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:
- CS 61A: The Structure and Interpretation of Computer Programs
- EECS 16A: Designing Information Devices and Systems I

Relevant High School Courses:
- Computer Science A, Physics 1/2/C: Mechanics and E&M, Statistics, Calculus AB/BC/Multivariable, Linear Algebra

SKILLS

- **Programming:** Python, JavaScript, Next.js, Tailwind CSS, Firebase
- **Data Analysis:** Pandas, Excel, Matplotlib

RELEVANT EXPERIENCES

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 (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

Impromptu (https://impromptu-psi.vercel.app/)
A web app that helps users practice impromptu speaking through AI-powered debate simulations
- implemented speech-to-speech interactions using Vapi API and text transcription with Whisper Large V3 Turbo
- designed and developed a responsive frontend with Next.js and Tailwind CSS for seamless user experience

Keyboard Layout Optimizer
A program to create custom keyboard layouts optimized for coding efficiency and ergonomics
- developed a genetic algorithm that optimizes the placement of *all* keys, not only letters
- optimized on a custom corpus of all the code I have ever written

Navigator
A driving copilot that enhances safety by announcing upcoming turns
- designed a curve detection algorithm considering angle thresholds and segment distances to announce unexpected turns

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*