

Yufeng Liu

curriculum vitae

Harbin Institute of Technology(Shenzhen)
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Education

2020.9–
present **B.Eng.**, *Harbin Institute of Technology(Shenzhen)*, Shenzhen, GPA 3.6/4.
Major: Automation

Skills

Languages: C++, C, Python

Vocational: ROS, OpenCV, gazebo, eigen, pcl, gtsam, ceres ; STM32, MATLAB

Miscellaneous: LaTeX, Qt Creator, SolidWorks

My Interests: SLAM, Robotics

Experience

- 2021.10–
present **Multi sensor SLAM algorithms in complex environments.**, *nROS-Lab*, HITsz.
- Participated in the implementation and experiment of an Edge-Based Monocular Thermal-Inertial Odometry [detailed in our publication] (2021.10-2022.12).
 - Familiar with the system framework of Monocular VIOs like VINS-Mono, etc.
 - Familiar with VIO deployment in the real world.
 - Skilled in thermal image processing.
 - Proposing a SLAM framework that fuses thermal camera, LiDAR, and IMU.
 - Skilled in ways to achieve multi-sensor extrinsic parameter calibration.
 - Skilled in approaches to perform time synchronization between sensors, including PTP, PPS (GNSS triggered or STM32 triggered).
 - Familiar with the system framework of LIO or LVIO like: FAST-LIO, LIO-SAM, LVI-SAM, R2Live, R3Live, FAST-LIVO, etc.
 - Applied deep-learning method for removing dynamic objects from pointcloud data.
 - Implemented shared memory method to accelerate the transfer of point cloud data between a C++ ROS node and a Python PyTorch-based detection node.
- 2022.12–
present **A teleoperated robot equipped with a virtual reality (VR) remote-controlled gimbal system.**, *nROS-Lab*, HITsz.
- Designed a two-axis gimbal for mobile robots:
 - Designed the 3D model using SolidWorks and implemented real-time gimbal control using STM32.
 - Developed a ROS node that subscribes to human control commands through Unity-ROS-TCP-Endpoint from a remote location and sends control messages to the STM32.

2021.8– **Team leader of Sentry Robot Group in RoboMaster ([link](#)) competition,**
2022.8 *Critical-HIT robot team*, HITsz.

- Led the Sentry Robot Group in the HITsz Critical-HIT RoboMaster Team.
 - Designed a fully automatic inspection and combat integrated robot.
 - Coordinated task allocation and fostered collaboration among team members as the team leader. Additionally, served as the designer of embedded software.

2022.6– **Research on underwater mechanical grab robot**, *Lujian Technology Ltd. Co.*,
2022.12 Shenzhen.

- Participated in the research of underwater robot design and contributed to the execution of underwater motion control.

Publications

- [1] Yu Wang, Haoyao Chen*, Yufeng Liu, and Shiwu Zhang. Edge-based monocular thermal-inertial odometry in visually degraded environments. *IEEE Robotics and Automation Letters(RA-L)*, 8(4):2078–2085, 2023.[[arxiv](#)]

Awards

2022.8 First Prize of 2022 RoboMaster University Championship
National

2021.8 First Prize of 2021 RoboMaster University Championship
National

2021.9 Thrid Prize of ChinaUndergraduate Mathematical Contest in Modelling
National

2020.12 First Prize with First Place among all students of Competition of the Robot Design
Inter-school and Practice Course