

My teaching philosophy is to help students become active and independent life-long learners. Toward this goal, I have endeavored to create an interactive and inclusive environment during my teaching sessions and through outreach activities.

Teaching Experience. During my graduate studies at the University of Illinois Urbana-Champaign, I worked as a teaching assistant (TA) for CS427 Software Engineering (I) in the Fall 2019 and Fall 2020 semesters. The course had around 100 students in 2019 and 190 students in 2020. It covered basic concepts of software engineering practices, environments, and processes. My duties included reviewing and grading students' assignments, preparing and maintaining materials on the course website, hosting weekly office hours, providing hands-on assistance, and supervising students on their final team projects. I served as the lead TA in 2020, responsible for hosting weekly TA meetings, coordinating with the instructor to assist in daily teaching plans, and monitoring administration-related questions. Besides, I gave guest lectures in CS422 Programming Language Design, CS522 Programming Languages Semantics, and CS598 Runtime Verification on various topics in category theory, program languages, and my Ph.D. research work.

I am eager to use **student-centered teaching methods** and help my students become independent learners. For example, in CS427 Software Engineering (I), I used the inquiry-based learning method to supervise students' team projects, where students themselves proposed use cases to be implemented for the projects, developed timelines and set weekly goals, and allocated teamwork. Instead of a lecturer, I played a facilitator role who participated in their discussions and provided only guidance, not direct answers. Sometimes, a team could be too ambitious and proposed too many use cases. Instead of directly telling the team that the proposal was too big, I encouraged them to divide the workload and set weekly goals. After that, the students themselves realized that the workload was too big and adjusted the proposal accordingly. I found this open learning technique especially effective in supervising team projects. Students viewed me not as an outsider but as their partner, making my advice and guidance more effective.

I have experience in **online teaching**. In the Fall 2020 semester, CS427 Software Engineering (I) was delivered entirely online for the first time and the course structure was significantly changed. As the lead TA, I actively coordinated with the students, the instructor, and the other TAs to ensure that the online course format was effectively implemented. For example, instead of live lectures, the online course used an existing Coursera package with pre-recorded lecture videos, quizzes, and assignments. On the other hand, the online course inherited the final team projects and other reading materials from the past face-to-face version. I helped merge the Coursera package and the face-to-face course into a cohesive and consistent one. Before the semester began, I helped the instructor adjust the Coursera course agenda to fit the new schedule of the semester and added new Coursera pages that linked to the face-to-face content. I worked with the other TAs to modify the face-to-face contents to reflect the new online course format. During the semester, I helped upload the Zoom recordings of the instructor's office hours, supervised students' final projects on Slack, and monitored students' administrative questions on Salesforce.

I pay special attention to promoting **education inclusion in hybrid flexible (HyFlex) teaching** and ensuring that remote students have an equally engaging experience as the in-person students. In CS522 Programming Languages Semantics, I gave a guest lecture on my research. The course was in a HyFlex format, with some students attending in person and others joining remotely. To create an engaging environment for all students, I arrived at the classroom 10 minutes before the class started to make small talk with my students, both in-person and remotely. It not only created a welcoming environment and helped them to get to know me better but also allowed me to test the

camera, the microphone, and slide sharing. In class, I not only made eye contact with students in the classroom but also looked into the camera and made “virtual eye contact” with remote students. When I asked students if they had a question, I said, “do we have any questions?” and then, “do we have questions from chat?” to ensure that the remote students were also involved in the discussion. I repeated it when an in-person student asked questions so the remote students could hear them well.

Mentoring Experience. During my graduate studies, I served as a research advisor for two undergraduate students, two master’s students, and 3 Ph.D. students from the U.S. and abroad. One undergraduate student published a top-tier conference paper with me, with another paper in the submission pipeline, and is now continuing their Ph.D. study at Carnegie Mellon University. One Master’s student recently graduated, and I served as an external consultant for their thesis.

I dedicate my time and effort to building mentor-mentee relationships. I hold one-on-one weekly meetings for each student to discuss their studies and research and use Slack for offline discussions. My general mentoring objective mirrors my teaching philosophy: I seek to establish a learning relationship that helps students to take charge of their development and achieve their goals. For concrete mentoring methods, I learned a lot by reflecting on my personal experience as a mentee with my Ph.D. advisor and reading articles that offer guidance for mentors [cite1, cite2, cite3].

I borrowed the idea of **demonstrations** from active learning strategies in my mentoring. Through my actions, I preferred to show students the best practices for conducting quality research. For example, when commenting on a student’s draft paper, I gave critical feedback and made concrete, implementable suggestions by leaving comments on the PDF file. Although it took me more time, merging and implementing my feedback was a good learning experience for the students. It also gave the student a sense of ownership of their paper and made them feel valued for their dedication.

Outreach Activities. For me, teaching is not limited to lecturing in a classroom. I have consistently sought opportunities to break knowledge barriers and engage a larger audience. For example, I gave a tutorial at ICFP 2020 (<https://shorturl.at/ovCP1>), a top-tier conference in functional programming. In the 3.5-hour tutorial, I presented how to use the K framework, a tool from our lab, to define one’s functional programming languages. What made it more challenging was that the tutorial was held entirely online. To engage the audience, I included demos and hands-on sessions for the participants to try our tool themselves. I decided to make the tutorial a mix of lecturing and discussion and encouraged the audience to ask questions. A recording of the entire tutorial was uploaded to YouTube (https://www.youtube.com/watch?v=VlQMj_N42B8) and has gathered around 1000 views as of today.

In the summer of 2022, I helped Runtime Verification Inc. form a new research arm, --- RV Research, to bridge the gap between academic research and industrial interest and products. I worked with my Ph.D. advisor, the company’s CEO, to record a video for every open problem, where we conversed about the importance of the open problem to industry and business and what practical impact the solutions to these problems can have.

Teaching Interest. In the near term, I would be most prepared to teach courses on programming languages, formal methods, logics, and software engineering. I am also pleased to teach introductory computer science courses.