

# Hyunin Lee

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## Education

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### University of California, Berkeley

*Ph.D. in Mechanical Engineering / Specialization: Reinforcement Learning*

CA, United States

Aug. 2022 –

### Seoul National University

*B.S in Mechanical Engineering; summa cum laude*

Seoul, Rep.of.Korea

Mar. 2015 – Feb. 2022

## Publications / C: CONFERENCE, J: JOURNAL, P: PREPRINT

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[C5] Position: AI Safety Must Embrace an Antifragile Perspective.

M. Jin, **H. Lee**. *Under Revision for ICML*. 2025. [pdf]

[C4] A Black Swan Hypothesis: The Role of Human Irrationality in AI Safety.

**H. Lee**, C. Park, D. Abel, M. Jin. *ICLR*. 2025. [pdf]

[C3] Pausing Policy Learning in Non-stationary Reinforcement Learning.

**H. Lee**, M. Jin, J. Lavaei, and S. Sojoudi. *ICML*. 2024. (Oral, Top 1.2%) [pdf/codes/talk]

[J3] Policy-based Primal-Dual Methods for Concave CMDP with Variance Reduction.

D. Ying, M. Guo, **H. Lee**, Y. Ding, J. Lavaei, and Z. Shen. *Under Revision for JAIR*. 2024. [pdf /codes]

[C2] Tempo Adaptation in Non-stationary Reinforcement Learning.

**H. Lee**, Y. Ding, J. Lee, M. Jin, J. Lavaei, and S. Sojoudi. *NeurIPS*. 2023 [pdf/codes/slides]

[J2] Beyond Exact Gradients: Convergence of Stochastic Soft-Max Policy Gradient Methods with Entropy Regularization.

Y. Ding, J. Zhang, **H. Lee**, and J. Lavaei. *IEEE TAC*. 2024 [pdf]

[C1] Initial State Interventions for Deconfounded Imitation Learning.

S. Pfrommer, Y. Bai, **H. Lee**, and S. Sojoudi. *IEEE CDC*. 2023. [pdf]

[J1] Explainable Deep Learning Model for EMG Based Finger Angle Estimation Using Attention.

**H. Lee**, D. Kim, and Y. Park. *IEEE TNSRE*. vol. 30, pp. 1877-1886 2022. [pdf/codes]

## Work Experience

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### University of California, Berkeley

*Graduate Student Researcher*

Aug. 2022 –

*Advisor: Prof. Somayeh Sojoudi*

- Research on **non-stationary reinforcement learning and optimization** for distributional shift data.

### OUTTA / [Homepage/ LinkedIn]

*Co-Founder*

Aug. 2021 –

*South Korea*

- Provide an online AI education lecture to over **200+ underprivileged students** in South Korea every year.

### Knowledge AI

*Machine Learning Engineer*

Jul. 2021 – Jul.2022

*Boston, MA*

- Develop a **bayesian inference algorithm** that quantifies students' understanding of math topics using Python
- Develop question-recommendation deep learning algorithm on Math online learning system using python.

### Seoul National University

*Undergraduate Research Intern*

Mar. 2021 – Nov. 2021

*Soft Robotics & Bionics Lab*

- Propose **attention-based sequential decision making algorithm** to predict finger angles based on muscle activation on forearm using Python. Improved prediction accuracy over 10 %

### Seoul National University

*Undergraduate Research Intern*

Sep. 2020 – Jun. 2021

*Robot Learning Lab*

- Develop **deep generative Q learning algorithm** to reconstruct a reward kernel using Python [pdf] [video]

## Academic Activity

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Reviewer ICLR 2024-2025, ICML 2024-2025, NeurIPS 2024, RLC 2025, AISTATS 2025  
Program Chair Committee AAAI 2025

## Teaching Experience

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Graduate Student Instructor, Statistics and Data Science for Engineers Spring 2025  
Graduate Student Instructor, Dynamic Systems and Feedback Fall 2024  
Teaching Tutor, Math and Physics for Freshman Spring 2019, Spring 2020  
Teaching Assistant, Dynamic Fall 2019  
Teaching Assistant, Mechanical Product Design Fall 2020

## Grants and Honors

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Berkeley Summer Research Fellowship | *Mechanical Engineering Department* Summer 2024  
NeurIPS scholar award | *Conference on Neural Information Processing Systems* Dec. 2023  
Kwanjeong Abroad Scholarship | *Kwanjeong Educational Foundation* Fall 2022 – Present  
Berkeley Fellowship for Graduate Study | *Graduate Division* Fall 2022 – Spring 2023  
National Science & Technology Scholarship | *Korea Student Aid Foundation* Spring 2017, Fall 2019  
Spring 2020, Fall 2020  
Certificate of Appreciation (OUTTA) | *Dean, college of Engineering, Seoul National University* Jun. 2021  
Scholarship to Academic Excellence | *Seoul National University* Spring 2015, Fall 2015  
Spring 2016, Fall 2016

## Graduate courses

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*Specialization: Non-convex Optimization & Reinforcement Learning*

**Theoretical statistics I, II, Probability Theory I, II**  
**Convex Optimization** (convex optimization, robust optimization)  
**Mathematical Programming II** (Advanced optimization theory, non-convex optimization)  
**Advanced control system I** (canonical state-space representation forms, Lyapunov stability, LQR control)  
**Experiential advanced control design I, II** (model predictive control, kalman filter)  
**Linear System, Nonlinear System**

## Technical Skills

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**Languages:** Python (Advanced), MatLab (Advanced), C++  
**Software library, platform :** Pytorch (Advanced), Tensorflow. Gurobi (Advanced), CPLEX (Advanced)