Teaching Statement

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Teaching

I am qualified to teach undergraduate and graduate courses in networked systems and wireless communication, in addition to introductory undergraduate courses. I am also interested in developing a seminar course that focuses on using mathematical analysis and formal methods to design computer systems. The course will examine real-world examples where theoretical analyses have had a significant impact on design

Two factors that contribute to a student's ability to apply course concepts are understanding where the material is useful and feeling confident enough to explore the subject on their own. Different students are motivated by different things, such as abstract ideas, practical applications, or social issues. By addressing these various motivations, I aim to inspire as many students as possible to learn.

Ideas are best understood when students have the opportunity to explore them outside the classroom. In my classes, I will provide projects that are easy to get started with, both in terms of the number of ideas and the amount of code required. For example, when I TA'd for a graduate networks course, we designed assignments where students could design their own congestion control and adaptive bit rate algorithms using only 20-40 lines of code. An open-ended project at the end of the course gave students the opportunity to apply concepts from the class to their own interests. The ultimate goal is to empower students to explore ideas on their own.

I have given two guest lectures in graduate networking courses and focus on delivering one or two core ideas that I want all students to understand. This way, even if students forget some of the details, they will be able to use these core ideas to understand the rest of the lecture.

I place special emphasis on students who want to take the course but may struggle with the material. Learning can be derailed if a student misses a key concept that is essential to understanding the rest of the material, which can cause problems in future courses. To prevent this, I will make each lecture as self-contained as possible and provide a clear takeaway message. Low-overhead projects also help. Additionally, I will strive to break the cycle of stress that can cause students to underperform and become even more stressed.

To continually improve my teaching, I will solicit feedback from students, both through written feedback and through quiz performance and questions asked during lectures. For example, I have learned that it is helpful to display all knowledge and notation needed in working memory on a board or screen. This became clear when I was teaching congestion control at MIT and some students had misunderstood the analysis because they didn't remember what a particular symbol meant. I only realized this when a student asked me the question after class. Writing definitions on the board would have been helpful.

Mentoring

I have mentored five PhD and three pre-PhD students in research. Three of these projects were follow-ups to my own research on performance verification and were led by the students. In each case, the student decided how often we should meet. Some students wanted to meet with me weekly, in addition to impromptu meetings when they had made progress and wanted to discuss it. Others preferred to meet only when necessary because they were working on multiple projects and made progress in bursts. This flexibility is something that I appreciated about my own advisors' mentoring style. My advisors are also perceptive to student needs, something I aspire to emulate. For instance, I have learned to identify when a student wants guidance and when they want to pursue their own ideas. One student came to me with a specific idea that

was based on my work, which then evolved into a concrete project. Another student saw the project as an opportunity to learn and wanted more hands-on mentorship.

As a researcher, I value collaboration because it improves the quality of research and because it is more enjoyable. I will foster a collaborative atmosphere in my lab.