Owen Jewell

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Education

Iowa State University, College of Engineering | Ames, Iowa *Expected Graduation May 2026*
Bachelor of Science, Computer Engineering, *Applied AI Minor* GPA: 3.8

Experience

Student Embedded Software Engineer - Madison Scientific | Remote *September 2025 - Present*

- Embedded C programming for EFR32BG24 SoC, including developing custom BLE real-time clock functionality and fixing software bugs
- Utilized GitHub project management and version control tools for development, including following procedures for completing issues, pull requests, and code reviews

Firmware Engineering Intern - Madison Scientific | Chicago, Illinois *May - August 2025*

- Developed low-level I2C & UART drivers for custom hardware, enabling reliable sensor integration (BMP581, ADS122C04) and supporting BLE in production prototypes
- Debugged mixed HW/SW issues using oscilloscope, logic analyzer, multimeter, and Joulescope while correlating waveforms to driver states and reviewing Altium schematics
- Soldered PCB components (through-hole and SMD) while debugging prototype hardware
- Authored SOPs for hardware checkout, program flashing, and OTA software updates (using JTAGs and Silicon Labs tools), helping to standardize lab procedures

Skills

Languages: C, Java, JavaScript, Python, MIPS Assembly, VHDL
Hardware: Oscilloscope, Logic Analyzer, Multimeter, Joulescope, JTAG, Soldering
Other: BLE, I2C, UART, Git, Simplicity Studio, Linux, GreenPAKs, MongoDB, Node.js, Firebase

Projects

MIPS Processor | VHDL, MIPS Assembly, Questasim *September - November 2024*

- Built a 5-stage pipelined MIPS CPU (IF/ID/EX/MEM/WB) using a VHDL hardware model with hazard handling and static branch prediction (predict taken/not-taken)
- Achieved 44.48 MHz max clock frequency (22.48 ns cycle) when synthesized to an FPGA
- Wrote MIPS assembly programs to analyze branch prediction (e.g., mergesort, bubblesort)

IRobot Roomba | C, Python *April - May 2024*

- Developed a C program to blindly navigate randomized obstacles in under 20 minutes
- Programmed the IRobot utilizing embedded C programming and extensive datasheet info
- Implemented a Python GUI to visualize raw IR and Ping scan data from PuTTY

Crash Notification Helmet | C++, Dart, Flutter *February - May 2023*

- Programmed Arduino Nano sensors with C++ to send data to a Flutter App
- Implemented a crash-detection algorithm in Dart to send SMS alerts via the Twilio API
- Components soldered and inserted into the padding of a motorcycle helmet

Organizations and Leadership

Tau Beta Pi (Engineering Honors Society) *February 2025 - Present*

- Inducted based on GPA, service hours, and professional development requirements

Computer Science and Software Engineering Club *February 2025 - Present*

- Active member participating in learning about CS and SE topics

Iowa State Ultimate Frisbee *August 2022 - Present*

- Captain (2025), Vice President (2024), Strength & Conditioning Chair (2023)

Boy Scouts of America *August 2016 - April 2022*

- Achieved Eagle Scout, held multiple leadership positions, and led a project for a non-profit