Tamir Melzer-Bronstein

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EDUCATION

University of California, Santa Cruz — Santa Cruz, CA
Master's of Computer Science — *Sep 2022 – Jun 2023 (Expected)*

University of California, Santa Cruz — Santa Cruz, CA
Bachelor's of Computer Engineering with Honors, Minor in Computer Science — *Sep 2018 – Jun 2022*

EXPERIENCE

Teaching Assistant — Sep 2022 – Present
University of California, Santa Cruz — *Santa Cruz, CA*
- Teaching Assistant for the Principles of Computer System Design course
- Created exams that adequately test students on computer system design principles
- Led multiple weekly discussions to assist students with their programming assignments

Software Engineering Research Intern — Jun 2021 – Sep 2021
University of California, Los Angeles — *Los Angeles, CA*
- Conducted research on the automatic alignment of retinal images
- Developed a coding suite to analyze live surgical videos using MATLAB computer vision toolboxes
- Tested accuracy of coding suite on 100+ surgical video segments and yielded an average of 2% error

PROJECTS

RateMyInternship (Beta) | *React, Node.js, Express.js, PostgreSQL, Docker*
- Platform for students to anonymously read and write reviews about internships
- Produced an effective rating system based on 50+ user-submitted surveys that allows users to write a review in less than 5 minutes
- Designed website with industry-standard UI/UX and accessibility practices and achieved 96% performance rating when audited with Lighthouse
- Backend server and API uses Node.js and Express.js to handle routing, user authorization via OAuth 2.0, and data storage using a PostgreSQL database

Firenode Detection Network | *React, Node.js, Express.js, C, Python*
- Project leader of "Firenode", a two-quarter research project for the Engineering Design Project at UC Santa Cruz
- Collaborated with 6 students to develop a fire detection mesh network and interactive dashboard that can visualize recent network readings
- Implemented routing protocol that scales and displays up to 99% accuracy when simulated with 100+ nodes
- Used IEEE 802.15.4 communication functions to build a power-cycling algorithm that extended battery life of nodes to 2+ years

Facebook Marketplace Clone | *React, Material UI, Node.js, Express.js, PostgreSQL, Docker,*
- Single page web application that looks and feels identical to the actual Facebook Marketplace
- Built API that supports account creation, authenticated logins, automated searches, and new listings
- Uses local PostgreSQL database containerized in Docker to store users, categories, and listings
- Encrypts user information stored in database using JSON Web Tokens

HTTP Proxy | *C*
- HTTP Proxy that converts HTTP requests to HTTPS requests for a desired web-server
- Utilizes multi-threading and mutexes to improve throughput by more than 50%
- Maintains a log file that logs all requests, a summary of the request's header information, and other metrics
- Includes access control list that can block websites and can be updated in real-time

SKILLS

Languages: C/C++, Python, JavaScript, SQL
Technologies: React, Node.js, Express.js, MongoDB, PostgreSQL, Mongoose, Jest, Git, Docker