

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.

Topics I can teach

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

- **Usable privacy and security.** This is my research area, and I am very interested in developing a course for teaching the basic concepts, recent results, and open problems in the area. I would model the course after a similar one my advisor, Lorrie Cranor, teaches and for which I have given guest lectures. The course would be targeted at graduate students and advanced undergraduates.
- **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.
- **Computer security.** I could teach an introductory course for advanced undergraduates and beginning graduate students in computer security, although it would not be my first choice of classes to teach. While I have some exposure to security from my research and graduate coursework, I would need considerable preparation to teach topics like cryptography and secure software engineering.

Teaching experience

I have served as a Teaching Assistant for classes in Computer Music and Privacy Policy, Law, and Technology. I also convinced my department to fund a writing class for graduate students. I helped the instructor develop a syllabus and assignments for the writing class and served as a Teaching Assistant for the class in the Spring 2006 semester. I have given guest lectures in all 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 have 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. Mentoring these students has been the experience that has most motivated me to seek an academic position. I have 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. I have seen my advisor integrate her research into her teaching to great effect; several of her students have published their privacy-related class projects, and some have continued to do research with her after the class was over.

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 have been 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 we live in an age where anyone with a computer can be a published author.

Valuing diversity

I think it is essential to consider the diversity of the student body when designing course materials. In particular, I am concerned with recruiting and retaining women in computer science. 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 women as well as men. For example, in a machine learning class, an assignment to optimize a database caching policy based on past transaction data or to analyze Web server logs may appeal to students who are motivated to learn computer science for its own sake, but students motivated by applications outside of computer science might be bored by it. A more engaging assignment for all students might be to apply machine learning techniques to interesting problems outside of computer science, such as predicting a person's taste in movies based on the tastes of others like them, predicting election results, or finding patterns in environmental data. I would strive to develop course assignments and topics that cover interesting *applications* and illustrate computer science principles through those applications.