



Joowon Kim

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EDUCATION

- **KAIST, Korea Advanced Institute of Science and Technology** Sep.2025 - Present
Ph.D. in Artificial Intelligence (Advisor: Prof. Eunho Yang) Seoul, South Korea
- **KAIST, Korea Advanced Institute of Science and Technology** Sep.2023 - Aug.2025
M.S. in Artificial Intelligence (Advisor: Prof. Eunho Yang) Seoul, South Korea
- **KAIST, Korea Advanced Institute of Science and Technology** Mar.2018 - Aug.2023
B.S. in School of Computing [GPA: 3.81/4.3] Daejeon, South Korea
- **Gyeonggibuk Science High School** Mar.2016 - Jan.2018

RESEARCH INTERESTS

My research interests lie in **multimodal learning**, with a particular focus on **generative models** and **vision-language models (VLMs)**. Throughout my work, I favor training-free methods that improve both the performance and the **inference-time efficiency** of existing models, for instance by **routing** computation only to where it is needed or by **ensembling** complementary models. My earlier work developed test-time scaling methods for diffusion and visual auto-regressive models. I then moved to **video reasoning**, using **video generation models** as world simulators that let VLMs reason about how a scene unfolds.

More broadly, I am interested in how models **represent and simulate the visual world**. Recently, I have focused on **vision tokenizers**, the representation every multimodal model builds on, and on resolving their limitations at the pretraining stage. Looking ahead, I aim to move from representing the world to predicting and acting in it, through **world models** and **world action models** for **physical AI**.

PUBLICATIONS

Published

*: equal contributions

- [1] **J. Kim***, S. Shin*, E. Yang, and J. Park, *CollabVR: Collaborative Video Reasoning with Vision-Language and Video Generation Models*, in Advances in Neural Information Processing Systems. (NeurIPS), 2026. [paper] [project]
- [2] **J. Kim***, Z. Lee*, D. Cho, S. Jo, Y. Jung, K. Kim, and E. Yang, *Early Timestep Zero-Shot Candidate Selection for Instruction-Guided Image Editing*, in The IEEE/CVF International Conference on Computer Vision. (ICCV), 2025. [paper] [code] [project]
- [3] J. Park*, H. Jang*, **J. Kim**, and E. Yang, *Progress by Pieces: Test-Time Scaling for Autoregressive Image Generation*, in The IEEE/CVF Conference on Computer Vision and Pattern Recognition. (CVPR), 2026. [paper] [project]
- [4] Y. Kim*, S. Ryu*, Y. Jung, H. Lee, **J. Kim**, J. Yang, J. Hwang, and E. Yang, *Preserve or Modify? Context-Aware Evaluation for Balancing Preservation and Modification in Text-Guided Image Editing*, in The IEEE/CVF Conference on Computer Vision and Pattern Recognition. (CVPR), 2025. [paper] [project]
- [5] J. Yang*, G. Park*, **J. Kim**, H. Jang, and E. Yang, *Language-interfaced tabular oversampling via progressive imputation and self-authentication*, in The Twelfth International Conference on Learning Representations. (ICLR), 2024. [paper]
- [6] H. Ryu, D. Jang, H. S. Lee, J. Jeong, G. Kim, D. Cho, G. Chu, M. Hwang, H. Jang, C. Kim, H. Kim, J. Kim, J. Kim, Y. Kim, K. Lee, C. Park, H. Yun, G. Betz, and E. Yang, *ReviewScore: Misinformed Peer Review Detection with Large Language Models*, in Conference on Empirical Methods in Natural Language Processing (EMNLP), 2026 (findings). [paper]
- [7] H. Jeong, Y. Lee*, **J. Kim***, Y. Ko, J. Jo, H. Lee, K. Kim, J. Park, S. Bang, S. Park, S. Song, and M. Chung, *Prediction model for the early detection of cachexia in patients with pancreatic adenocarcinoma*, in Gastroenterology 162 (7): S-705, Digestive Disease Week (DDW) abstract Mo1118, 2022.

Submitted

- [8] D. Cho*, J. Kim*, S. Shin, and E. Yang, *Look Only When Needed: Certificate-Guided Visual Routing for Efficient Diffusion VLMs*, under review, 2026.
- [9] H. Yun, J. Park, J. Kim, and E. Yang, *Who Should Lead Decoding Now? Tracking Reliable Trajectories for Ensembling Masked Diffusion Language Models*, preprint, 2026. [paper]

EXPERIENCE

- **NAVER Cloud** Jul. 2026 - Present
Research Intern @ Omni Foundation Model team
 - Research on vision tokenizer pretraining for omni foundation models
 - Research on real-time (full-duplex) video understanding models
- **NAVER Cloud** Sep. 2024 - Mar. 2025
Intern @ Image Vision team
 - Supervised fine-tuning of a text-to-image (T2I) generation-based background inpainting model for advertising applications
 - Enhanced performance optimization and evaluation metric development for the background inpainting model
 - Expanded the work to fine-tune and scale SD 3.0 and DiT-based models
- **Machine Learning & Intelligence Lab (MLILAB)** Jul. 2022 - Aug. 2023
Research Intern
 - Research about multi-source warping-based talking-head video-to-video generation model
 - Research about counterfactual explanation of error cases with diffusion model
 - Participated in weekly paper study
- **AITRICS** Dec. 2020 - Aug. 2021
Research Intern
 - Research about prediction model for the early detection of cachexia
 - Predicting counterfactual trajectory according to intervention in time-series clinical data, and predicting the optimal intervention timing and amount in terms of causal interference
 - Data preprocessing, data analysis, model construction, machine learning/deep learning
- **SK Hynix** Jul. 2020 - Aug. 2020
Intern @ Solution SW – Mobile PV team
 - Memory(device) operation characteristics analysis project

ACADEMIC SERVICES

- **Conference Reviewer:** ICLR 2027 2026

SKILLS

- **Languages:** English, Korean
- **Programming Languages:** Python (PyTorch Libraries), C/C++, JavaScript, R, MATLAB, $\text{\LaTeX}$
- **Developer Tools:** CUDA, Bash

EXTRA ACTIVITIES

- **Leading an ML/DL Paper Read Study** 2021
- **CS101(Introduction of Programming) TA(Teaching Assistant)** 2020 - 2023
- **CS101(Introduction of Programming) Freshman Tutoring Program Tutor** 2019 - 2020
- **KAIST Ungraduated Student Council (Executives - 2020)** 2018 - 2022
- **KAIST School of Computing Student Council (Executives - 2020)** 2019 - 2020
- **KAIST Acapella Club, Baobab (President - 2020)** 2019 - 2020
- **KAIST Freshman Orientation Creator** 2018 - 2019