Taehyun Cho

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Education

March 2026 – Current	**Seoul National University, Seoul, South Korea** *Post-doc. in Electrical and Computer Engineering*
March 2022 – 2026	**Seoul National University, Seoul, South Korea** *Ph.D. in Electrical and Computer Engineering*
March 2020 – 2022	**Seoul National University, Seoul, South Korea** *M.S. in Electrical and Computer Engineering*
March 2013 – 2020	**Korea University, Seoul, South Korea** *B.S. in Mathematics*

Research Interests

My academic research focuses on *sequential decision-making under uncertainty*, particularly in the context of *human feedback*. I have extensively studied *distributional reinforcement learning (distRL), reinforcement learning from human feedback (RLHF),* and *regret analysis*, aiming to bridge theory and practice.
Drawing inspiration from how humans make decisions, I aim to develop mathematical models and optimize for human-in-the-loop systems, uncovering both theoretical insights and practical algorithms for robust decision-making.

- **Broad :** *Deep Learning, Reinforcement Learning,* and *Stochastic Optimization*.
- **Specific :** *Distributional Reinforcement Learning, Regret Analysis*, and *Reinforcement Learning from Human Feedback*.

Publications

International Conference

1. **(Spotlight, Top 2.2%)** Suhwan Kim*, **Taehyun Cho***, Geonhyeong Kim, Yujin Kim, Youngsoo Jang, Moontae Lee, Jungwoo Lee, "A Regret Minimization Framework on Preference Learning in Large Language Models", **ICML 2026**, Seoul, Korea
2. Jung Min Lee, Dohyeok Lee, Seokhun Ju, **Taehyun Cho**, Jin Woo Koo, Li Zhao, Sangwoo Hong, Jungwoo Lee, "MVP-LAM: Learning Action-Centric Latent Action via Cross-Viewpoint Reconstruction", **ICML 2026**, Seoul, Korea
3. Kyungjae Lee, Dohyeong Kim, **Taehyun Cho**, Chaeyeon Kim, Yunkyung Ko, Seungyub Han, Seokhun Ju, Dohyeok Lee, Sungbin Lim, "Pareto Optimal Risk-Agnostic Distributional Bandits with Heavy-Tail Rewards", **NeurIPS 2025**, San Diego, USA
4. **(Spotlight, Top 2.6%) Taehyun Cho***, Seokhun Ju*, Seungyub Han, Dohyeong Kim, Kyungjae Lee, and Jungwoo Lee, "Policy-based Preference Learning: Is Preference Enough for RLHF?", **ICML 2025**, Vancouver, Canada.
5. **Taehyun Cho**, Seungyub Han, Seokhun Ju, Dohyeong Kim, Kyungjae Lee, and Jungwoo Lee, "Bellman Unbiasedness: Toward Provably Efficient Distributional Reinforcement Learning with General Value Function Approximation", **ICML 2025**, Vancouver, Cananda.
6. Dohyeong Kim, **Taehyun Cho**, Seungyub Han, Hojun Chung, Kyungjae Lee, and Sunghwai Oh, "Spectral-Risk Safe Reinforcement learning with Convergence Guarantees", **NeurIPS 2024**, Vancouver, Canada.
7. **Taehyun Cho**, Seungyub Han, Heesoo Lee, Kyungjae Lee, and Jungwoo Lee, "Pitfall of Optimism: Distributional Reinforcement Learning by Randomizing Risk Criterion", **NeurIPS 2023**, New Orleans, USA.
8. Dohyeok Lee, Seungyub Han, **Taehyun Cho** and Jungwoo Lee, "SPQR: Controlling Q-ensemble Independence with Spiked Random Model for Reinforcement Learning", **NeurIPS 2023**, New Orleans, USA.
9. Seungyub Han, Yeongmo Kim, **Taehyun Cho**, and Jungwoo Lee, “On the Convergence of Continual Learning with Adaptive Methods”, **UAI 2023**.

10. Seungyub Han, Yeongmo Kim, **Taehyun Cho**, Jungwoo Lee, "Adaptive Methods for Nonconvex Continual Learning," **Neurips 2022 Workshop**, New Orleans, USA.
11. **Taehyun Cho**, Seungyub Han, Heesoo Lee, Kyungjae Lee, Jungwoo Lee, "Perturbed Quantile Regression for Distributional Reinforcement Learning," **Neurips 2022 Workshop**, New Orleans, USA.
12. Sangwoo Hong, Heecheol Yang, Youngseok Yoon, **Taehyun Cho**, and Jungwoo Lee, "Chebyshev Polynomial Codes: Task Entanglement-based Coding for Distributed Matrix Multiplication" **ICML 2021**, Vienna, Austria, July 18-24, 2021.

