Anthony W. JUNG

Machine Learning Researcher

Name Wonseok Jung @ jwseok0727@gmail.com ♀ Seoul, South Korea ☑ https://anthony0727.github.io/ in linkedin.com/in/anthony0727 ♀ github.com/anthony0727

Researcher with background in Computer Science and Mathematics.

Interested in making small models more performant, by injecting inductive bias or by engineering.

Won bronze medal in University Students Contest of Mathematics, issued by Korean Mathematical Society, Dec 2015.

Experience

April 2025	ML Researcher, KC ML2, Seoul
Oct 2020	> Model-Based RL for Scientific ML Applied model-based reinforcement learning to physics problems for discovering next-generation optical materials. Also explored neural operators for electric field pre-
	diction. C site
	> Physics-informed ML and RL Co-first author of a published paper applying RL to physical systems.
	vironment for RL.
	 RL and Graph — Compiler optimization Worked on improving program performance by combining RL and GNN, and contributed to the FAIR repository. The agent learns to select optimal optimization passes for the LLVM compiler. site
	> RL and Language — Assembly-level program optimization Treating assembly scripts as natural language, studied superoptimization using Transformers and RL. Modified the de facto C++ library in the field, STOKE, into a standalone RL environment and tested various ideas on it. I site
	> Blockchain Analysis Carried out anomaly detection by formulating transactions as a graph (160M nodes 1.7B edges) 7 site
	 Multi-agent RL In-depth study of multi-agent RL. Implemented multi-agent snake game and conducted various experiments on it. Site Site
	> LLM To test the capability of reasoning model, fine-tuned DeepSeek-R1 on custom-built CoT dataset. Also participated in developing RAG app for internal documents, using Llama, LangChain and Vec- torDB
	 > Data science in semiconductor field Performed regression tasks on semiconductor manufacturing
	 > Other Topics Studied oversquashing problem in GNN C site , combining deep learning and deci-
	sion tree is site RL Scientific ML GNN Compiler Optimization Superoptimization LLM
Oct 2020	Data Scientist, Algorithm LABS, Seoul
Aug 2018	> Recommender System Designed and developed used car recommender system for one of the largest Korean bank groups' service.
	> Deep Model Serving Built containerized server and improved performance for serving used car price prediction model. Achieved 200 transaction/second to handle 2 million users.
	 Education Platform Data Analysis Provided insights for making internal business decision, solving churn prediction problem, etc. Recommender System Airflow
Aug 2018	Intern, IRoвo, Seoul
Jan 2018	 Stock Trading Program Worked in automating stock trading logics, from rebalancing to actual trading, given fund managers' portfolios, on-premise environment. Java VBA
Jan 2018 Jan 2017	Student Researcher, HANYANG UNIVERSITY, Seoul S Graph Engine Participated in developing large-scale graph engine. Site C++



2018 BSc in Computer Science, Hanyang University 2012-2013 Leave of absence for mandatory military service



* indicates first author, equal contribution

- 2024 Park, Chaejin*, Kim, Sanmun*, **Jung, Anthony W.***, Park, Juho, Seo, Dongjin, Kim, Yongha, Park, Chanhyung, Park, Chan Y. and Jang, Min Seok. "Sample-efficient inverse design of freeform nanophotonic devices with physics-informed reinforcement learning" Nanophotonics, vol. 13, no. 8, 2024, pp. 1483-1492. https://doi.org/10.1515/nanoph-2023-0852
- 2024 Kim, Yongha*, **Anthony W. Jung***, Sanmun Kim*, Kevin Octavian, Doyoung Heo, Chaejin Park, Jeongmin Shin et al. "Meent: Differentiable Electromagnetic Simulator for Machine Learning." arXiv preprint arXiv:2406.12904 (2024).

PROJECT

AI COMPILER STUDY

Studied CUDA programming with 20 people. Lead project for deep learning compiler, where I improved performance of diffusion model (Flux.1dev). Site . Also carried out experiments on fine-tuning Flux.1dev succesfully.

DO IT YOURSELF AI (DIYA)

Study club for statistical machine learning. Participated in studying Standford CS234 and making stock trading bot with RL. Website currently N/A.

Skill

Language English(fluent), Chinese(beginner), Korean(native)
Programming Language Python
Framework Pytorch, Ray/RLlib
Database RDBMS, NoSQL, Neo4j, Hive
Development Tool Git, Docker, AWS

2021 - 2022

2024