

ALEXANDER SCOTT CLANTON

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EDUCATION

University Of California Santa Cruz
B.S. Computer Science *GPA: 3.55*

Santa Cruz, CA
2020 - December 2023

INTERNSHIPS

General Dynamics Mission Systems
Software Engineer Intern

San Jose (Onsite)
June 2023 - September 2023

- Worked on a non-classified project that deals with space vehicles and was tasked to visualize objects for an existing web application and create a standalone version.
- Used JavaScript, C++, Redis, CesiumJS, and set up a tile server for the application on AWS.
- Created and containerized C++ adapters, which take in and format data to generate an update packet which is sent via WebSocket to Node.js.
- Multiple instances of this server can be spun up via a docker-compose file, depending on the variety and number of data sources required for the space vehicles.
- Created a Node.js server for Cesium which demonstrates live data capability for the space vehicle.
- Ported the standalone solution to support another team with an existing web application and added new features that are required by the customer.

Black Box LTD
Solutions Architect Intern

San Diego (WFH)
May 2022 - August 2022

- Researched cloud solutions to improve the company's offerings in enterprise networking.
- Intern project on how the company can improve its solutions globally.

SKILLS AND INTERESTS

Programming Languages:	C, C++, Python, and JavaScript.
Technologies:	WebSockets/Client-Server, Threads/Mutexes, Distributed Systems, Redis and Docker.
Parallel Programming:	Minimize Cache Misses, TSO Memory Model and Concurrent Data Structures.
Computer Architecture:	Passionate about CPUs/GPUs and have experience with RISC-V Architecture.

PERSONAL PROJECTS- [HTTPS://GITHUB.COM/ALEXANDERCLANTON](https://github.com/AlexanderClanton)

HTTP Server C

A single-threaded and multi-threaded HTTP Server. Utilizing a queue to accept and manage incoming connections. Using GET and PUT requests with error handling for other requests.

Vroomers Web App JavaScript/React

Team of 5 project which was a basic social media app utilizing JavaScript and React to find other users interested in creating and joining a car meet. Used Google Maps API and Firebase to have login and search functionality.

Multi-Threaded Password Cracker C++

Had access to 4, 24 Core Servers to make the fastest password cracker I could. Utilizing techniques to minimize cache misses and spread the workload across servers.

Multi-Threaded Radix Sorter C++

Utilized a single 24 Core Server to make a fast radix sort, dealing with data via sockets, and dividing up data to maximize workloads per core.

Red-Black Tree Dictionary C++

Developed an efficient Red-Black Tree for dictionary usage. Ensured optimal search, insertion, and deletion with enhanced utility functions such as tree printing, and 'begin' and 'end' retrievals. This structure supports higher-level data-driven applications.

Huffman Encode & Decode C

The program can take any file type to compress. It works by creating a histogram of 256 ASCII values from character frequency. The characters are added into a tree where I use a min heap for ordering. The encoded file can be decoded back using the produced tree.

AWARDS

Dean's Honors List
Top 15% of their academic group

Dean
2020/2021