

# Barnett Yang

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## EDUCATION

### University of California, Berkeley

B.A., double major in Computer Science and Mathematics, EECS Honors Student

Expected: May 2024

GPA: 4.0/4.0

#### Relevant Coursework

- **Computer Science:** Neural Networks and Deep Learning, Artificial Intelligence, Operating Systems, Efficient Algorithms and Intractable Problems, Data Structures, Computer Security, Machine Structures, Information Devices and Systems
- **Mathematics:** Discrete Mathematics and Probability Theory, Linear Algebra, Multivariable Calculus, Numerical Analysis, Differential Equations, Real Analysis, Mathematical Economics, Game Theory

## TECHNICAL SKILLS

**Languages:** Python/PyCharm, Java/IntelliJ, C, Go, SQL, JavaScript/TypeScript, HTML/CSS, LaTeX, RISC-V

**Data Science/Machine Learning:** NumPy, Scikit-learn, PyTorch, Pandas, Matplotlib/Seaborn, Bayes Server

**Software Engineering:** Cloud Services, AWS, Object-Oriented Programming, DevOps, CI/CD, SCRUM/Agile Workflows, Git/Github

**Web Development:** Node, Express, React, MongoDB, MySQL, Bootstrap, EJS, Heroku, REST API Development, Figma

## WORK AND LEADERSHIP EXPERIENCE

### Citadel Securities

Software Engineering Intern

Chicago, IL

Expected: June 2023 – August 2023

### Amazon

Software Development Engineer Intern

San Francisco, CA

May 2022 – August 2022

- Developed and deployed services for repair operation (RO) transparency, helping return vendors verify RO proactively, reducing tech team workloads, improving operational efficiency, and establishing a proof of concept for a unified repair portal. The design included analyzing various tradeoffs between compute/storage options and backend cloud architectures, and implementation of the services required integrating various AWS compute engines, authentication services, CDNs, and inventory/database services.
- Presented and demoed completed applications to directors of Amazon ReCommerce and Warehouse Deals organizations.

### Sandia National Laboratories

Machine Learning R&D Intern – Math Analysis and Decision Science

Albuquerque, NM

May 2021 – May 2022, September 2022 – Jan 2023

- Investigated novel methods in feature selection, random forest MDI discretization, and structural learning for Bayesian network (BN) training and development, improving statistical robustness metrics by over 15% on imbalanced red-team cybersecurity datasets with applications in corporate network anomaly detection.
- Constructed a scikit-learn compatible Java to Python extension library that streamlined BN and dynamic BN creation and testing pipelines, reducing the prior BN manual workflow by 90% and allowing accelerated machine learning development, with utilization across multiple labs and projects at Sandia.
- Performed machine learning research culminating in a first-authored publication accepted for HICSS-56 proceedings presenting applications of Bayesian networks and their relevant methodologies, best practices, and heuristics in cyber-attack detection.

### UC Berkeley PlexTech

Project Manager – Atlassian

Berkeley, CA

February 2021 – December 2022

- Established project scopes with Atlassian product managers; set up developer sprints, onboarding projects, CI/CD pipelines, and code review workflows; and led implementation of a novel feedback-tracking application within Atlassian Compass.
- Expanded the issue-tracking service to include an NLP-based text similarity microservice, hosted on AWS EC2 and RDS.

External Vice President

January 2022 – May 2022

- Reformed semester recruitment processes of over 100 applicants via detailed recruitment timelines and member accountability measures, and decreased deliberation man-hours by over 50% through the creation of objective score-based assessment tools.
- Organized UC Berkeley “Cal Intro to Tech,” a joint recruitment drive for nine student tech organizations with over 200 attendees.

## PROJECTS, PUBLICATIONS, AND AWARDS

### Pathfinding and Sorting Visualizers

User-interactive teaching aid for [Dijkstra's](#), [A\\*](#), and [bidirectional pathfinding algorithms](#) and [comparison and radix sorting algorithms](#).

### COVID-19 Data Analysis Exercise

Data analysis study examining the economic effects of the COVID-19 pandemic on the racial achievement gap using BLS and HSLs data. Findings were compiled into a research report and published on [Towards Data Science Editors' Picks](#) with over 2000 views.

Yang, B., Hoffman, M., Brown, N.: Bayesian Networks for Interpretable Cyberattack Detection. Sandia National Laboratories, HICSS-56 Proceedings, 2023.

Yang, B.: Impacts of the COVID-19 Pandemic on the American Socioeconomic Academic Achievement Gap Through the Perspective of Race, Income, Unemployment, and Poverty. Towards Data Science, 2020.

Twice American Invitational Mathematics Examination (AIME) Qualifier