

# Teaching Statement

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Given my work building secure and extensible systems, I'm well positioned to teach undergraduate classes in operating systems, distributed systems, and security. Additionally, I'm excited to teach advanced and graduate courses focusing on my research.

The chance to work with students on research and in the classroom is one of the main reasons I'm pursuing an academic career. Teaching is not only rewarding, it also aligns with my research goals: the only way to foster more extensible and secure systems is to convince the next generation of practitioners these goals are important and practical.

## 1 Teaching Experience

While an undergraduate computer science student, I served as a teaching assistant over a number of years for introductory programming, web programming and programming language classes. In all cases I served as a weekly section leader for 10-20 students, helped write assignments, as well as gave a few lectures. I was exposed to a variety of pedagogical styles and gained an appreciation for the skills required to design curriculum, lecture and manage a course.

As a graduate student I was a course assistant twice for the computer security class. I was involved in the security class during a period of unprecedented growth in class size. The experience exposed me to some of the challenges and opportunities of using recorded lectures and online discussions to scale a class. I am eager to help shape computer science curricula that serve an ever increasing student body without sacrificing quality of education.

## 2 Mentoring Experience

I've had the opportunity to work with a number of excellent Masters and junior PhD students, undergraduates, and a high school student. These experiences have been both humbling and rewarding.

Amy Shen, a high-school student at the time, built a number of applications on top of Hails and served an important role shaping what ended up being the Hails policy-writing DSL. Amy is now an undergraduate at Stanford with internships at Google and Slack. James Hong, an undergraduate and Masters student at the time, helped evaluate Beetle's performance. He then wrote a security policy language for home automation networks and built a system to enforce it on top of Beetle. A paper detailing this work is currently under submission. James is now a PhD student at Stanford. Thomas Bauer, a Masters student, built a Bluetooth Low Energy driver for a sensor network platform using TinyOS. Thomas returned to his job at Sandia National Labs after completing his Masters. Shane Leonard, a former undergraduate and now Masters student at Stanford, designed, manufactured and released an embedded hardware development platform for Tock. This was a particularly ambitious project since it was Shane's first board design. Shane will start his career at SpaceX in the winter. Niklas Adolfsson wrote a Masters thesis at Chalmers University on adding Bluetooth Low Energy support in Tock to the Nordic NRF52 microcontroller. He continues to contribute to Tock and our relationship has resulted in fruitful collaborations with his former advisor at Chalmers, Olaf Landsiedel. Undergraduates Hubert Teo, Paul Crews and Mateo Garcia, and first-year PhD student Hudson Ayers are adding low-power wireless mesh networking support to Tock.

As an advisor, I hope to foster a collaborative environment where students feel they are working towards their career goals. I try to help students find ambitious projects that match their particular goals, then help them complete those projects successfully. In some cases, particularly with more junior students, this may include helping design and implement systems, shape projects to encourage collaboration, or even direct students towards particular projects. Ultimately, though, I want students to work on projects they find most interesting. Working with smart, passionate students who learn to work independently has been incredibly rewarding.