

Alvin La

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Education

B.S in Computer Engineering

University of California, Irvine • Irvine

- Graduated magna cum laude with a 3.89 GPA
- Prominent coursework: Machine Learning, Artificial Intelligence, Machine Vision, VLSI, Operating Systems, Computer Network, Circuit Analysis, Discrete Signal Processing, Software Engineering in C

Experience

Embedded Systems Engineer

Bai Lab UC Irvine Earth System Science Department • Irvine, CA

04/2022 - 09/2024

- Collaborated with graduate students to develop and deploy a Relaxed Eddy Accumulation(REA) device, leveraging advanced real-time wind measurement techniques, resulting in an increase in the precision of air sample acquisition under targeted wind conditions.
 - Utilized a STM32 microcontroller, written in Embedded C, and FreeRTOS to regulate valves based on Young 81000 ultrasonic anemometer wind data, obtained using RS-232, while concurrently integrating Raspberry PI to upload data to a Google Spreadsheet. The system also logs all data via SD card, using SPI, along with a DateTime component using a I2C Real-Time Clock module
- Spearheaded the design and development of an embedded system for an Automated Multi-Tube Sampler, integrating time-specific controls and user-independent functionality, resulting in a 55% increase in field campaign productivity.
 - Designed and manufactured an embedded system, equipped with a STM32 microcontroller written in Embedded C, to control two six-fold valve manifolds based on time specification, using a RTC I2C module, set by the user, while simultaneously using SPI communication to export data into an SD card.
 - Authored an Honors Thesis detailing the development and design process of the Automated Multi-Tube Sampler.
- Developed a Python script with automated data parsing and error-correction features for post-processing research data

Personal Projects

- Developed a firmware update bootloader for the NucleoF401RE.
 - Utilized python to communicate via UART to the NucleoF401RE to upload new firmware onto the microcontroller's flash
 - NucleoF401RE bootloader was written in Embedded C using HAL libraries and equipped with dual application slot with CRC tamper detection
- Utilized KiCad to design a development board PCB for the STM32F030RCT6 microcontroller
 - Designed both the schematic, PCB layout, and routing for custom STM32F030 development board

Skills

Embedded C, C++, Python, RTOS, FreeRTOS, Zephyr, Verilog, Artificial Intelligence, ARM Architecture, Raspberry Pi, UART, SPI, I2C, RS-232, Digital Multimeter, Soldering, Oscilloscope, JTAG, SWD, GDB, OpenOCD, KiCad, PCB Design, Git, Communication, Documentation, Teamwork