

Yixuan Huang

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Education

Example University

Ph.D. in Mechanical Engineering

Ann Arbor, MI

Expected May 2028

Example Institute of Technology

B.S. in Electrical and Computer Engineering

Boston, MA

May 2023

Research Interests

Robotics; autonomous systems; learning-based control; robot perception; human-robot interaction; planning under uncertainty.

Publications

(The superscript ^{*} indicates equal contribution.)

Preprints

- [P1] **Yixuan Huang^{*}**, Alex Researcher^{*}, and Taylor Advisor. **Learning-Enabled Planning for Robust Robotic Manipulation**. *arXiv preprint*, 2026. [Preprint] [Code] [BibTeX]
- [P2] **Yixuan Huang**, Casey Collaborator, and Taylor Advisor. **Multi-Robot Rearrangement Planning under Resource Constraints**. *Manuscript in preparation*, 2026.

Conference Papers

- [C1] **Yixuan Huang**, Alex Researcher, and Taylor Advisor. **Planning for Multi-Arm Tabletop Rearrangement with Time and Buffer Optimization**. *Robotics: Science and Systems (RSS)*, 2026. Los Angeles, CA. [Preprint] [Code] [BibTeX]
- [C2] **Yixuan Huang**, Morgan Engineer, and Taylor Advisor. **A Benchmark for Evaluating Perception-Aware Robot Planning**. *IEEE International Conference on Robotics and Automation (ICRA)*, 2026. Vienna, Austria. [Project] [Data]
- [C3] Alex Researcher, **Yixuan Huang**, and Taylor Advisor. **Efficient Buffer-Aware Planning for Tabletop Manipulation**. *Conference on Robot Learning (CoRL)*, 2025. Seoul, South Korea. [PDF] [Code]

Journal Articles

- [J1] **Yixuan Huang** and Taylor Advisor. **Learning-Based Robotic Manipulation with Physical Interaction**. *IEEE Transactions on Robotics*, 2026. [DOI] [BibTeX]

Talks

Invited Talks

- [T1] **Planning for Multi-Arm Rearrangement under Resource Constraints**. *Example Robotics Seminar*, Example University, Ann Arbor, MI. Mar. 2026 [Slides] [Video]
- [T2] **Learning-Enabled Planning for Robust Robotic Manipulation**. *Autonomous Systems Seminar*, Cambridge, MA. Jan. 2026 [Abstract]

Research Experience

Example Robotics Laboratory

Graduate Research Assistant

Topics: *Robotic Manipulation, Planning, Learning-Based Control*

Advisor: Prof. Taylor Advisor

Ann Arbor, MI

Sep. 2023 – Present

- Developed planning and control pipelines for evaluating robotic manipulation under uncertainty.
- Designed simulation experiments to compare task success, execution time, and robustness across methods.

Example Autonomous Systems Group

Undergraduate Research Assistant

Topics: *Autonomous Navigation, Sensor Fusion, Field Robotics*

Advisor: Prof. Casey Mentor

Boston, MA

Jan. 2022 – May 2023

- Implemented data processing tools for analyzing robot trajectories and sensor logs.
- Assisted with field experiments involving mobile robots operating in semi-structured environments.

Teaching Experience

Instructor

Example University, **Introduction to Robotics**. [Course Website] [Syllabus]

Fall 2026

Example University, **Robot Motion Planning**.

Winter 2026

Teaching Assistant

Example University, **Computational Methods for Engineers**. [Course Website]

Spring 2025

Example Institute of Technology, **Programming for Robotics**.

Fall 2024

Guest Lecturer

Example Robotics Laboratory, **Planning under Uncertainty**. [Slides]

2026

Selected Projects

Simulation Platform for Robot Rearrangement

2025

Python, MuJoCo, Motion Planning

- Built a simulation environment for testing tabletop object rearrangement strategies.
- Evaluated methods using task completion time, collision rate, and number of intermediate placements.

Visual Perception Pipeline for Manipulation

2024

Computer Vision, Depth Sensing, 3D Reconstruction

- Implemented a perception pipeline for estimating object geometry from RGB-D observations.
- Integrated reconstructed scene information into downstream robotic grasp and placement planning.

Learning-Based Control Benchmark

2024

PyTorch, Reinforcement Learning, Control

- Compared model-free control methods on simulated continuous-control tasks.
- Analyzed policy performance across random seeds, reward designs, and environment perturbations.

Awards & Honors

Graduate Research Fellowship

2025

Example University

Outstanding Teaching Assistant Award

2024

Department of Mechanical Engineering, Example University

Dean's List
Example Institute of Technology

2020 – 2023

Leadership & Service

Graduate Student Mentor Example Robotics Laboratory	2024 – Present
Reviewer Example Student Research Symposium	2025
Workshop Organizer Robotics Reading Group, Example University	2024

Media

Interviews

[M1] Interview on Multi-Robot Planning. <i>Example Robotics Podcast.</i> [Interview]	May 2026
[M2] Building Reliable Robots for Everyday Environments. <i>Example Engineering Magazine.</i> [Article]	Feb. 2026

Press Coverage

[M3] Robots That Learn to Rearrange Cluttered Tables. <i>Example Science News.</i> [Article]	Jun. 2026
[M4] New Benchmark Highlights Challenges in Robot Planning. <i>Example University News.</i>	Dec. 2025

Skills

Programming: Python, C++, Java, MATLAB

Tools: Linux, Git, LaTeX, Docker

Research Areas: Robotics, machine learning, data analysis