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 (Advised by Prof. Matteo Cremonesi) *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 (Advised by PhD Candidate Lauren Janicke) *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).
- Created model performance graphics with 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

- Developed a dynamic memory allocator in C for the Linux Platform. Achieved 74.3% memory utilization and a throughput of 15885 KOPS (kilo-operations per second), ranking among the top of the class.
- Built a tiny Linux shell with job control and I/O redirection.
- Created a multithreaded web proxy server that facilitates communication between clients and web servers.
- 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