TEACHING STATEMENT

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Teaching is the most direct way in which academics have an impact on society. I like to think that by organizing concepts and ideas in a way that is amenable to students, not only do we help them master the technical concepts, but we also help them develop their own creativity. Through my experience at MIT now and at Imperial College London before, I have had the fortune of mentoring a dozen students, and I have taught classes at both undergraduate and graduate levels. I would like to continue doing so in the future.

Teaching Experience. My main teaching experience came from co-teaching the Database Systems class at MIT along with professor Tim Kraska. This class had around 70 undergraduate and graduate students. My main responsibility was teaching half of the lectures for the class. For each lecture, I determined the learning objectives, prepared the content, and delivered it ensuring students were interacting. In addition, I was responsible for organizing the *labs* for the class. In the labs, the students were given the skeleton of a database system and had to complete it by writing code using the concepts taught in class. I have also helped design the exams and problem sets, grade the labs, and mentor the graduate students, who have to do a research project. From this experience, I have been able to hone approaches for teaching systems concepts.

In the past, I have also given guest lectures in several topics to students, as well as academic, and industrial audiences. For example, at MIT I have been active in presenting ideas to the members of the CSAIL Alliances Program, a program in which around 50 industrial sponsors attend MIT to learn about new research ideas and tools. Finally, within the data systems group, I have organized informal seminars in which we discuss research papers in our area of interest and we overview the proceedings of conferences relevant to our research area.

From this experience, and in particular from my experience teaching the Database Systems class, I have formed an opinion on how I'd like to teach looking forward.

Teaching Approach. I am a strong believer in learning-by-doing. I think this is a great approach for courses with a strong systems building component. In the class, I like to focus on key concepts. I like to motivate the topic (the *why*), then explain the concept and how it is used in practice. I think making classes interactive, especially when discussing key concepts, is a great way of letting students build confidence by asking questions and discussing aspects of the content. Specifically, I try to encourage students to consider different ways of solving a problem, and I like to ask them to consider the different tradeoffs involved in different approaches. In parallel to the key concepts in class, systems building has its own set of difficulties and challenges that I believe can only be learned by making an active effort in system building. I think the best way to help students learn systems concepts is by designing labs that guide them through the basic implementation, and then give them the freedom to make decisions on key components.

Research Mentoring. During my career I have been lucky to mentor 12 undergraduate and 4 graduate students. While at Imperial I helped propose projects for an undergraduate class and I mentored 3 students through the development of their projects. I strongly believe that frequent meetings are a good way of making sure students remain engaged and motivated in their project. Showing students your own commitment is the best way of ensuring strong results. I like to ask many questions to the students, even when they seem to have figured out a way forward. I think this is the best way of making sure they always consider different hypotheses and do not stick to a single one. Getting too attached to an approach or idea early on is an important source of frustration when this idea turns out to not work well in practice. While at MIT, I have been fortunate to mentor 6 undergraduate students in different research projects. I am proud that all their names are in research papers that have been already published or that are currently under submission. Finally, I have been lucky to work with PhD students in several projects either through collaborations, or through informal meetings. As a mentor, I always show my own commitment and passion about the projects we are working on. My goal is to encourage students to start asking their own questions and, ultimately, making contributions to the field.

Courses I can teach. I can teach courses in data management, operating systems, distributed systems, data science, as well as introductory computer science classes. In addition to the previous classes, I'm looking forward to teaching graduate level seminars in concepts around data systems, with a particular interest in: i) exploring the applications of data management in the humanities, social sciences, engineering, and science; ii) discussing opportunities of systems for machine learning and machine learning for systems.