Donghwi Jung

Autonomous Robot Intelligence Lab.
Smart City Engineering Major, Department of Civil & Environmental Engineering
Seoul National University
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Research Interests

Robotics, SLAM, Spatial Understanding, Vision-Language Navigation, Human-Robot Collaboration

Education

Seoul National University   Sep. 2020 - Expected Feb. 2026
Ph.D. in Civil & Environmental Engineering
Advisor: Prof. Seong-Woo Kim

Seoul National University   Mar. 2008 - Feb. 2017
B.S. in Food Science & Biotechnology / B.A. in Business Administration

Publications

Donghwi Jung, Jihun Moon, Jiyang Lee, DongYeop Shin, Jungjae Lee, Jinhee Kim, Seong-Woo Kim, *"Beyond Destinations: Instruction-Aware Graph Path Planning and Navigation with OpenStreetMap,"* IEEE International Conference on Robotics and Automation, 2026. (under review)

Donghwi Jung, Keonwoo Kim, Seong-Woo Kim, *"GOTPR: General Outdoor Text-based Place Recognition Using Scene Graph Retrieval with OpenStreetMap,"* IEEE Robotics and Automation Letters, May 2025.

Chan Kim*, Keonwoo Kim*, Mintaek Oh, Hanbi Baek, Jiyang Lee, **Donghwi Jung**, Soojin Woo, Younkyung Woo, John Tucker, Roya Firoozi, Seung-Woo Seo, Mac Schwager, and Seong-Woo Kim, *"E2Map: Experience-and-Emotion Map for Self-Reflective Robot Navigation with Language Models,"* IEEE International Conference on Robotics and Automation, Atlanta, USA, May 2025.

Donghwi Jung, Andres Pulido, Jane Shin, Seong-Woo Kim, *"Point Cloud Structural Similarity-Based Underwater Sonar Loop Detection,"* IEEE Robotics and Automation Letters, March 2025.

Yoonkyu Yoo*, **Donghwi Jung***, Seong-Woo Kim, *"3D Operation of Autonomous Excavator based on Reinforcement Learning through Independent Reward for Individual Joints,"* arXiv preprint arXiv:2406.19848. (* indicates equal contribution)

Donghwi Jung, Jae-Kyung Cho, Younghwa Jung, Soohyun Shin, Seong-Woo Kim, *"LoRCoN-LO: Long-term Recurrent Convolutional Network-based LiDAR Odometry,"* International Conference on Electronics, Information, and Communication, Singapore, February 2023.

Donghwi Jung, Younghwa Jung, Woo-Sol Hur, Jae-Kyung Cho, and Seong-Woo Kim, *"Multi-Floor Mapping including the Elevator,"* Summer Annual Conference of the Institute of Electronics and Information Engineers, Jeju, Republic of Korea, June 2022.

Byeong Yeon Ryu, Won Nyoung Park, **Donghwi Jung** and Seong-Woo Kim, *"Landmark Localization for Drone Aerial Mapping Using GPS and Sparse Point Cloud for Photogrammetry Pipeline Automation,"* International Conference on Electronics, Information, and Communication, Jeju, Republic of Korea, February. 2022.

Projects

Visual-Language Outdoor Navigation Using OpenStreetMap   Apr. 2025 - Sep. 2025
Internal Laboratory Project
Role - Navigation Algorithm Implementation, Data Acquisition and Experimentation, Team Leadership

Visual-Language Indoor Navigation Using Foundation Models   Apr. 2024 - Sep. 2024
Internal Laboratory Project
Role - 2D/3D Mapping, Virtual Environment Implementation, Visual-Language Map Generation, and Localization

Development of strong autonomous intelligence for unmanned vehicles   Jan. 2022 - July 2023
R&D Project
funds from the Agency for Defense Development, Republic of Korea
Role - LiDAR Odometry Estimation

*Location estimation method in pretreatment and painting factory
using inertial sensors*   Sep. 2022 - Feb. 2023
Industrial Cooperative Project
funds from Daewoo Shipbuilding & Marine Engineering Co., Ltd
Role - Inertial Odometry Estimation

Yard 3D map creation and virtual environment establishment   Apr. 2022 - Oct. 2022
Industrial Cooperative Project
funds from Daewoo Shipbuilding & Marine Engineering Co., Ltd
Role - Data Acquisition, Virtual Environment Implementation, 3D Mapping

Development of AI-based transporter safety driving technology   Sep. 2021 - Sep. 2022
Industrial Cooperative Project
funds from Daewoo Shipbuilding & Marine Engineering Co., Ltd
Role - Data Acquisition, Mapping, and Object Detection

Academic Activities

Journal reviewer for
IEEE Robotics and Automation Letters (RA-L),
Engineering Structures - Elsevier,

Conference reviewer for
IEEE International Conference on Robotics and Automation (ICRA),

Teaching Experience

Teaching Assistant   Fall. 2021 - Spring. 2022
How to Make a Robot with Artificial Intelligence
College of Engineering, Seoul National University

Teaching Assistant   Summer. 2021 - Spring. 2022
Basic Computing: First Adventures in Computing
Faculty of Liberal Education, Seoul National University

Teaching Assistant   Spring. 2021
Basic Mathematics and Programming Practice for Machine Learning
College of Engineering, Seoul National University

Global Experience

Visiting Scholar   Jul. 2023 – Feb. 2024
Active Perception and Robot Intelligence Lab, University of Florida
Advised by Dr. Shin
Research on sonar-based underwater image super-resolution and point cloud loop detection

Exchange Student   Jul. 2013 – May. 2014
University of Singapore

Presentation

The 18th KICS Future Communication Technology Workshop   May 23, 2025
Seoul, Republic of Korea
Title – Language Understanding for Spatial Understanding: Human–Robot Communication

Awards

Best Paper Award (Bronze Prize)   Feb. 2023
International Conference on Electronics, Information, and Communication (ICEIC)
Title – LoRCoN-LO: Long-Term Recurrent Convolutional Network-Based LiDAR Odometry

Outstanding Student Paper Award   Jun. 2022
Summer Annual Conference of the Institute of Electronics and Information Engineers (IEIE)
Title – Multi-Floor Mapping including the Elevator

Work Experience

Langdy   Seoul, Republic of Korea
Foreign Language EdTech Start-Up   Jun. 2019 - Aug. 2020
Software Engineer
Developed web and mobile applications

INTAKE   Seoul, Republic of Korea
Food Tech Start-Up   Jan. 2017 - Mar. 2019
Software Engineer
Built internal IT infrastructure and managed a high-traffic e-commerce platform

ATEAM Ventures   Seoul, Republic of Korea
3D Printing Start-Up   Aug. 2015 - Jun. 2016
Manager
Planned and managed web and offline services

Skills

Programming Skills
ROS (Robot Operating Systems) 1 and 2, C++, Python, PyTorch, OpenCV, g2o, Unity

Sensors
LiDAR, Camera, IMU, GPS, Wheel Encoder

Platforms
Quadruped robot, Mobile robot, Autonomous vehicle

URLS

- Website (`https://donghwijung.github.io`)
- Github (`https://github.com/donghwijung`)
- Youtube (`https://www.youtube.com/channel/UCqU4Gn7X3WlivtAI_yRaXOw`)
- LinkedIn (`https://www.linkedin.com/in/donghwi-jung-6b9057a9/`)