Teaching philosophy: The most rewarding moments in teaching come when students demonstrate mastery of a lesson by solving a problem that they have not previously seen. My primary goal when teaching is consequently not to convey facts and answers to specific problems, but rather to convey building blocks that can be combined to answer a wide range of problems. The key challenges in reaching this goal are identifying appropriate abstractions, principles, and thought processes that can be easily explained to, and understood by, students yet are powerful enough to solve new and interesting problems.

Teaching experience: My first experience with formal teaching came when I spent a year as an International Fellow at Ngee Ann Polytechnic in Singapore. During this time I was part of a group of four lecturers sharing the teaching load for a pair of introductory programming courses. My responsibilities included running 6 tutorial sessions per week, each with around 20 students, and giving two to three lectures per semester (the senior faculty member established the syllabus and gave most lectures).

As a tenure-track faculty member at MPI-SWS, I have co-taught the core graduate lecture on distributed systems with Peter Druschel and a pair of graduate seminars with Björn Brandenburg, one on fault-tolerant distributed real-time systems and a second on operating system design and implementation. I am currently advising 3 PhD students and was the external supervisor for one Part II project at Cambridge University. As a graduate student I performed the standard TA functions of grading exams and homework assignments, in addition to leading tutorials and review sessions, for multiple courses.

The activity that has most influenced my teaching philosophy is coaching a number of nationally and internationally competitive ultimate frisbee teams—the University of Texas men for six years (top 8 at USA college nationals four times), Texas Showdown for two years (a women's team based in Austin, Texas; 5th at USA club nationals both years), and the German Mixed National team for two years. While the connection between teaching and coaching may not be initially obvious, I find it to be very important. In competitive sporting environments, a coherent team strategy is a necessary component of success. One factor that separates great teams from good teams, is that the players on great teams don't just follow the team strategy, but understand the tenets upon which it is built. My greatest successes as a coach have come from working with teams where the players understood the basic tenets of our strategy and have been able to apply that understanding to respond to new situations before I recognized evolution was needed. In the classroom, this translates directly to focusing on the tools needed to solve a problem rather than on whether the problem has been solved.

Teaching plan: I am comfortable with teaching both operating and distributed systems courses at the graduate and undergraduate levels, though given my research background I have a natural bias towards distributed systems. My preferred distributed systems course is based on a combination of intense implementation projects and developing a formal understanding of the foundations of distributed systems, specifically consistency and coordination. Taking a step back, I would like to develop a core systems course spanning architecture, operating systems, and distributed systems that focuses on they key abstractions that arise at multiple places in the systems stack: caching, checkpointing, concurrency, naming, synchronization, ...

Advanced seminars can be effective tools for driving a research agenda forward and helping students to develop depth of understanding for a specific topic. I believe these seminars can also be used to help students develop the ability to synthesize unfamiliar work and identify new research problems. Björn Brandenburg and I are currently developing a template for an "Introduction to Research Skills" seminar designed to achieve these goals.