Luc F. Bouchard

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Education

California Polytechnic State University, San Luis Obispo

Bachelor of Science in **Physics**, June 2019 — Class Level: 3rd Year

Minor: **Computer Science** — Overall GPA: **3.9**

Relevant Coursework: Computer Programming Series, Systems Programming, Physics Series, Calculus Series, Linear Algebra and Differential Equations

Skills

Programming Languages: C, Typescript, Java, Python, Bash, MatLab, JavaScript, GNU Make

Tools: React, HTML, CSS, Electron, Webpack, npm, Linux, Git, GitHub, Subversion, LaTex, GDB, Valgrind, Buildroot

Project Highlights

(More details at my website, lucbouchard1.github.io)

- *PolySat Bootstrap* – Refactored PolySat's bootloader to support a new memory architecture. Set to launch on DAVE in 2016 and on all following satellites.
- *Memory Scrubbing* – Wrote a program in C to repeatedly validate a CubeSat's non-voltatile memory to protect against radiation upsets. Set to launch on ISX in 2017 and on all following satellites.
- *PPS Device Driver* – Created a Linux kernel module that handles interrupts from a GPS's pulse-per-second line to synchronize a system clock. Set to launch on ISX in 2017 and on all following satellites.
- *GPS* – Wrote a userspace driver in C to receive and parse GPS data on a CubeSat. Helped electrical engineers debug GPS boards, and worked with Aerospace Corp to test the orbital performance of a COTS GPS module. Set to launch on ISX in 2017 and on all following satellites.
- JupyterLab Native – Used Electron to write a native version of JupyterLab, a core Project Jupyter product. The application augmented the existing JupyterLab code base to create an expanded experience running natively.

Experience

Project Jupyter Software Engineer

Open Source Platform for Interactive Computing — *April 2017 – Present*

- Worked on an open source project hosted on GitHub with dozens of contributors.
- Developed an application based on Typescript, Electron, and React.

Northrop Satellite Lead

3U CubeSat With Northrop Grumman — *September 2016 – Present*

- Led a team of multidisciplinary 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.

PolySat Software Team Lead

Cal Poly's CubSat Program — *September 2015 – Present*

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

Fullpower Technologies Internship

IOT Software Company — *Summer 2014 & 2015*

- Assisted engineers is developing prototypes for a project with a short timeline.
- Wrote test scripts in Python to streamline testing and development.
- Created a web interface for BeagleBone Blacks running an HTTP server to allow for quick diagnostics and testing.

Honors

- William L. Frost Scholarship – Cal Poly
- AP Scholar with Distinction, 10th Grade Student of the Year, 11th and 12th Grade Science Student of the Year