Ziyi Xu

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EDUCATION

- **Zhejiang University** — Hangzhou, China
  Bachelor of Engineering - Robotics Engineering; GPA: 3.99/4.0 (91.8/100) — *Sept 2021 - June 2025*
  Courses: *RoboticsI(Manipulation), RoboticsII(Navigation), Automatic Control, Optimization and Optimal Control, Machine Vision*

PROJECT EXPERIENCE

- **CMU SafeAI Lab - Advisor: Ding Zhao** — Pittsburgh, USA
  Research Intern — *Jul 2024 - Oct 2024*
  - **Hierarchical Framework for Long-Horizon Robotic Furniture Assembly**
    Designed a two-stage hierarchical framework to achieve zero-shot on long-horizon assembly tasks.
    Preparing submission for RA-L.

- **FAST-LAB FAR - Advisor: Fei Gao** — Huzhou, China
  Research Intern — *Jun 2023 - May 2024*
  - **Bearing-based Localization & Mutual Observation in UAV Swarms**
    Trained and deployed a drone detection&tracking module in UAV-swarm systems. Actively contributed to experiments and manuscript preparation.
    Co-authored papers one accepted by IROS 2024 and one currently under positive rebuttal to RA-L.
  - **RoboMaster University AI Challenge(Classic) - National Champion**
    Teamed up and won an autonomous drone racing challenge with our self-built drone. Almost twice as fast as the runner-up. Contributed to robust goal detection and high level finite-state-machine design.
  - **Reinforcement Learning for UAV Trajectory Tracking**
    Course Project for *Innovation and Practice in Robotics*. Generated a high-quality trajectory library, trained trajectory tracking, and deployed in real-world.

- **National Student Research Training Program - Advisor: Yu Zhang** — Hangzhou, China
  Project Leader — *Mar 2023 - Mar 2024*
  - **Real-time 3D Point Cloud Object Detection Model Based on Auto-wheeled Robot Platform**
    Self-designed and built an autonomous car, compared SoTA point-cloud-based 3D object detection algorithms on board.

- **Robot Transportation & Confrontation Contest** — Hangzhou, China
  Project Leader — *Dec 2021 - Jun 2022*
  - **Zhejiang University Robotics Competition(Runner-up) & Robot Competition in Zhejiang Province**

PUBLICATIONS

- **Query as You Need: Hierarchical Learning Framework for Long-Horizon Robotic Furniture Assembly**
  Ziyi Xu*, Haohong Lin*, Shiqi Liu*, Mengdi Xu, and Ding Zhao
  Under Revision

- **Preserving Relative Localization of FoV-Limited Drone Swarm via Active Mutual Observation**
  Lianjie Guo*, Zaitian Gongye*, Ziyi Xu, Yingjian Wang, Xin Zhou, Jinni Zhou, and Fei Gao
  2024 IEEE/RSJ International Conference on Intelligent Robots and Systems (**IROS**)

- **FACT: Fast and Active Coordinate Initialization for Vision-based Drone Swarms**
  Yuan Li*, Anke Zhao*, Yingjian Wang*, Ziyi Xu, Xin Zhou, Jinni Zhou, Chao Xu, and Fei Gao
  Under Rebuttal for IEEE Robotics and Automation Letters (**RA-L**)

HONORS AND AWARDS

- DJI RoboMaster University AI Challenge(Classic) - National Champion — *March, 2024*
- Huawei Elite Scholarship in College of Control Science and Engineering — *2023*
- Zhejiang University Scholarship - First Prize (Top 3%) — *2022*
- Government Scholarship of Zhejiang Province — *2022*
- Zhejiang University Robotics Competition - First Prize — *2022*

SKILLS AND INTERESTS

- **Skills**
  Languages: C/C++, Python, MATLAB, Lua
  Tools of Production: ChatGPT, Pytorch, OpenCV, Pybullet, Isaac-Gym, ROS, SolidWorks, STM32(CubeMX, HAL, FreeRTOS), SIMULINK, Arduino
- **Research Interests**
  Motion Planning, Optimize Control, Real-world Robotics
- **Hobbies**
  Jigsaw, Reading, Piano, Traveling and Cooking

SOCIAL ACTIVITIES

- **Zhejiang University Student Robot Association - President of Association** — Hangzhou, China
  Led an association of over 200 students passionate about robotics.
  Awarded the Zhejiang University Top 10 Students' Association Award (2022-2023). — *Oct 2021 - Jun 2023*

- **Zhejiang University Chu Kochen(CKC) Alumni Secretariat** — Hangzhou, China
  Organized college alumni events and managed alumni communications and publicity. — *Sept 2021 - Jun 2022*