

# Seungyong Moon

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## Research Statement

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

## Education

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**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

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**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

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**Guided Stream of Search: Learning to Better Search with Language Models via Optimal Path Guidance** arXiv 2024

Seungyong Moon, Bumsoo Park, Hyun Oh Song

## Publications

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**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

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

## Awards and Scholarships

<b>NeurIPS Scholar Award</b>	2023
<b>NAVER PhD Fellowship Award</b>	2022
<b>NeurIPS Top Reviewers</b>	2022
<b>Yulchon AI Star Scholarship</b>	2022
<b>Qualcomm Innovation Fellowship Finalists</b>	2020,2022
<b>KFAS Computer Science Graduate Student Scholarship</b>	2019–2024
<b>The National Scholarship for Science and Engineering</b>	2015–2016
<b>Gwanak Association Scholarship</b>	2012

## Teaching Experience

<b>Teaching Assistant</b> Machine Learning	Fall 2020, Fall 2022
<b>Teaching Assistant</b> Introduction to Deep Learning	Spring 2019
<b>Undergraduate Student Instructor</b> Basic Calculus 2	Fall 2017
<b>Undergraduate Student Instructor</b> Basic Calculus 1	Spring 2017

## Academic Services

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

## Skills

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