

TEACHING STATEMENT

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Teaching is one of the primary motivations for me to pursue an academic position. As a student in four universities of three different countries during the past ten years, I truly enjoyed the process of learning new knowledge from many learned and respected professors and becoming a qualified Ph.D. student from an undergraduate rookie under their guidance. From my personal experience, I truly feel how important and valuable a good teacher means for the growth and development of young generations. As computer science and technology are becoming the backbone of today's world and developing so rapidly, a successful education comes from not only providing students with solid knowledge and existing skills, but also teaching them the thinking of solving new problems and passion to explore the unknown. Therefore, I would like to develop my courses concentrating on the following goals. First, I will seek to make the courses interesting and motivate the students engaging in learning. Second, I will teach the fundamental concepts and basic knowledge, work with my students on the cutting-edge problems and explore the connections between these issues with what we learnt. Last and most importantly, I will guide my students to help them develop the ability to find problems, conduct research, design solutions and collaborate with others.

Teaching Experience and Philosophy

During my undergraduate in junior or senior years in Nanjing University, I began to mentor the freshmen in courses such as discrete mathematics, algorithms and other laboratory classes. Based on my experiences and feedbacks, I found that it was effective through typical examples to explain the fundamental concepts and principles to the beginners. As a Ph.D. student at the University of Colorado, Colorado Springs, I worked as a guest lecturer and tutor for 20 undergraduate international students during the summer campaign. I prepared and gave some lectures on selected topics (Virtualization, Cloud Computing, etc.), led project sessions, graded assignments, and advised students with their course projects from design phase to final implementation. In the class, I encouraged the students to think independently and differently as there was usually no standard and perfect answer to build real systems. During my Ph.D. study at the University of Texas at Arlington, I worked as a graduate teaching assistant for the Operating Systems class (CSE 3320) and Design and Analysis of Algorithms (CSE 5311) to 60 students. In the courses I taught challenging topics, including efficient memory management, scheduling, hashing, advanced data structure, etc., and guided the projects in an interactive environment. As the assistant in teaching, I helped homework grading, designing quizzes and providing question and answer class. For the projects, I tended to first discuss with students about the failure solutions and listen to their difficulties, which made my advising more targeted and efficient. Then, I preferred to hand on with the students together and let them propose efficient solutions in a heuristic way.

Based on my background and previous experience, I am excited and prepared to teach operating system, program analysis, distributed systems, cloud computing and big data classes, or develop new classes for both the undergraduate and graduate levels. As a system researcher, I think the best way to learn system courses is to build the working system by our own hands. Therefore, I would make the hands-on lab as an important part of the above classes. I will also decide to add the latest knowledge, technologies and discoveries inside my courses to make them fresh and attractive. Besides the above topics, I am also opened to teach courses or seminars close to my research interests.

Mentoring Approach and Philosophy

From my point of view, mentoring is a bi-directional learning process involving the coordination between the mentor and the mentees. Therefore, I greatly enjoy working with students and I do learn a lot from them. During my Ph.D. research journey, I have mentored and worked closely with several junior graduate students in my lab.

My most recent mentoring experience was working with a graduate student who joined our lab in June 2017 on his first Ph.D. project. The student used to be majored in Electronic Engineering and had little knowledge on the Java virtual machine. To help him get started quickly, I shared the materials I used to learn and my personal experience on this area. I used task-based approach on mentoring, discussed with him each week and revised the progress as necessary. At the beginning, we discussed with more fine-grained tasks and focused on specific technical details. As the mentored student gained more experience and became more practiced, the discussion was less frequent and more concentrated at the high level. After one-year cooperation and repeated discussion, the student published his first paper in HotCloud 2018. He told me that the experience of working with me helped him understand not only the mechanism inside the JVM but also the methodology of how to do research. Besides, I also mentored some other students on the virtualized networks during my study in the University of Colorado, Colorado Springs and then we cooperated some research papers which were published in INFOCOM 2018 and ICDCS 2018. As a mentor, it is highly rewarding and excited to see the students make new progress, learn new knowledge, gain new skills and solve new problems which had never been explored before with their own hands.

In addition to teaching the specific technical knowledge and methodology, my goal, as a mentor, is also focusing on sharing the spirit of research, such as critical thinking, good presentation, independent study and collaboration, with all of my students. I learnt the above values from my personal Ph.D. journal and my advisor, Dr. Jia Rao. I hope I could pass these things to my students and help them success in their future.