Teaching Statement

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The opportunity to teach and mentor students is a significant part of my desire to be a professor. I have been very fortunate to have excellent mentors at the undergraduate and graduate levels that both introduced me to computer science research and helped me mature academically and personally along the way. I hope to similarly help students succeed and grow in the future.

I would be excited to teach undergraduate courses in databases, data analysis, operating systems, and any introductory course in programming, data structures, or algorithms.

At the graduate level, I am interested in teaching advanced database systems, big data systems as well as seminar courses that explore current advances in data management and their intersections with other research areas. Some topics of interest are the intersections of databases with human computation, computational journalism, the web stack, or interactive visualization tools.

Teaching Philosophy

Teaching has been a humbling experience when I consider the amazing accomplishments students have made when they are excited about the topic, and also a surprising difficult process given the wildly differing skill levels in a group of students.

I've found that the most effective courses are those that successfully motivate the students by framing the course topics as tools for the students to achieve their own goals. Following this guideline, it is important to connect the topics with real-world applications. For example, concepts like materialized views can be made accessible by describing the way Facebook caches and updates user feeds and how it relates to updating materialized views.

Furthermore, I strongly believe in project-oriented courses and one-on-one meetings between the teaching staff and students. Projects provide students a venue to find a topic that excites them, while meetings both give the students a chance to privately express their concerns and the staff a change to understand student interests.

Finally, micro-assignments are an effective tool for both students and staff to gauge progress and design subsequent classes. These principles place a larger burden on the teaching staff in terms of implementation and evaluation, however I believe the trade-off is worthwhile in the long run.

Teaching Experience

I have been fortunate to have many opportunities to teach students at the graduate, undergraduate and high school levels. The following summarizes my teaching experience.

Instructor, Big Data Systems (MIT 6.885) Fall 2013

Co-developed and instructed MIT's first course focused on large scale data analysis tools and techniques. Topics ranged from data cleaning and integration, large-scale systems like Hadoop, to scalable visualization techniques. Throughout this course, we developed eight new labs to give students hands-on experience with the systems covered in class ranging from data integration on data from Four Square and Locu to graph analysis on Amazon's cloud infrastructure.

Instructor, Data Analysis IAP Course Spring 2012

Co-developed and taught approximately 20 students introduction to data analysis course during MIT's Independent Activities Period in January. dataiap.github.io

Curriculum Head, MEET 2011 - 2012

Head of curriculum development for MEET. Help prepare incoming instructors during the summer. Successfully migrated the organization from a Java-based curriculum to a Python-oriented one. The rationale was both pedagogical (e.g, fast development iteration using the REPL), and practical (most MIT CS undergraduates are taught Python. Few are taught Java).

TA, Database Systems (MIT 6.830) Fall 2010

Assisted in writing and grading the assignments and projects.

Instructor, MEET Summer 2010

Mentored a group of 30 Israeli and Palestinian high schoo students through MIT's MEET program, a peace initiative in the Middle East.

Instructor, Introduction to Java Course Spring 2010, 2011

Instructed a class of 50 students in an introduction to the Java programming language.

TA, Database Systems (UCB CS186) Fall 2006
Taught approximately 30 students in weekly discussion sections. Assisted in writing and grading the assignments and projects.