Luc Bouchard

lucbouchard1.github.io

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Education

Cal Poly, San Luis Obispo *4th Year | June 2019 Graduation*

BS in **Physics**, Minor in **Computer Science** *Overall GPA:* **3.8**

Completed Coursework: Programming Series, Systems Programming, Advanced Classical Mechanics, Solid State Physics, Electronics Lab

Skills

Languages	C/C++	Typescript	Python	Java	Bash	MatLab	JavaScript	GNU Make	
Web	React	Electron	HTML	CSS	Webpack	npm	Redux	zmq	Protobuf
Other	Kalman Filters	Linux	U-Boot	Buildroot	OpenWRT	git	gdb	CI/CD	Jupyter

Projects

- **CubeSat ADCS** - Developed and tested an attitude determination and control system for CubeSats. Implemeted *Extended Kalman Filter* in C. Wrote testing framework using Python, zmq, Google Protobufs, and Nasa 42.
- **MT7688 U-Boot** - Added U-Boot bootloader support for MT7688 SoC. Implemented several platform-specific features to improve boot performance of an embedded system.
- **PolySat Bootstrap** - Refactored CubeSat bootloader to support new memory architecture.
- **Memory Scrubbing** - Wrote a program in C to repeatedly validate a CubeSat's non-volatile memory to mitigate radiation upsets.
- **PPS Device Driver** - Wrote Linux kernel module that handles interrupts from a GPS's pulse-per-second line. Used to synchronize system clock.
- **JupyterLab Native** - Used Electron to create a native version of JupyterLab, a popular data science platform that runs in the browser.

Experience

Fullpower Technologies Firmware Intern *Summer 2018*

IOT Hardware and Software Company

- Extended U-Boot bootloader to improve boot times of a consumer embedded system, the Sleeptracker Monitor.
- Met strict deadlines in anticipation of mass manufacturing runs.
- Improved boot time translated to large reductions in manufacturing cost.

PolySat Software Team Lead *September 2015 - Present*

Cal Poly Satellite Research Lab

- Led developers to create flexible, fault tolerant, and reusable systems software for CubeSats.
- Worked with multidisciplinary team of engineers to fund, design, and assemble multiple satellites including PolySat's ISX, Exocube 2, DAVE, and LEO.
- Tested and integrated hardware in a cleanroom. Performed vibration and TVAC tests.
- Met requirements set by large organizations like NASA and Northrup Grumman.

Project Jupyter Software Engineer *April 2017 - November 2017*

Open Source Interactive Computing Project

- Contributed to JupyterLab, an open source data science platform with millions of users.
- Developed JupyterLab Native using Typescript, Electron, and React.

Northrop Satellite Lead *September 2016 - Present*

3U CubeSat with Northrop Grumman

- Led a team of multidisciplinary team of engineers to design a spacecraft intended to launch in 2018.
- Worked with Northrop employees to manage spacecraft requirements and funding.
- Adhered to systems engineering practices.

Honors

- Dean's List and President's List for all terms.
- William L. Frost Scholarship recipient.