

Jiahui Yang

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EDUCATIONS

Carnegie Mellon University (CMU), Pittsburgh, USA

Aug 2023 - Present

M.Sc. in Robotics, School of Computer Science

GPA 4.17/4.0

Selected Courses: Visual Learning and Recognition (A+), Computer Vision (A+), Robot Learning (A)

Massachusetts Institute of Technology (MIT), Cambridge, USA

Aug 2021 - Jun 2022

Exchange Student, School of Engineering

GPA 5.0/5.0

Selected Courses: Machine Learning (A), Introduction to Robotics (A),

Electronics for Mechanical Systems (A), Power Electronics (A), Product Engineering Process (A)

Southern University of Science and Technology (SUSTech), Shenzhen, China

Aug 2019 - Jun 2023

B.Eng. in Robotics Engineering (Summa Cum Laude), College of Engineering

GPA: 3.94/4.0 Rank: 1/66

Selected Courses: Modern Control and Estimation (A+), Data Structure and Algorithm Analysis (A+)

PUBLICATIONS

* denotes equal contribution

Neural MP: A Generalist Neural Motion Planner

Murtaza Dalal*, **Jiahui Yang***, Russell Mendonca, Youssef Khaky, Ruslan Salakhutdinov, Deepak Pathak

arXiv 2024 [Website] [PDF]

Bimanual Dexterity for Complex Tasks

Kenneth Shaw*, Yulong Li*, **Jiahui Yang**, Mohan Kumar Srirama, Ray Liu, Haoyu Xiong,

Russell Mendonca†, Deepak Pathak†

Conference on Robot Learning (CoRL) 2024 [Website] [PDF]

A lightweight high-voltage boost circuit for soft-actuated micro-aerial-robots

Zhijian Ren, **Jiahui Yang**, Suhan Kim, Yi-Hsuan Hsiao, Jeffrey Lang, Yufeng Chen

IEEE International Conference on Robotics and Automation (ICRA) 2023 [PDF]

Coordinated Defense Allocation in Reach-Avoid Scenarios with Efficient Online Optimization

Junwei Liu, Zikai Ouyang, **Jiahui Yang**, Hua Chen, Haibo Lu, Wei Zhang

arXiv 2023 [PDF]

Parallel connecting rod mode switching parallel clamp coupling self-adaptive robot finger device

Jiahui Yang, Wenzeng Zhang

China Invention Patent CN113954111A [PDF]

RESEARCH EXPERIENCES

Research Assistant at Learning for Embodied Action and Perception Lab (LEAP), CMU

Pittsburgh, USA

Advisor: Prof. Deepak Pathak

Oct 2023 - Present

➤ Neural MP: A Generalist Neural Motion Planner

- Developed a pipeline of training and deploying generalist neural motion planners, which outperforms SOTA sampling, optimization and learning based planning methods by 23%, 17% and 79%. The policy achieved 95.83% success rate on evaluation tasks and could generalize to a broad set of out-of-distribution real world environments. In submission to ICRA 2025 (project co-lead)

- Built diverse scenes in simulation and collect expert data from sampling based planner, then distilled it into a reactive generalist policy. We combined this with a lightweight optimization procedure at test time to ensure fast, safe, and reliable deployment in the real world.

➤ Bimanual Dexterity for Complex Tasks

- Developed an extremely dexterous, low-cost, low-latency and portable bimanual dexterous teleoperation

system which relies on motion capture gloves and teacher arms. Accepted to CoRL 2024.

- Led the effort of the mechanical design of the teacher arm system and setting up apple vision pro as baseline comparison. Assisted data collection and model training.

Research Assistant at Soft and Micro Robotics Laboratory (SMRL), MIT

Cambridge, USA

Advisor: Prof. Kevin Chen

Jan 2022 - Jun 2022

➤ **A lightweight high-voltage boost circuit for soft-actuated micro aerial robots**

- Developed a power circuit to convert 7.7V DC input into a 600V and 400Hz output for driving a 120mg DEA (soft dielectric elastomer actuator). Accepted to ICRA 2023.
- Designed circuit topology and control algorithms. Simulated circuit performance and optimized control gains. Fabricated and tested PCB layout.

Summer Intern at Zhang lab, Tsinghua University

Beijing, China

Advisor: Prof. Wenzeng Zhang

Jun 2021 - Aug 2021

➤ **Dual-Mode Underactuated Robot Gripper Design**

- Proposed a dual-mode robot gripper that can switch between parallel pinching mode and coupled grasping mode, enabled it to handle diverse manipulation scenarios.
- Also incorporated an underactuated damping joint in the system so the gripper can automatically adapt to the object geometry to achieve more powerful grasps. Published as China invention patent.

Research Assistant at Control & Learning for Robotics and Autonomy Lab (CLEAR)

Shenzhen, China

Advisor: Prof. Wei Zhang

Aug 2020 - May 2023

➤ **Wheel-Legged Hybrid Robot Locomotion (Bachelor's Thesis)**

- Developed control framework for the wheel-legged quadrupedal robot to maneuver in wheel-foot mode and point-foot mode to tackle different locomotion environments.
- Built low-level mechatronic framework and whole body MPC controller. Enabled dynamic mode switch while the robot is moving.

➤ **Coordinated Defense Allocation in Reach-Avoid Scenarios with Efficient Online Optimization**

- Investigated a dual-layer online optimization strategy for defender robots operating in multiplayer reach-avoid games within general convex environments.
- Assisted in convex optimization analyses and built simulation platform to validate theoretical results.

HONORS AND AWARDS

Top 10 Summa Cum Laude Graduates, College of Engineering, SUSTech (Top 1%)

Jun 2023

Best student of the year in Zhicheng College, SUSTech (Top 0.5%)

Sep 2022

Most Valuable Engineer Award in 2.12 course project competition, MIT

May 2022

MIT & SUSTech Special Student Scholarship, MIT & SUSTech (\$ 72,500, Top 0.1%)

Sep 2021

Finalist Prize in ICM competition (Top 1% among 26,000 teams)

Jan 2021

First Class Merit Scholarship, SUSTech (Top 5%)

Sep 2020 & Sep 2021

Excellence Freshman Scholarship, SUSTech

Sep 2019

SKILLS

Programming: Python, C++, C, JAVA, HTML

Tools: ROS, Pytorch, Matlab, PyBullet, IsaacGym, IsaacSim, MuJoCo, Git, LATEX

Hardware: Solidworks, Arduino, Altium Designer, Laser-cutting, 3D Printing, Soldering