

JASMINE TAI

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EDUCATION

University of California, Santa Cruz

B.S. in Computer Science and Applied Mathematics | GPA: 3.99

Santa Cruz, CA

Sept. 2021 – Dec. 2024

Relevant courses: Data Structures and Algorithms, Principles of Computer Systems, Operating Systems, Artificial Intelligence

WORK EXPERIENCE

Computational Ecology Lab

Undergraduate Research Assistant

Santa Cruz, CA

Dec. 2021 – present

- Contributing to the development of a novel connectivity computation model for bird species using PyTorch and GPU processing, which runs >1,000x faster than existing models
- Produced the ecoscape-layers Python package for automating Area of Habitat computation for thousands of bird species
- Released the scgt Python package for efficient processing of large quantities of geospatial data with GDAL and Rasterio

Tech4Good Lab

Lead Web Developer

Santa Cruz, CA

Sept. 2023 – present

- Leading a developer student team of 10+ in collaboratively building software applications used for research initiatives
- Guiding team members in the acquisition of web development skills with a technology stack that includes TypeScript, Angular, RxJS, NgRx, and Firebase by providing regular mentorship and code reviews
- Managing part of the 100+ member lab at a high level by evaluating lab applicants and refining long-term project goals

NASA Jet Propulsion Laboratory

Software Engineering Intern

La Cañada Flintridge, CA

June 2024 – Aug. 2024

- Automated the generation of test procedure scripts for Deep Space Network (DSN) emulator machines from human-readable documents in Tcl, reducing time needed for running regression tests by >10x
- Rewrote existing software for automatic test execution on one DSN emulator for general use on both current and future DSN emulators, increasing applicability of software to current and future spacecraft missions
- Engineered new system design and infrastructure for test automation via a web interface to support test script generation and test script uploads across various machines using HTML, CSS, jQuery, and Perl

Software Engineering Intern

June 2023 – Aug. 2023

- Extended automation software for creating essential mission configuration files, which are used to support 40+ active spacecraft missions that rely on telemetry subsystems within the DSN
- Performed processing of mission documents, data validation, and testing to build and verify configuration files in Perl
- Created an intuitive web interface and file browser for the automation software using Bootstrap, jQuery, and Python

PROJECTS

Quiz Game Web Application | TypeScript, React, Next.js, Node.js, Express, Git

Apr. 2023 – June 2023

- Collaborated in a team of six to build Kakaw!, a web platform that facilitates live quiz sessions as a learning and review aid
- Developed playful and engaging user interfaces compatible with both desktop and mobile screens, designed with Figma and implemented with React, Tailwind CSS, and Next.js

Multi-Threaded HTTP Server | C, Git

Jan. 2023 – Mar. 2023

- Developed an HTTP 1.1 server that processes GET and PUT client requests in C, complete with an audit log
- Utilized a thread pool design involving the use of worker threads to serve multiple clients concurrently and efficiently while ensuring the atomic and consistent linearization of requests
- Implemented a thread-safe bounded buffer in the form of a queue to help manage multiple incoming client requests

Game Integration Discord Bot | JavaScript, Node.js, Discord.js, Chart.js, PostgreSQL, Heroku, Git

Mar. 2022 – July 2022

- Deployed an actively used bot on the popular social platform Discord that leverages the Discord.js library to process and generate responses for 25+ distinct user commands via the Discord API
- Integrated support for web scraping and storing data for statistical analyses using Axios, Cheerio, and a PostgreSQL database

TECHNICAL SKILLS

Languages: JavaScript (ES6), TypeScript, Python, C, C++, Java, Perl, HTML, CSS, SQL, MATLAB, Fortran, Tcl

Frameworks/Libraries: React, Next.js, Angular, Puppeteer, Bootstrap, NumPy

Developer Tools: Node.js, PostgreSQL, MongoDB, Jupyter, Unix, Visual Studio Code, Git, Github, Heroku, Figma