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TEACHING STATEMENT

At the end of my first semester as a teaching assistant, I thought I had done an amazing job. When I received my first teaching evaluation I was surprised: my scores, while not terrible, were slightly below average, and there was not one truly positive review. I realized that I had not inspired anyone or made anyone take an interest in Data Structures and Algorithms, my two favorite subjects at the time. I decided to work hard to become a better teacher. Four years later, I was presented with the outstanding TA in Computer Science award. I believe that sharing some of my experiences is the best way to convey my teaching philosophy.

The first time I was a TA in the Algorithms course at Tel Aviv University, some students asked me whether we would ask them to simulate the Simplex algorithm in the exam. I told them that we wouldn't, and they asked, "Then why was it taught in class?" It was a good question. Why do we teach them how the Simplex algorithm works when there are many existing implementations of it that they can use as a black box? Ever since then, I make sure to understand and explain to the students why I teach what I teach, and how it can be useful other than in solving the homework assignments or the exam.

I start every recitation with a puzzle that appears unrelated to the material that is currently being studied. On the first slide of the recitation on Euler cycles, for example, there are three pictures, and I ask which ones can be drawn without lifting the pen off the paper. In the first slide of a recitation on flow (and bipartite matching), there is a chess board with some squares colored red and I ask if the red squares can be exactly covered by domino stones. By the end of the recitation, I have shown how to use the material taught that day to solve the puzzle. Even though the puzzles are often not "real world" problems, they impress upon the students the generality of the techniques, and allow them to view the whole algorithms course in a wider perspective - we are not just teaching them algorithms that can be used for specific problems, but are rather giving them a large multi-purpose toolkit as well as the knowledge of how to expand the toolkit when necessary.

There is a simple guideline that I always find useful when preparing a talk, a lecture or even an entire course: how would I feel if I was in the audience; if I was a student in the course? Even though I have by now amassed many hours as a teacher, I have spent tens of thousands of hours as a student. Although it is not trivial to convert learning experience into teaching experience, the simple action of trying to see the situation from the other perspective has consistently been the most important teaching tool at my disposal. I have learned that you can never be too prepared for a lecture - it is important to rehearse the material the day of the lecture or the day before, even if you have already given the same lecture many times in the past; that when you are truly passionate about a topic, it can be infectious; that it is important to dress to the occasion, and to treat everybody with respect; to stop for at least 5 seconds after asking a question, even though it seems like a really long time; that you can never have too many examples, pictures, color or humor.

I find that teaching has been beneficial to my development as a researcher and as a person; I am now able to immediately own up to mistakes, and not try to cover them up or pretend that they were on purpose. This is a crucial trait for a teacher and for a scientific researcher to have, allowing discussions to continue, unencumbered by ego. I have learned to try to understand the reasoning behind questions that seem out of place. Giv-

ing the student the benefit of the doubt and trying to figure out why he or she would ask such a question usually allows me to figure out what he or she misunderstands quickly, and when put in that context, the question makes more sense. This approach quickly creates an atmosphere of trust, in which students feel comfortable asking questions; this can often make the difference between following the entire lecture and following only until something becomes unclear, which can be in the first five minutes.

I continue to ask myself how I can improve as a teacher, and I trust I will continue to evolve and develop. I feel it is important to continue to take risks and try new things. Sometimes I succeed and at other times I fail spectacularly, but from each experience I learn how to become a better teacher.