Hoang Chu

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EDUCATION

Pitzer College Claremont, CA
Bachelor's Degree, **Joint Computer Science and Mathematics (Honors)** Expected May 2024

- **GPA: 3.7 / 4.0** (Major GPA: 3.9 -- Cross-registered Math and CS classes at Harvey Mudd College)
- **Coursework**: Data Structures & Algorithms (**TA 1 year**), Operating Systems, Databases, Network, Machine Learning
- **Awards:** USACO Platinum, Codeforces Master, 1st Place: Citadel Datathon, Round 3: Google Code Jam

SKILLS

- **Programming Languages**: C++, Python, Java, JavaScript, GoLang, SQL, OCaml, Racket, R, MATLAB
- **Technologies**: Linux, MongoDB, Terraform, gRPC, Kubernetes, Node.js, React.js, Beautiful Soup

WORK EXPERIENCE

Periwinkle Trading August 2023 - Present
Quantitative Developer - HMC Clinic Project: *"Innovative APIs for Fixed-income Algorithmic Trading"* *C++*

- Contributed performant C++ code to 5+ internal API components of Periwinkle Trading's Options execution team.
- Implemented robust error handling, fallback behavior, and interactive graphical interfaces for options quoting logic.
- Discussed system design enhancement weekly with company CEO Scott Smallwood, former partner at PDT Partners.

University of Southern California June 2023 - August 2023
Undergraduate Research Intern - Operation Research and Data Science *Python, MATLAB*
Topic: *"Last-mile Delivery Optimization with Recurrent Neural Network"*

- Developed a pair-wise Recurrent Neural Network with a customized attention-based mechanism to predict the path deviation from the theoretical shortest-distance path a human driver would follow under external circumstances.
- Designed an iterative Sequence Generation Algorithm used after model training to identify the first stop of a route that yields the optimal operational cost and achieve the global efficiency of all routes under 120 different simulations.
- Prediction accuracy from this model **improved by 15%** compared to LSTM encoder–decoder and pointer network.

Meta May 2022 - August 2022
Engineering Intern (received return offer) *C++, Python*

- Maintained ML infrastructure and algorithms in Python, improving product labeling accuracy in Marketplace **by 2%**.
- Developed internal logging infrastructure using C++ for performance metrics, logging filtering, and crash reports, providing support for multiple product entities (accounts, comments, etc.) on approx. **200,000 requests** per day.
- Optimized scheduled cache refresh in C++ by user activity prediction resulted in a **30% decrease** in CPU cycles.

CoHost.ai (Seed-stage Startup) June 2021 - August 2021
Engineering Intern (only intern in the company) *C++*

- Deployed a multi-threaded Message Queue with Inter-Thread Communication method which prevents message losses.
- Architected the system design for the company's new Chatbot and designed test suites reaching **100% code coverage**.

PROJECTS

Python to Java for Android Development | **MLH Fellowship** Open-Source Contributor *Java, Python*

- Wrote helper functions that detect and remove redundant bytecodes and avoid crashes when variables jump addresses.
- Refactored 1200 lines of Java code for that benchmarks performance improvement of the team's Virtual Machine
- Built a deletion state service to store cluster info and transformation history, and support gRPC/HTTP requests.

ClaremontCourses | Independent *Python*

- Built a full-stack (featured) course search UI and with a customized HTTP handler **fetching 4500+ courses an hour**.
- Designed tree serialization algorithms optimizing the website's PageSpeed **from 30 secs to a consistent 0.8 second**.

Secured P2P File Sharing System | Independent *C++*

- Developed a distributed file sharing server that detects malicious attackers while preserving shared file contents.
- Implemented a multi-core x86-64 operating system that supports syscalls, multithreading and caches synchronization objects such as spinlocks and futexes, a virtual file system, and an on-disk file system with directory trees.