Seungyong Moon

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Google Scholar | seungyong-moon | symoon11

Summary

Deep learning researcher with 7 publications at top-tier ML venues including 6 first-author papers and 800+ citations. Research focuses on reinforcement learning, LLM reasoning, and autonomous agents. Experienced in large-scale RL training, synthetic data generation for LLMs, and self-supervised learning.

Education

PhD **Seoul National University**, Computer Science & Engineering — Seoul, South Korea
- Advisor: Hyun Oh Song

Feb 2027

BA/BS **Seoul National University**, Economics/Mathematical Sciences — Seoul, South Korea
- Minor in Computer Science & Engineering
- Summa Cum Laude (GPA: 4.10/4.30, ranked 1st out of 34 students)

Feb 2019

Publications

Learning to Better Search with Language Models via Guided Reinforced Self-Training — NeurIPS 2025
Seungyong Moon, Bumsoo Park, Hyun Oh Song
arxiv.org/abs/2410.02992

Improving the Efficiency of Algorithmic Reasoning in Language Models via Reinforcement Learning — Preprint
Seungyong Moon, Michaël Defferrard, Corrado Rainone, Roland Memisevic

Discovering Hierarchical Achievements in Reinforcement Learning via Contrastive Learning — NeurIPS 2023
Seungyong Moon, Junyoung Yeom, Bumsoo Park, Hyun Oh Song
arxiv.org/abs/2307.03486

Rethinking Value Function Learning for Generalization in Reinforcement Learning — NeurIPS 2022
Seungyong Moon, JunYeong Lee, Hyun Oh Song
arxiv.org/abs/2210.09960

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
arxiv.org/abs/2206.08575

Preemptive Image Robustification for Protecting Users against Man-in-the-Middle Adversarial Attacks — AAAI 2022
Seungyong Moon*, Gaon An*, Hyun Oh Song
arxiv.org/abs/2112.05634

Uncertainty-Based Offline Reinforcement Learning with Diversified Q-Ensemble — NeurIPS 2021
Gaon An*, ***Seungyong Moon****, Jang-Hyun Kim, Hyun Oh Song
arxiv.org/abs/2110.01548

Parsimonious Black-Box Adversarial Attacks via Efficient Combinatorial Optimization — ICML 2019 (Oral)
Seungyong Moon*, Gaon An*, Hyun Oh Song
arxiv.org/abs/1905.06635

Experience

Qualcomm AI Research, Research Intern — Amsterdam, Netherlands
Sept 2024 – Jan 2025

- Developed synthetic data generation methods to improve algorithmic reasoning in large language models.
- Built a reinforcement learning training framework with verifiable rewards for large language models.

Krafton, Research Intern — Seoul, South Korea
June 2023 – Sept 2023

- Developed a self-supervised reinforcement learning method in Minecraft-like game environments.
- Designed an agentic framework to improve the spatial reasoning of GPT-4 in game environments.

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

- Built a data preprocessing pipeline and SQL database for ventilator waveform data.
- Developed imitation and reinforcement learning methods for autonomous ventilator control.

Naver Search & Clova, Research Intern — Seongnam-si, South Korea
July 2018 – Aug 2018

- Developed a data augmentation method to improve paraphrase identification in seq2seq models.
- Implemented and benchmarked multiple attention mechanisms in TensorFlow.

Skills

Core Research: Reinforcement Learning (online, offline, hierarchical), LLM Reasoning, Synthetic Data Generation, Self-Supervised Learning, Adversarial Robustness

Frameworks & Tools: PyTorch, JAX, TensorFlow, vLLM, SGLang, veRL, Docker, Slurm

Programming: Python, C++, MATLAB

Languages: English (fluent), Korean (native)

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)

Academic Services

- NeurIPS reviewer (2021 – 2025)
- ICML reviewer (2022 – 2026)
- AAAI reviewer (2022 – 2025)
- ICLR reviewer (2024 – 2026)
- AISTATS reviewer (2025 – 2026)