

Leo Yao

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Education

Carnegie Mellon University

August 2024 – Present

B.S. in Statistics & Machine Learning and Computer Science

Pittsburgh, PA

- **QPA:** 3.64/4.00
- **Relevant Coursework:** Principles of Imperative Computation, Introduction to Computer Systems, Principles of Functional Programming, Introduction to Computer Security, Matrices and Linear Transformations, Calculus in 3D, Probability and Statistical Inference I, Statistical Graphics and Visualization.
- **Awards:** Dean's List, High Honors (Spring 2025)

Experience

Research Assistant

September 2025 - Present

FastML Lab

Pittsburgh, PA

- Researching deployment of real-time machine learning algorithms for the CMS experiment at CERN LHC.
- Developing high-granularity quantization-aware training features for [flowGNN](#), a library for deploying various types of Graph Neural Networks on FPGA chips in real-time.

Machine Learning Researcher

June 2025 – August 2025

CMU SPICE Lab

Pittsburgh, PA

- Cleaned and preprocessed household energy use data with R Tidyverse, Pandas, NumPy, and SciKit-Learn.
- Developed an artificial neural network (ANN) in PyTorch to predict households' annual cooling energy, engineering a performance improvement of over 75% by implementing LightGBM-based feature selection and advanced hyperparameter tuning (e.g. learning rate annealing, early stopping).
- Visualized model performance using Matplotlib; presented graphics in a poster to peers.
- Managed codebase and tracked experiments using Git. Poster and code available upon request.

Projects

Computer Systems (in C language)

May 2025 – July 2025

- **Dynamic Memory Allocator:** Developed a dynamic memory allocator in C for Linux. Achieved 74.3% memory utilization and a throughput of 15885 kilo-operations per second, ranking at the top of the class.
- **Tiny Shell:** Built a tiny Linux shell with foreground/background job control and I/O redirection.
- **Web Proxy Server:** Created a multithreaded web proxy server that facilitates communication between clients and web servers.
- **Shark File System:** Developed a thread-safe concurrent file system with standard features (e.g. file renaming, file descriptor position management), optimizing multithreaded performance and correctness with mutex synchronization.

Leadership

Joint Funding Committee Member

November 2024 – Present

CMU Student Government

Pittsburgh, PA

- Managing the distribution and allocation of approximately \$2.1 million to 300+ student organizations.
- Acting as a liaison between student organizations and Student Government, advocating for their financial needs during weekly JFC meetings.

Skills

Programming Languages: Python, C, R, Java, Dafny, Standard ML, x86-64 Assembly

Frameworks/Libraries: Pandas, NumPy, SciKit-Learn, PyTorch, Matplotlib, Tidyverse, ggplot2

Developer Tools: Git, Linux