Seunghyun **Kim**

sghn0330@gmail.com | ksh0330.github.io | ksh0330 | sghnkim

Education

Daejeon University, College of Engineering — *Daejeon, S.Korea*

B.S. in Electronics, Information & Communications Engineering — *Mar. 2019 – Feb. 2026*

- Double Major: Next-Generation Communication Convergence, DSC Platform University
- GPA: **4.47 / 4.5** (Ranked **1st** out of 90 students)
- Military service: ROK Army (Signal Corps), Oct. 2019 – May. 2021
- Technical Skills: Python, C, OpenCV, PyTorch, Torchvision
- Selected Courseworks: Artificial Intelligence, Deep Learning & Computer Vision, Applied AI for Autonomous Driving

Publications

[1] "Classification of accident risk situations based on vehicle speed estimation through lane-specific coordinate transformation." **Seunghyun Kim**, Hanbin Kang, Jonggyu Kang, and Changseok Bae. Journal of Korean Institute of Next Generation Computing, Vol. 21, No. 1, pp. 7–27; Feb. 2025.

[2] "Real-time object detection service of drone with Electro-Optics/Infra-Red image sensors." **Seunghyun Kim**, Byungbog Lee. In Proceedings of the 2024 Fall Conference of IEMEK, pp. 300–302; Nov. 2024.

Research Experience

Image and Intelligent Information Lab, Daejeon University — *Daejeon, S. Korea*

Undergraduate Student Researcher with Prof. Changseok Bae — *Jun. 2023 – Feb. 2025*

- Proposed an **accident risk classification model** using lane-specific vehicle speed estimation, resulting in a **1st-author** journal publication [1].
- Designed and maintained a **$150K experimental testbed** (track, robotic car, communication env, server) to collect and label driving datasets.
- Achieved **98% mAP and mAR** in object detection by developing a **custom YOLOv8** model with dataset splitting and augmentation.
- Improved **accuracy by 35%** and **inference speed by 224×** over the baseline by developing an **MLP-based classifier** integrated with YOLO.
- Reduced speed estimation **error within ±5 km/h** in real-road conditions by applying lane-specific coordinate transformation and calibration.

DNA+Drone Platform Research Center, ETRI — *Daejeon, S. Korea*

Research Intern with Dr. Byungbog Lee — *Jul. 2024 – Dec. 2024*

- Achieved **0.6 s end-to-end latency** by developing a real-time **EO/IR object detection system** on a drone within a private **5G NR n79 network**.
- Applied slicing and linear-interpolation padding for **pre/post-processing**, and TensorRT optimization to **reduce inference time by 0.2 s**.
- Improved **detection accuracy by 8%** through **EO–IR image fusion**, enabling reliable performance in both day and night conditions.
- Received the **Best Paper Presentation Award** at the IEMEK Fall Conference for presenting the detection system's methodology and results [2].

Awards & Scholarships

Awards

2024	**Best Paper Presentation Award**, 2024 Fall Conference, IEMEK (Institute of Embedded Engineering of Korea)	*Jeju, S.Korea*
2024	**Grand Prize (Top 1/30+, $700)**, Capstone Design Competition, Dept. of EICE, Daejeon University	*Daejeon, S.Korea*
2024	**Grand Prize (Top 1/15+, $1,100)**, AIoT Service Design Competition, Daejeon University	*Daejeon, S.Korea*
2024	**Finalist ($300)**, Hanium ICT Project Contest, FKII (The Federation of Korean Information Industries)	*Seoul, S.Korea*
2025	**Special Award (Top 10/30+)**, 2025 DSC Platform University Corporate-Linked Open Data Startup Challenge	*Daejeon, S.Korea*
2026	**Academic Excellence Award (Top 4/285, $250)**, Chungnam National University	*Daejeon, S.Korea*

Scholarships

2019 – 2024	**Academic Excellence Scholarship (Top 1, awarded 5 times, $15,000)**, Dept. of Electronic Information and Communication Engineering, Daejeon University	*Daejeon, S.Korea*
2019 – 2024	**Academic Achievement Scholarship (Top 2, awarded 2 times, $3,000)**, Dept. of Electronic Information and Communication Engineering, Daejeon University	*Daejeon, S.Korea*
2023 – 2024	**DSC Scholarship for Innovative Talents (Awarded 4 times, $6,000)**, DSC Platform University	*Daejeon, S.Korea*

Extracurricular Activity

HuMechanic (Robotics Club of Daejeon University) — *Daejeon, S. Korea*

Technical Lead & President at 2023 — *Mar. 2022 – Feb. 2024*

- Led a 20+ member team to develop **lane detection** and path control in Python using Canny edge detection and Hough transform on live camera.
- Designed a **YOLOv4-tiny pedestrian detection model** optimized for real-time inference on low-power embedded hardware.
- Organized and delivered **image processing workshops** covering OpenCV, object detection, and real-time computer vision.

International Training Program, UNLV (University of Nevada, Las Vegas) — *Las Vegas, USA*

Participant — *Jan. 2024*

- Authored and presented a technical report **comparing camera, LiDAR, and radar sensors** for autonomous vehicle perception systems.
- Built an **SSD-MobileNet object detection model** with TensorFlow, achieving real-time inference and visualization on a webcam stream.
- Created and optimized an **LSTM-based NMT model** with TensorFlow/Keras, achieving **BLEU-1 of 0.62** and deploying it on a Raspberry Pi.