

# Jiajie Zhang

Mobile Autonomous Robotic Systems(MARS) Lab , ShanghaiTech University

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## Experience

**AI R&D Center, Central Research Institute, Wolong Electric** July 2025 - Oct. 2025  
Research Assistant Shanghai, China

- Supervised by [Alexander Kleiner](#)

**ShanghaiTech University** Sept. 2024 - Jan. 2025  
Teaching Assistant Shanghai, China

🔗 <https://robotics.shanghaitech.edu.cn/teaching/moma2024>

Mobile Manipulation

## Education

**ShanghaiTech University** Sep 2023 - Present  
Computer Science and Technology Master of Science  
3.51/4.0 GPA

- Selected Courses: Robotics, Mobile Manipulation, Deep Learning
- Supervised by Professor [Soeren Schwertfeger](#)

**Zhengzhou University** Sep 2019 - Jun. 2023  
Automation Bachelor of Engineering  
3.66/4.0 GPA

## Publications

**From Observation to Action: Latent Action-based Primitive Segmentation for VLA Pre-training in Industrial Settings** Nov. 2025  
Under review for CVPR2026

🔗 <https://jiajiezhang7.github.io/latent-action-primitive-segmenter/>

Jiajie Zhang†, Sören Schwertfeger, and Alexander Kleiner

**Generation of Indoor Open Street Maps for Robot Navigation from CAD Files** July 2025  
Under review for ICRA 2026

🔗 <https://arxiv.org/abs/2507.00552>

JiajieZhang†, ShenruiWu, Xu Ma and Sören Schwertfeger

**Intelligent LiDAR Navigation: Leveraging External Information and Semantic Maps with LLM as Copilot** Mar. 2025  
Accepted by IROS 2025

🔗 <https://arxiv.org/abs/2409.08493>

Fujing Xie†, Jiajie Zhang and Sören Schwertfeger

**Neural Surfel Reconstruction: Addressing Loop Closure Challenges in Large-Scale 3D Neural Scene Mapping** Oct. 2024  
Sensors (Basel, Switzerland)

🔗 <https://www.mdpi.com/1424-8220/24/21/6919>

Jiadi Cui†, Jiajie Zhang†, Laurent Kneip and Sören Schwertfeger

(Master Thesis) AGLoc++: WiFi-Fused Global Localization and Monte Carlo Enhanced Tracking in Hierarchical Area Graph Nov. 2024 - Present

- **Led AGLoc++ development:** Ported Area Graph LiDAR localization system to ROS2, integrated with the Nav2 stack, implemented WiFi-aided kidnap recovery, developed odometry-fused Monte Carlo tracking with advanced re-localization.
- **Enhance Robustness:** implement techniques such as clutter filtering, architectural matching, weighted ICP, corridor-aware downsampling, ensuring robust, high-precision localization in dynamic indoor environments.

- Integrated advanced hardware, including the Agile X HUNTER SE **Ackermann** robot, **Hesai PandarQT64** Lidar, and **Insta360 Air** panoramic camera etc.
- Integrated navigation functionalities using the **ROS2** framework and **Navigation2** package, with testing performed in Gazebo simulator and on physical robots.
- Specialized in motion planning and control, applying and evaluating global planning algorithms ( **Dijkstra**, **Hybrid A\***, **RRT\***) for pathfinding within the Nav2 stack.

- Integrated ROS1 Noetic with **PCL** and **Gmapping**
- Developed a RANSAC-based algorithm to extract permanent vertical structures (e.g., walls) from 3D LiDAR point clouds, filtering out temporary obstacles to produce clean, long-lasting indoor maps

- **Developed an end-to-end HRI pipeline** on ROS2 Iron, integrating **360° fisheye perception**, YOLOv8, and **MTCNN** for robust face detection and servo-driven gaze tracking to maintain eye contact.
- **Engineered proactive dialogue capabilities** using **Volcano Engine LLM** for reasoning and Bilingual ASR/TTS (Baidu/StepFun), achieving **<3s latency** and natural intent analysis for elevator service scenarios.
- **Designed a modular state machine** to manage interaction flows (Idle to Decision), achieving **>95% detection accuracy** and enabling stable, contactless assistance in dynamic public environments.

TOEFL iBT: 106 (Reading: 30/30, Writing: 27/30, Listening: 27/30, Speaking: 22/30)