Ziyi Xu

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Education

Zhejiang Unversity Expected graduation date: Jun. 2025
B.Eng. in Robotics Engineering ***TOEFL:105 GPA: rank:1/43 (91.8/100)***
Chu Kochen Honors College & School of Control Science and Engineering
Relevant Courses: Robotics 1 (Manipulation), Robotics 2 (Navigation & Localization), Principles of Automatic Control, Intelligent Control Theory (Adaptive Neural Control), Machine Vision

Projects & Experience

CMU SafeAI Lab - Research Intern (Advisor: Ding Zhao)

Hierarchical Framework for Long-Horizon Robotic Furniture Assembly Jul, 2024 - Oct, 2024

- Built a framework to solve point-cloud-based furniture assembly task using high level execution sequence querying and low level two-stage object-centric imitation learning to achieve high success rate in zero-shot real world environments.
- Preparing submission for RA-L.

FAST-LAB FAR - Research Intern (Advisor: Fei Gao)

RoboMaster University AI Challenge(Classic) 2023-2024 - National Champion Feb, 2024 - May, 2024

- Teamed up and won an autonomous drone racing challenge with our self-built drone. Bottlenecks include SLAM in extreme agility, goal detection, obstacle avoidance, wind-force resistance and high level planning.
- Contributed to robust goal detection and high level finite-state-machine design.

Bearing-based Localization & Mutual Observation in UAV Swarms Sept, 2023 - Jan, 2024

- Trained(auto-labelled by mocap) and deployed a drone detection&tracking YOLO+BoT-SORT module for solving the active mutual observation and anonymous initialization problems in UAV-swarm systems.
- Actively contributed to experiments and manuscript preparation; co-authored papers one accepted by IROS2024 and one currently under positive rebuttal to RA-L.

Real-time 3D Point Cloud Object Detection Model Based on Auto-wheeled Robot Platform

National Student Research Training Program(SRTP) - Project Leader Mar, 2023 - Mar, 2024

- Built a mecanum-wheel-based autonomous car self-designed in SolidWorks, with STM32F4 board as the slave and LiDAR-SLAM(Fast-LIO) / 2D local planning deployed on the master.
- Implemented and compared state-of-the-art 3D point cloud-based object detection algorithms, built an object real-time tracking SLAM car from zero to one.

Robot transportation & confrontation contest

ZJU 13th "ZhongKong Cup" Robotic Competition - Runner-up - Team Leader Dec 2021 - Jun 2022

- Built two autonomous line-patrol vehicles equipped with self-designed mechanical structures in time-limited confronting for "score rings" against opponent robots.

Leadership & Social Activities

Zhejiang University Student Robot Association Oct. 2021 - Jun. 2023

President of Association(Jun, 2022 - Jun, 2023)

- Led an association of over 100 students passionate about robotics.
- Not only facilitated self-learning and peer teaching to explore cutting-edge developments in the field, but also organized workshops, guest lectures from industry experts, and collaborative robot design projects.
- Awarded the Zhejiang University Top 10 Students' Association Award (2022-2023).

Zhejiang University Chu Kochen(CKC) Alumni Secretariat Sept. 2021 - Jun. 2022

- Organized college alumni events and managed alumni communications and publicity.

Skills & Interests

Programming Languages: C/C++, Python, MATLAB, Lua

Tools of production: ChatGPT, Pytorch, OpenCV, Pybullet, Isaac-Gym, ROS, SolidWorks, STM32(CubeMX, HAL, FreeRTOS), SIMULINK

Hobbies: Enjoy reading, piano, traveling and cooking. My currently favorite book is *Norwegian Wood*.