthermore, I was involved in an undergraduate mentorship program where graduate students are assigned an undergraduate mentee from an underrepresented group in computer science. As a mentor, we met with the students throughout the semester and provided advice ranging from what courses to take, how to obtain research apprenticeships, to how to apply to graduate school.

At MIT, I had the pleasure of mentoring two fantastic high school seniors as part of the MIT PRIMES program. Together, we worked on a project where we developed a probabilistic model of cache contention between shared memory multiprocessors. One of the students I mentored is now a graduate student at MIT CSAIL, and recently won a best paper award at a top-tier conference. I am very proud to have mentored both students at the beginning of their careers. I was also a guest lecturer for the initial offering of 6.885, which is the MIT course “From ASCII to Answers”.

My passion for teaching extends well beyond academia. I believe it is important to be engaged with the broader community. I maintain a blog\footnote{https://people.eecs.berkeley.edu/~stephentu/blog} where I regularly discuss topics that are related to my research and go through derivations that I find particularly interesting. I have also given several talks at local industry tech meetups.

Furthermore, in the fall of 2015, I attended the Recurse Center (RC) in New York City as a resident. The Recurse Center is a self-directed programmers retreat, where programmers at various points in their career come together to further develop their skills as a computer scientist. As a resident, I gave lectures on various topics in machine learning and convex optimization. I also paired program with other RC members on their projects. I am still an active member of the community, frequently giving advice to other members ranging from technical explanations of concepts in machine learning to reviewing statement of purposes for graduate admissions. In the summer of 2017 when I interned in NYC, I participated in the “Data Science Fridays” group at RC, which was a self-organized group of students that were interested in topics in machine learning and data science. Many of the RC members have entered computing through non-traditional backgrounds, and it is extremely rewarding to me to help provide these members with the resources to achieve their goals.