Jinqi (Kathryn) Chen

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Education

Carnegie Mellon University — Pittsburgh, PA
BS in Computer Science · Cumulative GPA: 3.93/4.00 — *August 2019 – May 2023*

- *Related Coursework*: Distributed Systems, Computer Systems, Programming Languages, Algorithms Design and Analysis, Machine Learning*, Deep Learning*, Convex Optimization*, Advanced Natural Language Processing*, Parallel and Sequential Data Structures and Algorithms, Functional Programming *(* indicates graduate level)*

Experience

Catalyst Group, CMU — Pittsburgh, PA
Undergraduate Research Assistant — *August 2022 – Present*

- *Related Skills: Python, C++, Compilers, CUDA programming, machine learning*
- Worked with Prof. Tianqi Chen on a senior-year thesis on designing a deep learning compiler that can accelerate symbolic-shaped workloads on heterogeneous hardware backends during inference, leveraging various microkernels.

Machine Learning Department, CMU — Pittsburgh, PA
Undergraduate Research Assistant — *January 2022 – Present*

- *Related Skills: Python, deep neural networks, formal verification*
- Worked with Prof. Zico Kolter on enabling polynomial bound propagation which can handle various activation functions in a GPU-accelerated and very efficient large neural network verification framework.
- Further tightened the bound over the latest NeurIPS paper Alpha-Beta-CROWN.

OctoML Inc. — Seattle, WA
Machine Learning Systems Intern — *May 2022 – August 2022*

- *Related Skills: Python, C++, Distributed Systems, machine learning systems, AWS*
- Designed and proposed a multi-level feature extraction procedure for tensorized deep learning workloads in learned tensor compilers, analyzing system characteristics of graph-level and assembly-level embeddings.
- Implemented a distributed evaluation pipeline of tensor programs, resulting in 20x speedup of current pipeline.

Learning Embodied Action and Perception (LEAP) Lab, CMU — Pittsburgh, PA
Undergraduate Research Assistant — *February 2021 – December 2021*

- *Related Skills: Python, PyTorch, Tensorflow, Reinforcement Learning, Computer Vision, Docker*
- Worked with Prof. Deepak Pathak on robot learning, using feature extraction methods to group robotic actions in the latent space and accelerate downstream adaptation of reinforcement learning on new tasks.

Projects

Distributed Bitcoin Miner — Fall 2022

- A UDP-based distributed system for bitcoin mining in Golang that is robust against server and client failures.

Code Generation Using Non-parametric Methods — Fall 2021

- Code generation in natural language processing using non-parametric retrieval methods. [link]

BERT-based Reverse Dictionaries — Spring 2021

- BERT-based methods for reverse dictionaries, which retrieves words based on their input definitions. [link]

Open-source Contributions

Apache TVM [link] — May 2022 – Present

- Contributed 3k+ lines of code to MetaSchedule, a core scheduling component of Apache TVM compiler stack.

Alpha-Beta-CROWN [link] — January 2022 – Present

- Contributed to the September 2022 release of α, β-CROWN, the state-of-the-art scalable neural network verifier.

Awards

- 1st Place, Third International Verification of Neural Networks Competition (VNN-COMP) — *July 2022*
- 1st Place, Case Three, UChicago Trading Competition — *April 2022*