Teaching Statement
Ramakrishnan Durairajan

I enjoy teaching (specifically, learning, un-learning and re-learning) and working with students—my two key reasons for pursuing an academic career. Furthermore, I strongly believe that teaching and research should go harmoniously with each other to advance science.

Teaching Experience and Mentoring. I have served as a guest lecturer for two undergraduate-level courses including Introduction to Computer Networks and Producing Internet Video, and a graduate-level Advanced Computer Networks course at UW-Madison. These courses are comprised of both Computer Science (CS) and non-CS majors and students of all technical levels. In particular, my lectures in the Producing Internet Video course was part of Communication Arts department and consisted a majority of art majors with little or no networking background. Delivering lectures to students with diverse educational backgrounds and skills was a great learning experience.

Apart from teaching, I have been fortunate to be able to mentor several graduate and undergraduate students as part of my dissertation research. I consider mentoring and working with students as one of the gratifying aspects of an academic career. I guided two graduate students—Sathiya Kumaran Mani and Meenakshi Syamkumar—in building parts of some of my research systems (Internet Atlas, TimeWeaver) as well as their own research efforts (MNTP, IoTSync, BigFoot). Sathiya continues to do research with me and is extending his thesis work on time synchronization to Internet of Things. In addition, I mentored five undergraduate students including Sahil Verma, Denis Ricardo, Lanxi Huang, Nemo Gehred-OConnell, and Rishina Tah. This was their first research experience as part of Internet Atlas project, and it was a delightful experience for me to see them grow in technical ability and skillset throughout the project. My mentoring experiences have taught me how to explain problems and solutions to students with different technical skills, and organize my thoughts so that my articulation can be sound and effective.

Teaching Philosophy. My teaching philosophy has been shaped tremendously based on my exposure to different teaching styles from my own mentors, both in the U.S. and in India. Based on prior teaching and mentoring experiences, my teaching will strongly emphasize the following: (1) develop courses that are well-balanced to strengthen both theoretical and practical (hands-on) foundations; (2) promote a live classroom, where students interact and solve problems by iteratively improving their solutions to imbibe the ideas completely; (3) establish strong connection across topics to help students understand the insights behind assumptions made, design decisions and their interactions, techniques employed and scientific outcomes; (4) use active learning instructional strategies to engage students with different technical skills and motivations; and (5) present material in a story-like format to accommodate both CS and non-CS majors, where the topic is reinvigorated with anecdotes, technical histories and state-of-the-art trends.

Future Teaching. My research experience makes me well-suited to teach courses including computer networking, distributed systems, and computer security at both undergraduate and graduate levels. In addition, I would be excited to teach undergraduate-level courses on algorithms, data structures, computer programming, databases, and operating systems. At the graduate level, I would like to design and lead advanced courses and seminars on computer networking, network measurements and analysis, and networked systems with topics including cloud computing, security and privacy. I would also welcome the opportunity to design, develop and teach new interdisciplinary courses on data science and big data, with an emphasis on systems and networking, at both graduate and undergraduate levels.