Hyeonji Shin

Robotics · Perception & Localization

(+82) 10-7713-9242 | localization@gm.gist.ac.kr | hyeon-ji-shin.github.io/ | hyeon-ji-shin | shin-hyeonji

Education

GIST (Gwangju Institute of Science and Technology) **@MPIL** — Gwangju, South Korea
M.S. in Mechanical and Robotics Engineering (Adviser: Prof. Pyojin Kim) — Mar. 2025 - Current

University of Seoul — Seoul, South Korea
B.S. in Electrical and Computer Engineering — Mar. 2021 - Feb. 2025

Work Experience

Research Internship **@UOS Robotics Lab** (Adviser: Prof. Myunjoong Hwang) — Jul. 2023 - Aug. 2024
- Optimal Path Planning in Frenet Frame for Autonomous Vehicle Racing Competition (Mar. - Aug. 2024)
- LiDAR Inertial Odometry Comparison in CARLA Simulator (Mar. - May 2024)
- Implementation of 3D Simulator for Autonomous Robot Race Challenge (OSM, CARLA) (Dec. 2023 - Feb. 2024)

Teaching Experience

Teaching Assistant of (AI4600/MC4237) Robot Kinematics & Vision **@GIST** — Spring 2026
- Conducted a lab study group on feed-forward 3D vision methods (MAST3R-SLAM, VGGT-SLAM2, SLAM3R, MapAnything)
- Instructed undergraduate students on MapAnything (3DV 2026) setup and experimental workflow for PBL

Publications

International Conference

1. **"ThermalManhattan: Robust Thermal Compass under Radiometric Flatness in Manhattan World"** — Submitted
   Hyeonji Shin, Junpyo Kim, Pyojin Kim
2. **"PI-EAT-SLAM: Physics-Informed Edge-Aware Thermal Gaussian Splatting SLAM"** — IROS 2026
   Junpyo Kim, Seonwook Yeom, Seonmo Yang, Jungil Ham, Hyeonji Shin, Changhyeon Kim, Hyeonbeom Lee, Pyojin Kim
3. (Edge Track) **"SAT-SLAM: Structure-Aware Thermal SLAM Leveraging Structure Regularity of Lines"** — 3DV 2025

Domestic Conference

1. **"Local Path Planning for Dynamic Obstacle Avoidance and High Speed in Autonomous Racing"** — KROS 2025
   Seongbin Jo, Hyeonji Shin, Kyuhwan Choi, Taegyeom Lee, Kanghyeon Choi, Dongwook Moon, Myunjoong Hwang
2. **"Comparison of LiDAR-Inertial Odometry for GNSS-denied Areas in Autonomous Vehicle"** — ICROS 2024
   Hyeonji Shin, UiHun Sagong, Myunjoong Hwang

Projects

Spring 2026 — **Fine-tuning and Distillation for Campus-scale Visual Localization** — CV (AI5303) Term Proj.
Main Role — Proposal, Dataset curation, Fine-tuning of OrienterNet

Fall 2025 — **Vision-assisted Transparent-aware LiDAR Mapping** — Autonomous (AI5003) Term Proj.
Main Role — Camera-LiDAR calibration (Unitree L1 LiDAR and Realsense D435i)

Awards

Aug. 2024 — **Autonomous Driving Robot Race Competition 2024-2nd** (2nd Place) — KROS
Feb. 2024 — **2023 Winter Engineering Research Internship Presentation** (Encouragement Award) — Univ. of Seoul

Skills

Programming	C++ / C, Python, MATLAB
Frameworks	ROS2 / ROS, PyTorch, OpenCV, CARLA
Tools	Git, Docker, Linux
Languages	English (TOEIC Speaking IH), Korean (Native)