
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. Had to draw a variable current on the 15+ voltage rails supplying a software-defined radio.
- 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 satellite's internet radio system so that the RTL/signal-processing teams could test their Verilog scripts.
- Built an online dashboard using Grafana to visualize/monitor all signal data coming from radio electronics.
- Helped software team implement an object in Python to poll signal data from any set of boards in the satellite. Used threading to ensure that operations on the boards could be done on top of the polling.
- Performed rework and manual filter response tests on pieces of qualification hardware using a VNA.
- Improved upon company's Altium component library by serving 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 can track a moving target.
- Developed a program to control this platform and automatically articulate its altitude and azimuth by basing servo movements on incoming radar signals. Program was built using 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 Simulator: 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 trajectory based on that data using a cubature Kalman filter.

eKondo (Hacktech '20): Worked with a team to build a web-based 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.

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, HTML, CSS, Linux, PyTorch, Pandas, Grafana

Interests

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