

Hayden (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**)
- **Awards:** [Round 3: Google Code Jam \(did in C++\)](#), [Winner: SIG Challenge](#), [Winner: Citadel Invitational Datathon](#).
- **Coursework:** Data Structures & Algorithms (**Teaching Assistant for 1 year**), Machine Learning, Web Development, Operating Systems, Database Systems, Computer Network, Computer Science Insights, Computer Theory and Logic.

SKILLS

- **Programming Languages:** Python, Java, C++, JavaScript, TypeScript, React, Golang, SQL, OCaml, Racket, Prolog
- **Technologies:** Linux, Flask, Kafka, Hadoop, Kubernetes, AWS, MySQL, gRPC, Beautiful Soup, Git

EXPERIENCE

Periwinkle Trading

August 2023 - Present

Quantitative Developer Contract (Harvey Mudd Clinic Project)

C++, Python, JavaScript, React

- Optimized the order book's risk update in C++ **from linear to logarithmic time** on gigabytes of trade data.
- Automated volatility skew calibration and calculation in Python, handling all edge cases with **100% code coverage**.
- Proposed and built a new time-based portfolio analysis tool in **O(1)** with LRU cache while handling **10 million data**.
- Initiated building an interface in React to help researchers visualize live and historical stock trading data in real-time.

University of Southern California

June 2023 - August 2023

Undergraduate Research Intern

Python, MATLAB, Google OR-Tools

Topic: *"Last-mile Delivery Optimization with Recurrent Neural Network"*

- Developed and **optimized to real-time** a ML-based prediction simulation that re-suggests routes when drivers unexpectedly have to deviate from their suggested stop sequence.
- Designed a Path Generation Algorithm in Python that **improves disparity score by 10-20%** i.e less insensitive to external circumstances compared to Traveling Salesman algorithm and yields the lowest driving time possible.
- Improved mode accuracy **by 20%** in predicting a driver's path by proposing a pair instead of a single pointer network.

Meta

May 2022 - August 2022

Engineering Intern

C++, Python, Hack, SQL, Kotlin, Android SDK

- Contributed to Meta's a privacy tracking tool in C++ to help avoid **1.3 billion USD** in fines from privacy regulations.
- Refactored **500+** complicated C++ **lines** in the team's existing data query code -- got praised from the intern manager.
- **Initiated and built** a tool ranking feature importance across Facebook's Privacy ML ecosystem in Hack and Python.
- Ideated the flowchart and implemented from scratch 20 microservices in Python and Hack that help process **300000+** **concurrent data within 2 seconds** when integrating 3rd party developers into Facebook's data sharing ecosystem.

Cohost.ai ([cohost.ai](#))

June 2021 - August 2021

Engineering Intern

Python, Java, HTML, CSS, JavaScript, ReactJS, Flask, Jinja

- Developed full-stack and from scratch an AI-based conversational web chatbot, serving **2000+ daily users**.
- Collaborated cross-team to develop in Java a multithreaded Message Queue with IPC, preventing message losses.
- Ideated and implemented microservices to process interaction metrics **in real-time** from **over 1.5 million daily messages**, visualize user interaction timeline with ReactJS, and store for metrics analysis with AWS.

Harvey Mudd College

January 2022 - Present

Lead Teaching Assistant and Grader (Grutors) - Data Structures and Algorithms

Python, Java, C++

- Lead consulting hours with 4 other TAs to assist 50 students on average weekly on OOP and Data Structures concepts.
- Collaborated with Professors to add optional topics in Data Structures such as Tries and Binary Indexed Tree.

PROJECTS

ClaremontCourses | Independent

Python, React, TypeScript, Golang, Flask, Node.js, AWS

- Built a class searching website serving 2000+ users and [solved a decade-long problem](#) at Claremont Colleges.
- Optimized the search engine's querying performance **from 25 to 0.8 seconds**, a 97% decrease using bitwise operation.