Lauren Adachi

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EDUCATION

Brown University | Electrical Engineering Sc. B. | GPA: 3.87/4.0 *August 2018-May 2022*

- **Relevant Coursework:** Mixed Signal Electronic Design, Digital Electronics Systems Design, Design of Computing Systems, Linear System Analysis, Electricity & Magnetism, Electrical Circuits & Signals, Dynamics & Vibrations, Object-Oriented Programming, Data Structures & Algorithms, Physics of Matter.

ENGINEERING & WORK EXPERIENCE

Sierra Nevada Corporation | Incoming Space Systems Engineering Intern *June 2021 – August 2021*

Brown Space Engineering | Co-president and Avionics Hardware Division Leader *August 2018 – Present*

- Lead team of 30 undergraduates to design CubeSat by defining and managing engineering requirements and goals, liaising with technical reviewers and advisors, and ensuring cohesive integration between satellite subsystems
- Wrote technical proposal detail and electronics systems overview, made high-level block diagram, and managed power and link budgets for application to NASA ELaNa satellite educational launch program
- Lead Avionics Hardware subgroup of 10 undergraduates to create high-level design of electronics systems including EAGLE schematics and board designs for power, radio, and control systems
- Mentor first-year students and new members through mentorship program and create technical trainings

Pufferfish (Pez Globo) Ventilator | Hardware Team Member *May 2020 – September 2020*

- Led development of the Interface PCB for user interaction with the ventilator
- Designed schematic and PCB (KiCAD) and selected parts with constraints from mechanical, clinical, and UIUX teams
- Assembled and tested PCBs and Raspberry Pi peripherals with oscilloscopes, function generators, and probes

Tripathi Biomedical Engineering Group | Firmware Developer *April 2020 – September 2020*

- Implemented firmware updates for biomedical device in product development stage for PerkinElmer
- Wrote code in C for STM32 microcontroller for motor, heating, motor, flash memory, and spectrofluorometer units with FreeRTOS operating system and I2C, SPI, USB, and UART peripheral communication

Brown School of Engineering | Electrical Circuits & Signals Undergraduate Teaching Assistant *January 2020 – May 2020*

- Taught and held problem-solving and laboratory sessions for 100-student class, debugged students' circuits

English for Action | Volunteer Teacher *August 2018 – December 2018*

- Assisted English to Speakers of Other Languages classes by providing bilingual teaching support in Spanish and English

Wittmann Laboratory at University of California, San Francisco | Research Intern *June 2016 – August 2017*

- Optimized novel method for light-mediated protein control for optogenetics research
- Published in Columbia Jr. Science Journal ('17) & Cytoskeleton Dynamics: Methods and Protocols ('20)

SKILLS

Hardware: KiCAD, EAGLE, Verilog, ModelSim, Cadence Virtuoso, Breadboarding, Logic analyzers, Oscilloscopes, Electronics bench test equipment
Software: Python, Java, C for STM32 microcontrollers, git and GitHub, RISC-V Assembly, MATLAB, Microsoft Suite
Prototyping: Soldering, Raspberry Pi, Arduino, SOLIDWORKS, 3D-printing, Machining (lathes, mills)
Relevant Projects:

- Designed and implemented a single cycle processor in Verilog for FPGA, optimized to 50+ MHz clock frequency, wrote assembly programs and created testbench in ModelSim to verify functionality
- Created a high-speed delta-sigma analog-to-digital converter for robotic control systems applications in Cadence Virtuoso: defined target specifications, designed digital and analog hardware, and performed verification simulations
- Designed, wrote, and tested a RISC-V assembler in Python from scratch
- Breadboarded functional dual slope and successive approximation analog-to-digital converters
- Programmed CPLD to create 4x4 multiplier, made scrolling message board using Xilinx FPGA
- Wrote 20-page review of spin-based electronics based in quantum physics theory

Languages: English (native) and Spanish (fluent)
Interests: figure skating, outer space, the outdoors, hiking, biking, painting, drawing

HONORS & AWARDS

Brooke Owens Fellow, Class of 2021
Winning team at *UC Berkeley's Bioengineering Honors Society Competition* for project on using CRIPSR to fight adolescent malnutrition (2016)