# Junsung Park

PH.D. CANDIDATE, KAIST AI

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## Research Interests

My research focuses on Physical AI and LLMs. I have been working on autonomous driving, vision-language models (VLMs), and LiDAR perception, and I am interested in building AI systems that can understand and interact with the physical world. Recently, I am interested in unifying various tasks and embodiments on a single VLA/WAM model.

## Education

**Korea Advanced Institute of Science and Technology (KAIST)** — *Seoul, South Korea*

Ph.D. Candidate in Artificial Intelligence — *2023 – Present*

- Advisor: Prof. Hyunjung Shim

**Korea University** — *Seoul, South Korea*

B.S. in Mechanical Engineering & Artificial Intelligence — *2017 – 2023*

## Skills

**Programming** Python, PyTorch, Linux, multi-GPU distributed training

**Datasets & Simulators** nuScenes, NAVSIM, Waymo Open Dataset, CARLA

## Experience

**Qualcomm AI Research, Qualcomm Korea YH**

Research Intern — *May 2026 – Nov 2026*

- Investigate reasoning faithfulness in driving vision-language-action (VLA) models.

## Publications

** denotes equal contribution*

1. **Park, J.** and Shim, H., "Grounding Driving VLA via Inverse Kinematics," *NeurIPS*, 2026. [Paper] [Code]
2. Yu, S., Lee, S., Kim, N., Shin, J., **Park, J.**, Ryu, W., Jung, R., and Shim, H., "WaymoQA: A Multi-View Visual Question Answering Dataset for Safety-Critical Reasoning in Autonomous Driving," *EMNLP Findings*, 2026. [Paper] [Code]
3. Ryu, W., Yu, S., Moon, S., Choi, H., **Park, J.**, Kim, J., and Shim, H., "SUPER-AD: Semantic Uncertainty-aware Planning for End-to-End Robust Autonomous Driving," *Preprint*, 2025. [Paper]
4. **Park, J.** and Shim, H., "Scene, Class, Signal: Tri-Level Adaptation for Synthetic-to-Real LiDAR Segmentation," *Preprint*, 2025. [Paper]
5. Yu, S.*, **Park, J.***, Lim, Y., and Shim, H., "Robust Driving QA through Metadata-Grounded Context and Task-Specific Prompts," *IROS Workshop*, 2025. [Paper]
6. Lee, S.*, Choi, J.*, Kang, I., Kim, J., **Park, J.**, and Shim, H., "3D-Aware Vision-Language Models Fine-Tuning with Geometric Distillation," *EMNLP Findings*, 2025. [Paper] [Code]
7. **Park, J.**, Lee, H., Kang, I., and Shim, H., "No Thing, Nothing: Highlighting Safety-Critical Classes for Robust LiDAR Semantic Segmentation in Adverse Weather," *CVPR*, 2025. [Paper] [Code]
8. **Park, J.**, Kim, K., and Shim, H., "Rethinking Data Augmentation for Robust LiDAR Semantic Segmentation in Adverse Weather," *ECCV* ***Oral***, 2024. [Paper] [Code]
9. **Park, J.** and Shim, H., "Precision Matters: Precision-aware Ensemble for Weakly Supervised Semantic Segmentation," *AAAI Workshop*, 2024. [Paper] [Code]

## Projects

**IROS 2025 RoboSense Challenge, Track 1: Driving with Language [PDF]** — *2025*

- Developed a prompting method that helps VLMs understand driving scenes. Placed 4th.

**Open Manipulator Grasping Task: Vision for Robot Arm Control [Code]** — *2022*

- Undergraduate project. Vision modules for robot-arm grasping; 3D grasp position from FCN segmentation and a pinhole camera model.

**Capstone Design: Motor-Driven Screw Mechanism** [Code] [Video] *2021*

- Undergraduate capstone project. Designed a helical screw mechanism in CAD and implemented Arduino PWM motor control.

**Mobile Robot Project: ROS Programming & Motor Control** [Code] *2021*

- Undergraduate project. ROS1 programming and embedded motor control on an OpenCM board.

**Capstone Design: Stair Treads Wheels** [PDF] *2018*

- Undergraduate project. Designed stair-climbing wheels and their rotation control. Bronze Prize.

## Awards

1. **Lee Myungbak & Kim Yoonok Foundation**: Scholarship (2022 – 2023)
2. **Korea University Alumni Association**: Scholarship (2021 – 2023)
3. **Korea Univ. Innovation Center for Engineering**: Bronze Prize & Social Contribution Prize, Capstone Design Project (2018)

## Service

### Talks

- Invited Talk, AI Tutorial Series, Seoul AI Hub: “Rethinking Data Augmentation for Robust LiDAR Semantic Segmentation in Adverse Weather” (Apr 2025).
- Oral Presentation, ECCV 2024: “Rethinking Data Augmentation for Robust LiDAR Semantic Segmentation in Adverse Weather” (Sep 2024).

### Teaching Assistant

- AI 621: Computational Photography, KAIST, Spring 2026
- AI 504: Programming for AI, KAIST, Fall 2025
- AI 621: Computational Photography, KAIST, Spring 2025
- AI 503: Math for AI, KAIST, Fall 2024
- AI 611: Deep Reinforcement Learning, KAIST, Spring 2024

### Reviewer

- NeurIPS 2026 (**Top Reviewer**, Main Track)
- ICLR 2026
- AAAI 2025

### Lab Service

- Student Lab Leader, Prof. Hyunjung Shim's Lab, KAIST (Jul 2024 – May 2025).
- Research Server Administrator (sole administrator), Prof. Hyunjung Shim's Lab, KAIST (Aug 2023 – May 2025).