

Calvin Cai

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SKILLS

Programming Languages: Java, Python, JavaScript, SQL, HTML, CSS, R, SystemVerilog

Other Tools/Skills: Docker, Pytorch, Scikit-learn, React.js, Node.js, Express.js, Bootstrap, JSON, JUnit Testing, Linux, MS SQL Server, MongoDB, Git, AWS Cloud Computing, AWS Amplify, S3, Lambda, HPC, Agile Methodologies, Scrum

EDUCATION

Case Western Reserve University, Cleveland, OH

Graduating May 2025

Bachelor of Science in Computer Science; Economics Secondary Major; 3.53 GPA

- Coursework: Data Structures, Algorithms, Full-Stack Programming, Artificial Intelligence, Machine Learning, Database Systems, Computer Security, Software Engineering, Operating Systems, Cloud Computing with AWS
- Activities: Varsity NCAA Division III Wrestling
- Awards: NCAA Scholar All-American, UAA All-Academic Honoree, Dean's High Honors List

EXPERIENCE

Case Western Reserve University, Cleveland, OH

July 2023 - Current

Undergraduate Research Assistant

- Leverage Python packages such as pandas and numPy, to analyze datasets containing thousands of genes to identify patterns, in efforts to discover biomarkers for Urology diseases, contributing to ongoing research efforts
- Conduct research to uncover genomic origins of kidney stones, harnessing online databases and sophisticated software tools to filter genomic data, and applying Linux annotation tools such as ANNOVAR in HPC environment

iD Tech Camps, Stanford, CA

June 2022 - August 2022

Java/Python Instructor

- Led over a hundred students of different levels to understand object-oriented design and programming syntax
- Communicated as a liaison between students, parents, and management

PROJECTS

[Full-Stack Fitness Tracker App](#)

November 2023 - Current

React.js, Express.js, Node.js, MongoDB

- Developing and continuing to add features to a MERN stack application with CRUD functionality, enabling users to seamlessly manage workouts and track fitness progress and history
- Designed a RESTful API architecture for efficient communication between the front-end and back-end, ensuring smooth data flow and minimizing latency

[American Sports Database](#)

November 2023 - December 2023

Java, MS SQL Server, JDBC

- Collaborated in a small team to design Microsoft SQL database, streamlining data access and modification
- Used JDBC backend to handle stored DDL and DML procedures, enabling concurrent queries and modifications

[Iris K-Means Clustering and Neural Network](#)

October - November 2023

Python, scikit-learn

- Plotted and classified three species of iris using tools including numPy, pandas, matplotlib
- Classified with a neural network and used gradient descent to find best fit weights
- Wrote a generalized k-means function that inputs a dataframe and cluster number to identifies groups

[8 Puzzle AI Solver](#)

September 2023

Python

- Implemented interactive 8 puzzle game in Python with two separate search algorithms to solve efficiently
- Applied the A* search algorithm, with Manhattan Distance heuristic to determine optimal moves between states
- Utilized a Beam Search algorithm, allowing users to input beam width to manage space complexity

[RateMyDorm](#)

February 2023 - May 2023

AWS Amplify, AWS S3, React.js, HTML5, CSS, JavaScript, Bootstrap

- Built a dorm rating website specific to CWRU with filter, post, like/dislike and read features using React
- Leveraged AWS Amplify to streamline hosting, storage, connectivity, and data synchronization
- Collaborated with a Scrum team to develop features based on user requirements

Additional projects can be viewed on my portfolio at <https://calvincai.me>