Teaching Statement

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One of the most enjoyable aspects of academic life is being able to share our knowledge with students. Teaching is rewarding for me not only because of the excitement brought by helping others get new knowledge, but also because it helps me deepen my own understanding of the materials. I strongly believe in the famous quote by Albert Einstein, “If you can’t explain it simply, you don’t understand it well enough.”

My first formal teaching experience was working as a teaching assistant for an undergraduate course on Data Structure and Algorithms with the responsibility of holding office hours and grading programming assignments. During office hours I had the chance to interact with students of different backgrounds. When students came to me with a problem, instead of directly giving them the answer, I always encouraged them to first try explaining to me their tentative approach. This way I was able to quickly pinpoint the source of their trouble and clear up their confusion. Students usually found this method very effective. This was actually not the first time that I tried this method. I started developing this kind of teaching skill back in my middle school and high school days, when I had innumerable opportunities to teach discussion sessions for physics and chemistry to my fellow students. Throughout the years, I have been constantly practicing and improving this skill, which has profited many of my fellow graduate students who quite often come to me for help with their course work or problems encountered in their research. In addition to this, I have also been giving guest lectures in graduate level courses such as Performance Evaluation, which has helped improve my skills to explain more advanced materials to a broad audience.

My own experience of taking a variety of courses in electrical engineering, computer science, pure and applied mathematics and statistics, as well as that of self-teaching several foreign languages, has greatly helped nurture my own teaching philosophy and pedagogy. My primary goal of teaching is to help students develop their skills of critical thinking, though it is also important to teach them concrete technical skills. This is especially important for information technology professionals, as new technologies come and go at such a fast pace. My approach towards successful teaching will be the following.

First, I will always emphasize the ideas behind new concepts and techniques and how they gradually evolved into their current status. Although it is not uncommon to present only end results for the interest of time, I believe it is more instructive to know the history as well, as ideas rarely come out of thin air. Learning the progression of logical reasoning behind the scene helps students develop similar skills, which may serve them throughout their entire professional careers.

Second, I will strive to strike a balance between concreteness and abstraction. Concrete examples and real world applications are always easier for students to grasp and help keep up their interest. On the other hand, abstraction has the power of extracting the commonality and the potential for wider applicability. I will always start with a lot of different concrete examples. After students have grasped these concrete examples fairly well, I will then encourage them to find the commonality and introduce the abstraction.
Third, I will carefully design problem sets and projects to guide students through details that are not possible to be covered in lectures. There are always gaps between theory and practice. It is quite often a big challenge for students to bridge the gaps on their own. To help them in this regard, I will pick real world problems and break them down into smaller pieces so that students can solve each piece without too much effort. This way they can get hands-on experience with putting what they have learned into practice.

Last but not least, I will adapt my lectures according to students’ interests and levels. A typical lecture room hosts various types of students. It is important to be able to determine the experience level of the class as early as possible. After this an important challenge is to present the materials in a balanced way so as to keep the interests of the more advanced students, while at the same time not discouraging the less advanced students.

I would be happy to teach a variety of courses at both undergraduate and graduate levels, such as computer and communication networks, network science, probability and statistics, modeling and performance evaluation.