The central tenet of my teaching philosophy is *learning by doing*. Creating an environment that gives students both a sense of ownership and rooms for experimentation helps them to gain confidence and consolidate abstract concepts through hands-on experience. My style of instruction emphasizes on using real-world scenarios as both an interactive tool to engage students and an illustration to concretize abstract theories. In addition, I put an emphasis on labs and in-depth projects so that students have plenty of opportunities to gain first-hand experience synthesizing theory and practice. For undergraduates, my goal is to help them not only master key concepts and algorithms, but also develop an appreciation for the subjects. For graduate students, my focus is to cultivate *independent thinking*, challenge them to examine fundamental assumptions and theories underlying existing technologies, and encourage them to venture both deeply within a discipline and broadly across disciplines.

During my time at BU, I have increasingly recognized the importance of creating an inclusive learning environment. In particular, a significant number of our students come from outside U.S. where cultural and language differences can become a significant barrier in learning. Moreover, they often come with varied degrees of academic preparation for our course especially for master students due to the difference in curricula. This is also true for students from our own LEAP program and students from outside the ECE department. To address these issues, I made efforts to explain abstract, mathematical concepts in plain and straightforward language. I conduct early-semester surveys to ensure proper project team matching based on academic background and experiences. In addition, I hold extra office hours for students who need additional tutoring, and constantly encourage all students to participate in discussions in class and in online forums.

Undergraduate Teaching at BU. I teach EC330, an undergraduate course on Data Structure and Algorithms in the ECE Department at BU. This course targets sophomores and juniors, and introduces them to the general concept of algorithms, time complexity analysis, and various approaches to design algorithms and data structures. To promote student engagement, I make sure every algorithm that I introduce is accompanied by real-world applications that make use of that algorithm. In addition, I have adopted a teaching style that encourages collaborative learning where instead of simply presenting the algorithm, I always start with a small example and derive the algorithmic idea step by step with the class together. More recently, I have also incorporated AI technologies in my teaching such as using ChatGPT as a virtual co-instructor in lectures, with the goal of encouraging students to embrace emerging technologies in A.I. and also highlighting the potential issues and risks with the use of such technologies.

Graduate Teaching at BU. Since I joined BU, I have been involved in developing a curriculum for embedded and cyber-physical systems. I have developed a new graduate-level course, EC545, that introduces students to the principles underlying the design and analysis of cyber-physical systems. This course places a strong emphasis on building high-assurance systems with real-time and concurrent behaviors. In addition, we survey a spectrum of applications including robotics, medical devices, aerospace and automotive systems, traffic control and smart manufacturing plants. The goal of this course is to introduce the foundations of cyber-physical systems to senior undergraduate and new graduate students and equip them with the theoretical knowledge and skills to pursue a career in this field. The course is specifically designed to include a half-semester long team project for the students to gain hands-on experience on the specification, modeling, design, and analysis of representative cyber-physical systems. I work with the students to define their own projects, create custom hardware and software tailored to these projects, and mentor project teams throughout the semester. Students have successfully executed a wide range of projects from teleoperated robotic arm and gripper using a wearable glove equipped with inertial measurement units and force sensors to a group of autonomous robots playing the game Tag. These projects help foster a sense of ownership in learning and connect theory to practice. This course has also been integrated into the curriculum for the new Master of Science in Robotics & Autonomous Systems at BU.

At the Ph.D. level, I have developed a new graduate-level course, EC754, on the topic of computer-aided design and verification. This course introduces the fundamental theory in computer-aided verification and synthesis for building provably dependable computer systems. It covers topics such as logic specifications, modeling formalisms, verification techniques, and inductive synthesis strategies. A special emphasis is placed on building safe and trustworthy autonomous systems, mirroring many of my research efforts. This course is also project-oriented – students develop half-semester long individual projects that test new research ideas and develop prototype implementations. In addition to teaching more advanced theories and techniques, my goal is to foster independent thinking and help students develop skills in formulating a research problem and devising ways to solve it through these projects. Many of the projects have turned into publications at top conferences.

Mentoring and Outreach at BU. My primary strategy is to tailor my supervision to the individual students. I believe it is important to recognize that they can come from diverse academic and cultural backgrounds, with different levels of experiences, and have different ways of approaching a problem. My Ph.D. students have successfully led independent research projects, developed their own tastes for research problems, and won individual accolades such as the second place at the ACM SIGBED Student Research Competition. In addition, given the cross-disciplinary nature of many of the research problems, I actively encourage my students to seek and develop collaborations, with the goal of training them to become leaders in their field. Moreover, I have made a conscious effort to promote diversity. During my time at BU, I have mentored underrepresented minority students at both the undergraduate and graduate level.

In terms of outreach and broadening participating in computing, I regularly serve as a faculty mentor for the Research in Science & Engineering (RISE) program at BU. RISE is a six-week summer program that offers research opportunities to high school students across the country. All of my RISE interns have gone on to pursue degrees in computer science and engineering at prestigious universities. In the future, I plan to broaden the scope of my outreach efforts. Specifically, I plan to work closely with the undergraduate team in the BU K-12 Technology Innovation Scholars Program (TISP) to develop a new "AI Safety" hands-on curriculum. This curriculum will be designed for middle- and high-school students and will introduce them to the exciting field of building autonomous systems. The goal of this new curriculum is to excite, inspire, and prepare next generation students to pursue engineering in colleges and as a career. In addition, it aims to cultivate an awareness of the technological and societal challenges facing the development and adoption of autonomous systems today. To amplify the impact of TISP and increase the number of underrepresented minorities in STEM, we will prioritize and target students from low-performing schools and underserved communities.