Barnett Yang

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EDUCATION

University of California, Berkeley   *Expected: May 2024*
B.A. Computer Science and Mathematics   *GPA: 4.0/4.0*
Relevant Coursework
- **Computer Science:** Neural Networks and Deep Learning, Artificial Intelligence, Efficient Algorithms and Intractable Problems, Data Structures, Computer Security, Machine Structures, Foundations of Data Science, Information Devices and Systems
- **Mathematics:** Discrete Mathematics and Probability Theory, Multivariable Calculus, Linear Algebra, Differential Equations, Real Analysis, Mathematical Economics

TECHNICAL SKILLS

Languages: Python, Java, C, Go, SQL, JavaScript, HTML/CSS, LaTex, RISC-V
Data Science/Machine Learning: Pandas, Matplotlib/Seaborn, NumPy, Scikit-learn, Bayes Server, Tensorflow
Web Development: Node.js, Express, React, MongoDB, Bootstrap, EJS, Heroku, General REST API Development
Software Engineering: Git, Postman, VS Code, IntelliJ, PyCharm, Figma, Notion

WORK AND LEADERSHIP EXPERIENCE

Amazon   *San Francisco, CA*
Software Development Engineer Intern – OPS Organization   *Starting May 2022*

Sandia National Laboratories   *Albuquerque, NM*
Math Analysis and Decision Science R&D Intern   *May 2021 - Present*
- Investigated novel techniques in feature selection, variable discretization, and structural learning for Bayesian network training and development, improving statistical robustness metrics by over 15% on imbalanced cybersecurity datasets.
- Constructed a Java to Python machine learning extension library to streamline Bayesian network creation and testing pipelines, reducing the prior manual workflow by 90% and accelerating machine learning development to detect cybersecurity attacks and community events, with use in multiple labs/projects at Sandia.
- First-authored publication currently under review for WCCI/IJCNN 2022 presenting applications of Bayesian networks and their relevant methodologies, best practices, and heuristics in cyber-attack detection.

UC Berkeley PlexTech   *Berkeley, CA*
External Vice President   *December 2021 - Present*
- 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.
- Led planning of inter-organization publicity and networking events, managed public image through social media, and assisted in the day-to-day running of the club.

Project Manager – Tassel and Scholarhub   *February 2021 - December 2021*
- Coordinated the creation of back-end routes, set up MERN development frameworks and database models, and led project ideation for ScholarHub Gather to create a sustainable online education platform API currently being piloted at UC Berkeley.
- Established project scope and API designs with startup CEOs, formulated developer onboarding and agile development sprints.

Anavia Jewelry and Gifts   *City of Industry, CA*
Software Development Engineer Intern   *July 2019 – December 2020*
- Created web scraping pipelines to automate lead generation, producing 100,000+ datapoints and improving quality of data and advertising efficiency by 80%.
- Developed algorithms to verify the correctness of company invoices and inventories, thus removing the previous manual workflow and informing marketing strategies.

PROJECTS AND PUBLICATIONS

Pathfinding and Sorting Visualizers
User-interactive Node.js teaching aid for Dijkstra's, A*, and bidirectional pathfinding algorithms and comparison and radix sorting algorithms. The pathfinder includes a recursive division maze generator and functionality to add wall and weighted nodes.

COVID-19 Data Analysis Exercise
Data analysis study analyzing 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 nearly 2000 views.

Yang, B., Hoffman, M., Brown, N.: Developing Bayesian Network Capabilities to Robustly Detect Cybersecurity Intrusions. Sandia National Laboratories, 2021. – Submitted for review: WCCI/IJCNN 2022

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.