

# Donghu Kim

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## Research Interest

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### Efficient Reinforcement Learning

- Making RL work with as little samples and/or compute as possible.
- Related: [Simba](#), [SimbaV2](#), [AtariPB](#)

### Plasticity

- Maintaining plasticity (the ability to train) when the data distribution is constantly shifting/expanding.
- Related: [Dynamic MoE](#), [Catastrophic Interference](#), [Hare&Tortoise](#)

## Education

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### KAIST

M.S. Student in AI (GPA: 3.8/4.3, Advisor: Jaegul Choo)

Seongnam, Korea  
Mar. 2024 - Present

### Korea University

B.S. in Computer Science (Major GPA: 4.5/4.5, Cumulative GPA: 4.2/4.5)

Seoul, Korea  
Mar. 2018 - Feb. 2024

## Work Experience

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### Krafton AI

Research Intern @ Physical Intelligence Team

Seoul, Korea  
Jun. 2025 - Sep. 2025

- Developed locomotion RL policy for Unitree G1 robots to navigate company environment.

## Publications & Preprints

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### SimbaV2: Hyperspherical Normalization for Scalable Deep Reinforcement Learning

Hojoon Lee\*, Youngdo Lee\*, Takuma Seno, **Donghu Kim**, Peter Stone, Jaegul Choo

ICML'25  
**Spotlight**

- [arXiv](#) / [project page](#) / [code](#)

### SimBa: Simplicity Bias for Scaling Up Parameters in Deep Reinforcement Learning

Hojoon Lee\*, Dongyoon Hwang\*, **Donghu Kim**, ... , Jaegul Choo, Peter Stone, Takuma Seno

ICLR'25  
**Spotlight**

- [arXiv](#) / [project page](#) / [code](#)

### ATARI-PB: Investigating Pre-Training Objectives for Generalization in Pixel-Based RL

**Donghu Kim**\*, Hojoon Lee\*, Kyungmin Lee\*, Dongyoon Hwang, Jaegul Choo

ICML'24  
Poster

- [arXiv](#) / [project page](#) / [code](#)

### Do's and Don'ts: Learning Desirable Skills with Instruction Videos

Hyunseung Kim, Byungkun Lee, Hojoon Lee, Dongyoon Hwang, **Donghu Kim**, Jaegul Choo

NeurIPS'24  
Poster

- [arXiv](#) / [project page](#)

### Slow and Steady Wins the Race: Maintaining Plasticity with Hare and Tortoise Networks

Hojoon Lee, Hyeonseo Cho, Hyunseung Kim, **Donghu Kim**, Dugki Min, Jaegul Choo, Clare Lyle

ICML'24  
Poster

- [arXiv](#) / [code](#)

## Projects

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### Dynamic Mixture-of-Experts

2025

- Explored dynamically adding new experts to Mixture-of-Experts layers to maintain plasticity in environments with severe distribution shifts (e.g., Craftax).
- [report](#) / [slides](#)

<b>KAN RL</b>		2024
<ul style="list-style-type: none"> <li>Implemented Kolmogorov-Arnold Network in sequential Atari environments and investigated its relevance to catastrophic forgetting and plasticity.</li> <li>report (Colab)</li> </ul>		
<b>RL Basic Tutorial</b>		2024
<ul style="list-style-type: none"> <li>Developed and delivered a series of three lectures on reinforcement learning for a government-funded bootcamp program in Korea.</li> <li>page / material1 (Korean) / material2 (Korean)</li> </ul>		
<b>Character-level BERT</b>		2022
<ul style="list-style-type: none"> <li>Proposed a character-level tokenizer for BERT to enhance robustness against character-level attacks common in spam emails.</li> <li>report / code</li> </ul>		

### Honors & Awards

<b>Korea University</b>	Academic Excellence Award	2019, 2022
<b>NCsoft AI Fellowship</b>	Starcraft AI Competition Silver Prize (\$2000)	2019
<b>Korea Student Aid Foundation</b>	Presidential Science Scholarship (Total \$40000)	2018