

Nathan Dai

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🏠 Santa Clara, CA
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EDUCATION

University of California, Berkeley

August 2024 – May 2028

Bachelor of Science in Electrical Engineering and Computer Science (EECS)

Relevant Coursework: Data Structures, Computer Architecture, Linear Algebra, Multivariable Calculus, Discrete Math, Probability Theory, Statistics, Circuits and Devices

SKILLS

- **Programming:** Python, TypeScript/JavaScript, Java/Kotlin, React, Flask, Spring Boot, Postgres, WebSockets, Firebase
- **Data Analysis:** Pandas, Matplotlib, Excel, Sci-kit Learn, PyTorch

RELEVANT EXPERIENCES

DL Software (<https://app.godelterminal.com/>)

December 2024 – Present

Software Developer

Part-time remote (school year); full-time NYC (summer)

- Built **data-intensive UI** using TypeScript, React, and WebSockets, delivering low-latency, streaming financial data
- Optimized **application performance** using memoization, virtualization, and efficient state management
- Reduced content download time by **50%** and first contentful paint time by **16%** through **parallel API request optimization**
- Developed and integrated **statistical analysis APIs** with Kotlin Spring Boot
- Analyzed customer behavior data from Stripe and PostHog using Python to **improve paid customer conversion**

Berkeleytime (<https://www.berkeleytime.com/>)

September 2024 – Present

Semantic Search, Internal Lead

- Implemented **embedding models** in Python to power semantic search and improve course discoverability
- Built an Elo-based platform for beta testers to compare and **rank model quality** using Flask
- Created an **internal dashboard** to batch update staff info and streamline onboarding using Express.js and React

Machine Learning and Data Science Club

August 2021 – May 2024

Co-founder and Vice President

- Developed an AI-powered climate change education platform, *EcoGuide*, to empower greener lifestyles
2nd Place (KatyYouthHacks, 2/68 global teams)
- Engineered an LLM-based epitope classifier to accelerate the identification process for vaccine candidates
(Bio ML Hackathon, 20/500+ accepted project proposals)

Wharton Global High School Investment Competition

September – December 2023

Team Leader and Semifinalist (50/1,600 global teams)

- Led a 6-person team in managing a \$100,000 stock portfolio for a hypothetical client
- Developed and executed investment strategies that aligned with the client's financial goals and personal values

PROJECTS

DECA Dashboard (<https://www.decadashboard.com>)

A web application that streamlines the DECA competition process for high school students

- Developed an intuitive interface allowing users to manage their progress using Next.js and Tailwind CSS
- Built a Firebase backend with Firestore for secure user data storage and Google authentication for streamlined access
- Used by students from multiple high schools

Keyboard Layout Optimizer

A program to create custom keyboard layouts optimized for coding efficiency and ergonomics

- Engineered a genetic algorithm to evolve personalized keyboard layouts from a corpus of all code I have ever written
- Created a custom fitness function penalizing long travel distances and repeated finger use
- Devised a crossover and mutation strategy for combining layouts

PUBLICATIONS

- Nathan Dai and Suleyman Uludag, "Performance Tradeoff in ML-based Intrusion Detection Systems: Efficacy vs. Resource Usage", *2024 IEEE Consumer Communications & Networking Conference (CCNC)*, Las Vegas, NV, January 2024, pp. 1030-1031. <https://ieeexplore.ieee.org/document/10454871>

ADDITIONAL EXPERIENCES

- 2022 and 2023 AMC 12, AIME Qualifier
- Greater San Diego Science and Engineering Fair, 1st Award (2021), 2nd Award (2022, 2023)
- 2021 USA Computing Olympiad, Silver Award
- Culture Ebikes, *Sales Associate*