Albert Ho

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Education

University of California, San Diego — La Jolla, CA

Bachelor's of Science, Computer Science (3.8 GPA) — September 2024 - June 2026

- Relevant coursework: Data Structures, Algorithms, Engineering Probability and Statistics, Theory of Computing, Intro to AI: Probabilistic Models, Software Engineering
- Summer URS Philip and Elizabeth Hiestand Scholarship for Engineering and/or SIO majors award

Experience

Student Research Intern — October 2024 - Present

University of California, San Diego Health — Hojun Li Lab

- Applied advanced clustering methods including **UMAP** and performed **differential gene expression analysis** on single-cell transcriptomic datasets, uncovering novel gene expression patterns beyond prior studies.
- Evaluated and benchmarked **scRNA-seq algorithms** using stem cell data, demonstrating algorithm effectiveness in reconstructing biological signals comparable to consensus non-negative matrix factorization.
- Leveraged specialized bioinformatics tools (starCAT) to investigate temporal gene expression dynamics in CD34+ hematopoietic stem and progenitor cells post-transplantation.
- Processed and managed large-scale single-cell datasets (>57,000 cells) using **R**, **Seurat**, **Python**,and **Pandas**, optimizing data workflows and ensuring reproducibility.

Data Science Intern — July 2024 - August 2024

Lawrence Livermore National Laboratory

- Enhanced diagnostic recall scoring for ventricular aarrhythmias by developing a machine learning model. Compared algorithms like **Logistic Regression**, **Random Forest**, and **CNNs**, achieving highest recall with **XGBoost**.
- Boosted recall scores from **80%** to **99%** by implementing a convolutional neural network for sequence-to-sequence prediction. Utilized hyper-parameterization to optimize model performance.
- Processed and labeled large datasets (over 16,000 samples) using **Pandas** dataframes for training and testing

Student Research Intern — May 2023 - January 2024

University of California, Merced: School of Social Sciences and Humanities

- Developed an **Unreal Engine** 3D simulation application of an archaeological site in Central Valley, California
- Implemented .fbx scan models, realistic lighting textures, and object interactions utilizing **C++**/Unreal modules
- Presented finalized application on UC Merced's Wide Area Visualization Environment

Projects

Residual Network Stock Predictor | *Python, Pandas, Numpy, Sklearn, yfinance* — January 2025

- Designed and implemented a **residual neural network** from scratch to predict real-time S&P 500 readings, achieving results within 5% of state-of-the-art baselines in stock price forecasting.
- Utilized the yfinance API to retreive real time data and processed financial data using **Pandas** and **NumPy**.

MewsiCat | *Python, JavaScript, React Native, AWS, Expo* — November 2023 - May 2024

- Implemented mobile social networking application incorporating the Spotify API and interactive sprites/modules
- Guided a team of four to create and design a mobile application's user interface and experience (UX/UI)
- Developed full-stack integration for data processing and retrieval through **AWS**, **JavaScript**, and **Python** scripts

Earth Equity | *React, JavaScript, HTML, Tailwind CSS, D3.js* — October 2023

- Led a team of 5 to develop a full-stack web application for NASA Space Apps Hackathon; leveraging NASA time-series datasets through stock market trend indicators for data visualization.
- Integrated interactive database displays and modules utilizing the **React framework**, **Tailwind CSS**, and **D3.js**
- Incorporated the integration of data from **Python** data-scrapping algorithms utilizing **Javascript** scripts
- Presented finalized web application and explained implementation to a panel of professionals

Technical Skills

Languages: Python, R, C/C++, HTML, CSS, JavaScript, Java
Frameworks: Agile, React, Node.js, WordPress, Tailwind CSS
Developer Tools: Git, Github, Visual Studio Code, Firebase, PyCharm, XCode, Unreal Engine, Codacy
Libraries: scikit-learn, sklearn, tensorflow, PyTorch, Jupyter, pandas, NumPy, Matplotlib, D3.js
Certifications: CodePath Certificate in Intro to Android Mobile Development