Nathan Dai

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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, Tailwind, 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, real-time UI components using TypeScript, React, and WebSockets, delivering low-latency rendering of streaming financial data
- Optimized performance to handle high-frequency updates using memoziation, virtualization, and efficient state management
- 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://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

Machine Learning and Data Science Club August 2021 – May 2024

Co-founder and Vice President

- Developed an AI-powerd climate change education platform, *EcoGuide*, to enpower 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*