

JUNWOON LEE

leejunwoon@robot.t.u-tokyo.ac.jp

RESEARCH INTEREST

SLAM, Mapping, Computer vision, Sensor fusion, Path planning

EDUCATION

University of Tokyo

April, 2023 - March, 2025 (expected)

M.S. Student in Human & Engineered Environmental Studies

Advisor: Prof. Atsushi Yamashita

Osaka University

April, 2017 - March, 2023

B.E. in Mechanical Engineering

Thesis: LiDAR-visual SLAM (Simultaneous Localization And Mapping) for Online Mapping of Unpaved Road Surface

Advisor: Prof. Masamitsu Kurisu

RESEARCH EXPERIENCE

Research Assistant, University of Tokyo

April, 2023 - March, 2025 (expected)

Real World Robot Informatics Lab.

In developing a novel LiDAR visual inertial SLAM system.

Research Assistant, Osaka University

April, 2022 - March, 2023

Komatsu MIRAI Construction Equipment Cooperative Research Center

Developed a unpaved road surface mapping system using a novel LiDAR-visual SLAM.

Resulted in an thesis, a journal in JFR and a patent in Japan (Pending).

PUBLICATIONS & WORKING PAPERS

Publications

[1] **J.Lee**, R.Komatsu, M.Shinozaki, T.Kitajima, H.Asama, Q.An, A.Yamashita. "Switch-SLAM: Switching-based LiDAR-Inertial-Visual SLAM for Degenerate Environments," *IEEE Robotics and Automation Letters (RA-L)*. (under review)

[2] **J.Lee**, M.Kurisu, K.Kuriyama. "Three-dimensionalized feature based LiDAR-visual SLAM for on-line mapping of unpaved road surface," *Journal of Field Robotics*. (Accept, in press)

Patents

[1] K. Adachi, M.Kurisu, **J.Lee**. "Terrain detection system and method", JP Patent 2023-105215 (Pending).

SKILLS

Research Skills

Program Languages : C++, C, Python, MATLAB

Libraries : GTSAM, Ceres Solver, OpenCV, PyTorch, Keras, Open3D, PCL

Frameworks : ROS, Github, L^AT_EX, TensorRT

Sensors : LiDAR, Camera, Thermal Camera, IMU, RTK-GNSS

Languages

Korean(native), Japanese(near-native), English(proficient)

HONORS AND AWARDS

Rotary Yoneyama Memorial Foundation Scholarship*April, 2023 - March, 2025*

A stipend of JPY 140,000(about USD 1,200) per month.

Korea-Japan Joint Government Scholarship Program*April, 2017 - March, 2023*

A stipend of JPY 120,000(about USD 1,000) per month and tuition waiver for 4 years.

WORKING EXPERIENCE

The 23rd Security Brigade, Republic of Korea Army*April, 2020 - October, 2021*

Sergeant, Coastal frontline guard (Military duty)

REFERENCES
