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Seoul, Republic of Korea

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Sangwoo Jung

EDUCATION

Seoul National University (SNU) *Sep. 2023 - Now*
Ph.D. Candidate in Mechanical Engineering (ME)
Being advised by Dr. Ayoung Kim

Seoul National University (SNU) *Aug. 2023*
M.S. in Mechanical Engineering (ME)
Dissertation: "Radar Odometry for Quadrupedal Robot using Gravity"
Advised by Dr. Ayoung Kim

Korea Advanced Institute of Science Technology (KAIST) *Feb. 2021*
B.S. in Mechanical Engineering (ME) and Computer Science (CS)
Advised by Dr. Seong Su Kim

Hansung Science High School (HSHS) *Feb. 2016*
Early Graduation

FIELD OF INTEREST

Radar, LiDAR simultaneous localization and mapping (SLAM),
Legged Robot, Sensor Fusion, Deep Learning,
Vision-Based 3D Reconstruction

EXPERIENCE

Ph.D. Research Internship *Jan. 2026 - Jul. 2026 (Expected)*
Perception Team Ph.D. Research Internship
Robotics and AI (RAI) Institute

Undergraduate Researcher *Jul. 2020 - Aug. 2021*
Intelligent Robotic Autonomy and Perception (IRAP) Lab
Dept. of Civil and Environmental Engineering (CEE)
Korea Advanced Institute of Science Technology (KAIST)

Exchange Student *Aug. 2019 - Jan. 2020*
KTH Royal Institute of Technology

Undergraduate Researcher *Jun. 2018 - Aug. 2018*
Mobile Robotics & Intelligence Laboratory (MORIN) Lab
Dept. of Mechanical Engineering (ME)
Korea Advanced Institute of Science Technology (KAIST)

PUBLICATIONS

International Journal

- Hyesu Jang, Wooseong Yang, Hanguen Kim, Dongje Lee, Yongjin Kim, Jinbum Park, Minsoo Jeon, Jaeseong Koh, Yejin Kang, Minwoo Jung, **Sangwoo Jung**, Chng Zhen Hao, Wong Yu Hin, Chew Yihang, and Ayoung Kim, "MOANA: Multi-Radar Dataset for Maritime Odometry and Autonomous Navigation Application", in International Journal of Robotics Research (IJRR), 2024.

- **Sangwoo Jung**, Hyesu Jang, Minwoo Jung, Ayoung Kim, and Myung-Hwan Jeon, "Imaging radar and LiDAR Image Translation for 3-DOF Extrinsic Calibration", in Intelligent Service Robotics (ISR), 2024.

- Minwoo Jung, **Sangwoo Jung** and Ayoung Kim, "Asynchronous multiple lidar-inertial odometry using point-wise inter-lidar uncertainty propagation", in IEEE Robotics and Automation Letters (RA-L), 2023.

- Myung-Hwan Jeon, Jeongyun Kim, **Sangwoo Jung**, Wooseong Yang, Minwoo Jung, Jaeho Shin, and Ayoung Kim, "TRansPose: Large-Scale Multispectral Dataset for Transparent Object", in International Journal of Robotics Research (IJRR), 2023.

International Conference

- Minwoo Jung, **Sangwoo Jung**, Hyeonjae Gil, and Ayoung Kim, "HeLiOS: Heterogeneous LiDAR Place Recognition via Overlap-based Learning and Local Spherical Transformer", in IEEE International Conference on Robotics and Automation (ICRA), 2025

- Hanjun Kim, Minwoo Jung, Chiyun Noh, **Sangwoo Jung**, Hyunho Song, Wooseong Yang, Hyesu Jang, and Ayoung Kim, "HeRCULES: Heterogeneous Radar Dataset in Complex Urban Environment for Multi-session Radar SLAM", in IEEE International Conference on Robotics and Automation (ICRA), 2025

- Chiyun Noh, Wooseong Yang, Minwoo Jung, **Sangwoo Jung**, and Ayoung Kim, "GaRLIO: Gravity enhanced Radar-LiDAR-Inertial Odometry", in IEEE International Conference on Robotics and Automation (ICRA), 2025

- Sanghyun Hahn, Seunghun Oh, Minwoo Jung, Ayoung Kim, and **Sangwoo Jung**, "Quantitative 3D Map Accuracy Evaluation Hardware and Algorithm for LiDAR(-Inertial) SLAM", in International Conference on Control, Automation, and Systems (ICCAS), 2024

- **Sangwoo Jung**, Wooseong Yang, and Ayoung Kim, "Co-RaL: Complementary Radar-Leg Odometry with 4-DoF Optimization and Rolling Contact", in IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2024

