Vincent Saw

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EXPERIENCE

CISCO
San Jose, CA | **FEB 2024 – PRESENT**

Hardware Engineer II (Embedded Hardware & Software)

- Co-led electrical development/debug of 2 & 4-socket Intel Xeon M7/M8 UCS blade server **PCBA**s, involved with **CPU, power, signal integrity, FPGA, NVMe/eMMC, PCIe, embedded Linux, BMC, BIOS,** and **Agile PLM**
- Performed **timing & signal integrity measurements**, **board bring-up**, **failure analysis** on production and prototype units, influencing successive PCB designs and variants
- Developed **embedded C**, **Bash, Python** tools/scripts for hardware testing in an **embedded Linux** system
- Deployed/tested **embedded Linux firmware** using **CI/CD** pipelines to accelerate hardware validation cycles
- Drove and accelerated cross-functional teams' progress beyond direct hardware-related responsibilities

SPARTAN RACING FORMULA SAE | GitHub Link 🔗
San Jose, CA | **AUG 2019 – PRESENT**

Software Engineering Lead & Advisor

- Pioneered the team's **first electric race car**, placing **1st in endurance** and **top 5 overall** in FSAE competition
- Utilized design feedback and results from the first race car iteration to improve electrical/software design for the following year's race car, leading to another **top 10 overall** finish against 50+ universities
- Designed, improved, and debugged **automotive embedded hardware** & **C firmware** for battery management system (BMS), sensor-CAN module, vehicle controller (ECU), and dashboard, conducting design reviews
- Led an **in-house distributed battery management system (BMS)** capstone project, successfully designing and bringing up **C firmware** and multi-layer **PCB**s, **reducing BMS cost by at least 70% less** than off-the-shelf

SPACEX
Hawthorne, CA | **MAY 2023 – AUG 2023**

Hardware Engineering Intern - Starshield

- Designed **multi-layer PCBs in Xpedition** for production bring-up and functional testing of satellite hardware
- Drove radiation chip testing and qualification by **designing validation PCBAs and test procedures/software**
- Led validation of long-distance passive **high-speed clock** distribution approaches and developed Keysight **ADS** simulations to characterize clock behavior across multiple BOM configs and temperatures

TESLA
Palo Alto, CA | **JAN 2022 – JAN 2023**

Hardware & Software Engineering Intern - Infotainment

- Designed **Python and Linux** tools for **bring-up/validation automation**, cut software sideloading time by **50%**
- Developed **embedded C firmware for camera calibration PCBAs** used in Tesla vehicle production factories
- Debugged electrical signals and software logs on infotainment PCBAs, identifying bugs in **CPU, GPU, MCU, high-speed clocks, power, audio DSP** on production and prototype units to influence successive designs
- Validated and improved **factory hardware/firmware** bring-up processes and **production vehicle firmware** changes, working cross-functionally to meet tight release deadlines
- Built **data analysis tools** over existing test software, **improving team visibility to test data and results**

WESTERN DIGITAL
San Jose, CA | **JUN 2021 – AUG 2021**

Cyber Analysis Software Engineering Intern

- Improved internal company risk management by utilizing and integrating **Python**, **Linux,** and **Splunk machine learning** to detect high-risk patterns and assist in pipelining large datasets across cloud platforms

SAN JOSE STATE UNIVERSITY
San Jose, CA | **SEP 2020 – MAY 2021**

Instructional Student Assistant - Computer Engineering Dpt.

- Led and provided live/graded feedback to lab sections of **30+ students** for a **C** programming course

PROJECTS

SMART MOTORIZED ROLLER BLINDS | Project Link 🔗 DEC 2024 – PRESENT

- Developed a solution to minimize nocturnal light bleed while allowing sunlight to enter in the morning
- Designed a smart home IoT system to automate blind position via Home Assistant and Google Home
- Leveraged **embedded C++**, **FreeRTOS SMP**, **lwIP**, **MQTT**, **RP2040 MCU, CYW43439 Wi-Fi**, **stepper motors**

BATTERY MANAGEMENT SYSTEM - Capstone | Project Link 🔗 FEB 2023 – DEC 2023

- Developed in-house **distributed BMS PCBAs**, **firmware**, and GUI for a 600-volt FSAE race car Li-ion battery
- Led hardware design process of **STM32F105** master and **LTC681x** slave multi-layer **Altium PCBs** including supply chain analysis, bring-up, validation and successfully integrated PCBAs into real-world environment
- Led firmware bring-up of BMS with **embedded C** and software bring-up of GUI with JavaScript and React
- Laid out the fundamental framework of PCB and firmware design for succeeding project revisions

THETA TAU LED - SJSU Engineering Fraternity | Project Link 🔗 MAR 2021 – APR 2021

- Directed **multiple engineers** in a project to interface a **MAX7219**-driven LED matrix, with a custom PCB, iOS/Android mobile app, 3D-printed enclosure, and design documentation in a one-month deadline
- Designed **embedded C++ firmware** and implemented **Bluetooth LE** AT-09 drivers on **Atmel MCU**, PCB in **Altium Designer**, and iOS/Android mobile app using React Native and JavaScript

HAPPY HOUSEHOLD - Hackathon Winner | Project Link 🔗 JAN 2021

- Designed an **IoT embedded system** and Node.js/Discord.js bot in **48 hours** to improve errand management which works by facilitating HTTP requests over WiFi from the embedded device to Discord webhooks
- Developed **Atmel AVR C** drivers for **Nokia 5110 Graphic LCD** and **ESP8266 WiFi** controllers

EDUCATION

SAN JOSE STATE UNIVERSITY AUG 2019 – DEC 2023

B.S., Computer Engineering | **GPA: 3.85** | President's Scholar

Coursework: Real-Time Embedded Systems, Data Structures & Algorithms, Object-Oriented Design, Operating Systems, Computer Networks, Microprocessor Design, Computer Architecture, Digital Design, Electronics for Comp. Systems

SKILLS

Programming: C, Embedded C, C++, Python, Java, JavaScript, C#, ARM Assembly, Verilog, RTOS, Firmware Design, Bash Scripting, GNU Debugger (GDB), CMake
Software: Git, Linux, Altium Designer, Siemens Xpedition, Cadence Allegro, Quartus Prime, LTSpice, Keysight ADS, Splunk, Android Studio
Hardware: PCB Design, PCB Assembly, PCB Validation, Circuit Analysis, SMT/SMD Soldering, Oscilloscope, Spectrum Analyzer, CAN, I^2C, SPI, UART, PCIe, Intel SVID, Differential Signals, High-speed Clocks, Signal Integrity, STM32, Atmel AVR, Raspberry Pi, TI MSP430, FPGA, Intel Xeon, BMC, eMMC, NVMe
Other: Jira, Confluence, Project Management, Design Reviews, Mentorship, Data Analysis, Agile PLM