

# Dongyoung Kim

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## EDUCATION

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### KAIST (Korea Advanced Institute of Science and Technology)

*Ph.D. in Artificial Intelligence*

Advisor: Prof. Jinwoo Shin

Sep 2024 – Present

*Daejeon, South Korea*

### KAIST (Korea Advanced Institute of Science and Technology)

*B.S. in Computer Science (School of Computing)*

Advisor: Prof. Sung-Eui Yoon

Mar 2020 – Aug 2024

*Daejeon, South Korea*

## RESEARCH INTERESTS

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My goal is to build generally intelligent robots that can understand the real world and adapt to diverse situations. To achieve this, my research focuses on Vision-Language-Action (VLA) models, specifically on enhancing their world understanding and strengthening embodied reasoning. To this end, I have conducted research on aligning VLMs and LLMs through reinforcement learning, improving the spatiotemporal understanding of vision models, and optimizing policies with RL.

**Keywords:** VLA, LLM, VLM, RL, Robotics

## PUBLICATIONS (\* denotes equal contribution)

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### [C6] Robot-R1: Reinforcement Learning for Enhanced Embodied Reasoning in Robotics

**Dongyoung Kim**, Sumin Park, Huiwon Jang, Jinwoo Shin, Jaehyung Kim\*, Younggyo Seo\*  
*Neural Information Processing Systems (NeurIPS)*, 2025

### [C5] Debiasing Online Preference Learning via Preference Feature Preservation

**Dongyoung Kim**, Jinsung Yoon, Jinwoo Shin, Jaehyung Kim  
*Annual Meeting of the Association for Computational Linguistics (ACL)*, 2025 (Findings)

### [C4] Spread Preference Annotation: Direct Preference Judgment for Efficient LLM Alignment

**Dongyoung Kim**, Kimin Lee, Jinwoo Shin, Jaehyung Kim  
*International Conference on Learning Representations (ICLR)*, 2025  
**Oral Presentation (207/11672=1.77%)**

### [C3] Learning to Correct for QA Reasoning with Black-box LLMs

Jaehyung Kim, **Dongyoung Kim**, Yiming Yang  
*Conference on Empirical Methods in Natural Language Processing (EMNLP)*, 2024 (Main)

### [C2] Visual Representation Learning with Stochastic Frame Prediction

Huiwon Jang, **Dongyoung Kim**, Junsu Kim, Jinwoo Shin, Pieter Abbeel, Younggyo Seo  
*International Conference on Machine Learning (ICML)*, 2024

### [C1] Accelerating Reinforcement Learning with Value-Conditional State Entropy Exploration

**Dongyoung Kim**, Jinwoo Shin, Pieter Abbeel, Younggyo Seo  
*Neural Information Processing Systems (NeurIPS)*, 2023

### [W1] Training-free LLM Verification via Recycling Few-shot Examples

Dongseok Lee, Jimyung Hong, **Dongyoung Kim**, Jaehyung Kim  
*International Conference on Machine Learning (ICML) Workshop ES-FoMo-III*, 2025

- [P7] RoboAlign: Reinforcement Learning for Action-Aligned Multimodal Large Language Models  
**Dongyoung Kim**, Sumin Park, Woomin Song, Seungku Kim, Taeyoung Kim, [Huiwon Jang](#), [Jaehyung Kim](#), [Younggyo Seo](#), [Jinwoo Shin](#)  
Preprint, 2025
- [P6] INFUSER: Injecting Synthetic Failures for Self-Correcting Embodied Agents  
Byungjun Yoon, **Dongyoung Kim**, Jaehyun Nam, Wook Jung, [Jinwoo Shin](#)  
Preprint, 2025
- [P5] Contrastive Representation Regularization for Vision-Language-Action Models  
Taeyoung Kim, Jimin Lee, Myungkyu Koo, **Dongyoung Kim**, Kyungmin Lee, Changyeon Kim, [Younggyo Seo](#), [Jinwoo Shin](#)  
Preprint, 2025
- [P4] Dual-Stream Diffusion for World-Model Augmented Vision-Language-Action Model  
John Won, Kyungmin Lee, [Huiwon Jang](#), **Dongyoung Kim**, [Jinwoo Shin](#)  
Preprint, 2025
- [P3] Verifier-free Test-Time Sampling for Vision Language Action Models  
Suhyeok Jang, **Dongyoung Kim**, Changyeon Kim, Youngsuk Kim, [Jinwoo Shin](#)  
Preprint, 2025
- [P2] Collaborative LLM Inference via Planning for Efficient Reasoning  
Byeongchan Lee, Jonghoon Lee, **Dongyoung Kim**, [Jaehyung Kim](#), [Jinwoo Shin](#)  
Preprint, 2025
- [P1] SpatialBoost: Enhancing Visual Representation through Language-Guided Reasoning  
Byoungwoooo Jeon\*, **Dongyoung Kim**\*, [Huiwon Jang](#), [Jinwoo Shin](#)  
Preprint, 2025

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## HONORS AND AWARDS

- Recipient, Google Conference Scholarships (APAC), May 2025
- Travel Award, Conference on Neural Information Processing Systems (NeurIPS), 2023
- Recipient, KAIST Presidential Fellowship, 2020 – 2024

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## WORK EXPERIENCE

**RLWRLD Inc.**

June 2025 – Present

Seoul, South Korea  
Research Intern (*Advisor: Jinwoo Shin*)

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## SERVICES

**Reviewer**

- NeurIPS
- ICLR