Teaching and Mentoring Statement

One of my greatest joys is helping to enable the next generation of computer scientists make a lasting and substantive impact in the world around them. My mentoring and teaching philosophy is founded both in my academic experiences as an instructor and an advisor, as well as my experiences as an engineering manager in industry. At its most fundamental level, my philosophy espouses that success in any given endeavor is based on three factors: experience, motivation, and aptitude. While students carry a myriad of valuable experiences with them, as an instructor or advisor, I seek to build new experiences for students that will directly translate into performance beyond the classroom. These experiences subsume both the ideas of training as well as the deeper mastery of concepts such as systems thinking. I seek to motive my students by not only connecting knowledge to applications outside the classroom, but providing diversity in those applications to match the students’ backgrounds. Finally, I seek to rigorously evaluate and identify student strengths and weakness so that each student might select the paths most rewarding for them. In the following few paragraphs I seek to provide evidence of this philosophy in practice as I discuss my roles as instructor, manager, and advisor.

Over the last several years I have twice taught 1 the graduate level EECS 591 - Distributed Systems (2008; 19 Students; Q1 - 3.93, Q2 - 4.00), (2010; 23 Students; Q1 - 4.05, Q2 - 4.25). I have modified the class since its initial offering to include projects that tie directly to critical real-world problems and that make use of current distributed systems paradigms. I have also taught the undergraduate EECS 398 - Introduction to Computer Security (2012; 112 Students; Q1 - 4.50, Q2 - 4.69; School/College upper 25th percentile Q1 - 4.38, Q2 - 4.54). In preparation for this class becoming a permanent upper-level CS elective, I have created new, relevant content and projects, and added addition educational goals and evaluation criteria.

As a research leader I have sought to provide a connection between real world projects, my research activities, and the next generation of computer scientists. I have been fortunate in my time to be able to leverage experiences at two Internet startups. During this period, I led a team of more than 30 engineers, including five Ph.D.s, in researching and developing solutions to complex security and operational challenges facing Internet Service Providers. The impact of this team’s work was profound—as of Q3 2013, these tools monitor roughly 70 terabits per second (Tbps) of global Internet traffic, an estimated one third of the total, average, global Internet bandwidth. These experiences have helped me in attracting and mentoring a large number of undergraduate and masters students in a variety of meaningful projects and I have assisted them in realizing their goals of working in highly prestigious technical companies. Specifically, I have mentored 13 undergraduate and 13 additional master students who are now in such diverse organizations as: Facebook, Apple, Microsoft, Bloomberg, Yelp, Google, Citrix, Amazon, MIT Lincoln Labs, and the USAF.

Further, I have been involved in mentoring and guiding Ph.D. graduate students. My involvement ranges from service on Ph.D. committees to the co-chairing of students theses. I have served on eight committees as a member of the committee, offering technical domain expertise in the case of other faculty’s Ph.D. students including: Dennis Bueno (2014), Xu (Simon) Chen (AT&T, 2010), Yuanyuan Zeng (Perimeter eSecurity, 2011), Matthew Knysz (LiveLead, Inc., 2012). I have offered concrete and significant guidance for students in our research group including: Jon Oberheide (Duo Security, 2011), Sushant Sinha (Yahoo, India, 2009). Increasingly, these roles have included serving on committees outside the university including: Jason R Britt (University of Alabama at Birmingham, 2015), Kevin Snow (University of North Carolina at Chapel Hill, 2013), and Andrew White (University of North Carolina at Chapel Hill, 2013).

More recently I have been explicitly taking the role of advisor, co-chairing the committees of the group’s newest Ph.D students: Yunjing Xu, (Square, Inc., 2013), Jakub Czyz (2014), Jing Zhang (2015), Kyle Lady (2016), and Kee Shen Quah (2016). In mentoring Ph.D. students my philosophy is a hands-on approach designed to prepare them for life in academic and research environments. I assist them in selecting novel topics of research, help them understand how to rigorously evaluate their hypotheses, show them how to prepare manuscripts for publication, and practice presentation of published results. As they grow more senior, I involve them in teaching as well as a wide range of funding related activities, from grant preparation to result reporting at PI meetings.

1Note that Associate Research Professors do not have required teaching or service requirements
2Q1 - Overall, this was an excellent course, Q2 - Overall, the instructor was an excellent teacher.