

Jianheng Liu

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I am currently a postgraduate in Harbin Institute of Technology (Shenzhen), China, supervised by **Prof. Haoyao Chen**. I obtained my bachelor degree at Harbin Institute of Technology (Shenzhen), China in 2021. My research interests lie in **Robotics and Autonomous Systems, Localization, Mapping and NeRF**.

Education

- **Harbin Institute of Technology (Shenzhen)** **Recommended exemption Graduate**
Control Science and Engineering (Master degree), 2021/09–Present
GPA: 3.27/4, Ranking: 19/31
- **Harbin Institute of Technology (Shenzhen)**
Automation (Bachelor degree), 2017/09–2021/06
GPA: 85.73/100, Ranking: 24/70

Publications

- **Towards Large-Scale Incremental Dense Mapping using Robot-centric Implicit Neural Representation**
Jianheng Liu, Haoyao Chen. **ICRA, 2024**
- **Active Implicit Object Reconstruction using Uncertainty-guided Next-Best-View Optimization**
Jianheng Liu*, Dongyu Yan*, Quanfeng Yu, Haoyao Chen, Mengmeng Fu. **RAL, 2023**
- **Adaptive trajectory tracking of UAV with a cable-suspended load using vision-inertial-based estimation**
Siqiang Wang, Haoyao Chen, Jianheng Liu, Yunhui Liu. **Automatica, 2023**
- **RGB-D Inertial Odometry for a Resource-restricted Robot in Dynamic Environments**
Jianheng Liu, XuanFu Li, Yueqian Liu, Haoyao Chen. **RA-L and IROS, 2022**
- **Sampling-Based View Planning for MAVs in Active Visual-inertial State Estimation**
Zhengyu Hua, Jiabi Sun, Fengyu Quan, Haoyao Chen, Jianheng Liu, Yunhui Liu. **IROS, 2022**
- **Vision-Inertial-based Adaptive State Estimation of Hexacopter with a Cable-Suspended Load**
Siqiang Wang, Jianheng Liu, Xin Jiang, Haoyao Chen. **RCAR, 2022**
- **Vision-encoder-based Payload State Estimation for Autonomous MAV With a Suspended Payload**
Jianheng Liu*, Yunfan Ren*, Haoyao Chen, Yunhui Liu. **IROS, 2021**

* equal contribution

Patents

- **Vision-encoder-based Suspended Payload State Estimator and Estimation Method**
CN112991443A, 2021.

Honor & Awards

- **Outstanding Graduates of 2023**
- **National Scholarships for Masters Students 2022**
- **Postgraduate Academic Scholarships** of First-class (2021-2022), First-class (2022-2023)
- **2021-2022 Excellent Student Award**
- **Undergraduate Academic Scholarships** of First-class (2019-2020), Third-class (2018-2019), Second-class (2017-2018)
- the First Price for **2020 National ROBOCON Competition**; the Second Price for **2020 National Quadrupe Simulation Competition**
- the Best Design Award for **2020 Smart C-end Technology Innovation Training Camp**
- the Second Price for **2019 National ROBOCON Competition**
- the Third Prize for **2019 National Challenge Cup**
- the Bronze Prize for **2019 Internet plus of Heilongjiang Province**
- the Golden Prize for **2019 ZuGuang Cup of Harbin Institute of Technology (Shenzhen)**
- **2018-2019 Excellent Student Leader Award** (Undergraduate Monitor)
- the Second Prize for **2018 National English Competition for College Students**
- **2017-2018 Excellent Student Award**
- the Grand Prize for **the second International Youth Drone Competition**

Intern Experiences

- **Shenzhen InnoX Academy**, Intelligent Driving Center: 2021/09–2022/04
Researches of semantic visual-lidar structure mapping and deep-learning-based visual SLAM.
- **Narwal**, Department of Perception: 2022/05–2022/07
Researches of high-resolution visual-lidar mapping and two-images overlapping scoring algorithms.
- **Tencent**, Robotics X: 2022/09–2022/12
Researches of real-time high-resolution elevation mapping for ground/legged robots' planning.

Selected Researches

- **LVI-SAM-LIVOX**: Easy-to-run LVI-SAM and its application in simulator together with motion planner.
- **SemanticLineRecon**: Semantic line reconstruction with colmap and line3d++.
- **MatRix**: An intelligent carpet developed in 2020 XBOT PARK Smart Product Innovation Boot Camp.
- **quad-controller-SE3 & FlightController**
- **BezierTrajGenerator & MinimumSnapTrajGenerator & MapManager**