

# Ziyi Xu

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## Education

### Zhejiang University

B.Eng. in Robotics Engineering

Chu Kochen Honors College & School of Control Science and Engineering

Relevant Courses: Robotics 1 (Robot arm manipulator control), Robotics 2 (Navigation & Localization),  
Principle of automatic control, Intelligent control theory (Adaptive Neural Control), Machine Vision

Expected graduation date: Jun. 2025

**TOEFL:105 GPA: rank:1/43 (91.8/100)**

## Projects & Experiences

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

**Query as You Need: Hierarchical Framework for Long-Horizon Robotic Furniture Assembly** Jul, 2024 - Oct, 2024

- Pointcloud-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.

### Real-time YOLO-based drone detection & tracking

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 submitted 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

- Building 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.
- Implementing and comparing state-of-the-art 3D point cloud-based object detection algorithms, building 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

- Building 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.
- Achieved the 2022-2023 Zhejiang University Top10 Students' Association Award.

### 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*.