

Yufeng Liu

curriculum vitae

Harbin Institute of Technology(Shenzhen)
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Education

2020.9– B.Eng., Harbin Institute of Technology(Shenzhen), Shenzhen, GPA 3.6/4.
present 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– **Multi sensor SLAM algorithms in complex environments.**, *nROS-Lab*, HITsz.
present
- Participated in the implementation and experiment of an Edge-Based Monocular Thermal-Inertial Odometry [detailed in our publication] (2021.10-2021.12).
 - 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– **A teleoperated robot equipped with a virtual reality (VR) remote-controlled gimbal system.**, *nROS-Lab*, HITsz.
present
- 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