Teaching statement

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My greatest joy in teaching is helping passionate, hard-working students gain the appropriate tools, knowledge, and skepticism to become independent thinkers and researchers. Given my research interests, this largely translates to sharing my enthusiasm for tackling challenging systems problems and building complete solutions. Designing and building systems requires a broad background in understanding potential approaches, recognizing design tradeoffs, and recalling past successes and failures, much of which can be learned through coursework. But equally critical is the judgment one gains from *doing*: conceptualizing the interplay of various system components, approaches, and often devilish details, and identifying a system's shortcomings through analysis in order to improve it.

My goal, both as an advisor and as a teacher, is to empower students to make their own design decisions and, ultimately, to discover their own interesting problems to tackle. During graduate school, I had the opportunity to supervise research projects for six students, both masters and undergraduates. The challenge was to offer well-defined problems when students needed more supervision, sometimes proposing one or more promising approaches and incremental milestones. Still, I found it important to maintain some vision or open-ended problems that students could work towards.

The students' research experiences helped lead some of them to pursue further graduate education (Robert Soule is now a PhD student at NYU), while it gave others their first experience at writing academic papers (Kevin Shanahan was the first author of a workshop paper on peer-to-peer localization). The most successful outcomes emerged from situations where students ultimately were excited by their research and identified their concrete contributions. Especially motivating were projects that impacted a large audience, *e.g.*, one student built a data collection infrastructure for CoralCDN, knowing that his code would touch data from tens of millions of users. My personal experience has been very similar: My academic highlights from college were the research projects where I played an important role; my worst time was a summer largely spent hacking makefiles written by physicists over two decades.

Beyond supervising independent research, I similarly enjoy teaching students within the classroom setting. I first served as a teaching assistant for the core "Computer System Engineering" course at MIT for two consecutive years. Unfortunately, TAs traditionally only played the role of holding office hours and grading assignments for this course, as faculty taught even recitation sections. Thus, in my second year, I proposed holding an additional weekly small-group tutorial section to help students better learn course concepts and readings—as well as to allow TAs to actually teach—a practice still being done five years later. At NYU, I served as the teaching assistant, lab instructor, and occasional lecturer for the new advanced undergraduate course "Computer Networks," which coupled system programming assignments with academic readings. I also organized and helped teach the MIT Outing Club's month-long winter mountaineering course, which attracted nearly 100 participants. While not academic in nature, the time-intensive experience was gratifying both from my ability to educate others (here, literally, on how to survive) and from deepening my own knowledge in the process. This class, much like project courses, focused on doing, not only on knowing.

Given my research background, I am qualified to teach a variety of courses, including distributed systems, operating or storage systems, security and cryptography, networking, or even software engineering. I am also excited to hold more advanced graduate courses or seminars related to my research areas. I am a strong proponent of project-heavy classes for both advanced undergraduate and graduate students; these go directly towards "hands-on" systems experience and often provide a useful segue into further research.

Finally, I believe that seminars and reading groups play an important role both in staying abreast with the latest research and in learning how to evaluate it critically. At MIT, I helped co-organize an applied security reading group. At NYU, I began a weekly systems seminar and organized it for two years, inviting both outside speakers to present their research and internal volunteers to present others' work. I also served as a student representative at NYU CS faculty meetings, gaining important insight into the concerns and wants of both students and faculty, as well as helping to recruit both new students and faculty to the growing department. The NYU computer science department recognized my contributions with the Henning Biermann award for "outstanding contributions to education and service to the department."

My research statement mentions that I think even academic systems should be user-centric. I am similarly drawn to the eminently "user-centric" nature of teaching. After all, professors ultimately are tasked with producing both research *and* students.