

Yifan Sun

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🐙 [Github](#)

🌐 [LinkedIn](#)

EDUCATION

Carnegie Mellon University

Pittsburgh, PA

Doctor of Philosophy in Robotics (Advisor: Prof. Changliu Liu)

Sept. 2024-Present

Research Interests: Motion planning and control, Safe Reinforcement Learning, Dexterous Manipulation, Safe Human-Robot Interaction

Carnegie Mellon University

Pittsburgh, PA

Masters of Science in Mechanical Engineering - Research (GPA: 3.98/4.0)

Sept. 2021-May. 2023

Related Courses: Planning and Decision-making in Robotics, Deep Reinforcement Learning for Robot Decision Making, Robot Localization and Mapping, Machine Learning and AI for Engineers, Engineering Optimization

Xi'an Jiaotong University

Xi'an, CN

Bachelor of Science in Mechanical Engineering (GPA: 3.87/4.3)

Sept. 2016-Jun. 2020

Related Courses: Foundation of Computer System, Microcomputer Principle and Interface Technology, Intelligent Control

PUBLICATIONS

CONFERENCE

C1. Hybrid task constrained planner for robot manipulator in confined environment

Y. Sun, W. Zhao, and C. Liu

American Control Conference (ACC), 2024

C2. A Lightweight and Transferable Design for Robust LEGO Manipulation

R. Liu, Y. Sun, C. Liu

International Symposium on Flexible Automation (ISFA), 2024

C3. Absolute Policy Optimization: Enhancing Lower Probability Bound of Performance with High Confidence

W. Zhao*, F. Li*, Y. Sun, R. Chen, T. Wei, and C. Liu

International Conference on Machine Learning (ICML), 2024

C4. Jerk-bounded Position Controller with Real-Time Task Modification for Interactive Industrial Robots

R. Liu, R. Chen, Y. Sun, Y. Zhao and C. Liu

International Conference on Advanced Intelligent Mechatronics (AIM), 2022

JOURNAL

J1. GUARD: A Safe Reinforcement Learning Benchmark

W. Zhao, R. Chen, Y. Sun, R. Liu, T. Wei, and C. Liu

Transactions on Machine Learning Research (TMLR)

J2. State-wise Constrained Policy Optimization

W. Zhao, R. Chen, Y. Sun, R. Liu, T. Wei, and C. Liu

Transactions on Machine Learning Research (TMLR)

WORKSHOP

W1. Robotic LEGO Assembly and Disassembly from Human Demonstration

R. Liu, Y. Sun, C. Liu

ACC'23 Workshop on Recent Advancement of Human Autonomy Interaction and Integration

PREPRINTS

P1. Learn with imagination: Safe set guided state-wise constrained policy optimization

W. Zhao, Y. Sun, F. Li, R. Chen, T. Wei, and C. Liu

EXPERIENCE

Intelligent Control Lab, Robotic Institute, CMU

Research Assistant

Developed a wide range of novel approaches in safe planning, learning and control using **C++**, **Python** and **ROS**.

Pittsburgh, PA

Sept. 2021-Present

Siemens, Inc. | Future of Automation Team

Automation Runtime Systems Intern

Developed a real-time robot system based on the latest industrial network middleware **OIE** proposed by Siemens.

Princeton, NJ

Jul. 2023-Oct. 2023

Zoox, Inc. | Motion Planning and Control Team

Software Engineer Intern

Delivered a new feature to the **collision avoidance system** for autonomous vehicles using **C++**, **Protocol Buffers**, **Bazel** and **GTest**. Tested the performance of the feature on **7K+** miles of data.

Foster City, CA

May. 2022-Aug. 2022

System Engineering Institute

Research Assistant

Generated a stock trading strategy with **Deep Q learning** method using **Python** and **Tensorflow**.

Xi'an, CN

Sept. 2020-Jun. 2021

SKILLS

Programming Language:

C/C++, Python, Matlab, Swift, Java

Software & Tools:

Git, ROS, Pytorch, Gazebo, Isaac Sim, Mujoco, Solidworks

Domain Knowledge:

Robot Planning and Control, Reinforcement Learning, SLAM, Machine Learning

HONORS AND AWARDS

Outstanding graduates

2020

Outstanding student leaders

2019

Robot Skills World Champions of VEX Robotics World Competition

2019

The First Prize Scholarship (top 5%)

2019

National Scholarship (top 1%)

2018

National Scholarship (top 1%)

2017