

SEUNGPIL 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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|---|---|
| Gwangju Institute of Science and Technology (GIST) Master's Program, Major in AI Convergence | <i>March 2025 – present</i> |
| Gwangju Institute of Science and Technology (GIST) 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 |
| UC Berkeley Berkeley Summer Session Program | <i>June 2019 – August 2019</i> GPA: 4.00/4.00 |

PUBLICATIONS

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

EXPERIENCE

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| DataScience Lab, GIST | <i>September 2023 – present</i> |
| <i>Undergraduate Intern → Master's Student</i> | |
| <ul style="list-style-type: none">• LLM evaluation with cognitive science tools (Language of Thought Hypothesis)• LLM alignment using RLVR methods; Mechanistic interpretability with Sparse Autoencoders | |
| Teaching Assistant, Computer Networking | <i>September 2023 – December 2025</i> |
| <ul style="list-style-type: none">• Designed assignments connecting theory to implementation; SDN demo with Ryu and Mininet | |
| Development Team, Korea Navy | <i>January 2022 – September 2023</i> |
| <ul style="list-style-type: none">• Developed App and Web services as back-end developer | |
| BioComputing Lab, GIST | <i>June 2020 – January 2021</i> |
| <i>Undergraduate Intern</i> | |
| <ul style="list-style-type: none">• Developed Spiking Neural Network methods with synthetic gradients | |

AWARDS & FUNDING

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| National Research Foundation of Korea (NRF) Funding | <i>Sep 2025 – Sep 2026</i> |
| Research funding for outstanding master's students | |
| Best Undergraduate Thesis Award, GIST EECS | <i>February 2025</i> |
| Awarded for graduation thesis on MC-LARC benchmark | |
| Korean Government Scholarship, GIST College | <i>March 2018 – August 2024</i> |
| Full scholarship for students at GIST | |
| Scholarship for Summer Session Abroad | <i>June – August 2019</i> |
| UC Berkeley Summer Session scholarship | |
| Navy AI Competition | <i>August 2023</i> |
| Award in drone object detection competition | |
| K-StartUp Finals | <i>November 2023</i> |
| Advanced to finals as ML researcher and back-end developer | |

EXTRA-CURRICULAR

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