Teaching Statement

Tayfun Elmas

During my graduate study at Koc University, I was the head teaching assistant (TA) for three courses: ENGR 100: Introduction to Computer Engineering, COMP 131: Object Oriented Programming with Java, and COMP 302: Software Engineering. In addition, I was a teaching assistant for CSE 410: Computer Systems, an introductory engineering course for non-majors, while I was a visiting graduate student at the University of Washington. For all of these courses, I led the assistantship duties and logistics with a strong collaboration with the instructors and other TAs. These duties mainly include managing the class web site, preparing and grading homeworks and projects, conducting problem and quiz sessions. I was able to manage and organize my time and schedule around these TA tasks without having them interfere with my research. In fact, in concert with my research interest of software analysis and verification, I view instructing individuals on how to design and reason about software systems as an integral part of success in my professional work.

While teaching computer science, my major learning goals are to understand the fundamental concepts in computer science, and to gain skills to interpret and approach to a problem in a scientific discipline, for example, to be able to develop and reason about effectiveness and efficiency of an algorithm to solve a problem, and to work collaboratively with others to tackle a large engineering project.

My teaching experience goes back to my undergraduate study, where I volunteered for TEGV, a non-profit social organization in Turkey, to teach intermediate and high school students the basics of computers. During this experience I learned the basic principles of teaching: approaching students with a positive attitude both as a helpful and enjoyable mentor, struggling for students to understand the big picture of the topic clearly, and being fair and honest to every individual. I consistently followed these principles during my teaching assistantship. I think that one of the most challenging tasks during teaching is to gather the attention of students at the introductory level computer science courses, where students meet with abstract concepts of programming and computer architecture. I believe that students can be provided with a deeper understanding of software engineering and computer science, if they know applications of certain contexts in the real world. Thus, I usually try to give many examples and analogies that make the often abstract concepts more clear.

In the context of Software Engineering, I designed the homeworks and term project and guided the groups during the term project. This consisted of leading weekly meetings with project teams, monitoring their progress, and advising them about how they should proceed with the next step of the project. In programming and problem solving part of the courses, I always try to come up with original and interesting problems that will allow students to get excited about programming. Designing games to program was one of these efforts. I thoroughly enjoy interactively thinking about topics I am teaching and letting them discover the essence and significance of the technologies they are being taught with themselves.

During my assistantship, I have extensively used online courseware programs provided by Koc University (KUAIS) and the University of Washington (Catalyst). These include class web-site builders, homework dissemination and collecting software, and shared folders. In addition, I have frequently used publicly accessible, state-of-the-art technologies such as email groups, online document sharing (e.g., Google Docs) to communicate with students in the most efficient way possible.

My teaching interests can be listed as follows: Object Oriented Programming (Java, C++, C#), Software Engineering, Programming Languages and Concepts, Foundations of Computer Science, Discrete Structures, Formal Methods, Software Analysis and Verification.