SEUNGMOK **LYOO**

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"Innovate, Experiment, and Keep Learning ."

Education

Korea University   *Seoul, S.Korea*
M.S/Ph.D candidate in Computer Science and Engineering (adviser: Prof.Junghyun Han)   *Mar.2026 - Present*

Kookmin University   *Seoul, S.Korea*
B.S. in Electronics & Information System Engineering, Double Major in Artificial Intelligence   *Mar.2020 - Feb.2026*
- Total GPA of 4.11 / 4.5, Major GPA of 4.13 / 4.5 (Credits taken: 153/136)

Internship & Research Activities

Media Lab   *Korea University*
Undergraduate Researcher   *Sep.2025 - Feb.2026*
- AI based 3D Reconstruction

AI Vision Lab   *Kookmin University*
Undergraduate Researcher   *Sep.2024 - Sep.2025*
- Conducted research on Oriented Object Detection for 2D vision applications, focusing on improving detection accuracy in aerial imagery
- Reviewed papers and implemented key models for oriented object detection, analyzing architectural differences and design choices.

Project Experience

Diffusion Bridge-Based Cloud Removal for Satellite Imagery   *Seoul, S.Korea*
Team Member   *Feb.2025 - May.2025*
- Capstone design project for graduation work for one semester
- Proposed a structure-aware fusion approach for cloud removal based on the Diffusion Bridge framework, leveraging SAR and optical inputs.
- Designed and implemented a fusion module combining Channel-Gated Spatial Cross Attention and a differential enhancement mechanism to align structural features across modalities.
- Trained and evaluated the model on the SEN12MS-CR dataset, achieving improvements in PSNR, SSIM, and SAM compared to the baseline.

Autonomous Driving Scale Car   *Seoul, S.Korea*
Team Member (Computer Vision)   *June.2024 - July.2024*
- Developed a real-time autonomous driving AI model using Jetson Nano as part of the SEA-ME Hackathon
- Designed and optimized a real-time object detection system for obstacle detection
- Implemented lane detection using OpenCV and edge-based filtering to enhance road boundary recognition

AI-powered Fire Detection & Response Vehicle   *Seoul, S.Korea*
Team Leader, Presenter   *March.2024 - May.2024*
- Capstone design project for AI & Embedded Systems Course
- Integrated speech recognition to activate the system with the command "Fire!"
- Developed and trained a YOLO-based fire detection model for real-time fire outbreak identification
- Implemented an automated emergency response system that triggered an alarm, sent alerts via Telegram, and activated a liquid fire extinguisher for suppression

Relevant Courses

Deep Learning & AI   Artificial Intelligence (A+), Machine Learning (A+), Deep Learning (A+), Capstone Design (A+), Practices in AI (A+)
Mathematics for AI   Applied Statistics (A+), Numerical Analysis (A+), Discrete Mathematics (A+)
Computer Science   Algorithms (A+), Computer Networks (A+), Database (A+), Data Structure (A0)
Programming   Python Programming (A+), Software Project (A+), C++ Programming (A0)

Honors & Awards

HONORS

2 times	**Academic Excellence Scholarship**, Awarded to students with outstanding academic performance	*Kookmin University*
3 times	**Language Excellence Scholarship**, Awarded to students with outstanding English proficiency	*Kookmin University*

Skills and Other Information

Skills	Python, C, C++
	Pytorch, Tensorflow, Keras, Numpy, Pandas, Matplotlib, OpenCV, ROS
Languages	English - Professional Working Proficiency
	2025.11 - TOEIC 880
Other Information	Served in the Army(KATUSA) from Apr.2022 to Nov.2023