

Mingjie ZHANG

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EDUCATION

- **Northwestern Polytechnical University** 2020.08-2024.07
Bachelor of Engineering, School of Electronics And Information, CGPA: 91.5/100 Supervisor: Prof. Haobin SHI
- **The Hong Kong University of Science and Technology (Guangzhou)** 2024.09-present
Mphil Student Supervisor: Prof. Ma Jun and Boyu Zhou

EXPERIENCE

- **STARLab, SUN YAT-SEN University** 2023.07-2024.09
Research Assistant Zhuhai, China
– Autonomous Aerial Reconstruction & Multi-robot System collaborating with Prof. Boyu ZHOU.
- **Northwestern Polytechnical University Football Robot Team** 2022.07-2023.07
Captain of the humanoid robot team Xi'an, China
– Robot Hardware/Software Technical Support & Won Multiple National-level Robotics Awards.

PUBLICATIONS

- **SOAR: Simultaneous Exploration and Photographing with Heterogeneous UAVs for Fast Autonomous Reconstruction**
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2024 (Oral)
– Mingjie Zhang*, Chen Feng*, Zengzhi Li, Guiyong Zheng, Yiming Luo, Zhu Wang, Jinni Zhou, Shaojie Shen, and Boyu Zhou
- **FC-Planner: A Skeleton-guided Planning Framework for Fast Aerial Coverage of Complex 3D Scenes**
IEEE International Conference on Robotics and Automation (ICRA), 2024 (Best Paper Award on UAV Finalists)
– Chen Feng, Haojia Li, Mingjie Zhang, Xinyi Chen, Boyu Zhou, and Shaojie Shen

PROJECTS

- **Design and Development of Titan: A Humanoid Combat Robot** 2021.7-2022.7
– Designed the mechanical structure and developed circuit boards for robot control, along with a corresponding remote control.
– Developed control and communication APIs, and created a user-friendly PC-based motion editing visualization interface.
– Awarded the **National-level Outstanding Achievement in Innovation and Entrepreneurship for College Students**, and successfully selected for the 16th National College Students' Innovation and Entrepreneurship Annual Conference.
- **The System of Multi-sensor Fusion Based Teleoperation of Robotic Manipulator** 2022.9-2023.5
– Utilized an eye tracker and RealSense to locate the position of the gripping target, and employed Kinect to obtain human arm posture information for grip solution derivation.
– Utilized A* algorithm for path planning and polynomial interpolation for trajectory generation. Also, established a secure channel along the trajectory to facilitate manipulator control via force feedback during teleoperation. Following real-world experiments, our approach showed a 36% accuracy improvement over traditional teleoperation methods.
- **UAV Swarm Formation Transformation** 2023.7-2023.11
– Enhanced the localization accuracy of UAV swarm through the fusion of UWB, IMU, and vision technologies.
– Utilized the Hungarian algorithm to optimize task allocation for drone formation transformation, aimed at minimizing energy consumption, and conducted real-world experimentation for validation.

SELECTED AWARDS

- **National Scholarship** - Ministry of Education, PRC 2022 & 2023
- **Outstanding Student** - Northwestern Polytechnical University 2021 & 2022 & 2023
- **Outstanding Graduate** - Northwestern Polytechnical University 2024
- **National Robot Championship Competition First Prize** - CAAI 2021 & 2022
- **International Underwater Robot Competition First Prize** - Organizing Committee of IURC 2021
- **Yat-sen Challenge of Intelligent Cooperative Robots First Prize** - SYSU 2023
- **Honorable Mention of 2021 Mathematical Contest In Modeling** - COMAP 2021

TECHNICAL SKILLS

Programming: C/C++, Python, Matlab

Tools: ROS, PCL, Eigen, PyTorch

Hardware: Embedded Development(C51/STM32), PCB Design(Altium Designer)