

# David Yang

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## EDUCATION

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### University of Berkeley, California

Berkeley, CA

*B.S in Industrial Engineering & Electrical Engineering and Computer Science (4.0/4.0)*

08/2023 - 05/2027

- Coursework: Structure and Interpretation of Computer Programs (A+), Data Structures (A+), Discrete Mathematics and Probability Theory (A+), Principles of Data Science, Statistical and Machine Learning
- Activities: Cal Table Tennis Officer, Poker at Berkeley Member, IISE Member, Tau Beta Pi Candidate

## EXPERIENCE

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### Incoming Algorithms and AI Software Development Intern

Starting May 2024

*Genetic Sciences Division, Thermo Fisher Scientific*

San Francisco, CA

### NLP Student Research Assistant

03/2022 - 08/2022

*Cardiovascular Data Science Lab, Yale University*

New Haven, CT

- Developed a full-stack federated-learning demo tool for hospitals in Japan and US. Orchestrated the seamless integration of Yale AWS instances and databases, delivering substantial 2x efficiency of query initialization.
- Spearheaded Yale-OHDSI by incorporating hierarchical administrative access and learning the Athena vocabulary for hosting the OHDSI SQL generation tool.
- Deployed a federated BOW spaCy model for classifying patient features (Age, Gender, Risk) based on hospital texts, achieving 0.99 binary AUC and 0.87 macro-F on 77 categorical age labels. Presented model at lab meeting.

### Autonomous Cognitive Assistants Software Developer

05/2022 - 08/2022

*Beaver Works Summer Institute, MIT Lincoln Laboratory*

Lexington, MA

- Learned from Anthropic MLE Ryan Soklaski, who guided designing our own auto-differentiation package.
- Led 3 team-based AI capstones: FaceID with Facenet and Whispers clustering, fine-tuning food-recognition on YoloV7 and Detectron2, and semantic search, weighted inverse document frequency image-query engine from text.

## PROJECTS

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### Myron Krueger Demos | *Classical Algorithms for Computer Vision, Computer Graphics*

2024

- Currently building my own version of the VIDEOPLACE, paying homage to Myron Krueger's art of interactivity.

### San Francisco EMS: Demand Forecasting | *Geospatial, Time Series, TensorFlow, Pandas, NumPy*

2023

- Designed and implemented a second-order auto-regressive moving-average model to forecast ambulance demand under Director of SF Data, Andrew Holcomb, factoring time of day, holidays, and historical weather conditions.

### Spell.social: Collaborative Image Editing with GenAI | *React, Instruct-Pix2Pix, SpellBook, Supabase*

2023

- Envisioned a future of social media where users shared prompts, using collaborative Photoshop as the medium for such connections. Built at Scale.AI's 1st Generative AI Hackathon. Hosted at [spellsocial.vercel.app](https://spellsocial.vercel.app)

### Shazam! (Song Recognition App) | *Fourier Analysis, Spectrogram, MATLAB, NumPy*

2022

- Developed an audio recognition system, converting audio recordings into numpy arrays, generating spectrograms, and extracting local peaks to create unique fingerprints for each recording.

### 2nd Place GGSF: AFP + CEA Antigen Viability as Ovarian Cancer Biomarkers | *PyTorch*

2022

- Discovered that partitioning patients into pre/post-menopausal status improved greatly on previous benchmarks.
- Developed a model with 89.4% accuracy, reducing error by 33% from the Risk of Malignancy Algorithm (ROMA). Achieved 86% sensitivity and 92.7% specificity, above the 85% medical standard.

## EXTRACURRICULAR

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### Leadership

- Provided free after-hours library tutoring to student-athletes and low-income students in Algebra 2 and Biology.
- Created discussion worksheets, exam problems, and review sheet content as Head TA for AP Computer Science.
- Led a 6-person army running Harmony Hacks, a societal-problem-first hackathon, reaching over 500 attendees, \$45,000 in-kind donations, and \$2000 in monetary sponsorship. Incubated NeighborMart by Alayna Nguyen.
- Hired tutors from Vietnam, Romania, Australia, and USA to teach 100 students over 2 years for USACO Tutor.

### Awards

- National Merit Scholar: one of 2500 students nation-wide awarded a \$2500 scholarship.
- 1000/1000 on USACO Silver and 700/100 on Gold in December 2020. Round 2 Facebook Hackercup 2021.
- Announced as the winner of the 2020 San Mateo County Poetry Out Loud Competition on February 8.
- Won Grand Prize at Digitize for Harmony, an Edu App on Systemic Racism, Gender Wage Gap, and LGBT rights.