Teaching Statement

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Throughout my time as a student, I had the pleasure of doing projects and taking classes that I looked forward to every day, where I truly got to engage with the material in a way that helped me master it and left me with a deep enjoyment of the subject. Now, as a mentor, teaching assistant, and in outreach programs, I have found great purpose in the teaching side of this equation. I look forward to working with students as a professor both in and out of the classroom.

Mentorship

Academic mentorship. Mentoring is what made me realize I wanted to pursue a career as a professor: I genuinely found the experience of working with junior students and helping them achieve their research goals to be one of the most rewarding experiences of my life.

My biggest opportunity for mentorship was for a project at the end of my Ph.D. program. I supervised three Boston University undergraduate students doing research in cryptography for 1.5 years, culminating in a conference publication at Applied Cryptography and Network Security 2021. Two of those students have since entered Ph.D. programs in cryptography; one of them informed me that her interest was a direct result of my mentorship. During this research project, I ensured that my mentees had appropriately scoped main and stretch problems with reasonable deadlines that would build their skills for the next phase of research. I held weekly meetings with them and also ensured that I was approachable and available for issues that popped up between meetings.

I am also mentoring a current undergraduate student at Princeton who is acting as my research assistant for an ongoing policy-heavy project. At the beginning of the project, we met frequently to develop the formal goals, scope, and methods for our analysis; now that those are set, we conduct periodic check-ins to see how her work is going and make adjustments when needed.

In addition to formal academic mentorship, I also acted as an unofficial academic mentor for at least four junior Ph.D. students in my graduate program. I walked these students through the process of reading cryptography papers, taught them how to review papers, and helped them build their first research plans. I am especially thrilled to have been specifically sought after as a role model for female students in the group.

Personal mentorship. I have found purpose in mentorship ever since my undergraduate experience as an officer in PRISM (People Respecting Individuals' Sexualities at Mudd), where I led a number of small group discussions around LGBTQ+ issues. Around the same time I also participated in a program called Building Bridges, in which I developed my skills for conversing about difficult topics with students of many racial, sexual, and cultural identities. These approaches for leading and participating in constructive dialogue have remained relevant throughout my career. During the pandemic I was contacted by younger students in my graduate program who were struggling to adapt to graduate school life; I listened to each of them and helped them with strategies to address their various problems, from financial to motivational to interpersonal. I am proud of my reputation as someone who is approachable and who can help problem-solve both academic and non-academic challenges.

High School Outreach for Diversity, Equity, and Inclusion

I have maintained a consistent interest in improving equity and inclusion in computer science and cryptography. With the goal of equity in mind, I helped build and run Code Creative, a computer science course we specifically built for Boston-area high school students who do not have access to a computer science course in their schools. And with the goal of increasing inclusion and diversity, I also built and ran the first iteration of Codebreakers, a three-week cybersecurity class for high school women that has continued with minor variations to this day. I also volunteered as a teaching assistant for RACECAR Crash Course which

prepared high school students for the Beaver Works Summer Institute (BWSI) RACECAR course run at MIT. The first offering of the Crash Course was for students primarily of races underrepresented in STEM; the second offering was for Boston-area women.

Teaching and Lecturing Experience

During graduate school, I acted as a Teaching Fellow (equivalent to a Teaching Assistant) for two separate offerings of the joint graduate/undergraduate Applied Cryptography class taught by Prof. Mayank Varia. My responsibilities included grading, running office hours, helping students on Piazza, giving assorted lectures, and behind-the-scenes work to make a smooth homework submission process. This built upon my experience as a tutor and grader in undergraduate computer science classes, where I would walk students through concepts as a combined tutor and lab assistant.

I also gained teaching experience through running the high school outreach programs mentioned in the previous part. As part of a team, I designed two introductory curricula from the ground up: one was a short six-session Introduction to Programming sessions and the other was a more intensive three week summer "day camp" on Cybersecurity. I built these lessons with the joint goals of fostering interest and building foundational skills. Building on this experience, I offered a four-hour introductory workshop on multi-party computation in a Princeton "Wintersession" in 2022, and I have also used similar principles in conducting informal mentoring sessions for undergraduates and early graduate students.

Teaching philosophy

In teaching any course, my goal is to enable an equitable and interesting learning experience for students regardless of prior opportunity. I incorporate this principle into my lessons in three practical ways: First, intertwine the teaching of core concepts with examples from a wide variety of domains and applications; many students who struggle to understand a concept in a vacuum will find an easier time understanding it by example. Second, structure the class such that formative assessments can confirm that all students have an understanding of the core concepts, including by calling on all students, quick feedback on assignments, and low-stakes quizzes to measure student progress. Third, offer assignments that allow students to interact with the topic from a wide variety of perspectives, focusing on learning by doing.

These principles hold for teaching a class on any topic, but as an example, in teaching a class on cryptography I would incorporate not only traditional assignments, but also projects incorporating encryption policy challenges on topics like disinformation, labor activism, or free speech.

Event Organization

In my interdisciplinary research area, I have found workshops and similar events to be a useful way to unite people across different research areas, and bring together different perspectives that inform the policy and technical design of cryptographic systems. To contribute to this cause, this year I am co-hosting a three-part event called "Privacy Enhancing Technologies for the Public Interest." The overall workshop series aims to bring together a wide net of stakeholders, researchers, and activists to set a future research agenda on privacy research. The first workshop took place in October 2022, and was a successful event for junior researchers to share interdisciplinary research methods and foster collaborations. The next workshop is planned for March 2023 and aims to connect academic researchers with policymakers.

Upcoming Teaching

I am enthusiastic and qualified to teach courses in cryptography or applied cryptography, security, or complexity. I am also happy to teach courses in computer science theory, algorithms, data structures, networks, or more introductory courses. Furthermore, I would enjoy teaching a topics course on privacy-preserving computing. The course would focus on various practical methods for performing private computation, especially multi-party computation, differential privacy, and homomorphic encryption. My research also prepares me well to teach or co-teach a course at the intersection of computer science, law, and policy. I have been a part of multiple prior such classes, which were rewarding project-based experiences that led to research projects for students down the line.