David Wang

(651) 207-9908 | davwan@umich.edu | dw3fd2011@gmail.com | www.davidlwang.com | Saint Paul, MN

EDUCATION

University of Michigan, Ann Arbor **Aug 2021 - Dec 2024**

- **Major:** Computer Engineering BSE - 3.74 GPA - Michigan Engineering Dean's Honor List
- **Relevant Coursework:** Data Structures and Algorithms, Computer Organization, Embedded Systems, GPU Programming, Logic Design, Electronic Circuits, Signals and Systems, Computer Networks

EXPERIENCE

NVIDIA - Firmware Engineer Intern **Summer 2024**

Developed C based microcode and Python infrastructure scripts for GPU context switching

- Designed and coded framework for automatic error code generation and enhanced testing processes
- Resolved 400+ MISRA/CERT-C violations with Coverity to ensure code reliability in high risk settings
- Specified and implemented unit tests for various modules to verify code matches intended design
- Integrated performance optimizations and bug fixes across different GPU hardware variants

Qualcomm - Firmware Engineer Intern **Summer 2023**

Wrote high performance C firmware for mobile Bluetooth and ultra wideband modems

- Refined algorithms within hardware constraints to process antenna measurements in real time
- Developed new modules to calculate input propagation delay and record modem usage statistics
- Tested and evaluated performance of firmware on pre-silicon hardware design using FPGA emulation
- Performed assembly level debugging on RISC-V architecture with TRACE32 JTAG debugger

AnomalyWC - Founder **2018 - 2023**

Launched electronics design startup, successfully funded 2 Kickstarters, and shipped to customers worldwide

SunriseRGB (2018 - 2019) - Compact reprogrammable controller for addressable LED strips

- Developed Arduino firmware to drive 90+ WS2812B LEDs, debounce inputs, save user settings to EEPROM, and enable user reprogramming via Micronucleus V-USB without a hardware USB controller
- Designed and tested passive circuitry, created custom PCB for AVR controller, and 3D-modeled case suitable for rapid FDM manufacturing while minimizing material costs and production time

Omni Dial (2021 - 2022) - Computer peripheral to quickly adjust settings through touch gestures

- Implemented Micropython firmware to transform user touch gestures into HID inputs and optimized program memory usage via custom Micropython libraries for capacitive touch and WS2812B LEDs
- Prototyped and debugged capacitive touch PCB for ARM M0 controller's built-in capacitive sensing

Michigan Autonomous Aerial Vehicles - Embedded Systems Team **2021 - 2022**

Drone team focused on building autonomous aircraft for the International Aerial Robotics Competition

- Revised legacy C/C++ codebase to work with new sensors, radio receivers, and motor controllers
- Designed and assembled PCBs for TI Tiva based signal processing board and power distribution board
- Utilized J-Link debuggers, oscilloscopes, and multimeters to validate proper board functionality

PROJECTS

Wearable Vitamin D Tracker **2023**

- Created system with wearable nRF52 sensor module and accompanying React Native iOS/Android app
- Developed firmware to record UV index and lux from a LTR390 sensor and determine LiPo battery levels
- Transmitted data via BLE and showed app users trends in Vitamin D levels calculated from UV exposure

Facial Recognition Door Lock **2023**

- Developed STM32 based smart lock with ability to recognize multiple users and program in new faces
- Wrote custom I2C driver to read data from and set registers in Person Sensor facial recognition module
- Designed PCB to interface with rotary encoder and MOSFET drivers to control solenoid and LEDs

SKILLS AND AWARDS

Programming: C++, C, Python, Verilog, MATLAB, Java | **Hardware:** MCUs, PCB, I2C, SPI, UART, SMD Soldering
Tools: Git, Perforce, IntelliJ, Visual Studio, Jira, EAGLE | **People:** Communication, Creative Writing, Adaptability
Awards: Congressional App Challenge, National Merit, Harry B. Benford Award for Entrepreneurship Finalist