Trevor Brokowski

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Education

UCLA - HONORS COLLEGE

BS: Computational Biology
Specialization: Quantum Machine Learning for Genetic Engineering
Date: 2020 - 2023 | **GPA:** 3.8/4.0
Click for Publications

Honors Theses

Biomedical Informatics

- Personalized antibiograms for AI-driven antimicrobial stewardship and prescription in healthcare.

Quantum Machine Learning

- Simulating multi-body molecular interactions via quantum machine learning.

Honors Projects

Linear Algebra in Quantum Computing

- Taught advanced topics of linear algebra involved in quantum computation to the class professor, met weekly. Project Grade: A.

Racial and gender bias in computer vision for healthcare

- Built and assessed the effects of adding ethnicity and gender information into a neural network classifying age from x-ray images. Project Grade: A.

Certifications

HarvardX: Data Analysis for Life Sciences | IBM Certified Associate Quantum Developer | Certified Kubernetes Application Developer | Udemy: Advanced SQL | Fundamentals of ML Ops CI/CD.

Skills

Computer: Python, C+, Java, SQL, Tableau, Git, Linux, Kubernetes, R, AWS, Azure, Oracle.
Libraries: Tensorflow, Pytorch, Keras, Pandas, Numpy, Scipy, Qiskit, Pennylane, OpenCV
Misc: Probability and Statistics, Biology, Quantum Chemistry, RNA structure probing and prediction.

Experience

DATA SCIENCE AND ANALYTICS INTERN

World Wide Technology
May 2022 – September 2022 | Remote

- Built and deployed a CI/CD deep learning-based work prediction system, used by over 30 teams, through Kubernetes and Docker - improving work allocation by a cumulative total of 15 years and saving over 1.5 million dollars in salary.
- Verified agile best practices and the existence of the agile team at WWT through data-driven methodologies.
- Built a visually appealing dashboard permitting business stakeholders to leverage and apply insights gained from the model.

DEEP LEARNING AND AI INTERN

Biosero
Apr 2021 – Apr 2022 | San Diego, CA

- Built a deep learning-based object detection system for lab automation using advanced and robust contour segmentation techniques to identify an object's location in the lab environment and automate correction if placed incorrectly by robotic arms - patent pending.
- Collaborated with the engineering team to implement the software in robust lab environments.

Research

BIOMEDICAL INFORMATICS

Computational Medicine - UCLA Health
Mar 2022 – Current | Los Angeles, CA

- Built an antimicrobial stewardship model for staph infections using patients' entire EHR histories - identifying and recommending appropriate and specific empiric antibiotic regimes with a 60 percent improvement over clinician efficiency rates.
- Currently focused on collaborations with MRSA specialists at UCLA for model interpretability and deployment.

QUANTUM COMPUTING

UCLA Qubit Lab
Aug 2021 – Current | Los Angeles, CA

- Developed a novel method to simulate multi-body molecular interactions on a quantum device using quantum machine learning.
- Presented at the IEEE International Conference for Quantum Computing, one of 3 undergraduates selected from 500 applicants.
- Taught 5 Introduction to Quantum Computing workshops for electrical engineering majors at UCLA.

COMPUTATIONAL BIOLOGY

UCLA Alfaro Laboratory
Nov 2020 – July 2021 | Los Angeles, CA

- Developed expertise in pipeline optimization and dynamic programming, contributing towards the only R package capable of identifying the significance of color in the Darwinian evolution of birds and fish.
- Optimized the image processing pipeline from completion in 3 hours to 7 minutes | Created a function to correct color selection - increasing accuracy by 30 percent | Developed a recursive algorithm to identify color pattern significance.