Teaching Statement

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I am interested in teaching both fundamental computer science classes and software engineering classes. By teaching fundamental classes, I will not only convey basic knowledge, but also develop the scientific and analytical thinking ability of my students. By teaching software engineering classes, I aim to show my students practical software engineering problems by sharing my own experiences as a software engineer, introduce them to state-of-the-art techniques, and work with them to explore the solutions and create new knowledge.

From my experiences as a software engineer and project manager, I witnessed many new programmers’ ignorance of software engineering. It was not unusual for them to write programs without careful design, and rewrite everything from scratch when the old version grew unmanageable. Although most new programmers were equipped with solid programming skills, few of them were prepared to be software designers. Many of them lacked the vision needed for solid engineering design and had little ability to handle software evolution. After I came to the U.S. to continue my study, I was struck by an invited industry presentation at a top software engineering conference: “You software engineering guys are on fire! You are not producing the kind of students we need!”

My first goal in teaching is to prepare my students in ivory towers for practical problems, especially the constantly changing nature of software. I will emulate industrial situations in my classes. For example, I plan to have each of my students play both the role of a customer and the role of a software designer. They will both describe their requirements to others and design a system to satisfy their customers. Requirements are going to change, and the designs should prepare for changes. Meanwhile, I plan to introduce established theories and techniques and to encourage my students to apply state-of-the-art research results.

My ultimate goal is to work with my students to handle the complexity of software design and evolution in a scientific way. After the students have experienced the difficulties, I will ask them to identify the problems and create solutions. I plan to evaluate and develop my own research ideas in the mean time. Especially, I will encourage my students to propose and apply scientific solutions. For example, I will guide them and join them to build scientific models for the software engineering problems they identified, and develop automated approaches to analyze those models.

When I worked as a software engineer, I had plenty of opportunities to present our products and provide training programs to our customers. I was known as an outstanding lecturer in my institute. In my first year at the University of Virginia, I was a teaching assistant for CS 202, discrete mathematics. My responsibilities were grading assignments and holding office hours. By communicating with students, I was fascinated to see the variety of ways that people think. Active students frequently challenged approaches that seemed obvious or had been taken for granted. In my fourth year, I had an opportunity to give lectures in a graduate software engineering class about my own research. I enjoyed sharing my own ideas. I am going to be a teaching assistant for two software engineering courses in the coming semester, a core course and a research seminar. I am going to be involved in intensive teaching activities, such as organizing teaching materials and giving lectures. For me, teaching is far beyond lecturing. It is an intellectual communication that I always enjoy and I believe I can make my students enjoy as well.

Integrating teaching with research is my basic strategy both to develop my own career and, more importantly, to foster students needed in the real world. I embrace the philosophy of my advisor’s advisor, taken from his advisor: “Focus on the students, since graduating great students means you’ll produce great research, while focusing on the research may or may not produce great students.”