International Journal

1. Seokhun Ju, Seungyub Han, **Taehyun Cho**, Jungwoo Lee, Taeyoung Lee, Minkyoung Kim, Jinho Ahn, "Learning Graph Based Individual Intrinsic Reward For Multi-Agent Reinforcement Learning", **ICT Express**, Aug. 2025.
2. Heasung Kim, **Taehyun Cho**, Jungwoo Lee, Wonjae Shin, and H. Vincent Poor, "Optimized Shallow Neural Networks for Sum-Rate Maximization in Energy Harvesting Downlink Multiuser NOMA Systems," **IEEE Journal on Selected Areas in Communications**, vol.39, no.4, pp. 982 – 997, Apr. 2021.
3. Heasung Kim, **Taehyun Cho**, Jungwoo Lee, Wonjae Shin, Harold Vincent Poor, "An Efficient Neural Network Architecture for Rate Maximization in Energy Harvesting Downlink Channels," **IEEE International Symposium on Information Theory**, LA, USA, June 21-26, 2020.

Ph.D Dissertation

1. **Taehyun Cho**, "A Distributional Perspective on Human-Aligned Decision Making under Uncertainty", Seoul National University, Feb. 2026.
   Committee: Jungwoo Lee (Advisor), Songhwai Oh, Kyomin Jung, Taesup Moon, Kyungjae Lee

Preprints/ In Progress

1. (On submission) Seungyub Han, **Taehyun Cho**, Dohyeong Kim, Kyungjae Lee, and Jungwoo Lee, "When to Truncate Traces: Stochastic Truncation for Multi-Step Off-Policy RL".
2. (On submission) Kukyoung Jang, **Taehyun Cho**, Junrui Zhang, Ping Xu, Kyungjae Lee, "Probabilistic Smoothing with Ratio-Monotone Transforms for Global Optimization".
3. **Taehyun Cho**, Suhwan Kim, Seungyub Han, Seokhun Ju, Dohyeong Kim, Kyungjae Lee, Jungwoo Lee, "An Axiomatization of Process Score Model: Your Process-level Feedback is Not a Reward".
4. Seungyub Han*, **Taehyun Cho***, Suhwan Kim, Seokhun Ju, Dohyeong Kim, Kyungjae Lee, Jungwoo Lee, "Off-policy Trust Region Preference Optimization".

Research Experience

March 2020 - Present | **Graduate Researcher**
Cognitive Machine Learning Lab
- Adviser : Prof. Jungwoo Lee

Teaching Experience

Spring 2022 | **Teaching Assistant**
Department of Electrical Engineering and Computer Science, Seoul National University
- Introduction to Reinforcement Learning

Spring 2021 | **Teaching Assistant**
Department of Electrical Engineering and Computer Science, Seoul National University
- Introduction to Reinforcement Learning

Talks

April 2026 | **Vector Visitor Research Talk**
Vector Institute
- Rethinking Human Feedback: A Regret Minimization Perspective on Preference Learning

April 2026 | **SNU AI Summit**
Seoul National University
- Policy-labeled Preference Learning: Is Preference Enough for RLHF?

May 2025 | **LG AI Research Seminar**
LG AI Research
- Policy Optimization with Process Score in LRMs

December 2024 | **LG AI Research Seminar**
LG AI Research
- Policy-labeled Preference Learning: Is Preference Enough for RLHF?

August 2023 | **LG Tech Talk**
LG AI Research
- Pitfall of Optimism: Distributional Reinforcement Learning with Randomized Risk Criterion

May 2023 | **AIIS Spring Retreat Program**
Seoul National University
- Pitfall of Optimism: Distributional Reinforcement Learning with Randomized Risk Criterion

Awards and Honors

March 2026 | **Fields Institute - Principles of Intelligence Postdoctoral Fellowship**
Fields Institute

March 2026 - 2031 | **Sejong Science Fellowship**
National Research Foundation of Korea

Feb 2026 | **Distinguished Dissertation Award**
Seoul National University

March 2020 - 2026 | **Brain Korea 21 Plus Scholarship**
Seoul National University

January 2023 | **Certificate of Commendation**
Center for Applied Research in Artificial Intelligence (CARAI)

Other Experience

December 2024 – May 2025 | **LG AI Research Internship**
Superintelligence Lab
- RLHF Squad Team (Developing process reward model)

2022 – Present | **AI Conference & Workshop Reviewer Services**
- International Conference on Machine Learning (ICML) 2022 - 2026
  - (Workshop @ ICML 2026) RLxF: Reinforcement Learning from World Feedback
- Neural Information Processing Systems (NeurIPS) 2022 - 2025
- International Conference on Learning Representations (ICLR) 2023 - 2025
- AAAI Conference on Artificial Intelligence (AAAI) 2023
- The Journal of Korean Institute of Communications and Information Sciences 2026

June 2018 – Present | **Philosophy Club**
Sunday Salon
- Discuss a topic on Baccalauréat

May 2016 – 2018 | **Military Service**
Republic of Korea Air Force
- Military Service on 3rd Flight Training Wing

Skills

Computer Skills
- Python, Numpy, Pytorch

Language Skills
- Korean(Native), English(Fluent)