

# Minsoo Ha

[Github](#) | [LinkedIn](#) | [Website](#) | [✉ haminsoo0926@gmail.com](mailto:haminsoo0926@gmail.com)

## SUMMARY

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Interested in Neuro-symbolic AI, Mathematically rigorous machine learning.

## EDUCATION

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

## WORK EXPERIENCE

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**Research Intern, Machine Learning Lab. at POSTECH** Sep 2025 - present

– 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

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### 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

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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

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