Seungyong Moon

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Research Interests

My research aims to develop autonomous agents with strong robustness, generalization, and reasoning capabilities. Currently, I am working on enhancing the reasoning capabilities of large language models by leveraging synthetic data generation and designing novel reinforcement learning algorithms tailored for long-horizon reasoning tasks.

Education

Seoul National University Feb 2027
MS/PhD in Computer Science
- Advisor: Hyun Oh Song

Seoul National University Feb 2019
BS in Mathematical Science, BA in Economics
- Honors: Summa Cum Laude

Work Experience

Research Intern Amsterdam, Netherlands
Qualcomm AI Research Sept 2024–Jan 2025
- Worked on training language models to execute code traces using reinforcement learning.

Research Intern Seoul, South Korea
KRAFTON June 2023–Sept 2023
- Worked on improving the spatial reasoning of language model agents for gaming environments.

Research Intern Seoul, South Korea
DeepMetrics June 2022–Sept 2022
- Worked on developing reinforcement learning algorithms for ventilator control.

Research Intern Seongnam-si, South Korea
NAVER Corp. July 2018–Aug 2018
- Worked on developing synthetic data generation algorithm for paraphrase identification.

Publications

[C7] **Seungyong Moon**, Bumsoo Park, Hyun Oh Song
Learning to Better Search with Language Models via Guided Reinforced Self-Training
Neural Information Processing Systems (NeurIPS), 2025

[C6] **Seungyong Moon**, Junyoung Yeom, Bumsoo Park, Hyun Oh Song
Discovering Hierarchical Achievements in Reinforcement Learning via Contrastive Learning
Neural Information Processing Systems (NeurIPS), 2023

[C5] **Seungyong Moon**, JunYeong Lee, Hyun Oh Song
Rethinking Value Function Learning for Generalization in Reinforcement Learning
Neural Information Processing Systems (NeurIPS), 2022

[C4] Deokjae Lee, **Seungyong Moon**, Junhyeok Lee, Hyun Oh Song
Query-Efficient and Scalable Black-Box Adversarial Attacks on Discrete Sequential Data via Bayesian Optimization
International Conference on Machine Learning (ICML), 2022

[C3] **Seungyong Moon***, Gaon An*, Hyun Oh Song
Preemptive Image Robustification for Protecting Users against Man-in-the-Middle Adversarial Attacks
AAAI Conference on Artificial Intelligence (AAAI), 2022

[C2] Gaon An*, **Seungyong Moon***, Jang-Hyun Kim, Hyun Oh Song
Uncertainty-Based Offline Reinforcement Learning with Diversified Q-Ensemble
Neural Information Processing Systems (NeurIPS), 2021

[C1] **Seungyong Moon***, Gaon An*, Hyun Oh Song
Parsimonious Black-Box Adversarial Attacks via Efficient Combinatorial Optimization
International Conference on Machine Learning (ICML), 2019 (long talk)

Awards and Scholarships

NeurIPS Top Reviewers 2022, 2025

NeurIPS Scholar Award 2023

NAVER PhD Fellowship Award 2022

Yulchon AI Star Scholarship 2022

Qualcomm Innovation Fellowship Finalists 2020, 2022

KFAS Computer Science Graduate Student Scholarship 2019–2024

The National Scholarship for Science and Engineering 2015–2016

Gwanak Association Scholarship 2012

Teaching Experience

Teaching Assistant Fall 2020, Fall 2022
Machine Learning

Teaching Assistant Spring 2019
Introduction to Deep Learning

Undergraduate Student Instructor Fall 2017
Basic Calculus 2

Undergraduate Student Instructor Spring 2017
Basic Calculus 1

Academic Services

Conference Reviewer
NeurIPS (2021–2025), ICML (2022–2025), AAAI (2022–2026), ICLR (2024–2026), RLC (2024), AISTATS (2025–2026)

Journal Reviewer
Neurocomputing (2021), Machine Learning (2023), Transactions on Intelligent Vehicles (2023)

Skills

Programming Languages

- Advanced: Python, PyTorch, JAX, TensorFlow, LaTeX
- Intermediate: C++, MATLAB

Languages

- Korean (native)
- English (fluent)