Junho Kim

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RESEARCH INTEREST

Robotics · Computer Vision · 3D Scene Understanding · Embodied AI · World Models
My long-term goal is to build **spatially grounded foundation models** that enable autonomous and embodied agents to perceive, reconstruct, reason, and act in complex 3D environments.

EDUCATION

Kookmin University, Seoul, South Korea — Mar. 2019 – Present
B.S. in Electrical Engineering with Major GPA (4.08/4.5)
Advisor: Prof. Seongwon Lee

- Spent 2-year for military service (Dec. 2020- Jul. 2022).
- Spent 1.5-year for SEA:ME & Internship at CARIAD (Jul. 2023- Dec. 2025).

SEA:ME, Wolfsburg, Germany — Jul. 2023 – Jun. 2024
Computer Science, Automotive Engineering | Outbound Program
Advisor: Prof. Jongchan Kim

- Built an in-vehicle infotainment application and real-time data pipeline for automotive sensors.

EMPLOYMENT

Kookmin University, Seoul, South Korea — Mar. 2025 – Present
Undergraduate Research Assistant
Advisor: Prof. Seongwon Lee

- Developed **VG3T**, a feed-forward multi-view Gaussian representation that uses cross-view feature correlation for 3D semantic occupancy, achieving a 1.7-point mIoU gain over GaussianFormer-2 with 46% fewer Gaussians.
- Developed **RayOcc**, a camera-only 3D occupancy method that models multi-surface ray occupancy with Gaussian mixture intensity estimation to address single-depth limitations.
- Led industry-collaborative projects on real-time perception and 3D reconstruction, including reflective vehicle reconstruction and cargo label recognition on edge devices.

CARIAD, Ingolstadt, Germany — Jul. 2024 – Dec. 2024
Sensor Fusion Research Intern
Advisor: Dr. Xavier Timoneda

- Contributed to a feed-forward neural scene representation model for dynamic driving scenes using real-world automotive sensor data.
- Implemented rolling shutter compensation to reduce motion artifacts and improve rendering quality for thin structures under fast ego-motion.

Republic of Korea Army, Gyeonggi, South Korea — Dec. 2020 – Jun. 2022
Mandatory Military Service

PUBLICATIONS

- **RayOcc: Occlusion-Agnostic Ray Occupancy Estimation via Gaussian Mixture Intensity**
  Junho Kim, Seongwon Lee†
  Under Review
- **VG3T: Visual Geometry Grounded Gaussian Transformer**
  Junho Kim, Seongwon Lee†
  International Conference on Robotics and Automation (**ICRA**), 2026, Project Page

PROJECTS

Vision-Based Cargo Label Recognition and 3D Reconstruction - Bstar Robotics 2026

- Developed an object-centric 3D reconstruction pipeline that combines vision-based cargo detection, label recognition for dynamic warehouse scenes.

High-Fidelity Vehicle Representation via 3D Gaussian Splatting - KETI 2025

- Developed a decomposable 3D Gaussian Splatting framework for reflective vehicle reconstruction, modeling diffuse and specular gaussian separately.

HONORS & AWARDS

- 32st SeAH Haiam Academic Scholarship for Student in Science and Technology (10,000 USD) 2024
- Third Place, Bosch Future Mobility Challenge 2024 (3,500 USD) 2024
- Third Place, 2023 Eclipse SDV Hackathon Challenge 2023
- First Place, 21st The World Embedded Software Contest - Humanoid Golf 2023
- Volkswagen Group Korea Scholarship for SEA:ME Program (17,000 USD) 2023

ACADEMIC SERVICES

Conference Reviewer

- International Conference on Robotics and Automation (ICRA'26)

TEACHING EXPERIENCE

Computer Vision Spring 2025
Teaching Assistant, Kookmin University

- Assisted with course materials, assignments, grading, and student questions on computer vision topics.

We-Meet Project Fall 2025
Teaching Assistant, Kookmin University

- Mentored student teams on project planning, implementation, debugging, and technical presentation.

Volunteering

Programming Mentor in educational blind spots Jan. 2023 – Feb. 2023
Korea Student Aids Foundation

Global Buddy Mar. 2023 – Jun. 2025
Kookmin University

Language

Korean(Native), **English**(Fluent), **German**(Basic)