Teaching Statement

Hui Fang

Teaching is an important part of my career. I believe that teaching and research are complementary and equally important. Research advances the state of knowledge, and contributes to the subject matter taught; while teaching conveys the state of the art techniques to a large number of people, helps to deepen a researcher’s understanding of topics, and provides fresh perspectives on research problems. Furthermore, teaching is extremely rewarding, because it allows me to see students achieving academic successes and fulfilling career goals.

Teaching Philosophy

My teaching philosophy is rooted in my belief that students are important. I believe that a successful teaching relationship is built upon mutual respect between the teacher and students. During my past teaching experience, I remembered every student’s name in my classes and took every student seriously. I always make myself easily accessible to students and encourage students to talk to me whenever they have questions. When students have difficulty solving a problem, I would not tell them the answer directly. Instead, I would start from what they knew and guide them to find the correct answer. I believe that this is a good way to help students develop self-esteem and confidence. I also believe that everybody in a diverse environment would benefit from the exchange of ideas with people from different backgrounds. I am committed to helping increase the number of women and minority students in computer science and engineering at all levels. I am currently mentoring two underrepresented undergraduate students on a research project.

My approach to teaching and mentoring follows my philosophy. I believe that the key to giving good lectures is hard work on my part. First, as I introduce the topic of a lecture, I connect it with real-world problems to show its importance, and explain its relationship with other topics to give students a high-level view of the topic. Second, I understand the importance of explaining complex concepts in a simple way. The best technique that I have found is better preparation, namely, anticipating students’ confusions, revising presentations, and delivering lectures clearly. Finally, I encourage students to ask questions in classes. Such interaction fosters effective learning and allows me to deliver lectures adaptively based on students’ reactions.

My ultimate goal of teaching is to help students gain both knowledge and skills. I strive to educate students to think actively, reason logically, communicate clearly, and work collaboratively. These skills are essential for any career. I believe that such skills can be developed through classroom interactions and carefully designed assignments and projects. First, writing critiques is an effective way to train students to think actively, because a good critique requires both understanding the main concepts and identifying the underlying assumptions. Second, working on real-world problems allows students to practice their problem-solving skills, and helps them understand how the methods they learned in classes can be applied to real-world applications. Third, writing reports and giving presentations help students practice their communication skills. Finally, group projects give students opportunities to learn how to work collaboratively.

Experience and Future plans

My teaching experience started in 1998. I was invited to be a guest lecturer in a summer school of the Olympic Informatics Contest in Tianjin, China. I taught programming skills and basic knowledge about data structures and artificial intelligence to high school students who were interested in
participating in programming contests. I delivered six lectures and designed several problem sets for them to practice. In 2001, I served as a teaching assistant for two “Computer Architecture” courses (CS231 and CS232). I was responsible for preparing and grading assignments and exams. In 2006, I served as a teaching assistant for the “Introduction to Text Information Systems” course (CS498czx). My responsibilities included holding office hours, designing assignments and projects, and giving a guest lecture about my research. I prepared carefully for the lecture and talked with several students after the class to get their feedback in order to improve my teaching skills. I paid attention to every student in the class, and helped them whenever they needed it. One of my students told me that I was the best TA he had ever had.

To further improve my teaching skills and help underrepresented students achieve academic success, I applied for, and was accepted through a campus wide competition, as a mentor in the “Intel Scholars Undergraduate Research Program”, which aims to provide research opportunities to women and minority undergraduate students. I am currently working with two undergraduate students on an information retrieval research project. Because they are new to research, I first explained the concept and beauty of research to them, told them about my experiences, and helped them carefully plan and conduct their research projects. I also meet with these students regularly and encourage them to come to me whenever they have difficulty.

In terms of my teaching plans, I would like to teach courses on information retrieval, bioinformatics, data mining, databases, and related areas at both the undergraduate and graduate levels. At the undergraduate level, my priorities are to teach students materials that will build their knowledge foundation, to get them interested in the subjects introduced in lectures, and to give them hands-on experiences in solving real-world problems. At the graduate level, my goals are to introduce the beauty of research to students, and to help them develop research skills. I am also interested in developing an advanced course that combines multiple disciplines, such as information retrieval, natural language processing, data mining, and databases. In this course, I would present a broad view on information management and focus on how techniques from a variety of fields can be brought together to help users access and manage information effectively.

As the information technology industry grows, so will the demand for a well-educated workforce in all the core areas of information management. I look forward to the opportunity of educating the next generation researchers and developers in information retrieval and the general area of information management.