Ren-Song Ko

Statement of Teaching Interests

My general teaching interests are in the area of systems, including courses in computer networks, operating systems, architecture, and distributed computing. My primary goal in teaching is to prepare the undergraduate and graduate students for careers in the rapidly changing fields of computing and communications.

I have always enjoyed interacting with students. My first teaching experience may be traced back to the time when I taught a communication course in my military service in Taiwan. It is a one week course with 20 hours of lectures. I had full responsibility for about 20 students in the class with different educational backgrounds; most of them only had a high school diploma, or less. Instead of just presenting all materials in the textbook, I taught them only the fundamental concepts, presented the basic ideas and then I would ask them the questions, such as "given whatever you were taught, what would you do to solve this problem?" I encouraged them to think and guided them to better solutions. This teaching technique provides strong reinforcement, and engages the interest of the students, creating a rich atmosphere for learning. The students might not know all advanced materials in the textbook, but this approach invited interaction from the students and taught the students problem-solving skills. When they encountered a problem, the students would be able to reason out the solutions and this was actually the objective of the course.

As a teaching assistant in Michigan State University, I focused on bridging the gap between students and professors. For example, when I conducted laboratory experiments, I usually gave a 10 minutes presentation to highlight and reinforce the relevant material covered in the lectures. I strongly believe that "one learns by doing." When students asks questions, instead of giving out the answers directly, I usually point out where they can find the answers, or provide concise and clear hints to encourage them to think. I wrote a grading script to automate retrieving students' projects and emailing students their scores to expedite the process such that grades were returned in less than a week. I used the time saved to provide more help for students.

Effective presentations require more than just good materials; they have to be well thought out and adaptive. When preparing, I consider several possible ways to organize my topics. Upon finding a way that succinctly illustrates the central ideas, I read through materials several times trying to think of questions that could arise, and I write them in the margin along with suggestive diagrams. Through a process of iteration and clarification, I master the ideas from several angles; this allows me to suit my presentations to questions, and to actively encourage audience participation.

During my presentations, I consistently clarify the interrelationships between abstract fundamental concepts and the practical real world problems. It is clear that examples are the key to learning. The audience will grasp a topic best when I use examples throughout the explanation; at each level, I immediately follow explanation of a theory with an example of a direct application. I am also interested in incorporating more multimedia into presentations, particularly in the explanation of algorithms. It will be easier to follow the algorithm flows, if they can be visualized with help of multimedia.

Overall, I consider teaching to be a vital component of an academic career, and I am excited by the opportunity to work with both undergraduate and graduate students.