

Teaching statement

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I believe that experience is the best teacher. Although an individual may grasp an idea conceptually, it is not until they put that idea to the test that they begin to truly understand its practical uses and limitations. This has been a theme throughout my career both as a student and as a teacher, and I plan to continue to apply this theme to my future endeavors as an educator.

Teaching in the classroom

As an undergraduate, my most memorable class was Operating Systems (OS), during which students worked in teams to implement a functional kernel and file system from scratch on simulated hardware. This class drove home concepts about how theory was applied in practice more than any other course I had taken, and it was the catalyst that led me down the road toward systems research.

This kind of “hands-on” learning is critical to any student’s future career. In most computer science settings, the practical application of theory is at the crux of any task. Getting a feel for both the methods and pitfalls in a classroom setting, gives students a chance to hone these skills, increasing their chances at success outside of school. It also helps to excite students about the material by giving them a chance to see how different aspects of what they’ve been taught can be applied in a “real-world” setting. Although an instructor can pontificate on the utility of different techniques for hours, it is often not until the student uses the techniques for themselves that they get a full appreciation for the material.

As a graduate student, I had the opportunity to work as a teaching assistant for both undergraduate OS, and an undergraduate course on introductory systems programming. As a TA for OS, I worked closely with the other TAs to develop both the labs and homeworks for the course. As such, I found that students learned the most when homeworks could provide a middle ground between theory and practice: allowing students to think about applications of techniques in idealized settings before plunging into the reality of the labs.

As a TA for Introduction to Computer Systems I developed a lab where students applied the threading and network programming techniques discussed in class to build a simple web proxy. This gave students a chance to not only apply what they had learned to a real-life problem, but to immediately see the real-world application of what they had developed, as they could test their work using a live web browser.

While TAing, I held both recitations and office hours for students, two components of teaching that I learned were critical to the success of many students. In most classes individual concepts are covered in a way that are hopefully clear to most students, however, through recitations and office hours, TAs have the opportunity to cover concepts from different angles, giving students different intuitions on the problem. In many cases, this helps students who are struggling by giving them more individualized instruction.

Teaching outside of the classroom

While the bulk of undergraduate teaching happens inside the classroom, classes are only one aspect of a graduate student’s career: other aspects include problem selection, research methodology, writing, and speaking. As an advisor, it would obviously be my job to help my students learn each of these skills.

Throughout my graduate student career, I have been fortunate to have been closely involved with the other students of the Parallel Data Lab at Carnegie Mellon. This has given me the opportunity to both observe and participate in all four of these aspects at a depth that I believe most students do not get. I have had a chance to work directly with many other students on both problem selection and research methodology through joint projects and publications. I have also had a chance to critique dozens of submitted publications and more than a hundred oral presentations, and I consider it a great accomplishment that even recently graduated students still ask for my opinion and feedback on such matters.

I believe that the skills I have learned through this constant collaboration will serve me excellently as I move forward in my career, providing me with important skills that will help me as both an advisor and colleague. I also feel that this kind of collegial attitude among both students and faculty is an important aspect of the graduate student learning process, and will endeavor to foster such an environment.