Robotics Seminar- COMP-1003P-AU4

Time: Thursdays, Weekly 8-8:50 PM EST

Instructor: Houriyeh Majditehran, hmajdi@gatech.edu

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Zoom Link: TBA

After registering, you will receive a confirmation email containing information about joining the meeting.

Course Description

This class is a seminar course designed to expose students to the forefront of robotics research and development. This includes discussions on the latest technologies, methodologies, and challenges in the field. The course will incorporate a mix of lectures, guest presentations, optional project and interactive sessions with leading experts from academia and industry.

Competency

To succeed in this course, students should actively participate in weekly seminars and engage with the material presented by the speakers. Regular attendance is crucial for a comprehensive understanding of the subject matter.

Reading List

Additional readings will be added throughout the semester. These materials will either be publicly available online or provided specifically for this class. Students are encouraged to review these resources to enhance their understanding of seminar topics.

Class Goals

By the end of this course, students will:

- Develop familiarity with key areas of robotics, including state-of-the-art research.
- Engage with leading researchers and industry professionals.

- Explore interdisciplinary links among robotics, machine learning, human-robot interaction, soft robotics, and medical robotics.

Course Communication:

- A Canvas announcement with email notification
- Ed announcement-You can ask questions and inform us about your absence in public or private

Grading Policy

The success of this seminar series depends heavily on student engagement and attendance. There will be approximately 12 seminar sessions. This course is graded on a Pass/Fail basis. Therefore, your grade for this course will be primarily based on these components:

- **Attendance:** Regular attendance is crucial in this seminar course. Please inform us via email if you have an excused absence due to illness, travel, or other significant reasons to ensure it does not count against your attendance record. To pass, students must attend at least 9 sessions (75% of the total). Zoom attendance is noted except for the first session.
- **Missed Session**: If you are unable to attend, you must watch the session recording and submit a one-page summary ("speaker evaluation") to the instructor via a private Ed Discussion post by the following Wednesday at 12:30 p.m. A satisfactory evaluation will earn attendance credit for that session.
- **Participation:** Active participation is equally important and will be assessed through your involvement in discussions and the quality of your interactions with guest speakers. This includes asking relevant questions and contributing thoughtfully to seminar discussions. Engagement will be monitored during each session by the instructors and the moderator.

Note: There are no traditional exams for this course. Instead, your ability to engage with the material and contribute to discussions will be the primary criteria for assessment. We have a project as an optional component of the class.

Please attend the lectures or submit your summary in Ed to gain your participation points.

Workshops:
CS-8001-ORI course was offered last semester. Guided by student feedback, we are refining the course structure and topics. This semester, we will introduce one or two workshops on robotics, human-robot interaction, and embedded systems. These workshops will provide hands-on experiences through virtual simulations, given the online format. They will be held during the usual class time and link (Thursdays at 8 p.m. EST) on specific dates, replacing the speaker session for that week.

Potential workshop topics include:

- Introduction to ROS
- Human-Robot Interaction Simulator (Assistive GymLinks to an external site.)
- Introduction to Embedded Systems and AI (including Jetson Orin Nano demonstrations with local LLMs and VLMs)
  We welcome feedback on these workshops.

Project (Optional):
Based on last semester's feedback, many students expressed interest in projects related to robotics and AI. We are therefore offering an optional project which can be research-oriented, software-focused, or entrepreneurial in scope. Interested students should contact the instructor to schedule a meeting. If there is sufficient interest, we may organize a presentation or demo day, where participants can showcase their work and receive feedback.

Tentative schedule:

DATE	Speaker	Affiliation/Topic
January 15	Houri and Naveen	Georgia Tech-Introduction
January 22	TJ Brumfiel	Georgia Tech-Medical robotics

January 29	ROS	workshop
February 12	Muhammad Ali Murtaza, PhD	GT
February 19	Michael West, PhD	John Hopkins-incoming prof GT
February 26	Victoria Edwards, PhD	UPenn
March 05	Jack Kolb, PhD	Apple-GT
March 19	Amit Rogel	GT-HRI
March 26	Spring break	no seminar
April 2	Ravesh Sukhandan	Carnegie Mellon Uni.
April 9	Utkarsh Mishra	robot learning-GT
April 16	Anthony Gunderman, PhD	Professor-University of Arkansas/Automating Blackberry Harvesting
April 23	Wei-Hsi Chen	University of Pennsylvania