- Seungsang Yun, Minwoo Jung, Jeongyun Kim, **Sangwoo Jung**, Younghun Cho, Myung-Hwan Jeon, Giseop Kim, and Ayoung Kim, "STheReO: Stereo Thermal Dataset for Research in Odometry and Mapping", in IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2022

Domestic Journal

- Chiyun Noh, **Sangwoo Jung**, Yujin Kim, Kyongsu Yi and Ayoung Kim, "Moving Object Segmentation-based Approach for Improving Car Heading Angle Estimation", in Journal of Korea Robotics Society (KROS), 2024

- **Sangwoo Jung** and Ayoung Kim, "Out Door Map Feature Point Generating Mechanism Design and Algorithm Robust to Lidar Sparsity", in Journal of Construction Automation and Robotics (JCAR), 2022

- Minwoo Jung, **Sangwoo Jung** and Ayoung Kim, "Intensity and ambient enhanced lidar-inertial slam for unstructured construction environment", in Journal of Korea Robotics Society (KROS), 2020.

- **Sangwoo Jung**, Minwoo Jung and Ayoung Kim, "Map Error Measuring Mechanism Design and Algorithm Robust to LiDAR Sparsity", in Journal of Korea Robotics Society (KROS), 2020.

Dissertations

- **Sangwoo Jung**, "Radar Odometry for Quadrupedal Robot using Gravity", Master's thesis, Seoul National University (SNU), 2023.

Other Publications

- **Sangwoo Jung** and Ayoung Kim, "Toward 6D Velocity Estimation for Legged Robot using Rolling Motion", in Work-in-Progres paper on IEEE International Conference on Ubiquitous Robots (UR), 2024.
- **Sangwoo Jung**, Hyesu Jang, Myung-Hwan Jeon and Ayoung Kim, "CycleGAN-based Imaging Radar to LiDAR Image-Translation for 2D Extrinsic Calibration", in workshop on IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2023.
- **Sangwoo Jung** and Ayoung Kim, "6D Instantaneous Velocity for Legged Robot using Rolling Motion", in Late-Breaking Results Poster on IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2022.

PRESENTATIONS

- · ISR Journal Session Invited Oral Presentation, UR 2025, Jul. 2025
- · Oral Presentation, IROS 2024, Oct. 2024
- · Work-in-Progress Paper Poster Presentation, UR 2024, Jul. 2024
- · Workshop Poster Presentation, IROS 2023, Oct. 2023
- · Poster Presentation, IROS 2022, Oct. 2022.

ACADEMIC SERVICES

Reviewer

- · IEEE Transactions on Robotics (T-RO)
- · International Journal of Robotics Research (IJRR)
- · IEEE Robotics and Automation Letters (RA-L)
- · IEEE International Conference on Robotics and Automation (ICRA)
- · IEEE International Conference on Intelligent Robots and Systems (IROS)
- · IEEE Journal of Oceanic Engineering (JOE)
- · IEEE International Conference on Ubiquitous Robots (UR)
- · IEEE Sensors Journal
- · Intelligent Service Robotics (ISR)

TEACHING ASSISTANT

(SLAM101) Sensor-Based Spatial Intelligence *Aug. 2025 - Dec. 2025*
Dept. of Mechanical Engineering (ME), Seoul National University (SNU)

(UROP) Undergraduate Research Opportunities Program *Jan. 2024 - Sep. 2024*
3D Map Accuracy Evaluation Hardware and Algorithm
Dept. of Mechanical Engineering (ME), Seoul National University (SNU)

(UROP) Undergraduate Research Opportunities Program *Jul. 2023 - Sep. 2023*
Husky LiDAR-Thermal-IMU Hardware/Software Design
Dept. of Mechanical Engineering (ME), Seoul National University (SNU)

Undergraduate Research Experience *Jul. 2022 - Feb. 2023*
SPOT LiDAR-IMU Hardware/Software Design
Dept. of Mechanical Engineering (ME), Seoul National University (SNU)

Undergraduate Graduation Project *Mar. 2022 - Dec. 2022*
On Efficient Exploitation of Contact Information for Quadruped Localization
Dept. of Mechanical Engineering (ME), Seoul National University (SNU)

LANGUAGES & SKILLS

- Korean, English

- Advanced: C/C++, Python, MATLAB, ROS, PyTorch, Ubuntu, LaTeX

- Novice: Solidworks, Java, Scala, F#, Rust, Assembly

Revised December 17, 2025