

Teaching Statement

I am passionate about teaching and mentoring, finding immense fulfillment in guiding students through their academic and professional journeys. My objective as an educator and mentor is to inspire curiosity, foster critical thinking, and empower students to overcome challenges in the fields of robotics, autonomous systems, and cyber-physical systems. Witnessing students achieve milestones, such as publishing their first research papers or securing positions in esteemed institutions and industries, brings me great satisfaction. My academic background, coupled with extensive teaching and mentoring experiences, equips me to contribute effectively in an educational role:

- **Guest Lectures:** Invited to deliver guest lectures at the University of Michigan for EECS-571, covering topics like Robot Platforms for CPS Research and Building Predictable and Efficient Systems for Autonomous Vehicles/Robots.
- **Seminar Talks:** Presented seminars on Building Predictable and Efficient Systems for Autonomous Vehicles/Robots at the University of North Texas and California Polytechnic State University, and Introduction to Autonomous Driving at HensHack, University of Delaware.
- **Teaching Assistantship:** Served as a Teaching Assistant for Introduction to Java Programming at Wayne State University, where responsibilities included hosting office hours, grading assignments, and assisting in course project design.
- **Mentoring Students:** Mentored undergraduate and high school students, guiding them through research projects that resulted in co-authored publications. Successfully assisted mentees in transitioning to prestigious academic programs and industry roles.

MENTORING EXPERIENCE

One of the most rewarding aspects of my academic career has been the opportunity to advise and mentor a diverse group of students, ranging from high school to undergraduate levels. Over the years, I have mentored four individuals: Sanjith Udupa, a Novi High School student who is now an undergraduate at MIT; Mingyu Guo, an undergraduate at the University of Wisconsin–Madison who has advanced to a Ph.D. program at the University of Delaware; Yuchen Chueh, who got admitted to a Master’s Program at Carnegie Mellon University; and Justin Baskaran, who is currently a Software Engineer at General Motors. Through personalized guidance and support, I have helped each mentee achieve significant academic and professional milestones, including co-authoring research papers and securing prestigious positions in academia and industry.

In mentoring Sanjith Udupa during 2022 and 2023, I provided comprehensive research guidance that culminated in the first-authored paper "[FollowMe: A Robust Framework for the Guidance of Sensorless Indoor Mobile Robots](#)," published in the IEEE MOST 2023. With Mingyu Guo in 2023, I facilitated his transition from undergraduate studies to a Ph.D. program by offering advice on research direction and graduate school applications. My mentorship of Justin Baskaran in 2018 involved career development support, contributing to his growth into a software engineering role at General Motors. Similarly, I guided Yuchen Chueh in 2020, assisting in his academic progression to a Master’s program at Carnegie Mellon University. These experiences have honed my ability to tailor my mentoring approach to individual needs, fostering an environment where students can thrive and achieve their academic and career goals.

TEACHING PHILOSOPHY

I believe that effective teaching is a reciprocal process where both the instructor and students contribute to a rich learning experience. My teaching philosophy centers on the following principles:

- **Student-Centered Learning:** I strive to create an inclusive and supportive environment where every student feels valued and empowered to contribute. Regular student feedback is integral to my teaching approach, allowing me to adapt and improve course content and delivery methods continually.
- **Active Engagement:** I emphasize hands-on learning and encourage students to actively participate in discussions, projects, and problem-solving activities. By fostering a collaborative classroom atmosphere, I aim to stimulate curiosity and critical thinking.
- **Skill Development:** Beyond imparting knowledge, I focus on equipping students with the skills to learn independently. I incorporate exercises that guide students through information retrieval, critical analysis, and the application of new concepts, preparing them for lifelong learning and research.
- **Encouraging Innovation:** I promote academic risk-taking and creative problem-solving, believing that exploring incomplete solutions leads to deeper understanding and innovation. My goal is to nurture students' ability to tackle complex challenges confidently.

TEACHING INTERESTS

With my extensive background in robotics, autonomous systems, and cyber-physical systems, I am well-prepared to teach a variety of courses at both undergraduate and graduate levels, including:

- **Core Courses:** Cyber-Physical Systems, Real-Time and Embedded Systems, Introduction to Robot Programming, Computer Networking, Computer Vision, Machine Learning, Data Structures, Algorithms.
- **Advanced Topics:** Introduction to Mobility, Introduction to Autonomous Vehicles, ROS Programming, Edge Computing

Additionally, I am interested in developing specialized courses such as:

- **Computing Systems for Connected and Autonomous Driving:** Covering state-of-the-art multimedia knowledge acquisition techniques and their applications in real-world scenarios.
- **Machine Learning-Enabled Cyber-Physical Systems Seminar:** A selective seminar course exploring the intersection of cyber physical systems and machine learning, encouraging interdisciplinary research and collaboration.

As an educator, I am committed to supporting students in achieving their academic and professional goals by providing personalized guidance, fostering a collaborative learning environment, and continuously refining my teaching methods based on student feedback and educational best practices.