

Ethan (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), Machine Learning (TA), Computer Systems (TA), Database Systems (TA), Computer Network (TA), Web Development (TA), Probability, Logic, Mathematics of Data Science.
- **Awards:** [Codeforces Master \(2147 rating - Top 3%\)](#), [Top 1% \(Round 3\) Google Code Jam 2022](#), [4th Place - Citadel Terminal Algorithm Contest](#), 9 / 82 teams - Southern California ICPC Contest, Gold Medal: National Math Olympiad

SKILLS

- **Programming Languages:** C++, Python, Java, C, JavaScript, SQL, OCaml, Racket, Prolog
- **Technologies:** Selenium, Flask, Kafka, Hadoop, Kubernetes, Datadog, AWS, MySQL, gRPC, Beautiful Soup, Groovy

WORK EXPERIENCE

Periwinkle Trading (periwinkletrading.com)

August 2023 - Present

Quantitative Developer Contract (report to the CEO)

Java, Python, Datadog, Spark

- Contributed **in Java** the company's order book and high-frequency trading execution engine for the Brazilian Equities.
- Scaled a price/yield calculation engine with **Java** that handled increased **from 30000 to 65,000** daily requests.
- Created an integration testing suite **in Java** for all types of trades and also implemented metrics logging to **Datadog**.
- Reduced firm-wide portfolio size calculation runtime **from O(hours) to O(minutes)** in training **gigabytes of data** by coding **in Python** a translation APIs that translate dataframe operations from Pandas searches to Spark joins.

University of Southern California - Undergraduate Research Intern

June 2023 - August 2023

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

Python, C++, AWS, Groovy

- Developed from scratch a Neural Network model **in C++** with a customized attention-based mechanism that helped tackle neglect of real-time factors (e.g traffic jam) in the Traveling Salesman shortest-Path (TSP) algorithm.
- **Solved seq2seq's adaptability issue** with unordered sequences by convincing the team to use LSTM encoder-decoder (capture global instead of local information) with **a model built in Python** that **saved 15% time** on average than TSP.
- Developed a suite of model validation classes for internal model serving service with integrations for AWS S3.

Meta

May 2022 - August 2022

Engineering Intern

Python, C++ PyTorch, Hadoop (MapReduce), MySQL, kDB

- Development and maintenance on TorchScript and deployment of models authored in Python **in C++** exclusive environments, reducing **25% in inference time** latency and flops and an additional 10% reduction in live production.
- Developed an API in Python for users to register saved tensor hooks reducing memory usage **from O(n) to O(1)**.
- Contributed new **MySQL database sharding** schema that **scaled 5x workload** of generative big data stream.
- Resolved Time Limit Issue in hyperparameter search by designing a Window Selection Optimization Algorithm.

Cohost.ai (cohost.ai)

June 2021 - August 2021

Full-Stack Engineering Intern

Java, Django Selenium, HTML, CSS, JavaScript, ReactJS, AWS

- Collaborated cross-team to develop from scratch a multi-threaded Message Queue which prevents message losses with **Java Spring API** and Inter-Thread Communication method, which **lowered storage costs by over 90%**.
- **Reduced webpages response time by 70%+** by refactoring, optimizing database tables, and caching expensive calculations from Django and Golang microservices to process interaction metrics from **over 1.5 million messages**.
- Implemented PyTest unit testing framework using AWS and Selenium to verify lambda functionality through GitHub.

PROJECTS

ClaremontCourses | Independent

Python, React, JavaScript, RESTful API, Selenium, Flask, Node.js, AWS

- Built a full-stack class search website that **served 2000+ users** in JavaScript and automated scratching with Selenium.
- Implemented tree serialization algorithm to display full-depth prerequisite trees in vanilla JavaScript from MongoDB.
- Designed algorithms with bitwise operation that optimized search time **from 25 to 0.8 seconds** per course query.

Traveling Salesman Art | Independent

C++

- Designed algorithms finding min-weight Hamilton cycle which draws a copy of original image using minimum lines.