Teaching Statement

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I have thoroughly enjoyed the teaching and mentoring opportunities I have received so far, and continuing to have them is an important motivation for me to pursue academia.

Teaching: My teaching experience comes from the many opportunities I received in Berkeley and Waterloo, with responsibilities ranging from holding weekly discussion sections and supervising group projects as a teaching assistant (TA), to designing new projects/exams and coordinating multiple TAs as the Head TA. Overall, I taught in different capacities for seven semesters on diverse aspects of computing (e.g., operating systems, networking, distributed systems, and computer architecture) with Professors Ion Stoica and Anthony Joseph in Berkeley and Professors Raouf Boutaba and Farhad Mavaddat in Waterloo. My teaching efforts were recognized by an *Outstanding TA Award* from the school of computer science at the University of Waterloo. I also helped create the syllabus for Advanced Topics in Distributed Systems: Virtualization (CS854) taught by Professor Raouf Boutaba and guest lectured in that course.

As a teaching approach, I strongly believe in providing hands-on learning experience that leads students toward discovering the answer by themselves. For example, to teach an operating systems concept or a networking protocol, I would walk students through a series of straw man options and gradually address the deficiencies of each of them before arriving together at a working solution. Furthermore, I complement classroom teaching with projects that challenge students to think critically, force them to learn modern tools and technologies, and allow them to apply classroom lectures in the context of software systems that are relevant in the real world. A recent application of my approach is embodied in the new distributed key-value store project I designed for the core systems course (CS162) at UC Berkeley. While the project was demanding in terms of the number of different systems and networking concepts the students had to put together, it was very well received and has been used as the final project of CS162 in every semester since 2012.

Preparation makes a world of difference in teaching, and it is needed at every level – from everyday lectures to semester-spanning projects and from the instructor to individual TAs. Without exception, the highest-rated courses I was involved in were always well managed, and preparations often started long before the semester. I hope to lead by example and instill the value of preparation in my TAs.

Courses I Can Teach: As a new faculty member, I would be excited to teach undergraduate courses on networking and operating systems, as well as introductory computer science and distributed systems. Additionally, I want to create two graduate-level seminars involving cloud computing, datacenter networking, and network virtualization, where I can draw on my own expertise. The first would explore how emerging hardware trends continue to shape big data systems and distributed storage, whereas the second would be on opportunities and challenges in programmable infrastructure and application-aware networking. Several of my research projects were kickstarted by such seminars, and I want to provide similar opportunities for my students.

Mentoring: I have been fortunate to work with several excellent graduate students over the years, including Fida-E Zaheer, Muntasir Rahman, Nabeel Butt, Fady Samuel, Gautam Kumar, Tathagata Das, and Rashmi Vinayak. My involvements ranged from having them help on projects I was leading (e.g., coflow, ViNEYard) and getting them up to speed on larger projects (e.g., Spark, FairCloud), to taking a long-term guidance role for their projects (e.g., Coded Object Store with Rashmi). I also mentored two students throughout their Master's projects in Waterloo: Nabeel Butt, who extended my work on virtual network embedding to dynamic network settings, and Fady Samuel, who extended it to multiple administrative domains.

As an advisor, I plan to encourage independence in students and to allow them to take risks, while guiding them toward fruitful directions. I will challenge them to do their best and to maintain high standards for their work. I believe that conviction and passion bring out the best in us; hence, I will help students find problems that excite them from the beginning. In the long run, I will strive to balance between "hands-on" and "hands-off" approaches of advising to match a student's personality and needs. Finally, and perhaps most importantly, I hope to foster a friendly and collaborative environment in my research group that will be built upon trust and mutual respect among its members.