

Youngmin LEE

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Education

Gachon University

B.S. IN ARTIFICIAL INTELLIGENCE

- GPA: 4.0 / 4.50
- Relevant Coursework: Drone and Robotics, Deep Learning, Computer Vision.

Seongnam, S.Korea

Mar. 2022 - Feb. 2028 (Expected)

Research Interests

- Primary** Robot Learning, Vision-Language-Action Models, Autonomous Navigation, Robotic Manipulation
- Methods** Deep Learning, Reinforcement Learning, Computer Vision, Multimodal Learning

Research Experience

Intelligent Robotics and Autonomous System Control Lab, Gachon University

UNDERGRADUATE RESEARCHER

Seongnam, S.Korea

Mar. 2026 - Present

- Conduct research on **mobile robot navigation and robotic manipulation** under the supervision of Prof. Andrew Jaeyong Choi.
- Developed a **failure-aware LLM-DWA replanning method** for local-minimum recovery in dynamic obstacle environments, and currently work on **robotic manipulation**.
- **Co-first author of two conference papers** presented at the IEIE 2026 Summer Annual Conference and ICCAS 2026.

Dept. of Biomedical Engineering Lab, Gachon Univ. of Medicine and Science

UNDERGRADUATE RESEARCH ASSISTANT

Seongnam, S.Korea

Sep. 2022 - Dec. 2022

- Worked on **medical image segmentation** for biomedical image analysis under the supervision of Prof. Kwang-ki Kim.
- Explored basic segmentation methods and their applications to biomedical images.

Publications & Presentations

Failure-Aware LLM-DWA Replanning for Mobile Robot Navigation

CONFERENCE PAPER · POSTER PRESENTATION

IEIE 2026 Summer Annual
Conference

Jun. 2026

- Dabin Kim, **Youngmin Lee** (co-first author), Andrew Jaeyong Choi[†].
- Developed a **failure-aware LLM-DWA framework** that detects navigation failures and selectively regenerates waypoints via LLM, enabling **local-minimum recovery** without continuous LLM inference.

Failure-Aware LLM-DWA Replanning for Mobile Robot Navigation in Dynamic Obstacle Environments

CONFERENCE PAPER · POSTER PRESENTATION

International Conference on
Control, Automation and Systems
(ICCAS 2026)

Oct. 2026

- Dabin Kim, **Youngmin Lee** (co-first author), Jeonghee Seo, Andrew Jaeyong Choi[†].
- Extended the framework to **dynamic, maze-like environments**, introducing **failure-triggered replanning** to improve navigation robustness and recover from local minima.

Project Experiences

Prebot: Cafe robot manipulation

TEAM LEADER / ROBOT PART / VLA PART

Gachon Univ. P-Career Catch

Sep. 2026 - Dec. 2026

- Developed a **VLA-based pick-and-place system** for order preparation in **unstructured cafe environments**.
- Implemented **OMX pick-and-place control** using **imitation learning** and **reinforcement learning**.
- Integrated **SmolVLA with an LLM** for **language-guided robot manipulation**.

QR-Based Safety Guidance System for Transportation-Vulnerable Users

AI PART TEAM MEMBER

TS × KT Digital Talent Scholars
Social Problem-Solving Project

Apr. 2026 - Aug. 2026

- Developed two **LightGBM models**: a binary classifier for standing detection and a regression model for standing-duration prediction.
- Evaluated the models across **11 monthly test windows**, achieving a mean AUC of **0.9175** and an MAE of **157.2 seconds**.
- Reduced LightGBM training time by **55%** through temporal subsampling while retaining **99.8%** of full-data AUC.

Active AI Pet-Sitter Robot Service

AI Rookie Competition

TEAM MEMBER

Jul. 2026 - Sep. 2026

- Developed an **AI pet-sitter robot service** that detects a pet’s risky intent before dangerous behavior occurs and allows the robot to intervene in advance.
- Worked on **VLA inference** and generated **robot control commands** from the model outputs.
- Advanced to the **main round** of the **AI Rookie Competition**.

Video-Based Automated Running Record Measurement System

2024 Military–Academic AI

Education Program

DEVELOPER

Jun. 2024 - Nov. 2024

- Developed a **video-based system for automated running record measurement** during military physical fitness tests.
- Used object detection and video analysis to identify participants and automate the recording process.

MilitaryForU: Personalized Military Specialty Recommendation

2024 Defense Public Data Utilization

Competition

TEAM LEADER & DEVELOPER

Apr. 2024 - Jun. 2024

- Developed **Random Forest and XGBoost models** for military occupational specialty recommendation using defense public data.
- Led the team as **project manager**, handling project planning, task coordination, and development

Honors & Awards

HONORS

- 2026-2027 **KT Digital Talent Scholar**, KT — Full Scholarship, selected as an AI/ICT talent scholar
- Dec. 2022 **Academic Excellence Scholar**, Gachon Univ. — Awarded for Academic excellence
- Nov. 2022 **Dalseo HRD Foundation Scholar**, Dalseo Human Resources Development Foundation — Awarded for Academic excellence
- Sep. 2022 **SW Academic Excellence Scholarship**, Gachon Univ. — Awarded for excellence in SW academics & activities

AWARDS

- Dec. 2024 **Excellence Award**, 2024 Military–Academic AI Education Program (IITP President’s Award)
- Nov. 2024 **Silver Award**, 2024 AI Application Competition, ROK Defense Communication Command (Commander of ROK-DCC Award)
- Jul. 2024 **Top Excellence Award**, 2024 Defense Public Data Utilization Competition (Commissioner of Military Manpower Administration Award)
- Oct. 2023 **Grand Prize**, 2023 University Student Legal Units Supporters Program (Minister of Trade, Industry and Energy Award)

Extracurricular Activities

A.ing, AI Academic Society, Gachon University

Seongnam, S.Korea

VICE PRESIDENT (AGU. 2026 - PRESENT) / HEAD OF OPERATIONS (SEP. 2025 - JUL. 2026)

Sep. 2025 - Present

- Led club operations, organized academic activities and events, and coordinated communication among members.

Teaching Assistant

Seongnam, S.Korea

UNDERGRADUATE AI COURSES, GACHON UNIVERSITY

Sep. 2025 - Jun. 2026

- Supported undergraduate courses including **AI and Data Science**, **AI Programming and Its Applications**, and **Introduction to AI Programming**.

Certifications

- May. 2026 **Getting Started with Deep Learning**, NVIDIA
- Oct. 2023 **SQLD**, Kdata

Languages

- Korean** Native
- English** TOEIC Speaking IM2