

Teaching Statement

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My teaching experience spans a variety of activities across my time at UCSD. I've been a teaching assistant for several professors at my institution, including my advisor Sorin Lerner, Ranjit Jhala and Nadia Polikarpova, on both undergraduate and graduate programming language classes. I've also mentored multiple students, including advising an REU for a student at Howard College, advising the masters thesis of a student at HSE, and working with a younger graduate student on my own work on machine-learning systems for proof synthesis. I particularly enjoy the challenge of breaking down concepts to be understood in a wide audience, whether they're concepts in my own research, or foundational concepts of computer science.

When I first began as a teaching assistant, I was surprised to find how engaging and satisfying office hours were. The opportunity to work with students one-on-one allows me to tailor my teaching approach to the students learning abilities, ability to explain a concept to a student in a way that got them excited about it has always been immensely satisfying. As I gathered more teaching experience, I tried to apply the effectiveness from office hours to the more challenging task of teaching many students at once with the same material. Knowing that each student would absorb the material in a different way, I've always strived to allow multiple paths through the material I'm teaching, whether that means reflecting each thing I say with an onscreen diagram, or presenting multiple metaphors for each core concept.

As someone who works in a field that deals so much with abstraction, it can be counterintuitive how important concretization is for teaching core concepts. While the power of abstractions like Monads lies in their flexibility, I think that when teaching them, that flexibility can often be a distraction. Instead, students often benefit from seeing concrete examples of how core concepts work, that they can relate to programming problems they understand. Alongside the fully abstract version of the concept, these concrete examples can go a long way to maintaining student interest and engagement in topics that help their long term growth as programmers and computer scientists.

Mentorship of students has long been a passion of mine. My own mentors during my undergraduate research and early in my PhD had an outsized impact on my work and life, and I've always looked for opportunities to pass that influence and inspiration along. As a graduate student, I was a founding co-chair of the Graduate Women in Computing's mentorship committee at UCSD. Our committee pairs older, more established grad students with younger students of a variety of backgrounds. The hope is that this kind of one-on-one mentorship can help all students, but especially students of non-traditional cs backgrounds, find their bearings and feel more confident and secure in the graduate school environment. I personally found it very gratifying to mentor through this program, engaging with students I wouldn't normally get to know, and watching them grow as students as they learn to navigate the grad school environment. Possibly more gratifying though was watching the committee continue under a new generation of leaders after I had left it, poised to become a permanent UCSD CS institution.

In addition to mentorship, I tried to make a positive impact on my graduate institution in a number of ways, including serving as a student representative on the faculty committee determining class requirements. In the faculty committee, we negotiated a hard fought reform of the class requirements for PhD students. This process involved gathering feedback from stakeholders, and many a long meeting with various faculty on different sides of the issue, in order to reach a proposal which could gather the required number of faculty votes.

I also founded a student-led PhD admissions committee, where existing PhD students reviewed the applications of prospective PhD students alongside faculty, with the purpose of finding students from a variety of backgrounds who might, for one reason or another, be overlooked by the standard admissions process. Our committee had as one of its explicit duties compiling a list of students who we think would contribute to the culture of diversity at UCSD, passing this list on to the faculty for consideration for diversity scholarships. But its broader goal was also to increase diversity of background in more subtle ways, by finding the students who would be overlooked due to their background or lack of connections and support, and giving their application a second chance. I was happy to be able to pass off leadership of this committee after several years of leading it to the next generation of PhD students, and look forward to watching its progress after I've left UCSD.

I'm looking forward to mentoring students both in classroom and research environments as a university

professor. I would like to teach classes spanning from basic introduction to computer science, to advanced Programming Languages and compilers, program synthesis, and verification. I'm also excited to explore teaching where needed in my areas of adjacent expertise, such as basic numerical analysis. I look forward to working with my colleagues to constantly explore and adapt our curriculum to an ever changing environment, and provide students with the best education possible.