Teaching Statement
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I have had the opportunity to teach classes for students at all levels. Every class I have taught has been a unique learning experience which I have thoroughly enjoyed. My experience, both as a teaching assistant and as a student, has helped me formulate an approach towards teaching. While my exact approach differs depending on the level and content of the class, there are several common themes.

I believe that motivating the students is the most important aspect of teaching. Each student is unique and learns in a different way. Hence, I try to present each concept from different perspectives, using many examples. Presenting the same material from multiple points of view offers students more opportunities to understand the material. I also believe that relating classroom concepts to real-world applications helps the students realize the broader significance of the concept being taught in class. This approach was particularly useful while teaching lower-level Computer Science classes, where students had little technical background. Students seemed to have a hard time understanding the importance of the concepts being taught in class. I realized that presenting each concept using real-world applications helped them understand the relevance of the concept and further motivated them.

I like my classes to be interactive and try to promote an active dialogue. I also ask the students questions because I believe that it helps them think critically instead of blindly accepting whatever is taught in class. I use this same approach in office hours, when students come in with questions or problems with their projects. I have noticed that challenging the students with interesting problems sparks their interest. For example, while teaching a class on data structures in C++, I challenged the students to identify portions of their implementation that caused their program to slow down. I also suggested that they should modify their implementation to use data structures that resulted in the best running time. This exercise helped the students understand the importance of analyzing an algorithm’s efficiency and comparing the relative efficiency to identify the best algorithm for their program. Interestingly, we noticed that almost all the students put more effort in completing this project than any of their previous projects.

Exams, projects, quizzes and homework constitute important components of learning. Not only do they provide students with valuable feedback, but also help instructors gauge the students’ progress and pace the course accordingly. I believe that due diligence must be shown by the instructor while preparing such material. For example, with systems projects, it is easy for students to spend much of their time handling the intricate details of their execution environment rather than focusing on the implementation of their projects and understand the intended aspects. I realized the challenges in designing good projects as a teaching assistant for a senior level course on Operating Systems. In previous offerings of the course, students were forced to use a specific set of machines and also spent much time in handling crashes and machine re-boots because of errors in their code. We realized that this severely limited the time that the students actually spent on designing and implementing their projects. To avoid this issue, we decided to use a hardware emulator, called Bochs, which was capable of running on most commonly used architectures. We also designed projects that involved the use of an instructional operating system developed at Maryland, called GeekOS. This move, from real world to emulation, helped improve the time spent by students on system design and implementation and was quite popular among the students. Professors have, since then, adopted a similar approach while teaching this course.

Prior Experience
My first opportunity to teach came as an undergraduate at the Birla Institute of Technology and Science, Pilani, India. I volunteered as a teaching assistant for a junior level course on assembly language programming. Apart from helping students with their programming assignments, my tasks included helping the instructor with the design of projects and exams. Then, as a teaching assistant at the University of Maryland, I led discussion sections on introductory Computer
Science classes for freshmen, C++ programming for sophomores and juniors, and Operating Systems for seniors and graduate students. Additionally, on occasion, I filled in for the professor during regular lecture hours. I also had the opportunity to design course projects in the Operating Systems course. My performance as a teaching assistant has consistently merited favorable reviews, both from the students and the professors.

Future plans

As a faculty member, I hope to teach classes in all aspects of systems. I would like to teach both graduate and undergraduate level classes in these areas. In the undergraduate courses, my focus would be on introducing the students to basic principles and on covering good breadth in the area. At the graduate level, I would be comfortable teaching courses on Advanced Computer Networking, Operating Systems and Distributed Systems. I also hope to teach classes on the latest advances in Peer-to-Peer systems and Wireless Networks. My focus in graduate level classes would be to help students get a deeper understanding of the area. The goal of the course would also be to introduce the students to the latest advances and promote creative thinking. To facilitate this process, I hope to have research-oriented assignments and projects. I believe that teaching these classes would also enable me to gain further understanding of these topics and foster new research ideas. My experience makes me confident in my abilities as a teacher. I look forward to a fruitful career involving teaching.