

Minsoo Ha

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SUMMARY

Interested in Mathematically rigorous machine learning.

EDUCATION

2020 - present B.S. in Mathematics, **POSTECH**, South Korea (GPA: 3.75/4.3)

WORK EXPERIENCE

Research Intern, Interactive Machine Learning Lab. at POSTECH Apr 2026 - present
– Research on Machine learning theory, under supervision of Prof. Kwang-Sung Jun

Research Intern, Machine Learning Lab. at POSTECH Sep 2025 - Mar 2026
– Research on LLM reasoning and Reinforcement learning, under supervision of Prof. Sangdon Park

Co-founder, KnowGem Sep 2025 - present
– AI-powered Ontology and Knowledge Graph Construction
– Developing AI workflow, CI/CD pipeline, and backend server

Fundamental Research Engineering Intern, LinqAlpha Sep 2025 - present
– RAG for finance
– Built Text-to-SQL, STT model, and various workflows leveraging LLM

PROJECTS

Reasoning-meets-lean

Advisor: Prof. Sangdon Park

Integrated the Lean theorem prover into LLM-based mathematical reasoning to improve verifiability.

Structuring the Unstructured financial KPIs and Guidance

Advisor: PhD. Chanyeol Choi

Built full pipeline of extracting financial KPIs and Guidance using LLM, storing in RDB, query by Text-to-SQL.

PPO-scratch

[Github](#)

Advisor: Prof. Sangdon Park

Proximal Policy Optimization(PPO) algorithm from scratch, compatible with OpenAI Gym API.

Portfolio Risk Optimization via Deep Reinforcement Learning

[Github](#)

Designed RL setup to optimize risk of S&P 500 portfolio. Trained by PPO algorithm, supports real-time train monitoring.

Financial crisis prediction with Machine Learning

Use Support Vector Machine to classify Financial crisis / Non-crisis / Pre-crisis. Data preprocessing for robust model.

PUBLICATIONS

Choi, Chanyeol et al. (2025). "Structuring the unstructured: a multi-agent system for extracting and querying financial kpis and guidance". In: *arXiv preprint arXiv:2505.19197*.

SKILLS

Mathematics	Real Analysis, Probability Theory
Programming Languages	Python, Typescript, C++, Haskell, Lean, OCaml, SQL
ML Frameworks	Pytorch, Stable-Baselines, Hugging Face Transformers
DevOps / MLOps	Github Actions, Docker, AWS, MLflow, Wandb
Backend Frameworks	FastAPI, Express.js