Harin Park

E-mail | Website | Github

Research Interest

3D vision & Robotics

Computer vision, Depth estimation, Sensor fusion, Event cameras

Education

Ulsan National Institute of Science and Technology, UNIST — Sep. 2022 – Aug. 2024
M.S., Artificial Intelligence Graduate School (GPA: 3.93/4.3) — *Ulsan, South Korea*
Advisor: Prof. Kyungdon Joo

Pukyung National University — Mar. 2017 – Feb. 2021
B.S., Geospatial information (GPA: 4.32/4.5) — *Busan, South Korea*

Research Experience

Graduate Research Assistant — Sep. 2022 – Present
3D Vision & Robotics Lab, UNIST — *Ulsan, South Korea*

- Depth estimation combining events and images.
- A benchmark collaborative SLAM dataset for multiple service robots.
- Depth estimation based on omnidirectional images.

Research Internship — Mar. 2022 – Aug. 2022
3D Vision & Robotics Lab, UNIST — *Ulsan, South Korea*

- Study on 3D vision and Computer vision.
- Optical flow based on event cameras.

Research Assistant — Mar. 2021 – Feb. 2022
Lab for sensor and modeling, University of Seoul — *Seoul, South Korea*

- LiDAR sensor modeling in simulation.
- Aerial Triangulation.

Publication

**Formerly known as Taeyeon Park.*

International

[1] **Harin Park**, I. Lee, M. Kim, H. Park, K. Joo, "A Benchmark Dataset for C-SLAM in Service Environments," *IEEE RA-L submitted*, (Under review)
(Workshop on Synthetic Data for Computer Vision, in conjunction with CVPR 2024)

[2] **Taeyeon Park**, J. Cheon, I. Lee, "Modeling and Simulation of Rainfall Effect of Autonomous Driving LiDAR Sensor," *GISUP* 2021

[3] J. Cheon, **Taeyeon Park**, I. Lee, "Evaluation for the validity of introducing GCP Chips in Aerial Triangulation," *ISRS* 2021

Domestic

[1] **Taeyeon Park**, G. Lee, J. Cheon, I. Lee, "Simulation of LiDAR Sensor considering Rainfall Effect," *KICS*, 2021.

Projects

Depth estimation based on omnidirectional cameras. Sep. 2023 – Present

- Develop a structure-aware monocular depth estimation model for indoor scenes.
- On-going project.

Depth estimation combining events and images. Sep. 2023 – Jun. 2024

- Develop a monocular depth estimation model via the fusion of events and images.
- Graduation project.

Collaborative SLAM (C-SLAM) benchmark dataset. Sep. 2022 – Present

- Provide C-SLAM benchmark synthetic dataset for multiple service robots.
- Funded by the IITP, South Korea.
- Accepted to CVPR Workshop 2024.
- Submitted to RA-L (Under review).

Automation of Aerial Triangulation using ground control point chips. May. 2021 – May. 2021

- Evaluating for the validity of introducing GCP Chips in Aerial Triangulation.
- Accepted to ISRS international conference.

Simulation of LiDAR Sensor considering rainfall effect. Mar. 2021 – Feb. 2022

- LiDAR sensor radiometric modeling considering rainfall effect.
- Evaluate the model accuracy through the comparison with real-world LiDAR data.
- Accepted to KICS domestic conference / GISUP international conference.

Award & Honor

Long paper honorable mention (Runner-up award), *Workshop on Synthetic Data for Computer Vision in conjunction with CVPR*, 2024.

Teaching Experience

Teaching Assistant, UNIST Sep. 2023 – Dec. 2023
Introduction to robotics course.

Teaching Assistant, University of Seoul Sep. 2021 – Dec. 2021
Photogrammetry course.

Skills

Languages: Korean (native), English (proficient)

Programming: Python, Pytorch, OpenCV, MATLAB

Tools: Docker, VS Code, Git, ROS, NVIDIA Isaac Sim

Reference

Prof. Kyungdon Joo, Professor, UNIST
Relationship: M.S. advisor
E-mail: kyungdon@unist.ac.kr