

Quanxiang Liu

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EDUCATION

- **Northwestern Polytechnical University** Xi'an, China
Bachelor of Software Engineering; GPA: 3.612/4.0; RANK: 20/285, Top 7% September 2019 - Present

EXPERIENCE

- **As a Research Student follow Prof.Shuhui Bu**
Research Student March 2021 - May 2022
 - Learning about SLAM (Simultaneous Localization and Mapping).
 - Learning about ORB-SLAM2 and Map2DFusion(paper and source code)
 - Combining Pi-SLAM and Map2DFusion into one program.
- **National-level Student Innovation and Entrepreneurship Training Program**
Project Leader May 2021 - Present
 - Manage this project.
 - Learning about VIO system and LIO system.
 - Merging VIO system with LIO system (in progress).

PROJECTS

- **Multi-Sensor Fusion-based Cave Exploration UAV:** (Work in progress) A multi-sensor fusion-based cave exploration UAV capable of entering caves for initial exploration before humans enter them.
Main work: Manage this project; Select and calibrate the sensors; Merging VIO system with LIO system (in progress).
- **UAV Image Mosaicing based on Pi-SLAM and Map2DFusion:** This is a UAV mapping program based on Pi-SLAM and Map2DFusion, guided by Prof. Shuhui Bu.
Main work: Resolve the conflicting prerequisites in Pi-SLAM and Map2DFusion; Merge map2dfusion into Pi-SLAM as a thread.
- **Logistics UAV:** This UAV is lightweight and can carry three standard small courier boxes weighing less than 500 grams and place them in specific locations based on visual information.
Main work: Deploy open-vins on the UAV to ensure that the drone can locate itself indoor; Build docker containers to reduce the effort of environment configuration; Created a ROS program called "pose remap" for converting a pose into the desired pose for the robot.
- **Qt-based LIDAR Mapping Simulator:** This is a Qt-based LIDAR simulation mapping software that helps people visualize how LIDAR scans things around them.
Main work: Developed this software alone; Learning Qt programming and 2D collision detection algorithm.
- **NWPU Soccer Robot Base SLAM Group Learning Tutorial:** This tutorial is intended for more standardized training at the robotics base and is also intended to help students interested in SLAM.
Main work: This project was initiated by the NWPU Robot Base SLAM Group, and I am the main leader.

HONORS

- Guangdong-Hong Kong-Macao Scholarship of Northwestern Polytechnical University (rank 4.2%) September, 2021
- First Class Scholarship of Northwestern Polytechnic University (rank 4.2%) September, 2021
- Outstanding Undergraduate Student of Northwestern Polytechnic University September, 2021
- Second Class Scholarship of Northwestern Polytechnic University (rank 10.9%) September, 2020
- Outstanding Undergraduate Student of Northwestern Polytechnic University September, 2020

AWARDS

- Third Prize in Developer Testing, National University Software Testing Competition Finals November, 2021
- First Prize of the 23rd China Robotics and Artificial Intelligence Competition (Shaanxi Region) August, 2021
- Third Prize of 2021 NWPU E-Commerce "Innovation, Creativity and Entrepreneurship" Challenge May, 2021
- First prize of the 22nd National Robotics Championship in the category of practical application of aerial flying robots December, 2020
- Third runner-up (second prize) in the 2020 China Robotics Competition Drone Challenge November, 2020

SKILLS SUMMARY

- **Languages:** C++, Python, JAVA, MATLAB, SHELL, SQL
- **Frameworks:** ROS, OpenCV, Pytorch, Qt, Eigen, Ceres-Solver
- **Tools:** Cmake, Docker, GIT, PostgreSQL
- **Soft Skills:** Leadership, Cooperation Ability, Event Management, Writing, Time Management
- **Other:** Familiar with computer vision and SLAM, rich experience in debugging.

VOLUNTEER EXPERIENCE

- **Team Leader of NWPU Robot Base SLAM Group** Xi'an, China
Conducted online and offline technical and soft-skills training impacting over 100 students. March 2021 - Present