Jiajie Zhang

MARS Lab, ShanghaiTech University

Shanghai, China
(+86) 19858214897
jerryzhangamen7@gmail.com
https://jiajiezhang7.github.io/
Github

Skills

Programming Languages
Python, C/C++

Tools
ROS/ROS2, Navigation2, PyTorch, Tensorflow, BehaviorTree, FlexBE, OpenCV, Linux, Git, LaTex

Certifications

CET-6 (Score: 571)
Ministry of Education, China
Dec. 2021

Publications

Neural Surfel Reconstruction: Addressing Loop Closure Challenges in Large-Scale 3D Neural Scene Mapping
Sensors (Basel, Switzerland)
Oct. 2024
https://www.mdpi.com/1424-8220/24/21/6919

Intelligent LiDAR Navigation: Leveraging External Information and Semantic Maps with LLM as Copilot
Submitted to IROS 2025
Mar. 2025
https://arxiv.org/abs/2409.08493

Education

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

Selected Courses:

- Robotics
- Deep Learning

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

Experience

ShanghaiTech University **Sept. 2024 - Jan. 2025**
Teaching Assistant Shanghai, China
https://robotics.shanghaitech.edu.cn/teaching/moma2024

Mobile Manipulation

Projects

Campus Autonomy: Building and Navigating Autonomous Robots with Navigation2 **Sept. 2024 - Jan. 2025**
https://jiajiezhang7.github.io/portfolio/campus-autonomy-robot/

- Integrated advanced hardware, including the **Agile X HUNTER SE** vehicle, **Hesai PandarQT64** Lidar, and **Insta360 Air** panoramic camera.
- Leveraged **ROS2** framework and **Navigation2** package.
- Implemented **Smac hybrid A*** planner and **MPPI** controller to optimize path planning and ensure real-time obstacle avoidance.

SLAM with Vertical Plane Segmentation for Lifelong Indoor Mapping **Mar. 2024 - Jul. 2024**
https://jiajiezhang7.github.io/portfolio/slam_project/

- 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

Towards Safer Navigation in Habitat Simulator **Sep 2024 - Jan. 2025**
https://jiajiezhang7.github.io/portfolio/deeplearning_project/

- Developed a novel reward shaping technique that integrates terrain awareness into the reinforcement learning framework, enhancing navigation safety in the Habitat simulator.
- Proficiently employed the Habitat Simulator for PointGoal navigation task experiments, demonstrating the potential of the method to improve the reliability and safety of learning-based navigation agents in simulated environments.