

# Hyunwoo Lee

B.S. in Computer Science, Graduation Feb 2026

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## Education

### Korea University

B.S. in Computer Science

Sejong, KR

Mar 2020 – Feb 2026

GPA: 3.81/4.50 (Major: 4.08/4.50) | Coursework: Artificial Intelligence(AI), Machine Learning(ML), Deep Learning(DL), Computer Vision(CV), Computer Linear Algebra

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## Research Experience

### Undergraduate Researcher, Differentialable Programming Lab

Sep 2024 – Present

Advisor: Prof. Shinhoo Kang

- Conducted undergraduate research on real-time wildfire detection using YOLOv11, independently leading the project from dataset acquisition (10k images) to model evaluation.
- Fine-tuned YOLOv11 with hyperparameter optimization (learning rate, batch size, IoU thresholds) and anchor box re-clustering to enhance small-object detection.
- Evaluated performance using Precision, Recall, F1, mAP, FPS, and analyzed error trends to inform future improvements.

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## Selected Projects

### Human-factor-based Wildfire Risk Prediction (Capstone)

2025

- Collected and processed satellite imagery ( $3341 \times 1114$ ) and public wildfire incident data; generated 215k patches ( $64 \times 64$ , stride 4) for training.
- Built a CNN classifier to estimate wildfire risk probability per patch (positive/negative labeling with historical fire data).
- Integrated human features (residential density, trails, agriculture area) to improve prediction reliability.
- Produced heatmaps for high-risk zones, supporting wildfire prevention and optimized resource allocation.

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## Skills

**Languages:** Python, C/C++

**ML/CV:** PyTorch, TensorFlow, scikit-learn, OpenCV

**Systems/Tools:** Linux

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## Scholarships

- Academic Excellence Scholarship, Korea University, 2025

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## Teaching

- Mentor, Discrete Mathematics (DCCS222), Fall 2025
- Teaching Assistant, Numerical Analysis (DCCS305), Spring 2025
- Teaching Assistant, Big data Distributed Processing System (DCCS410), Fall 2024