

Scaling Imitation Learning Toward General-Purpose Robot Manipulation

Speaker: **Dr. Ryan Hoque, Ph.D.**

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Dr. Ryan Hoque is a Robotics Research Scientist at Apple on the Machine Learning Research team. He obtained his Ph.D. in Computer Science from UC Berkeley, where he was advised by Prof. Ken Goldberg in the Berkeley Artificial Intelligence Research lab. Prior to his Ph.D. he received a B.S. and M.S. in Electrical Engineering and Computer Sciences at UC Berkeley. He has also spent time at Uber's Advanced Technologies Group and NVIDIA's Seattle Robotics Lab. His research on imitation learning and robotic manipulation has been cited over 1,000 times and published in several leading robotics conferences and journals including CoRL, RSS, ICRA, IROS, and Autonomous Robots. He also received a Best Conference Paper Award at ICRA 2024.

Abstract

Recent breakthroughs in machine learning have revolutionized natural language processing, computer vision, and robotics. Nevertheless, reliable robot autonomy in unstructured environments remains elusive. Without the Internet-scale data available for language and vision, robotics has not had its "ChatGPT moment" as it faces a unique chicken-and-egg problem: robot learning requires large datasets from deployment at scale, but robot learning is not yet reliable enough for deployment at scale. To address this, we present novel systems, algorithms, formalisms, and benchmarks for scaling up robot imitation learning, a promising paradigm behind the recent advances in autonomous driving. We conclude with a discussion of opportunities for future work and what's next in robotics and artificial intelligence.

When: [Saturday, January 11, 2025 \(11:00 AM - 12:00 PM\)](#)

Where: Hybrid Mode

[Graduate Seminar Room \(ECE 503\), Department of CSE](#)

Zoom Meeting

Meeting ID: 917 4209 8305

Password: 519910

Link: <https://bdren.zoom.us/j/91742098305?pwd=bC9vUGhpZ3ZuYnVGOGRPUFFQdThiZz09>

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