

LIU Hongji

Robotics and Multiperception Lab
Cheng Kar Shun Robotics Institute
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EDUCATION

The Hong Kong University of Science and Technology, Hong Kong SAR, China

2020 - present

PhD student in Robotics & Autonomous Systems

Advisors: Prof. Ming Liu & Prof. Qifeng Chen

Sun Yat-sen University

2015 - 2019

B.Eng in Software Engineering

GPA: 3.8/5 Advisor: Prof. Hui Cheng

PUBLICATIONS

Conference Publications

2. **V2HDM-Mono: A Framework of Constructing a Marker-and-Lane Level High-definition Map Online Using One or More Monocular Cameras.**

Hongji Liu, Linwei Zheng, Xiaoyang Yan, Bohuan Xue, Zhenhua Xu and Ming Liu.

Under Review.

1. **360ST-Mapping: An Online Semantics-Guided Topological Mapping Module for Omnidirectional Visual SLAM.**

Hongji Liu, Huajian Huang, Sai-Kit Yeung and Ming Liu.

IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2022

PATENTS

1. **A robust and accurate unmanned vehicle positioning system integrating gyroscope, encoder, GNSS, visual detection and high-definition map.**

Hongji Liu, Ming Liu, Lujia Wang.

Shenzhen Unity-Drive Innovation Technology Co.,Ltd., 6/28/2022 - present.

2. **A robust positioning scheme of unmanned vehicle integrating gyroscope, encoder and GNSS.**

Hongji Liu, Ming Liu, Lujia Wang.

Shenzhen Unity-Drive Innovation Technology Co.,Ltd., 7/12/2021 - present.

3. **An efficient method of calibrating the position and heading angle of unmanned vehicle by using high-definition map and visual detection.**

Hongji Liu, Ming Liu, Lujia Wang.

Shenzhen Unity-Drive Innovation Technology Co.,Ltd., 7/12/2021 - present.

SELECTED AWARDS AND HONORS

- Baosteel outstanding student scholarship. Nov 2018
- The Seventeenth National College Student robot contest, Third prize in the south race area. May 2018
- American Mathematical Contest In Modeling, Honorable Mention. Apr 2018
- Contemporary Undergraduate Mathematical Contest In Modeling, Second prize in Guangdong Jan 2018
- Undergraduate Second-class Scholarship Nov 2017
- The fourteenth Challenge Cup, Guangdong college students' extracurricular academic and technological works competition, Second prize. Jun 2017
- The Sixteenth National College Student robot contest, Third prize in the south race area. May 2017
- American Mathematical Contest In Modeling, Honorable Mention. Apr 2017
- The twelfth Sun Yat-sen university Programming Competition, Third prize. Apr 2017
- The eighth Sun Yat-sen university Programming Novice Competition, Third prize. Dec 2016
- Undergraduate Second-class Scholarship. Dec 2016

SELECTED RESEARCH PROJECTS

R & D and test of the first driverless logistics vehicle in Hong Kong that has obtained the operation license from the transport department.

Sept 2021 - present

Advisor: Prof. Ming Liu, *The Hong Kong University of Science and Technology, Hong Kong SAR, China.*

- Establishment, maintenance, editing and modification of high-precision maps within the campus.
- Long-term test under complex road conditions such as obstacle avoidance, fixed station parking, traffic interaction, and operation according to traffic rules.

R & D of port unmanned container truck visual localization system.

Dec 2019 - Aug 2021

Advisor: Prof. Ming Liu, *Shenzhen Unity-Drive Innovation Technology Co.,Ltd. Shanghai, China, Guangzhou, China*

- Efficient and robust detection of ground markers.
- Dynamic extrinsic parameter calibration of camera.
- Development of sensor and system resource anomaly detection system.