Teaching Statement

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During my undergraduate and Ph.D career, I have taught various topics (networks, operating systems, security, cryptography) to a diverse group of students. My overarching goal in teaching is to provide students with a solid foundation to effectively pursue computer science projects, whether these projects are in industry or academia. As a professor, I am excited to bring my unique experiences working with industry, startups, and online (Coursera) courses to the classroom.

Assisting with online courses has taught me valuable pedagogical techniques and given me exposure to a diverse group of students. During my Ph.D, I helped Venkat Viswanathan, a professor in Mechanical Engineering, create the first engineering Coursera class at Carnegie Mellon University, and we have worked with over 5000 learners since its inception. Furthermore, as an Stanford undergraduate, I was a TA for the first iteration of Dan Boneh's Introduction to Cryptography Coursera class where we worked with over 30,000 students. One major benefit of these courses was the *feedback data*. Compared to an ordinary university class, we received substantially more feedback (both in magnitude and variety), which helped to quickly identify the class's shortcomings in understanding. As a result, I learned the importance of constantly asking for feedback and using it to adapt the course accordingly. Moreover, students, many times, have varying technical backgrounds, but providing the relevant supplemental material can ensure that students are on the same page to effectively learn the material. Consequently, I plan to have my own version of an online course (most likely in security) because I believe it will help me improve as an instructor as well as open access to my course material.

I plan to have lab-oriented classes with open-ended, student-managed projects. As a TA in computer networks and systems security at MIT, I observed that students learned the most about a particular system while doing labs. To complement labs, I plan to have a major group project in my courses because the project not only helps solidify concepts but also teaches effective project management and group collaboration skills. I will strive to offer both research and industry projects so that students can choose a project experience that matches their interests. I will also leverage my industry connections to bring relevant industry projects to my class so that students can obtain practical experience. Therefore, this project-based approach to systems classes will help solidify students' understanding while preparing them for real-world challenges.

My background working with startups and industry is useful when teaching advanced seminars and entrepreneurship classes. During my Ph.D, by advising over 30 startups, I have developed a strong network of industry executives that are willing to give talks and spend time with students. Experts from this network can provide an industry perspective (in addition to a research one) on various topics in my advanced seminar classes. I believe that my industry background and network will not only introduce unique perspectives into courses but also make me an effective mentor to students.

Finally, I am extremely passionate about computer science outreach and believe it is an important part of being an educator. Despite increased demand for computer science skills, many still lack access to high-quality education. During my undergraduate, I was the Director of Student Recruitment for Educational Studies Program, a program where college students teach classes for high school students. The past two years, I was a resident at Recurse Center where I gave lectures on various topics in cryptography and security. Both positions heavily focused on working and engaging with underprivileged and under-represented groups. As a professor, I will continue to engage with local communities and include outreach components into my courses through projects and speakers. Exposing students to these additional perspectives is important to helping them understand the broader social impacts of computer science.

I am excited to teach classes in security, applied cryptography, computer networks, and operating systems. My background will help teach students important fundamental and practical concepts in these topics, and I believe that my unique experiences will make me an effective instructor and mentor for students.

Teaching Experience

Teaching Assistant for MIT Computer Networks (6.829) – Fall 2016
Teaching Assistant for MIT Computer Systems Security (6.858) – Fall 2012
Teaching Assistant for Stanford Introduction to Cryptography (CS 255) – Winter 2012
Online Course Assistant for Introduction to Cryptography Coursera Class – Winter 2012
Online Course Assistant for Statistical Thermodynamics: Molecules to Machines – 2014-current
Recurse Center, Resident – June 2015, May 2016