Taekbeom Lee

Ph.D. Student, Department of Aerospace Engineering, Seoul National University

Email — Website — LinkedIn — Google Scholar

Research Interesets

Robotics (navigation, exploration, SLAM)
3D Vision (3D scene understanding, 3D reconstruction)

Education

Seoul National University, Seoul, Korea — Mar. 2022 – Present
Ph.D. Student, Department of Aerospace Engineering
Advisor: Prof. H. Jin Kim

Seoul National University, Seoul, Korea — Mar. 2015 – Aug. 2021
B.S., Mechanical and Aerospace Engineering
Cum Laude
Military Service: 2 years

Publications

- **ObsGraph: Hierarchical Observation Representation for Embodied Reasoning and Exploration**
  Taekbeom Lee, Youngseok Jang, Jeonghwa Heo, Jeongjun Choi, H. Jin Kim
  under review
- **BooST: Bridging Semantics and Motions for Efficient Skill Transfer**
  Jusuk Lee, Daesol Cho, Jonghun Shin, Seungyeon Yoo, Jonghae Park, **Taekbeom Lee**, H. Jin Kim
  under review
- **HERE: Hierarchical Active Exploration for Radiance Field with Epistemic Uncertainty Minimization**
  Taekbeom Lee*, Dabin Kim*, Youngseok Jang, H. Jin Kim
  IEEE Robotics and Automation Letters (RA-L), 2026, *: Equal contribution. (to be presented at IROS 2026)
- **Category-level Neural Field for Reconstruction of Partially Observed Objects in Indoor Environment**
  Taekbeom Lee, Youngseok Jang, H. Jin Kim
  IEEE Robotics and Automation Letters (RA-L), 2024 (presented at ICRA 2025)
- **Object Remover Performance Evaluation Methods Using Classwise Object Removal Images**
  Changsuk Oh, Dongseok Shim, **Taekbeom Lee**, H. Jin Kim
  IEEE Sensors Letters, 2024
- **Object-based SLAM Utilizing Unambiguous Pose Parameters Considering General Symmetry Types**
  Taekbeom Lee*, Youngseok Jang*, H. Jin Kim
  IEEE International Conference on Robotics and Automation (ICRA), 2023, *: Equal contribution.

Projects

L3IN: Intelligent Robot Navigation with Efficient LLM Interaction, Long-Term Consistency, and Location-Specific Expertise — Dec. 2024 – Nov. 2027
Team Lead (Distillation team)
Supported by Samsung Research Funding & Incubation Center for Future Technology of Samsung Electronics

Uncertainty Quantification and OOD Detection in Road Condition Estimator — Oct. 2024 – Sep. 2025
Project Lead
Collaboration with Hyundai Motor Company

Teaching

Undergraduate Research Opportunity Program — Fall 2024
Research Assistant, Seoul National University
Advisor: Prof. H. Jin Kim

Integrated Aerospace Systems Design and Manufacturing 1 & 2 — Spring 2024
Teaching Assistant, Seoul National University

Scholarships

Brain Korea 21 (BK21) Fellowship Mar. 2023 – Jun. 2023
KRW 2.5M/month

National Science & Technology Scholarship Mar. 2017 – Dec. 2020
Full tuition coverage

Academic Service

- Reviewer, IEEE International Conference on Robotics and Automation (ICRA), 2025
- Reviewer, IEEE International Conference on Computer Vision (ICCV), 2025

Skills

Programming C/C++, Python, MATLAB
Simulators HabitatSim, AI2-THOR, CARLA, AirSim
Languages Korean (Native), English (Fluent)