

Lauren Adachi

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EDUCATION

Brown University | Electrical Engineering Sc. B. | GPA: 3.9/4.0

August 2018-May 2022

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

ENGINEERING & WORK EXPERIENCE

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
- Awarded [\\$300,000 in launch services](#) from NASA's ELaNa satellite educational launch program
- Wrote technical proposal detail and electronics systems overview and managed power and link budgets for launch application
- Lead Avionics Hardware subgroup of 10 undergraduates to create high-level design and prototyping of electronics systems including block diagrams, KiCAD schematics, and board designs for power, radio, and control systems
- Mentor first-year students and new members through mentorship program and create technical trainings

Brown School of Engineering | Digital Electronics Systems Design Undergraduate Teaching Assistant

September 2021 – Present

- Assist students with rapid prototyping, breadboarding, CPLD and FPGA coding, and test bench equipment use in electronics lab

Sierra Space | Space Systems Engineering Intern, Dream Chaser Program

May 2021 – July 2021

- Designed test connectivity of Dream Chaser's communication system for joint tests with ground support hardware and ISS
- Ensured Electrical Design Specification (EDS) compliance such that all electronics met NASA requirements
- Supported EDS Technical Panel by researching and evaluating solutions to electronic hardware noncompliance issues
- Pioneered new power and data connectivity model of the Dream Chaser using Model Based System Engineering in SysML

Pufferfish (Pez Globo) Ventilation | Electrical 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 UI/UX 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/production 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 with sensing & instrumentation interfaces

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

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, LTSpice, ModelSim, Cadence Virtuoso, Breadboarding, Electrical test bench equipment (Oscilloscopes, multimeters, logic analyzers)

Software: Python, Java, MATLAB, Simulink, C for STM32, git, GitHub, RISC-V, Microsoft Suite, SysML, Cameo

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
- 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
- Designed [dual-lead and PID control systems](#) for a magnetic levitation system in Simulink

Interests: figure skating, outer space, the outdoors, hiking, biking, painting, drawing

HONORS & AWARDS

Brooke Owens Fellow, Class of 2021