
Work Experience

Astranis Space Technologies Corp.**San Francisco, CA**

Satellite Radio Hardware Co-op

01/2020 – 06/2020

- Designed and built a board using **Altium** to test and qualify the regulator board for the satellite's internet radio system; this required drawing a variable current on each of the 15+ voltage rails on the regulator board.
- Implemented custom **SPI**-programmable current sink circuits for each rail with maximum current ratings ranging from less than 1 Amp to more than 15 Amps, and with a total power dissipation of around 200W.
- Characterized load regulation, line regulation, and sensing accuracy for each voltage rail using **Python** to interface with microcontrollers, DACs, and ADCs on both the regulator board and my testing board.
- Wrote an interactive **Python** shell for performing operations on any of the boards in the radio system; this was crucial for the RTL team to begin testing the FPGAs and was used throughout system qualification.
- Built an online dashboard for my team to visualize board signal data from all hardware in the radio system.
- Helped software team implement an object in **Python** to poll signal data from all satellite hardware.
- Performed rework and manual filter response tests on pieces of qualification hardware using a **VNA**.
- Improved upon company's **Altium** component library by volunteering to serve as a librarian for all EE teams.

Draper Laboratory**Boston, MA**

RF Systems Co-op

01/2019 – 06/2019

- Worked on a team to prototype and demo a radar antenna platform that could track a moving target.
- Developed a control program for this platform to automatically point its antenna by basing horizontal and vertical servo movements on incoming radar signals. Program used **Python**, **Arduino**, and **GNURadio**.
- Wrote an **Arduino** script for controlling a variable frequency clock generator through **I2C** to sweep the frequency of each of the 4 clock outputs individually and at varying step-sizes.
- Documented this whole process in a 17-page guide for an FPGA engineer who then implemented it in HDL.

Technical Projects

Wi-Fi Positioning Research: Worked on a team to develop a positioning algorithm based on the strength of signals received from a set of Wi-Fi access points in a room using a neural network.

- Developed a simulation in **Python** for signal strength throughout a room based on real research data.
- Wrote additional tools to estimate a random-walk trajectory through the room using a Kalman filter.

eKondo (Hacktech '20): Worked with two others to build an eBay listing tool for quick sale of home clutter.

- Wrote a **Python** script to scrape data from online storefronts to generate a product price and description.
- Won 3rd place in our category out of 13 participant projects for a total prize of \$300 in eBay gift cards.

Audio Visualizer: Designed a board for controlling a strip of programmable LEDs to visualize an audio signal.

- Faced errors in implementation on protoboard and came up with solutions using **LTSpice** simulations.

Education

Northeastern University**Boston, MA**

Bachelor of Science in Electrical and Computer Engineering

Expected Graduation: 05/2022

- **Honors:** Northeastern University Honors Program, National Merit Finalist

GPA: 3.79

Relevant Coursework:

- **EE:** GNSS Signal Processing, Noise and Stoch. Proc., Wireless Comm. Circuits, Electronics, Linear Systems
- **CE:** Object-Oriented Design (**Java**), Digital Design and Comp. Org. (**Verilog**), Engineering Algorithms (**C++**)
- **Prototyping:** Customer Driven Technical Innovation, Intro to Product Prototyping

Technical Skills

Electronics/CAD: Altium, LTSpice, Arduino, GNURadio, VNA, Signal Analyzer, SolidWorks

Programming: Python, C++, MATLAB, Java, Git, HTML, CSS, Linux, PyTorch, Pandas, Grafana

Interests

Acoustic, Electric, and Classical Guitar, Astrophotography, Rock Climbing, Skiing, Surfing, Sailing.