Teaching Statement

The importance of teaching was instilled in me throughout my upbringing in a family of educators. Therefore, I grabbed the opportunities to teach during my graduate studies with both hands: I served as a teaching assistant or a lab instructor in eight classes at the graduate and undergraduate levels (with class sizes varying from roughly ten students to well above one hundred), gave nine invited guest lectures on my research, and mentored nine students on research projects or to help them get through the hurdles of their freshman year at university.

Courses

When teaching, I seek to help my students: *1)* understand the underlying principles and concepts on which advanced material is based and how to use these to solve complex problems; *2)* develop critical thinking to assess the shortcomings of different solutions and suggest alternative ones; and *3)* practice the material that they learn in class to deepen their understanding and prepare them for their future careers in research or industry. To achieve these goals, I use several strategies, including:

o **Questions and Discussions.** I constantly ask students questions and start discussions during my lectures. In an attempt to make the different parts of the lecture equally engaging, I usually intersperse questions and discussions throughout the lecture, mostly by preparing ahead of time, but also by identifying opportunities "on the fly." In addition to increasing students' participation and motivating them to think critically and apply their knowledge, this strategy helps me assess their understanding of the material, and suggests which parts I should re-explain, potentially using alternative techniques or examples.

o **Alternative Explanations and Examples.** Since different students learn in different ways, it is unlikely that a single explanation or example of a key concept would be understood by all students. Therefore, when preparing for lectures, I challenge myself to prepare several explanations or examples of key concepts to have most of the students covered. For example, when teaching about evasion attacks against speech-recognition systems, in addition to providing the technical explanation, I usually tell students about how a past version of Google's personal assistant misinterpreted the phrase "cocaine noodles" as "OK Google." The students' reactions to this relatable example always reassure me that they understood the concept and are unlikely to forget it anytime soon.

o **Relevant Problems.** To strengthen students' grasp of the material and prepare them for their future careers, I find it particularly important that they practice what they learn in class by solving timely problems and using state-of-the-art tools. To this end, as a teaching assistant I have helped prepare homework assignments to give students hands-on experience with tools that are commonly used by researchers and practitioners (e.g., implementing a stateful firewall with the `Click` router, performing static analysis in popular open-source programs using `Coverity`, and exploiting vulnerabilities in Domain Name Servers). I look forward to following the same guiding principle when working with my teaching assistants to develop homework assignments for the courses I will teach.

Future Plans. I consistently look for ways to improve my pedagogical skills, particularly by drawing inspiration from other faculty members who excel at teaching. Over the past few years, I have seen faculty members successfully incorporate online quizzes into their lectures to get real time feedback from all students (including the shy ones at the back), ask students to write paper critiques to help them practice their critical thinking, and give students well-scoped short-term research projects to encourage them to self-learn and apply the knowledge they acquire in class. As a faculty member, I look forward to adopt these strategies or similar, when appropriate, in the courses that I will teach.

━━━━━━ Mentorship

Mentoring students is one of the most rewarding experiences that I had as a graduate student. I could not have been more proud to see my mentees achieve impressive accomplishments, including leading data-analysis efforts in a paper that has recently been accepted to SOUPS, joining the prestigious Ph.D. program in computer science at the University of Wisconsin-Madison, and graduating as a "first-gen" (i.e., first generation university student) to pursue a promising career in industry.

As a mentor, I worked with students on different aspects of research, ranging from defining research problems, designing experiments, and building systems; to analyzing results, writing papers, and preparing presentations. While doing so, I tried my best to *remain available* to answer the students' questions and plan next steps, and *individualize* my mentorship style to serve the student best.

Availability. Besides scheduling weekly meetings with the students, I encourage them to ask questions via online chat or e-mail, or simply approach me at my desk for ad hoc meetings. The worst that could happen, I usually emphasize, is that I would not be able to answer immediately, which is preferable than stalling on something that I could trivially answer. In my experience, students became more comfortable approaching me with questions as they developed their learning skills and recognized that lacking knowledge is normal when conducting research. In return, this enabled the students to make significant progress.

Individualization. While mentoring students, I try to identify their particular needs and adjust my mentorship style accordingly. For example, some of my mentees did best when working independently, while others benefited from making detailed plans and collaborating closely with the help of online tools (e.g., Google Docs). Thus, I switched between "hands-off" and "hands-on" approaches when working with different students, as I sought to help them do their best work and make progress. Despite requiring different mentorship styles, all the students contributed substantially to research projects. As I am devoted to increasing diversity in our field, and in science, technology, engineering, and mathematics (STEM) at large, I believe that an individualized mentoring style would be critical for drawing students from underrepresented minorities and helping them persist.

To conclude, I enjoy mentoring, and my experience suggests that my mentorship style is effective. As a faculty member, I look forward to mentoring student-driven projects and helping students acquire necessary research skills to conduct impactful and innovative research, publish their work in leading venues, and pursue successful careers.