Yufeng Liu | curriculum vitae

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Education

Harbin Institute of Technology(Shenzhen) **Shenzhen,China**
B.Eng. in Automation GPA:3.6/4.0 *Sept.2020–present*

Experience

Multi sensor SLAM algorithm in complex environments. **nROS-Lab,HITsz**
Oct.2021-present

- Participated in the implementation and experiment of an Edge-Based Monocular Thermal-Inertial Odometry [publication].
  - Achieved a simulation system in Ignition Gazebo for SLAM in complex extreme environments.
  - Deployed our ETIO in the real world and conducted experiments in the real world and datasets.
  - Familiar with the system framework of Monocular VIOs like VINS-Mono, etc.
  - Skilled in thermal image processing.
- Proposed a SLAM framework that fuses thermal camera, LiDAR, and IMU.
  - Familiar with Visual-IMU-LiDAR SLAM systems
  - Skilled in multi-sensor implementation like extrinsic calibration, PTP or PPS time synchronization, etc.
- Participated in the implementation of a SLAM system integrated planning and dynamic obstacle avoidance.
  - Applied deep-learning method for removing dynamic objects from pointcloud data to optimize the LiDAR odometry.
- Designed a two-axis gimbal with sensors for Teleoperated robot equipped with a VR remote-controlled gimbal system.
  - Designed the 3D model and implemented embedded control.
  - Applied Multi-sensor SLAM algorithm on the gimbal.

Team leader of Sentry Robot Group in RoboMaster competition **Critical-HIT robot team,HITsz**
Oct.2020–Aug.2022

- Led the Sentry Robot Group in HITsz Critical-HIT RoboMaster Team.
  - Designed a fully automatic inspection and combat integrated robot.
  - Coordinated task allocation and fostered collaboration among team members as team leader.
  - Integrated fully automatic embedded control systems for the robot.
  - Developed target aiming algorithm framework, including YOLO detection, EKF tracking, modeling, etc.

Underwater grab robot control and navigation **Lujian Technology Ltd. Co.,Shenzhen**
May.2022–Dec.2022

- Participated in the research of underwater robot design and contributed to the execution of underwater motion control.
- Achieved a mono VIO system in Gazebo which suits the underwater environment and a controller with the joystick.
- Achieved learning based underwater target detection.

Skills

Programming: C++, C, Python, MATLAB

Software&tools: ROS, OpenCV, Gazebo, PCL, GTSAM, Ceres, Git, PyTorch, LaTeX, Qt Creator, Unity

Hardware: STM32, SolidWorks

My Focus: SLAM, Robotics

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

- First Prize of 2022 RoboMaster University Championship 2022
- First Prize of 2021 RoboMaster University Championship 2021
- Third Prize of ChinaUndergraduate Mathematical Contest in Modelling 2021
- First Place among all students of Competition of the HITsz Robot Design and Practice Course 2020