

Harin Lee

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harinboy.github.io

ACADEMIC INTERESTS

Reinforcement Learning Theory, Bandits, Game Theory, Algorithms

EDUCATION

Seoul National University, Seoul, Korea Mar 2018–Feb 2025

Bachelor of Science

Double Major in Computer Science and Engineering and Mathematical Sciences

GPA : Overall 4.18/4.3, CSE 4.2/4.3, Math 4.3/4.3, 1st in department

Leave of Absence for Military Service: Sep 2020–Aug 2022

Seoul Science High School, Seoul, Korea Mar 2015–Feb 2018

PUBLICATIONS

- [1] **H. Lee**, T. Hwang, and M.-h. Oh, “Lasso bandit with compatibility condition on optimal arm”, *International Conference on Learning Representations*, 2025, (To appear).
- [2] **H. Lee** and M.-h. Oh, “Minimax optimal reinforcement learning with quasi-optimism”, *International Conference on Learning Representations*, 2025, (To appear).
- [3] **H. Lee** and M.-h. Oh, “Improved regret of linear ensemble sampling”, *Advances in Neural Information Processing Systems*, vol. 37, pp. 92 803–92 831, 2025.

RESEARCH EXPERIENCE

Graduate School of Data Science, Seoul National University April 2023–Present

Undergraduate Researcher

Advisor : Prof. Min-hwan Oh

- Analyzed **FS-wLasso** for sparse linear contextual bandits and derived its $O(\text{poly log } dT)$ regret bounds
 - Utilized simple algorithm : Forced-sampling then greedy selections
 - Employed mildest assumption : Margin condition and compatibility condition on optimal arms only
 - Demonstrated superior empirical performance
- Improved regret analysis of linear ensemble sampling
 - Achieved frequentist regret bound of $\tilde{O}(d^{3/2}\sqrt{T})$ for the first time with ensemble size of $\tilde{O}(K)$
- Devised **EQO** for tabular reinforcement learning
 - Designed simple algorithm : UCBVI-style with bonus term of $c/N(s, a)$ without empirical variance
 - Relaxed conventional assumptions : Imposed boundedness only on value function
 - Achieved minimax regret bound with tightest logarithmic factor and non-leading term
 - Demonstrated superior empirical performance

Thunder Research Group, Dept. of CSE, Seoul National University Jul 2022–Dec 2022

Undergraduate Research Opportunity Program, Creative Integrated Design 1

Advisor : Prof. Jaemin Lee

- Developed low-precision and quantization methods for GPT-2

HONORS AND AWARDS

Paper Awards

- K-Data Science Conference** Nov 2024
– President of National Research Foundation of Korea Award (Top 2 among 28 finalists) [1]
- Korean Artificial Intelligence Association Summer Conference** Aug 2024
– Excellence Paper Award (Top 7) [1]

Scholarships

- Merit-Based Scholarship** Spring 2024
Seoul National University
– Full tuition
- Kwanjeong Domestic Scholarship** Mar 2020–Feb 2024
Kwanjeong Educational Foundation
– Full tuition and additional scholarship for four semesters
- Eminence Scholarship** Fall 2019
Seoul National University
– Full tuition
- SNU Development Fund Scholarship** Spring 2019
Seoul National University Foundation
- Merit-Based Scholarship** Fall 2018
Seoul National University

Programming Competitions

- Silver Medal (7th Place) & Asia Pacific Champion** The 47th ICPC World Finals Apr 2024
– Most prestigious global competition for undergraduate students
– Represented Seoul National University as part of a three-member team
- 4th Place** Seoul National University Programming Contest Division 1 Sep 2023
- 4th Prize** Samsung Collegiate Programming Cup Sep 2023
- Silver Prize (3rd Place)** The 2022 ICPC Asia Seoul Regional Contest Nov 2022
- 2nd Place** The 2022 ICPC Asia Korea National First Round Programming Contest Oct 2022
- 4th Place** Seoul National University Programming Contest Division 1 Sep 2022
- 3rd Prize** Samsung Collegiate Programming Cup Sep 2022

SKILLS

Programming Languages: **C**, **C++**, **Python**
Machine Learning Frameworks: **PyTorch**, **TensorFlow**
Languages: **Korean** (native), **English** (fluent)

EXTRACURRICULAR ACTIVITIES

- Meari** SNU Central Rock Band June 2018–July 2020
– Synthesist(Keyboardist), leader of the synthesizer part in year 2019
- Danfung** SNU College of Engineering Rock Band Sep 2018–Aug 2019
– Drummer