

JARED MOULTON

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WORK EXPERIENCE

Bentley Nevada

Firmware Engineering Intern

📅 May - August 2022 📍 Minden, Nevada

- **Designed and built** the firmware for the Leviathan Project from start to completion, including **custom hardware** components, **functional driver libraries** and a fast application taking full advantage of direct memory access in a **resource constrained** environment
- Provided **feedback** and suggestions for the **final hardware design** of the leviathan project
- **Rebuilt a dual channel direct digital synthesizer** firmware project including application and a library increasing the **speed** of the existing program by over **100x**

USU Campus Store

Mac Repair Technician and Store IT

📅 May 2020 - May 2021 📍 Logan, Utah

- Became certified to **repair all apple computers** in three weeks
- **Trained two new repair technicians** to become certified in all repairs and diagnostics
- **Administered store IT** by onboarding up to 15 employees per day, **managing user database permissions** and troubleshooting networking and computer hardware issues

Service Organization

Full Time Spanish Speaking Volunteer

📅 August 2018 - April 2021 📍 Cochabamba, Bolivia

- Became **fluent in the spanish language** in six months and spoke only Spanish for 19 months
- Managed and **led groups of 9-12** other service volunteers, coordinating work efforts, managing safety and providing training

Fox Pest Control

Commission Sales Associate

📅 Summer 2021 📍 Albany, New York

- Brought in over \$53,000 of sales revenue in three months
- Learned the processes, techniques and skills of the sales industry

EDUCATION

Utah State University

Computer Engineering

📅 August 2020 - Current

Accounting Minor

📅 August 2020 - Current

Programming Languages

- Expert: **Rust**
- **C, C++, Python, Bash, System Verilog, Java**

PROJECTS

Interpreter and Compiler from Scratch

- An interpreter and a compiler for a dynamic programming language with a python/rust like syntax that lexes tokens from an input, parses the token stream using a recursive descent either interprets or compiles and executes the final AST (including function objects) with high quality error handling and messages to the end user in a REPL.

Open Source Contributions

- **esp-hal**: Work on embedded-hal SPI implementation
- **slint-ui**: Treesitter parser and various additions

DACx0501 Library

- A Rust library supporting the Texas Instruments x0501 family of DACs using the rust embedded-hal traits

Sudoku Solver

- A Sudoku Solver that generates a valid (although not necessarily solvable) Sudoku puzzle and uses a backtracking algorithm to solve it.

BFS Maze Solver

- A maze solver that uses a Breadth First Search to find the shortest path from the start to the finish of a puzzle created as an array of arrays filled with ones and zeros. Problem from Google Foo Bar Challenge.

Aggietime Clock API

- A Rocket web app that acts as a man in the middle to re-expose the USU Aggietime API in an accessible way. This app parses tokens from the HTML responses of Aggietime and then forwards along a proper request with the credentials from the end user.

Dense Neural Network from Scratch

- A dense, fully connected neural network made to recognize handwritten digits from the MNIST dataset written from scratch in numpy.

Static Website Generator

- Personal website and blog with content being written in markdown and then generated using a custom static site generator with awesome code syntax highlighting and theming.

Multithreaded Mandelbrot Generator

- A Mandelbrot image generator written in rust that splits the image's rows to be processed by multiple threads. The final output format is a bpm where the image header information is written as a stream of raw bytes followed by the image data.