

RENCHU WANG

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EDUCATION

MS CSE | Georgia Tech

Aug 2022 - May 2024

- Courses: Probability for Sci./Eng., Knowledge-based AI, Ubiquitous Computing, High Perform Computing, Modelling & Simulation, Data Science for Social, Computational Data Analysis, Data Visual Analysis

BS EE | National Taiwan University

Sep 2017 - Jun 2021

- Courses: Algorithms, Convex Optimization, Machine Learning, Linear Algebra, Digital Speech Processing, Data Structures, Signal and Systems, Computer Architecture, Integrated Circuit Design, Cloud Computing And Cyber Security

TECHNICAL SKILLS

Programming	Python, Go, Modern C++, Dart, Java, JavaScript
Machine Learning	NumPy, PyTorch, Pandas, TF, Keras, Spark, BoTorch, GPyTorch, Ax
Platforms	Azure, AWS, Google Cloud, DataBricks, Docker
Tools	Linux, SQL, Flask, Django, D3.js, Git

PROJECTS & ACHIEVEMENTS

Tula

Oct 2022

- Led a team of 4 to win the 1st place out of 1500 participants from the event's biggest sponsor, BlackRock.
- Designed a machine learning model to make transparent decisions to aid financial professionals.
- Responsible for backend that utilizes volatility index and news aggregation for portfolio allocation.

Koila

Nov 2021

- Creator and lead developer on the project that amassed 1800 stars and 50 forks on GitHub so far.
- Utilizes the idea of lazy evaluation to solve the notorious out of memory error for the most popular machine learning library for researchers, PyTorch, with a very minimalist API.

POSITIONS OF RESPONSIBILITY

Software Designer

May 2023 – Jul 2023

Ponder (Acquired by Snowflake)

- Ponder, a subsidiary of Snowflake, focuses on connecting data warehouses with pandas API, to enable data scientists to quickly design their pipeline without going into database infrastructure.
- Speed up the integrated vector database by 10 fold, integrated machine learning pipeline functionality, and implemented interactive debugging capabilities that fixed several high importance bugs in the deployment.

Data Scientist

Dec 2021 - Jun 2022

MediaTek Research

- Design and implementation of a reinforcement learning based AI system that speeds up the initial chip development process of the world's biggest chip designer by more than 3 times.
- Outlined a information retrieval system by augmenting transformers to reduce error rate by 40%.
- Sped up the existing distributed training system by 30 times by careful profiling and reducing the critical path.

Research Assistant

Sep 2019 - Aug 2022

National Taiwan University

- Engineered and developed a scalable quantum compiler that scales up to 20,000 qubits (previously only 128).
- Created an alternative way of masking for transformers that speeds up the pre-training process by 10 times.
- Proposed and examined experiments to verify a reinforcement learning based chip design model to justify solution quality.

RESEARCH PUBLICATIONS

- Qubit Mapping Toward Quantum Advantage
- Flexible multiple-objective reinforcement learning for chip placement
- Hierarchical Representations in Dense Passage Retrieval for Question-Answering