



Profile

I am a dedicated master's student in **Mechanical Engineering (Control Systems)** at Soochow University, specializing in visual SLAM and 3D Reconstruction for dynamic scenes. I developed a dynamic feature filter using multi-dimensional hierarchical clustering, significantly enhancing localization accuracy, published as first author in IEEE Transactions on Instrumentation and Measurement (SCI Q2, IF: 5.6). I aim to advance more valuable work on 3D reconstruction of dynamic scenes.

Contact details

@ 20235229140@stu.suda.edu.cn

18061734995

github.com/XU0510

[Personal Homepage](#)

Education

- Master's Degree at School of Electromechanical Engineering, **Soochow University** **2023.9–2026.6**
- Bachelor's Degree at School of Automation and Electrical Engineering, **Lanzhou Jiaotong University** **2019.9–2023.6**

Skills

- Programming: C++, Python
- Libraries: OpenCV, PCL, G2O
- Tools: ROS, Docker
- Hardware: Livox LiDAR, RealSense D455, D435i

PUBLICATIONS

- Published as first author "HMC-SLAM: A Robust VSLAM Based on RGB-D Camera in Dynamic Environment Combined Hierarchical Multidimensional Clustering Algorithm" at *IEEE Transactions on Instrumentation and Measurement*. (SCI Q2, IF: 5.6).
- Technology Stack:** C++ programming, deployment of YOLOv5 for real-time object detection, OpenCV 4.4 for image feature extraction, and PCL 1.12 for point cloud processing, supporting 3D scene analysis in dynamic SLAM research.
- Submission as first author "Stagauss-SLAM: A Robust RGBD Dense SLAM Algorithm for Dynamic Scenes" at *IEEE Robotics and Automation Letters* (SCI Q2, IF: 6.0). Currently in first review status.
- Technology Stack:** C++ programming, 3D Gaussian Splatting-based high-fidelity 3D scene reconstruction, deployment of a high-precision and robust front-end odometry (Improved by ORB-SLAM3), real-time SLAM system built with ROS Noetic, cross-platform deployment via Docker, and real-time RGB-D data acquisition using RealSense D455 camera. Enhanced accuracy and stability in robot navigation and environmental perception.
- Published as third author "Enhanced 3D LiDAR-Inertial SLAM for Large-Scale Outdoor Environments Using Local Ground Constraints" at *Measurement* (SCI Q2, IF: 5.4).
- Submission as third author "3D Reconstruction Algorithm of Complex Large Scenes based on ESIKF and Xfeat Feature Match" at *Expert Systems with Applications* (SCI Q1, IF: 7.8). Currently in first review status.

AWARDS

- The 18th Siemens Cup China Intelligent Manufacturing Challenge - Direction of Free Exploration. Won **the second prize at the provincial level as the project leader**. The project content focuses on 3D reconstruction technology in dynamic scenes. **2024.07**
- The 26th China Robotics and Artificial Intelligence Competition-Robotics Innovation Competition. Won **the third prize at the national level as a project leader**. The project content focuses on mobile robot localisation in dynamic scenes. **2024.08**
- Suzhou University First Class Scholarship. **2024.11**
- Suzhou University Second Class Scholarship. **2023.11**

EXPERIENCE

- | | |
|---|------------------------------------|
| <ul style="list-style-type: none"> Shanghai Tunnel Project | Horizontal Research Project |
| Assisting in the construction of LIDAR equipment at the Shanghai Tunnel project site, assisting in the calibration of multiple LIDARs, and completing the recording of RTK and LIDAR datasets. 2024.07–2024.10 | |
| <ul style="list-style-type: none"> Autonomous Valet Parking | Personal Research Project |
| A method for constructing semantic maps of underground parking lots based on the Inverse Perspective Mapping (IPM) is being realized and evaluated. SLAM localization algorithm based on multiple LiDAR IMU fusion for underground parking environment with missing GPS signals and sparse features. 2025.01–Now | |