

Seungyong Moon

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Research Statement

I research reinforcement learning agents with advanced generalization and planning capabilities, particularly in the domains of gaming environments and code generation.

Education

Seoul National University Mar 2019–Feb 2026
PhD in Computer Science (expected)

- Advisor: Hyun Oh Song

Seoul National University Mar 2011–Feb 2019
BS in Mathematical Science, BA in Economics, Minor in Computer Science

- Honors: Summa Cum Laude
- Leave of absence to fulfill mandatory military service (2013–2015)

Work Experience

Research Intern Amsterdam, Netherlands
Qualcomm Sept 2024–Jan 2025

- Working on improving the planning abilities of LLMs for code generation via reinforcement learning.

Research Intern Seoul, South Korea
KRAFTON June 2023–Sept 2023

- Worked on developing LLM-based agents for gaming environments.

Research Intern Seoul, South Korea
DeepMetrics June 2022–Sept 2022

- Worked on developing imitation learning algorithms for ventilator control systems.

Research Intern Seongnam-si, South Korea
NAVER Corp. June 2018–Aug 2018

- Worked on developing data augmentation algorithms to enhance paraphrase identification.

Preprints

Guided Stream of Search: Learning to Better Search with Language Models via Optimal Path Guidance arXiv

Seungyong Moon, Bumsoo Park, Hyun Oh Song

Publications

Discovering Hierarchical Achievements in Reinforcement Learning via Contrastive Learning NeurIPS 2023

Seungyong Moon, Junyoung Yeom, Bumsoo Park, Hyun Oh Song

Rethinking Value Function Learning for Generalization in Reinforcement Learning NeurIPS 2022

Seungyong Moon, JunYeong Lee, Hyun Oh Song

Query-Efficient and Scalable Black-Box Adversarial Attacks on Discrete Sequential Data via Bayesian Optimization ICML 2022

Deokjae Lee, Seungyong Moon, Junhyeok Lee, Hyun Oh Song

Preemptive Image Robustification for Protecting Users against Man-in-the-Middle Adversarial Attacks	AAAI 2022
Seungyong Moon*, Gaon An*, Hyun Oh Song	
Uncertainty-Based Offline Reinforcement Learning with Diversified Q-Ensemble	NeurIPS 2021
Gaon An*, Seungyong Moon*, Jang-Hyun Kim, Hyun Oh Song	
Parsimonious Black-Box Adversarial Attacks via Efficient Combinatorial Optimization	ICML 2019
Seungyong Moon*, Gaon An*, Hyun Oh Song	

Awards and Scholarships

NeurIPS Scholar Award	2023
NAVER PhD Fellowship Award	2022
NeurIPS Top Reviewers	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 Machine Learning	Fall 2020, Fall 2022
Teaching Assistant Introduction to Deep Learning	Spring 2019
Undergraduate Student Instructor Basic Calculus 2	Fall 2017
Undergraduate Student Instructor Basic Calculus 1	Spring 2017

Academic Services

Conference Reviewer NeurIPS (2021-2024), ICML (2022-2024), AAAI (2022-2024), ICLR (2024-2025), RLC (2024), AISTATS (2025)
Journal Reviewer Neurocomputing (2021), Machine Learning (2023), Transactions on Intelligent Vehicles (2023)

Skills

Programming Languages <ul style="list-style-type: none"> ◦ Advanced: Python, PyTorch, JAX, TensorFlow, LaTeX ◦ Intermediate: C++, MATLAB
Languages <ul style="list-style-type: none"> ◦ Korean (native) ◦ English (fluent)