Jimmy Phan

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Education

Cornell University Ithaca, NY

Bachelor of Science in Computer Science, Minor in Operations Research *Expected May 2026*

Relevant Coursework: Applied Parallel Computing, Distributed Systems, Information Networks, Systems Programming, Object Oriented Programming and Data Structures, Analysis of Algorithms, Computer Systems, Functional Programming, Machine Learning

Experience

Teaching Assistant, Object-Oriented Programming and Data Structures August 2023 – Present

Cornell University *Ithaca, NY*

- Enhance students' understanding of fundamental object-oriented programming concepts and data structures by leading weekly discussion section of more than 40 students and answering over 10% of all questions posted to the course's public forum.
- Assist students in debugging and clarifying documentation for coding assignments of 500+ lines of code.

Software Engineering Extern May 2023 – August 2023

Citadel *New York City, NY*

- Engineered a dashboard in React and Flask for real-time stock performance monitoring and live portfolio tracking.
- Developed a trading bot in Python that placed 3rd among 15 teams by implementing a trading strategy using Bollinger Bands and implied/realized volume discrepancies.
- Analyzed stock market simulations to deepen understanding of market dynamics and financial concepts.

Project Lead January 2023 – December 2023

Cornell Data Journal *Ithaca, NY*

- Lead a team of five utilizing Git and agile software practices to analyze trends in educational performance and prices of financial instruments using data extracted via data scraping tools.
- Utilize pandas, NumPy, and scikit-learn to vectorize data and perform regression analysis, and visualize findings using Matplotlib.

Projects

Shallow Water Simulation | *C++, CUDA, MPI*

- Designed and implemented visual simulations of shallow water equations in C++ and CUDA.
- Parallelized implementation using CUDA and MPI, achieving more than 95% speedup from serial code.

Tennis Match Tracker | *Python, PyTorch, pandas, Numpy*

- Developed a real-time system using Python, OpenCV, pandas, and NumPy to track tennis players and ball trajectories live with trained models.
- Utilized YOLOv8 detection model for player tracking and YOLOv5 detection model for ball tracking.

Fault-Tolerant, Sharded Key/Value Store | *Go, Bash*

- Designed a key/value database that partitions keys over several shards, maximizing throughput of reads/writes.
- Utilized log replication to maintain data synchronization across replicas.

risk_of_ocaml | *OCaml, C*

- Collaborated with a team of 4 to design a competitive, strategy-based multiplayer game using Git control flow and following agile software practices.
- Developed and integrated several components in OCaml to implement game logic.

Technical Skills

Languages: Python, Java, C/C++, Go, SQL, CUDA, JavaScript, TypeScript, OCaml, HTML/CSS
Frameworks: React, Express.js, Node.js, Flask, MongoDB, Firebase, PyTorch, TailwindCSS
Developer Tools: Git, Docker, Airflow, Jenkins, Bash, Unix/Linux, Google Cloud Platform, Amazon Web Services
Libraries: PyTorch, TensorFlow, pandas, NumPy, Matplotlib, OpenCV