Geonwoo Cho

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Research Interest

Foundation Models for Decision Making: Open-Ended Curricula, Scalable RL, World Models

Education

Gwangju Institute of Science and Technology Feb. 2019 – present
Candidate for B.S. in Electrical Engineering and Computer Science, Minor in Mathematics
Total: 4.0/4.5, Major: 4.1, Math: 4.21

University of California, Berkeley Jan. 2025 – Aug. 2025
Exchange Student funded by GIST, Studied Computer Science and Mathematics

Korea Science Academy of KAIST Mar. 2016 – Feb. 2019
High school diploma, Studied Astrophysics

Research Experience

Statistics and Data Science, UCLA | *Advised by Prof. Yuhua Zhu* June. 2025 – present
- Designed a PDE-driven offline reinforcement learning algorithm for continuous-time decision-making problems.

Biostatistics, Berkeley | *Advised by Prof. Lexin Li* Jan. 2025 – present
- Developed an offline-to-online reinforcement learning framework to ensure stable performance transfer.

DataScience Lab, GIST | *Advised by Prof. Sundong Kim* April. 2024 – present
- Introduced a skill-based RL framework that balances exploration and skill diversity for downstream transfer.
- Unified transition error enhanced regret approximation and co-learnability in unsupervised environment design.
- Introduced a curriculum framework that leverages causal structure knowledge to optimize task sequences.
- Analyzed how credit assignment mechanisms enhance the scalability of reinforcement learning algorithms.

AITER Lab, GIST | *Advised by Prof. Hongkook Kim* Jun. 2020 – Dec. 2020
- Applied time series models to Total Electron Current data for earthquake prediction.

Publications

Annealing Bridges Offline and Online RL. Under review at ICLR 2026. **Geonwoo Cho**, Jaegyun Im, Doyoon Kim, Lexin Li.

Causal-Paced Deep Reinforcement Learning. *Reinforcement Learning Conference Workshop 2025* (oral). **Geonwoo Cho**, Jaegyun Im, Doyoon Kim, Sundong Kim.

TRACED: Transition-aware Regret Approximation with Co-learnability for Environment Design. *CoRL Workshop 2025*. Under review at ICLR 2026. **Geonwoo Cho**, Jaegyun Im, Jihwan Lee, Hojun Yi, Sejin Kim, Sundong Kim.

AMPED: Adaptive Multi-objective Projection for Balancing Exploration and Skill Diversification. *CoRL Workshop 2025*. Under review at ICLR 2026. **Geonwoo Cho***, Jaemoon Lee*, Jaegyun Im, Subi Lee, Jihwan Lee, Sundong Kim.

Evaluating Simplicial Normalization in Multi-Task Reinforcement Learning. *Korea Software Congress 2024* (poster). **Geonwoo Cho***, Subi Lee*, Jaemoon Lee.

LSTM-based Earthquake Anomaly Detection Applied to Total Electron Current Data. *Korea Artificial Intelligence Conference 2020* (poster). **Geonwoo Cho**, Dongeon Park, Hongkook Kim.

Talks

Workshop on Thinking about AI's Capability, GIST Nov. 2024
Causal Abstraction for World Model

Dev Night, GIST Sep. 2024
Feature Store Implementation for Real-Time Recommender Systems

Work Experience

Team Learners | *Machine Learning Software Engineer* Aug. 2023 – Jan. 2024

- Reduced stable diffusion models' inference time by employing graph optimization and quantization techniques.

Match Group/Hyperconnect LLC | *Machine Learning Software Engineer* Jun. 2022 – Jul. 2023

- Developed the transformer-based matchmaking system that handles 1K requests/sec (large-scale server model) with <0.001% downtime. The server model surpassed the previous in-house state-of-the-art model by increasing revenue 3%p and retention by 7%p.
- Enhanced feature store performance, lowering p99 latency from 200ms to 150ms by altering database usage patterns and adopting Avro serialization.

Business Canvas | *Software Engineer* Dec 2021 – Jun. 2022

- Achieved 99.95% availability rate by introducing microservice architecture and enhancing observability.

Algorima | *Software Engineer* Dec 2020 – Jun. 2021

- Designed and implemented web/server services, and ml pipelining framework.

Patent

[**Under Review**] **Geonwoo Cho**, Jaegyun Im, Sejin Kim, Sundong Kim. TRACED: Transition-aware Regret Approximation with Co-learnability for Environment Design.

[**Under Review**] **Geonwoo Cho**, Jaemoon Lee, Jihwan Li, Sundong Kim. Probabilistic Gradient Surgery Based Multi-Task Skill Learning System.

[**Under Review**] **Geonwoo Cho**, Jaegyun Im, Doyoon Kim, Sundong Kim. Causal-Paced Deep Reinforcement Learning.

Awards and Honors

AI Grand Challenge **Korea Ministry of Science and ICT** Aug. 2021
Selected among top 20 teams; Secured government funding

Dream AI Open Challenge (4th Prize) **Korea Ministry of Science and ICT** Dec. 2020

ICPC (Advanced to Seoul Regional) **ACM** Jun. 2020

Creative Convergence Competition "Gist President Award" (1st Prize) **GIST** Dec. 2019

Honors Scholarship **GIST**

Teaching

Teaching Assistant Feb. 2024 – Dec. 2025
Single Variable Calculus and Application / Machine Learning & Deep Learning

PIUM Sep. 2020 – Dec. 2020
Served as a volunteer mathematics tutor for middle school students

Selected Courseworks

Mathematics	Introduction to (Geometry, Linear Algebra, Analysis, Abstract Algebra), Differential Equations, Elementary Number Theory, Information Theory, Probability Theory
Computer Science	Computer Architecture, System Programming, Signal and Systems, Programming Languages and Compilers, Machine Learning & Deep Learning, Advanced Large Language Model Agents
Science	Astrophysics, Molecular Biology

Extracurricular Experience

Car Wash Love | *Co-founder*
Launched the mobile app for the door-to-door car wash service

Open Source Contributions
Pytorch Geometric / Numba Llvmlite