

# SEUNGPIIL LEE

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## Personal Statement

Passionate master's student studying artificial intelligence. Interested in Brain-Inspired AI, Natural Language Processing and Reinforcement Learning. Also, maintaining keen interest in interdisciplinary subjects such as Cognitive Science and Science, Technology and Society (STS).

## EDUCATION

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<b>Gwangju Institute of Science and Technology (GIST)</b> Master's Program, Major in AI Convergence	<i>March 2025 – present</i>
<b>Gwangju Institute of Science and Technology (GIST)</b> B.S. in Electrical Engineering and Computer Science Minor in Mathematics, Minor in Literature	<i>March 2018 – December 2024</i> GPA: 3.66/4.50
<b>UC Berkeley</b> Berkeley Summer Session Program	<i>June 2019 – August 2019</i> GPA: 4.00/4.00

## PUBLICATIONS

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### Preprints

- **Seungpil Lee**, Donghyeon Shin, Yunjeong Lee, and Sundong Kim. “Can Large Language Models Develop Gambling Addiction?” *arXiv preprint*, 2025.

### Journal Articles

- **Seungpil Lee\***, Woochang Sim\*, Donghyeon Shin\*, Sanha Hwang, Wongyu Seo, Jiwon Park, Seokki Lee, Sejin Kim, and Sundong Kim. “Reasoning Abilities of Large Language Models: In-Depth Analysis on the Abstraction and Reasoning Corpus.” *ACM Transactions on Intelligent Systems and Technology (ACM TIST)*, 2024.
- Sanha Hwang, **Seungpil Lee**, Sejin Kim, and Sundong Kim. “Solution Augmentation for ARC-AGI Problems Using GFlowNet: A Probabilistic Exploration Approach.” *Transactions on Machine Learning Research (TMLR)*, 2025.

### Conference Papers

- **Seungpil Lee\***, Donghyeon Shin\*, Klea Lena Kovacec, and Sundong Kim. “From Generation to Selection: Findings of Converting Analogical Problem-Solving into Multiple-Choice Questions.” *Findings of EMNLP (EMNLP Findings)*, 2024.
- Hosung Lee\*, Sejin Kim\*, **Seungpil Lee**, Sanha Hwang, Jihwan Lee, Byung-Jun Lee, and Sundong Kim. “ARCLE: The Abstract and Reasoning Corpus Learning Environment for Reinforcement Learning.” *Conference on Lifelong Learning Agents (CoLLAs)*, 2024.

### Workshop Papers

- **Seungpil Lee\***, Woochang Sim\*, Donghyeon Shin\*, Sejin Kim, and Sundong Kim. “Reasoning Abilities of Large Language Models through the Lens of Abstraction and Reasoning.” *NeurIPS Workshop on System-2 Reasoning at Scale*, 2024.
- Donghyeon Shin\*, **Seungpil Lee\***, Klea Lena Kovacec, and Sundong Kim. “Regulation Using Large Language Models to Generate Synthetic Data for Evaluating Analogical Ability.” *IJCAI Workshop on Analogical Abstraction*, 2024.

## Domestic Publications

- **Seungpil Lee**, Jihwan Lee, and Sundong Kim. “Evaluating Prior Knowledge of ARC Using World Models.” *Korea Software Congress*, 2023.
- Jihwan Lee, **Seungpil Lee**, Sejin Kim, and Sundong Kim. “Extracting the Core Knowledge of ARC with the World Model.” *Korea Software Congress*, 2023.
- Donghyeon Shin, Sanha Hwang, Seokki Lee, Yunho Kim, **Seungpil Lee**, and Sundong Kim. “MC-LARC Benchmark to Measure LLM Reasoning Capability.” *Korea Software Congress*, 2023.

\* indicates equal contribution

## SKILLS

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<b>Programming</b>	C, C++, Java, JavaScript, Python
<b>Tools</b>	LaTeX, Spring Boot, PyTorch, Hugging Face
<b>Language</b>	Korean (Native), English (Intermediate)

## EXPERIENCE

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**DataScience Lab, GIST** *September 2023 – present*  
*Undergraduate Intern → Master’s Student*

- LLM evaluation with cognitive science tools (Language of Thought Hypothesis)
- LLM alignment using RLVR methods; Mechanistic interpretability with Sparse Autoencoders

**Teaching Assistant, Computer Networking** *September 2023 – December 2025*

- Designed assignments connecting theory to implementation; SDN demo with Ryu and Mininet

**Development Team, Korea Navy** *January 2022 – September 2023*

- Developed App and Web services as back-end developer

**BioComputing Lab, GIST** *June 2020 – January 2021*  
*Undergraduate Intern*

- Developed Spiking Neural Network methods with synthetic gradients

## AWARDS & FUNDING

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**National Research Foundation of Korea (NRF) Funding** *Sep 2025 – Sep 2026*  
Research funding for outstanding master’s students

**Best Undergraduate Thesis Award, GIST EECS** *February 2025*  
Awarded for graduation thesis on MC-LARC benchmark

**Korean Government Scholarship, GIST College** *March 2018 – August 2024*  
Full scholarship for students at GIST

**Scholarship for Summer Session Abroad** *June – August 2019*  
UC Berkeley Summer Session scholarship

**Navy AI Competition** *August 2023*  
Award in drone object detection competition

**K-StartUp Finals** *November 2023*  
Advanced to finals as ML researcher and back-end developer

## EXTRA-CURRICULAR

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**Published Author – Short Story Collection**

*2019*

Published a 400-page short story collection exploring consciousness and identity

**AGIST – Deep Learning Study Group**

*August 2020 – January 2021*

Presentations on Spiking Neural Networks with STDP learning