During my academic career, I have had the opportunity to interact with diverse student groups through several teaching activities. These activities have given me critical experiences and insights that will support my goal of becoming a professor. Below, I describe the four key aspects of my teaching philosophy that I have practiced in the past and will continue to practice in the future.

Teaching philosophy

Theory and practice is the motto of my alma mater, Worcester Polytechnic Institute. It is also my core teaching philosophy: theoretical knowledge and practical application should be united when learning computer science topics. My Ph.D. study has been accompanied by not only theoretical contents but also practical, real-world project experiences. In particular, my industry internship projects taught me invaluable lessons about how technical innovations can translate to real-world impacts. I have also learned how to avoid potential risks to our society while applying the technology to the real world. Through these invaluable experiences, I have also gained a chance to understand better the theoretical knowledge I learned. Therefore, I am committed to incorporating practical learning curriculums that help students understand the fundamental theories and develop awareness of the real-world impacts of computer technologies.

Teach skills, not contents. Having the skill of independent learning is crucial for students to survive and thrive in rapidly evolving fields such as computer science. I would like to prepare students to tackle new challenges by building a firm grasp on fundamental knowledge and fostering a mindset of independent growth beyond the classroom. To do so, I aim to apply my core teaching philosophy in *"theory and practice"* to various aspects of my teaching. For example, I will help students build connections between knowledge during teaching and through self-directed new learning activities, such as guided projects and research tasks. I have found inspiring successes in these approaches in my undergraduate engineering project mentorship experiences. I designed the project structure to be mini research projects-based, allowing team members to leverage their skills and knowledge to address the challenges they were facing. As one of the team members said, *"The project has also helped me understand many techniques taught in my robotics perception class."* I firmly believe that these approaches can help students better understand the knowledge beyond the standard curriculums.

Engage minds, not just memorize. Providing student-centered learning is critical to supporting students of diverse backgrounds who learn at different paces and in different ways. My experiences interacting with students of different backgrounds, particularly junior students, have taught me many lessons on this. I believe providing learning flexibility is the key to supporting students of different learning styles and helping them to achieve success in learning. In my classroom, I plan to encourage students to take ownership of their learning journey. In particular, I will provide opportunities to allow self-directed learning and demonstrate their achievements in different ways. I also plan to cultivate a classroom culture that values curiosity and active engagement by ensuring students feel comfortable exploring, asking questions, and learning from one another. This student-centered approach allows each learner to connect with the material in a meaningful and empowering way, helping them build confidence and resilience.

It's not what you say, it's how you say it. Cultivating communication skills can empower students to effectively share ideas, collaborate with diverse teams, and ensure that technical solutions are understood and implemented accurately. Through my experiences in both industry and academia–from collaborating with teams at Google AR and Adobe Research to presenting

at international conferences–I have gained a deep understanding of clarity and precision in technical communication. Working with people from diverse backgrounds has taught me how to tailor my communication to effectively engage with individuals based on their expertise. In my teaching, I will incorporate exercises that enable students to refine these skills, encouraging them to present their work through technical reports, group discussions, and individual presentations. By practicing how to clearly explain their ideas and research findings, students learn to articulate complex technical information in an accessible yet accurate way. This emphasis on communication not only helps them become effective collaborators but also prepares them to convey their ideas confidently to peers, other stakeholders, and even non-technical audiences.

Previous Experiences

During my undergraduate study, I volunteered in various teaching activities, including delivering guest lectures to students for non-CS majors and mentoring student groups for programming contests. In my guest lectures, I developed tailored curricula to accommodate students from diverse backgrounds to make learning more accessible and engaging. As a mentor, I drew on my own programming contest experience to guide students in collaborating on mobile application development. One of the teams I mentored ultimately won an award.

At graduate school, I worked as a teaching assistant for the Machine Learning course, in which I proctored exams and graded student assignment submissions. An important lesson I have learned is that grading can be a contentious issue if the grading rubric isn't clearly aligned with or inferable from the problem descriptions. Given this experience, I will work closely with student TAs to design transparent, well-structured grading rubrics for my future courses. Leveraging my research experiences in augmented reality (AR), I have designed an undergraduate engineering project and mentored a student team through it. In the project, I mentored the student team in understanding and designing sensor data collection and management components for AR devices. The team ultimately contributed several key improvements and features to the ARFlow project, an open-source AR data streaming framework that I created in my past research. In addition, I have contributed to curriculum developments for the Mobile Computing class with my AR research experiences. Specifically, I have tailored the ARFlow for students to reduce engineering complexities for building and experimenting with AR apps. Looking forward, I plan to continue my approach to integrating state-of-the-art research into teaching.

Future Plans

I am well-qualified to teach foundational courses in programming, machine learning, and artificial intelligence at both the undergraduate and graduate levels. As for more advanced courses, I am interested in teaching mobile and ubiquitous computing, computer vision, and computer graphics. Among the courses I teach, I would apply my core philosophy to combine theory and practice into course development. I would also incorporate ethical considerations in emerging technologies by encouraging discussions on bias, privacy, and societal impact in the courses.

If given the opportunity, I would be excited to design a graduate seminar on special topics in augmented reality (AR), covering recent advancements in AR environment perception and context-aware systems. I would also like to design a research seminar for graduate students and interdisciplinary faculties to explore emerging cyber-physical systems such as augmented reality, autonomous driving, and robotics.