BRANDON ALBA

branalba42@gmail.com • (619) 248-9478 • brandonalba.com • Davis, CA

3rd-year electrical engineering undergraduate with a focus in embedded systems and mixed-signal PCB design. Looking for opportunities to work at any level in an embedded system design chain .

EXPERIENCE

PCB CAD Engineer, Ravata Solutions   **Feb 2020 - Present**

- Extensive analog circuit analysis of a bioimpedance sensing board with highly sensitive measurement requirements. Successfully identified and addressed multiple areas for optimization, improvement, and correction and lowered board cost by roughly 30%
- Wrote device firmware for an STM32F4 MCU and an accompanying stepper motor-based pump module. Employed debugging, ADC data collection, and hardware SPI/I2C/UART interfacing. Also wrote an accompanying python script to offload captured data via serial into a CSV file for postprocessing
- High-volume design and optimization of many PCBs, including high-frequency (>1MHz) bioimpedance sensing motherboards, power management modules, and impedance sensor calibration chips

Electrical Team Lead, Space and Satellite Systems   **May 2020 – Present**

- Leading team in designing CubeSat electrical system from the ground up (see my own technical contributions in the "Projects" section below)

Physics Tutor, UC Davis AATC   **Feb 2020 – Present**

- Peer tutor for students taking lower division physics courses at UC Davis. Includes individual and group tutoring
- Topics range from classical mechanics to special relativity and quantum physics. Mathematics as advanced as multivariable calculus and complex differential equations are used

PROJECTS

CubeSat Electrical Bus   **Jan 2019-Present**

- Involved in technical work and leadership pertaining to the design of a 2U CubeSat out of UC Davis, with the core mission objective of being the first CubeSat team to demonstrate the repurposing of common hard disk drives as reacton wheels
- Designed, laid out, and assembled PCBs for microsatellite actuators (reaction wheel motor driver, constant-current magnetorquer coil driver)
- Assisted in the design of and performed the layout of the flight computer, based on a Raspberry Pi Compute Module and featuring a GPS, RTC, watchdog timer, and various sensors. Coordinated with software team on establishing communication bus setup

EDUCATION

University of California, Davis, BS Electrical Engineering   **2018 – 2022**

- GPA 3.5
- Lead of satellite club electrical team

SKILLS

- Embedded systems: STM32/Atmega MCUs, I2C, SPI, UART, ADCs, DMA, STM32CubeIDE (HAL Libraries) and VSCode (PlatformIO)
- PCB Design/Layout: Autodesk EAGLE/Fusion 360, KiCAD, Altium, mixed-signal design, impedance matching
- Programming: Python, C/C++(embedded), UNIX systems (daily Linux user)