



# SEUNG MOK LYOO

☎ (+82) 10-4028-9396 | ✉ david6851s@gmail.com | 🏠 velog.io/@davidlyoo | 📷 davidlyoo

"Innovate, Experiment, and Keep Learning."

## Education

### Korea University

M.S/PH.D CANDIDATE IN COMPUTER SCIENCE AND ENGINEERING (ADVISER: PROF.JUNGHYUN HAN)

Seoul, S.Korea

Mar.2026 - Present

### Kookmin University

B.S. IN ELECTRONICS & INFORMATION SYSTEM ENGINEERING, DOUBLE MAJOR IN ARTIFICIAL INTELLIGENCE

Seoul, S.Korea

Mar.2020 - Feb.2026

- Total GPA of 4.07 / 4.5, Major GPA of 4.05 / 4.5 (Credits taken: 153/136)

## Internship & Research Activities

### Media Lab

UNDERGRADUATE RESEARCHER

- AI based 3D Reconstruction

Korea University

Sep.2025 - Feb.2026

### AI Vision Lab

UNDERGRADUATE RESEARCHER

- 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.

Kookmin University

Sep.2024 - Aug.2025

## Project Experience

### Diffusion Bridge-Based Cloud Removal for Satellite Imagery

TEAM MEMBER

- 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.

Seoul, S.Korea

Feb.2025 - May.2025

### Autonomous Driving Scale Car

TEAM MEMBER (COMPUTER VISION)

- 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

Seoul, S.Korea

June.2024 - July.2024

### AI-powered Fire Detection & Response Vehicle

TEAM LEADER, PRESENTER

- 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

Seoul, S.Korea

March.2024 - May.2024

## 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

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### 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

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**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