

Teaching Statement

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I believe that education plays a fundamental role in shaping societies and personalities. Thus, I am excited to contribute to the development of motivated, engaged and communicative computer scientists.

Mentoring Approach

During my Ph.D. I was lucky to work with talented advisors. Building upon their pedagogical techniques, together with my own experiences advising two undergraduate students, I have formed a mentoring philosophy based on guidance, encouragement and communication. I will *guide* my students via one-on-one weekly meetings so that I can direct them, while giving them space to explore their own ideas. Research in computer science is often challenging. Thus, I will *encourage* my students in even the small steps they make, motivating them to proceed and increasing their self confidence. Finally, I believe that *communication* and presentation skills are essential tools in order to share one's ideas and receive valuable feedback. To build these skills, I will organize weekly group meetings with presentations and discussions, familiarizing the students with each other's projects and building their confidence in research communication. To sum up, as a mentor, I will work closely with my students and encourage a collaborative environment among them.

Teaching Approach

As a teacher, I aspire to give interactive lectures that are simultaneously educational, motivating, and engaging. To keep students *motivated*, I will connect the teaching material to real-world examples. As an example, students approach Haskell's higher order functions with greater enthusiasm, knowing that these functions inspired Google's MapReduce. Additionally, I will construct *interactive* lectures, posing quizzes to launch in-class collaboration and discussion. I believe in the pedagogical benefits of peer learning and plan to encourage it both inside and outside the class using online tools like piazza.com. Finally, *engaging* students to work after the lectures can be challenging. To address this challenge, I will assign hands-on programming assignments inspired by real world problems. In short, my goal is to establish a friendly and interactive classroom environment that will motivate students to learn technologies applicable to the real world.

I am excited to apply my teaching philosophy to courses in my research area, namely *programming languages* and *program verification*. Additionally, given my strong background in theoretical computer science, I am qualified to teach a broader set of classes, including *introduction to algorithms and data structures*, *compilers* and *program analysis*. Finally, I would like to organize seminars and reading groups on how software verification can be combined with or applied to other areas of computer science, such as systems and security.

In the past, I have taught various small groups of students. I have served as a teaching assistant four times for both graduate and undergrad courses. In 2014, I was a mentor teaching assistant in *Teaching Methods in Computer Science*, where I taught graduate students how to give comprehensible and engaging lectures. In Summer 2015, I volunteered to teach Haskell to 12 students ranging from high school seniors to juniors in undergraduate, in a one week, 8 hours per day workshop organized by *Clubes de Ciencia* in Mexico. While exciting, this endeavor was challenging as some students had no coding experience. During the workshop, I updated the plan daily, adapting to my students' progress. To ensure that all my students grasped the materials, I took time in each lecture to repeat and discuss the important points from the previous lectures. By the end of the week, all of my students successfully implemented a realistic Haskell library and got excited by the ideas of functional programming. Transforming young students into functional-programming enthusiasts is a priceless experience that I plan to repeat as a teacher.