西北工业大学
NORTHWESTERN POLYTECHNICAL UNIVERSITY

Quanxiang Liu (刘权祥)

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Research Interests: 3DGS, SLAM, 3D Reconstruction, 3D Foundation Model

Education

Northwestern Polytechnical University Bachelor

Bachelor of Software Engineering; GPA: 3.57/4.0, RANK: 21/299(first six semesters) *September 2019 - June 2023*

Northwestern Polytechnical University Master

Master of Information and Communication Engineering; Credit Score: 91.23/100 *September 2023 - Present*

Projets & Experience

Logistics Drone *September 2020 - May 2022*

UAV Challenge at the China Robotics Competition in 2020 and 2021

Main work: Deployed Open-VINS on a drone to enable indoor positioning; established Docker containers to reduce the workload of environment configuration; created a ROS program called "pose-remap" to convert poses calculated by Open-VINS into poses required by the drone.

RoboMaster University AI Challenge *September 2023 - November 2023*

Intelligent Perception Technology Competition for Unmanned Aerial Vehicles

Main work: Managed project timeline and team assignments; built a physical platform for the drone; developed and tested algorithms on the official AirSim simulation platform, implementing drone control via cascade PID, a decision and planning module using task-stage partitioning and finite state machines, and high-speed robust stereo depth estimation based on Correlate-and-Excite (CoEx); packaged and deployed competition code using Docker; wrote technical reports and edited video presentations for the reports.

Teaching Assistant for CVlife Course Platform *December 2023 - Present*

Courses on NeRF-based SLAM, 3D Gaussian Splatting-based SLAM, and implementing 3DGS SLAM

Main work: Assisted instructors in answering questions, creating and grading assignments, and improving course materials; familiar with codebases for NeRF-based SLAM, 3D Gaussian Splatting-based SLAM, NICE-SLAM, MonoGS, and others.

Open Source Project Intern *December 2024 - Present*

KIRI Innovations (Shenzhen) Co., Ltd.

Main work: Mainly responsible for assisting in the development of the geometric enhancement library GeoMaster and enhancing the features of GauStudio. Leveraged the scene segmentation approach from VastGaussian to implement large-scale 3D reconstruction. Significantly improved RGBD reconstruction quality using pre-trained models such as Depth Anything V2 and Prompt Depth Anything. Currently developing and optimizing the pipeline for large-scale RGB reconstruction based on VGGT (Visual Geometry Grounded Transformer). For more details, visit the project repository: GeoMaster on GitHub.

Honors & Awards

- Second Class Scholarship of Northwestern Polytechnic University — September, 2024
- First Class Scholarship of Northwestern Polytechnic University — September, 2023
- Second Prize in 2023 Unmanned Aerial Vehicle Intelligent Perception Technology Competition Online Competition — December, 2023
- Second prize in the 2021 China Robotics Competition Drone Challenge — April, 2022
- Guangdong-Hong Kong-Macao Scholarship of Northwestern Polytechnical University — September, 2021
- First Class Scholarship of Northwestern Polytechnic University — September, 2021
- First prize of the 22nd National Robotics Championship in the category of practical application of aerial flying robots — December, 2020
- Third runner-up in the 2020 China Robotics Competition Drone Challenge — November, 2020
- Second Class Scholarship of Northwestern Polytechnic University — September, 2020

Skills

Languages: C/C++, Python, JAVA, MATLAB

Frameworks: Pytorch, CUDA, ROS, OpenCV, Qt

Tools: Cmake, Docker, Git