

Teaching Statement

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I consider teaching an integral part of being a researcher, and I am committed to providing an excellent classroom experience for both undergraduate and graduate students. As a professor, I would continue to seek to bring research into the classroom both by teaching recent results and by assigning creative projects to students at all levels.

Topics I can teach

I am willing and able to teach a broad range of computer science courses. In particular, I am interested in teaching:

- **Computer security.** I can teach an introductory course for advanced undergraduates and beginning graduate students in computer security, risk assessment, and secure coding practices.
- **Usable security and privacy.** This is my research area, and I can teach a course covering basic concepts, recent results, and open problems in the area. The course would be targeted at graduate students and advanced undergraduates and would cover topics such as the security and privacy threat landscape, the unique challenges of making security and privacy interfaces easily usable by people, the usability tradeoffs of different authentication methods, how to design good warning dialogs, and technologies for preserving security and privacy online.
- **Human-computer interaction (HCI).** I can teach a variety of topics in HCI, including concepts of cognitive psychology, HCI methods, experimental design, and information visualization.
- **Introductory computer science.** I can teach basic undergraduate courses in programming, data structures and algorithms, databases, operating systems, and networking.

Teaching experience

As a usable security researcher at Microsoft, I identified a need for educating software engineers on how to design for more usable security user experiences. A large part of my job at Microsoft has been to serve as a liaison between the usable security research community and Microsoft product groups to ensure that the latest knowledge in usable security practices is incorporated into Microsoft products. One way I met this goal was by co-developing a 4-hour course on how to engineer better usable security and privacy interfaces. I teach this course several times a year to classes (some optional and some mandatory) of about 20 Microsoft engineers. I have also developed a one-hour version of the same material that I deliver to product teams upon request. The material has been popular, and I get regular requests to teach it.

As a PhD student at Carnegie Mellon, I served as a Teaching Assistant for classes in Computer Music and Privacy Policy, Law, and Technology. I gave guest lectures in both of the classes for which I served as a TA and in my advisor's class on Usable Privacy and Security.

Mentoring experience

At Carnegie Mellon I mentored both undergraduate and graduate students in research. In the summer of 2007, I directed four undergraduate students in research by assigning them appropriately challenging portions of my own work, and then guiding them as they progressed, and in some cases, branched out from what I assigned. I found it very rewarding to see them working through technical problems on their own and developing their own research around my basic ideas. I also helped junior graduate students in my lab with writing, presentation, experimental design, and research planning. I believe my mentoring work with students will transfer to the ability to work with students in the classroom and to advise students in their research.

Teaching philosophy

Integrating research and teaching

When possible, I will integrate my research into my teaching. I think that presenting recent research results and open problems, even in introductory classes, gets students engaged in the material. Furthermore, presenting relevant research results in class can be an excellent means for disseminating them to the students who will be able to put them to use in their technical careers. In more advanced classes, I would have students design and complete original projects, with the potential for producing publishable results.

Writing and presentation skills

I would teach writing and presentation skills in the advanced courses I teach. I had limited instruction in writing and presentation in my undergraduate computer science curriculum, and as a result, I struggled with these skills early in my graduate school career. I was fortunate enough to receive good mentorship and practice in writing and speaking skills in graduate school. I feel it is especially important to pass these skills on to students, including undergraduates, since communication skills are critically important in any technical profession.

Valuing diversity

I think it is essential to consider the diversity of the student body when designing course materials. For example, Fisher and Margolis's well-known work suggests that while men are often motivated to learn computer science for its own sake, women tend to be motivated to learn computer science primarily for how it can be applied to other fields. This work has strong implications for how a teacher can develop topics and assignments that appeal to all students. I would strive to develop course assignments and topics that cover interesting *applications* and illustrate computer science principles through those applications.