Today's professional and academic environment demands a combination of deep skills and interdisciplinary perspectives. I am eager to teach and mentor students in the areas of security, privacy, applied ML, distributed systems, and networking. I further believe that technical disciplines need to introduce an ethical and policy lens to equip students with the ability to navigate the social impacts of their design choices.

Prior Experience

Broad Educational and Practical Background. My experience learning from others has informed and shaped my approach to teaching. I enrolled in a wide range of computer science and electrical engineering courses during my undergraduate and graduate studies at my home university and at multiple international summer schools in northern Europe. Additionally, I gained invaluable industry exposure as a software engineer before graduate school and as an intern at top-tier industry labs (Amazon, Google, Apple) throughout my graduate studies.

Teaching Assistant Experience. At the beginning of my PhD, I attended a teaching excellence program at Cornell that introduced me to novel concepts like a flipped classroom and active learning. This experience informed my work as a TA for both undergraduate and graduate classes; while doctoral students are required to TA for at least one semester, and many do two, I chose to TA a total of 6 times (2 full-time and 4 part-time). In this role, I developed all the coding homework assignments and created automated tests for two newly established classes on Privacy in the Digital Age and Networking and Distributed systems. I coordinated undergraduate and graduate TAs in classes of various sizes and held regular office hours for all six classes, communicating with small and large groups of students in a hybrid and virtual mode. I was very proud to receive a TA award for excellence in teaching from the CS department.

Delivering Material Experience. I have also had experience teaching at a peer professional level. I co-organized a tutorial on modular recommendation systems at WSDM'18 and taught multiple guest lectures at Cornell Tech on topics of networking, systems, privacy and security. For the tutorial, I co-designed interactive Jupyter notebooks and delivered a hands-on lecture to introduce key components of the proposed framework. For guest lectures, I developed lecture materials on topics of machine learning security and privacy and reworked existing material for several course sessions on distributed systems and networking.

Mentoring. Of course, significant learning happens outside of a classroom structure. I mentored undergraduate and graduate students throughout the class projects that I led as a TA and as part of my research projects. The students I mentored represented a broad spectrum of Cornell Tech community including both students with relatively little prior programming experience and those with an extensive background. These students went on to pursue successful engineering careers in industry, and one of the undergraduate students I advised was later admitted to the PhD program at Cornell.

Approach to Teaching

Engagement through a Broad Perspective. Computer science technologies play a significant role in our society, and I will provide motivation and context for topics through the way technologies are deployed in the world. Using real-life examples and anecdotes, I plan to demonstrate the significance of each method and discuss how it fits in the overall landscape.

Building Problem-solving Skills. I will focus on building practical skills by performing hands-on exercises and in-depth analyses of the technologies. A practical and theoretical understanding of a discussed method can enable students to apply it to a range of problems in different domains.

Inclusion and accessibility. As computer science enrollments continue to grow, we are fortunate to have an increasingly diverse student population. I will provide supplementary resources and advising to support students from a broad range of backgrounds. As a young parent, I am well aware of the inherent unpredictability and juggling associated with family responsibilities, and will encourage students and my institution to prioritize support work-life balance.

Ethics and Social Good. Technologies that we study are integrated into real-world applications and impact lives around the world. I will incorporate discussions of this broad impact, social good, and ethics in

my class to develop students' critical and creative thinking abilities to prepare them for the many tradeoffs they will face in their careers.

Approach to Mentorship

As our field expands, students come from increasingly diverse backgrounds and have different goals. I will focus on finding common ground and giving them tools to reach their full potential.

Student Research Path. The field of computer science is rapidly evolving and requires constant adaptation. This next generation of students is intimately familiar with rapid adaptation as they experienced periods of lockdowns and world instability during several years of their high school or higher education. I will help students to lean into their agility and open-mindedness as they pursue creative research journeys. I will teach them how to lead and collaborate on research projects and provide opportunities to mentor junior students as they progress through their PhD. I will further aim to develop skills in picking promising research directions and communicating their results to a broader community. I will work towards enabling students to become future leaders in the research field of security and privacy and pursue ethical and socially important goals.

Mental Health Support. I will prioritize overall well-being and mental health for students and will lead by example. I will provide university resources and respectful work communication boundaries and expectations.

Exposure and collaboration. I will provide a broad industry perspective by inviting speakers with expertise and insights to our lab meetings. I will further pursue collaborations across different institutions and industry labs to enable students to gain experience and be exposed to a range of ideas and perspectives.

Values. While advising a student, I will discuss the values important to that individual and that align with our research direction. In this way, I can support students' integration of values into their own work as it progresses.

Teaching plan

I am interested in teaching both introductory and advanced courses on privacy, security, distributed systems, and networking.

For a **security and privacy** class, I will teach underlying concepts through case studies and point out how emerging or existing technologies leverage these concepts. I will begin with authentication and authorization by studying password management and role management in modern applications. Next, I will look broadly at the internet infrastructure and threats associated with web protocols, applications, and browsers. I will then discuss hardware and software attacks on the systems. For the second part of the course, I will look at mobile devices and connected home infrastructure emphasizing the challenges of applications like contact tracing and personalization. I will later describe challenges with emerging technologies in the space of AI. Throughout my course, I will underline the societal values associated with privacy and security for users and the importance of discussing the contextual integrity of these applications.

I will teach a class on **distributed systems and networking** in three parts. First, I will provide a broad and in-depth introduction to the internet stack, going through each layer, emphasizing how it enables current applications, and discussing corresponding challenges. The second part will introduce important distributed concepts such as peer-to-peer, anonymous communication, and content delivery networks. For the last part, I will present an in-depth study of consensus protocols and corresponding systems. I will conclude with an overview of how described systems enable large-scale distributed analytics and machine learning and outline promising directions.

I also hope to teach a graduate-level special interest course or a seminar on topics related to my research interests in Machine Learning Security and Privacy. Specifically, I would focus on connecting modern machine learning systems to papers in the fields of distributed systems, data privacy, security, and ethics.