Hadi Esmaeilzadeh | Teaching Statement

Teaching style. I have been fortunate to experience the joy of learning, innovating, and teaching both as an undergraduate and as a gradate student. Now, I would like to continue this joyous adventure as a faculty member. As a teacher and advisor, I wish to foster four main skills in the students: (1) the ability to apply critical thinking to problem solving, (2) the ability to communicate at the correct level of abstraction, (3) the ability to think about the big picture and the details concurrently, and (4) the ability to learn on their own and find new challenging problems. I believe in learning by doing, and I think that interactive teaching can stimulate a greater sense of learning in the students. Thus, I plan to develop courses with a significant project component, require in class presentations, and encourage questions during the lectures. I think exhibiting enthusiasm and incorporating humor while teaching helps keep the students interested. It is also important to explain the fundamentals to everyone, while simultaneously providing an intellectual challenge to as many students as possible. To further nurture intellectual abilities in the students, I will give optional assignments and encourage the students to go the extra mile. I will also ask the students to submit critical questions and arguments about the course material before lectures. Finally, I believe that being reflective about one's own teaching and paying attention to student feedback is crucial to improving the teaching experience.

Teaching experience. Since my undergraduate studies, I have had the opportunity to get heavily involved in teaching courses and mentoring students. In the second year of my undergraduate studies at University of Tehran, I was invited to teach parts of the Computer Workshop course for first year students, which involved teaching how to operate a computer. It was a thrilling experience that set me on the path of teaching assistantships for almost the entirety of my undergraduate studies and a considerable portion of my graduate studies. Most of the assistantship work at University of Tehran was voluntary and without pay. I volunteered since I enjoyed teaching and interacting with the students. I have been a teaching assistant for nine undergraduate courses and three graduate courses at three different institutions. At the University of Tehran, I was a TA for the undergraduate *Computer Workshop*, *Microprocessors*, *Digital Logic Circuits*, *Computer Architecture*, and *Digital Electronics* courses and the graduate *ASIC Design* and *Advanced VLSI Design* courses. My duties included giving lectures in discussion sections, managing lab sessions, designing and grading homework, holding office hours, and responding to email and newsgroup queries. I also had the opportunity to design my own *Introduction to Communication Networks* course that was offered to professionals without a computer science background. At the University of Texas at Austin, I was a teaching assistant for the graduate *Advanced Compiler Techniques* course and the undergraduate *Programming Languages* course. At the University of Washington, I was a TA for the undergraduate *Advanced Logic Design* and the *Introduction to Compiler Construction* courses.

Mentoring experience. In addition to my direct teaching experience, I have had the opportunity to mentor several undergraduate and graduate students on various research projects. During office hours or discussion sections, I introduced my research to the students by discussing the research problems and challenges related to the course material. These introductions initiated many of my collaborations with undergraduate students. I have also worked closely and advised junior graduate students, trying to help them success. I shared my experience with them, supervised their subtasks, helped refine their ideas, and helped them in planning and scheduling. Many of my collaborations have resulted in publications and several of the undergraduate students with whom I have worked continued their studies in top graduate schools.

Teaching interests. I am eager to teach courses on computer organization, architecture, microarchitecture, logic design, and VLSI at all levels. I am also interested in teaching seminar courses on special topics in computer architecture. I would also enjoy helping to develop and teach a course on machine learning for computer architecture and systems graduate students. The course should focus on providing a deeper understanding of the machine learning algorithms with emphasis on their applications in and implications on architecture and system design. I would also enjoy teaching introductory courses on compilers and programming languages.