TAEWOOK KANG

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RESEARCH INTERESTS

- Embodied AI, Open-ended Generalist Agents, Robotics

EDUCATION

Seoul National University Seoul, Republic of Korea
M.S. Student in Artificial Intelligence *Sep 2025 – Present*

Hanyang University Seoul, Republic of Korea
B.S. in Computer Science, Summa Cum Laude (GPA: 4.3 / 4.5) *Mar 2021 – Aug 2025*

PUBLICATIONS

Journals

- [J1] **Taewook Kang**, Bum-Jae You, Juyoun Park, and Yisoo Lee. "A real-time anomaly detection method for robots based on a flexible and sparse latent space." *Engineering Applications of Artificial Intelligence*. 2025. [paper]

Conferences

- [C1] **Taewook Kang***, Youjung Bae*, Jiwon Sung*, and Eun-sol Kim. "A Frame Sampling Method for Efficient Video-based Embodied Question Answering." *Korea Software Congress*. 2024. (* indicates equal contribution) [paper]

RESEARCH EXPERIENCE AND PROJECTS

SNU Machine Perception and Reasoning Lab, Seoul National University Seoul, Republic of Korea
Research Assistant (Advisor: Prof. Jonghyun Choi) *May 2025 – Present*

- Investigating generalization capabilities of vision–language–action models.

Machine Learning and Mind Lab, KAIST Daejeon, Republic of Korea
Undergraduate Researcher (Advisor: Prof. Sungjin Ahn) *Jan 2025 – May 2025*

- Developed an RLHF-based multimodal LLM fine-tuning framework to build a human-aligned video-caption dataset.
- Implemented a caption-paraphrasing module using open-source LLMs to increase caption diversity.
- Built a video–caption dataset to train a video CLIP model for embodied video game agents.

Machine Learning Lab, Hanyang University Seoul, Republic of Korea
Undergraduate Researcher (Advisor: Prof. Eun-sol Kim) *Sep 2024 – Nov 2024*

- Improved a multimodal LLM-based embodied question answering agent by efficiently retrieving question-relevant video segments, achieving a 16% accuracy improvement over prior methods. [C1]

Advanced Robot Control Lab, Korea Institute of Science and Technology Seoul, Republic of Korea
Undergraduate Researcher (Advisor: Dr. Yisoo Lee) *Sep 2023 – Jun 2024*

- Developed a real-time anomaly detection model for robotic operations using deep generative models, achieving up to 9.75% higher AUROC than prior methods. [J1]
- Deployed the anomaly detection model on a robotic platform for on-device inference.

- Designed and implemented control systems for last-mile delivery robots with mobile manipulators.

AWARDS AND HONORS

- Academic Excellence Award, Hanyang University — *Awarded every semester of study*
- Scholarship for co-op semester, Hanyang University — *Fall 2023, Spring 2024*
- Merit Based Scholarship, Hanyang University — *Fall 2021, Spring 2023, Spring 2025*
- Career Based Scholarship, Hanyang University — *Spring 2021 – Fall 2022*

ADDITIONAL PROJECTS

Undergraduate Capstone Project, Hanyang University — Seoul, Republic of Korea

Team Leader (Advisor: Prof. Eun-sol Kim) — *Mar 2024 – Oct 2024*

- Joined the advisor's lab during the project to expand and deepen the research.

TEACHING AND TUTORING

Math Tutoring — Seoul, Republic of Korea

Teaching Assistant — *Jul 2024 – Dec 2024*

- Led weekly math tutoring sessions for high school students.

Community Service — Seoul, Republic of Korea

Volunteer Teacher — *Mar 2022 – May 2022*

- Tutored middle school students in math and science at a local community center.

ALOHA (Algorithm club at Hanyang University) — Seoul, Republic of Korea

Beginner Class Tutor — *Mar 2022 – Jun 2022*

- Conducted weekly sessions for freshman students on programming fundamentals, algorithms, and problem-solving techniques.

SKILLS

- **Programming**: Python, C/C++, Java
- **Libraries & Frameworks**: PyTorch, IsaacLab, Robot Operating System (ROS)
- **Tools**: Git, LaTeX, SQL
- **Languages**: Korean (native), English (TOEFL iBT 100, May 2024)