

Research Interests

My research began with **grounding vision-language models in what they actually see**, and now extends to **efficient and physically realizable planning with world models for embodied AI**.

Education

POSTECH(Pohang University of Science and Technology)

M.S. in Computer Science and Engineering

- Supervised by Prof. Suha Kwak in the Computer Vision Lab

Pohang, S.Korea

Feb. 2025 - Present

University of Seoul

B.S. in Artificial Intelligence

- Total GPA of 4.09 / 4.5 (**Cum Laude**)

Seoul, S.Korea

Mar. 2021 - Feb. 2025

Johannes Gutenberg University Mainz

Exchange Student Major in Computer Science

- Studied Trustworthy AI

Mainz, Germany

Sep. 2023 - Feb. 2024

Publication

ACID: Action Consistency via Inverse Dynamics for Planning with World Models

[PDF] [Project Page]

Gawon Seo, Dongwon Kim, Suha Kwak

arXiv preprint

- Proposed a decision-time planning framework that enhances the realizability and computational efficiency of action-conditioned world models by introducing Inverse Dynamics-based cycle action consistency.

Planning in 8 Tokens: A Compact Discrete Tokenizer for Latent World Model

[PDF] [Project Page]

Dongwon Kim, Gawon Seo, Jinsung Lee, Minsu Cho, Suha Kwak

IEEE/CVF Conference on Computer Vision and Pattern Recognition(CVPR) 2026

- Compressed each visual observation into just 8 discrete tokens and build a latent world model on top, achieving 40x faster planning with competitive accuracy for real-time robotic control.

Planning in 16 Tokens: A Compact Discrete Tokenizer for Latent World Model

Dongwon Kim, Jinsung Lee, Gawon Seo, Minsu Cho, Suha Kwak

The Conference on Robot Learning Workshop (CoRLW) - Learning to Simulate Robot Worlds, 2025

Enhancing Visual Classification using Comparative Descriptors

[PDF]

Hankyeol Lee, Gawon Seo, Wonseok Choi, Geunyoung Jung, Kyungwoo Song, Jiyoung Jung

IEEE/CVF Winter Conference on Applications of Computer Vision(WACV) 2025

- Proposed Comparative Descriptors for VLMs to enhance image classification by emphasizing subtle differences between visually similar classes.

Generating Accurate and Detailed Captions for High-Resolution Images

[PDF]

Hankyeol Lee, Gawon Seo, Kyounggyu Lee, Dogun Kim, Kyungwoo Song, Jiyoung Jung

arXiv preprint

- Enhanced VLM captioning accuracy via LLM-based object verification and region-specific refinement.

Experience

Computer Vision Lab, POSTECH

[Lab homepage]

Research and Teaching Assistant

Feb. 2025 - Present

- Advisor: Prof. Suha Kwak
- Working on efficient and realizable planning with World Models for embodied AI.
- Collected teleoperated manipulation demonstrations and deployed learned policies on an AgileX PiPER 6-DoF arm.
- Publications: ACID (arXiv preprint), CompACT (CVPR 2026)

Robotics and Computer Vision Lab, University of Seoul

[Lab homepage]

Undergraduate Researcher

Apr. 2024 - Jan. 2025

- Advisor: Prof. Jiyoung Jung
- Worked on grounding Vision-Language Models in what they actually see.
- Publications: Comparative Descriptors (WACV 2025), High-Resolution Image Captioning (arXiv preprint)

Power Bank Rental Service One Eleven

AI Developer

Seoul, S.Korea

Jun. 2023 - Jul. 2023

- Developed a recommendation system to prioritize store locations to install power bank rental machines, analyzing commercial and GIS data.

Geo DataBase Lab

Undergraduate Researcher

University of Seoul

Jul. 2022 - Feb. 2023

- Advisor : Prof. Chulmin Jeon
- Participated in the research "A Model for Evaluating Good Two-Wheeler Drivers Using AHP Analysis Technique."

Teaching Experience

- CSED537/AIGS537, Artificial Intelligence & Data Science (Spring 2026)

Awards & Honors

2025.02	CUM LAUDE , Awarded the CUM LAUDE for excellent academic records
2024.11	AICOSS President's Award , Real-time gaze tracking for Barrier-free kiosk, 2024 CO-SHOW AIM Challenge
2024.09	2nd Place in 2D Semantic Segmentation , 2024 Autonomous Driving AI Algorithm Development Challenge
2023.01-2024.12	Dongyang E&P Honors , Awarded to Engineering students with high achievements
2023.02	AICOSS President's Award , AICOSS Industry-University Linkage Deep Learning Competition
2022.03	Academic Awards , Awarded to students with high achievements throughout the semester
2021.09-2022.6	Semester High Honors , Awarded to students with high achievements throughout the semester

Extracurricular Activity

Inter-university IT association TAVE

Deep Learning Team Member and Presenter

Seoul, S.Korea

March. 2023 - Jul. 2023

- Learned Computer Vision theory of classical and deep learning methods and implementation.
- Participated in the court decision prediction AI team competition and presented the project.

English Speech Club

Member

Seoul, S.Korea

March. 2023 - Jul. 2023

- Participated in regular gatherings with international students at the University of Seoul to discuss diverse topics.

App Development Team UOSLIFE

Backend Developer

Seoul, S.Korea

March. 2022 - Dec. 2022

- Built foundational knowledge in backend, database, and algorithms through technical studies to support the operation of a University Of Seoul community app 'UOSLIFE' providing essential student services.
- Developed comprehensive communication skills by participating in both internal developer meetings and cross-functional alignment sessions with product planning and design teams.

References

Prof. Suha Kwak, Associate Professor

Academic Advisor

POSTECH

- Email: suha.kwak@postech.ac.kr
- Homepage: <https://suhakwak.github.io>

Prof. Jiyoung Jung, Associate Professor

Academic Advisor

University of Seoul

- Email: jyjung@uos.ac.kr
- Homepage: <https://sites.google.com/view/rcvuos/home?authuser=0>