Teaching Statement
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Why Teach?

Teaching is a time-consuming, emotionally demanding, and often thankless task. Many personal friends who teach have told me of times when they considered giving it all up (although they might advise against saying so in a teaching statement). So why do we teach, aside from the cynical answer that it is a job requirement?

For me, there are two reasons. The first reason is the unique and intrinsic thrill that I feel when I’ve led a student to an “Aha!” moment. This rewarding experience easily outweighs all of the hard work required along the way. The second reason is the broad positive impact of teaching. I love and deeply believe in research, but the reality is that research is a risky and sometimes selfish endeavor which is paid for by society and does not always deliver truly groundbreaking results. Teaching is a way to hedge society’s bet. Where research sometimes fails, teaching has an immediate positive benefit for one’s own students, and a ripple effect through generations of researchers who collectively will produce more scientific progress than one’s own research ever could.

How To Teach?

There are many effective teaching philosophies, and any individual’s philosophy necessarily evolves over time. In all cases, teaching well requires talent, practice, and experimentation. My current teaching philosophy focuses on making learning enjoyable, accessible, and personal. To make learning enjoyable, I strive for instruction that is lively, interactive, and funny where possible, without sacrificing on rigor and content. To make learning accessible, I focus on concrete examples with real-world relevance. To make learning personal, I strive to identify struggling students early and provide them with personalized instruction as much as possible - through my own time, my teaching assistants’ time, peer instruction, and other educational resources. My teaching experience and awards provide evidence for the effectiveness of this teaching philosophy.

Teaching Experience

Prior to my doctoral studies, my primary income source was private tutoring in high school mathematics and physics. I sustained this livelihood for 4 years from Fall 2008 to Fall 2012, building up to 10+ regular and simultaneous clients acquired through word of mouth. My success with students who were often forced into tutoring by their parents, struggling with difficult and abstract material, in a one-on-one dynamic, demonstrates my ability to make learning enjoyable, accessible, and personalized. As a graduate teaching assistant for three semesters, I continued developing this skill set with older students in one-on-one meetings during office hours. I also gained experience transferring these skills to a group setting while leading discussion sections. For example, I learned to engage students in the classroom by
presenting live code examples, soliciting suggested code modifications, and asking for hypotheses about how the modifications would affect the output before actually running them. Allowing students to interactively drive discussion about concrete examples leads to more enjoyable, accessible, and personalized learning. My success in this capacity is evidenced by multiple teaching awards as well as an unsolicited job offer for an instructor position. I accepted the offer and served as the instructor for a summer offering of my department’s introductory undergraduate programming course. This was a fast-paced, 10-week class of 48 students, which I taught with the help of two outstanding teaching assistants. As an instructor I had the opportunity to develop my teaching abilities in a more professional capacity, and also gained experience generating new lecture materials, study materials, programming assignments, and exams from scratch.\footnote{Course materials available at \url{https://www.cs.umd.edu/class/summer2013/cmsc131/index.html}} This experience also taught me some hard lessons and revealed important areas for improvement. The three students who failed the course highlighted the need for me to detect struggling students earlier, and to be more sensitive to and supportive of diverse learning styles. Most recently, as a graduate research assistant, I have continued to refine my teaching abilities by mentoring two undergraduates and two M.S. students, as well as delivering two guest lectures, one in an undergraduate course on machine learning and one in a graduate course on neural computation. I have also had the opportunity to present my research in accepted talks at three conferences, further strengthening my public speaking skills.

**Conclusion**

My experience thus far has provided me with useful opportunities to develop my teaching abilities and philosophy, and demonstrates my effectiveness as an educator. I am well prepared to teach courses in programming, discrete math, algorithms, machine learning, artificial intelligence, neural computation, and robotics at the undergraduate level (and the latter four at the graduate level as well). I look forward to my own continued development as a teacher, and to the rewarding work of teaching and mentoring the computer scientists of tomorrow.