Jayden A. Thomas

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CAREER OBJECTIVE

I am a recent graduate looking to participate in the creation of systems with tangible, useful results. The versatility of embedded systems and their applications are in perfect coincidence with this aforementioned goal, more so being a part of a like-minded team of those that I can learn, collaborate, and express my ideas with.

EDUCATION

B.S. Computer Engineering with Concentration in Computer Systems (Honors) Sep 2019 - Jun 2023
Institution: University of California, Santa Cruz
Grade Point Average: 3.52
Relevant Courses: Embedded Systems Design, Introduction to Mechatronics, Introduction to Computer Networking

SKILLS

Primary Skills:
C/C++, Python, ESP-IDF, UART, I2C, SPI, JTAG, OpenOCD, GDB, FreeRTOS, Visual Studio Code, Object Oriented Design, Bare Metal Programming, Data Structures and Algorithms, Linux, Git, Bash Scripting, Digital Logic, Logic Analyzers
Secondary Skills:
Computer Systems Design, POSIX Threads, lwIP, Berkeley Sockets, Virtualization, Operating Systems, Electrical Theory and Analysis

PROJECTS

Gameboy Emulator (C/C++) *Link to Repository*

- Wrote a functional Gameboy emulator, currently capable of running MBC1 and MBC3 cartridges
- Replicated each instruction down to the machine cycle
- Utilizes the Simple Directmedia Layer for video and user input

Mechatronics Competition Soccer Robot (Lead Programmer, C/C++) *Link to Repository*

- Led a team of 3 students to build a robot that met the specifications for the Slug World Cup robotics competition
- Created a robot able to detect field boundaries, sense and filter IR blinkers at various frequencies, detect collisions, achieve Roomba-like locomotion, and fire ping-pong balls into a designated goal

SH1106 OLED Display I2C Driver (ESP32-C3, C/C++) *Link to Repository*

- Built a driver for the SH1106 OLED Display on top of the ESP-IDF I2C master driver
- Provides an interface to efficiently draw pixels, scroll the display, and write text with cursor abstraction

Multithreaded Home HTTP Server (C/C++) *(Academic, Advanced/Multithreaded C++ Programming)*

- Wrote a multithreaded HTTP server from scratch, capable of handling 700-800 requests per second
- Uses Berkely sockets, the POSIX thread library, semaphores, and mutexes to handle a modest load of concurrent requests on my home network
- Uses 8 (user configurable) threads on 12 cores

1-2 Player Battleship Game and A.I (Uno32, C/C++) *(Academic, Embedded Systems Design)*

- Created a 1-2 player battleship game and A.I. for the Uno32 microcontroller
- Utilizes the UART protocol for negotiating the first move and communicating guesses to another Uno32 host
- Field information and user interaction facilitated by the basic I/O shield for the board