

DEPARTMENT OF MECHANICAL ENGINEERING

SEMINAR SERIES

Multi-Agent AI for Real-World Mechanical Engineering and Robotics Applications

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Abstract

Artificial Intelligence (AI) Agents are increasingly being deployed in Robotics, Self-Driving Cars, Scientific Discovery, Network Communications, and other domains. These Agents need to reliably cooperate with humans using evolving Deep Learning algorithms such as Multi-Agent Reinforcement Learning (MARL) and Imitation Learning. In this talk, Saptarashmi will introduce an imitate-then-commit algorithm for AI Agents by unifying concepts from Imitation Learning and Computational Game Theory to cooperate and align in settings where they have similar goals but different priorities. He will then share a Multimodal Agentic Model Predictive Control framework to allow fine-grained tuning of Imitation Learning demonstrations, using VLMs, to train autonomous vehicles with better spatio-temporal reasoning and improved control dynamics. Next, Saptarashmi will share real-world applications of AI Agents, including YETI (YET-to-Intervene) Multimodal Agents which efficiently detect when to autonomously intervene while interacting with users in AR for planning, guidance, navigation, fixing mistakes or other daily tasks. Saptarashmi will also highlight the importance of training such AI Agents at scale efficiently and introduce JAXMARL, the fastest open-source MARL library with up to 12,500× speedup over alternatives. Finally, he will share upcoming work to coordinate multiple embodied AI Agents to autonomously discover bio-inspired materials.

Speaker Bio

Saptarashmi Bandyopadhyay is an Assistant Professor of Computer Science at CCNY and the CUNY Graduate Center. He received his Ph.D. in Computer Science from the University of Maryland, College Park, in Summer 2025. He is the AI lead and Co-PI of AI-BIOME, CCNY's \$18.1 million Programmable Cloud Laboratory for AI Agents-driven Discovery of Bio-inspired Materials. His research focuses on Multi-Agent AI for Autonomous Decision Making in Robotics, Self-Driving Cars, Autonomous Smart Grids, and other engineering domains. He was a Ph.D. Student Researcher at Google Augmented Reality and Google DeepMind. Saptarashmi has published twenty-six research papers in venues including AAAI, ACM AAMAS, NeurIPS, EMNLP, ACL, and SPIE.

Date: Thursday, October 8, 2026

Location: Steinman 254

Time: 2:00 PM

Host: Bo Wang

Attendance open to all interested persons

