Timothy Lucas Briggs

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Work Experience

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

Payload SDR Hardware Co-op 01/2020 – 06/2020

Satellite SDR Board Test Platform

- Brought payload SDR regulator board up through verification testing by designing and building a board in Altium consisting of 15+ SPI programmable current sinks dissipating up to around 200W total.
- Characterized load regulation, line regulation, and sensing accuracy for each of 15+ voltage rails using Python to interface with microcontrollers, DACs, and ADCs on both the regulator board and my testing board.

Payload SDR Box Testing and Code

- Helped get the full payload SDR box ready for qualification testing by writing an interactive Python shell for operation and board telemetry with an accompanying online data visualization dashboard.
- Helped software team implement new telemetry polling object in custom Python board-testing library.
- 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

Target-Tracking Radar Platform:

- Programmed a 4-lobe radar receiver platform prototype to automatically articulate its altitude and azimuth to track a moving target using Python, Arduino, and GNURadio to base servo movements on SDR signals.

Miniaturized Interferometric Fiber-Optic Gyroscope:

- Assessed the ability of a Si5338 clock generator chip to accurately sweep its output frequency in order to minimize an interference-pattern signal glitch and increase gyroscope measurement accuracy.
- Was able to get the desired effect using an Arduino to communicate with the chip over I2C. Then documented full process in a 17-page guide for an FPGA engineer who then implemented it in HDL.

NEU-SPIRAL **Boston, MA**

RSS Fingerprinting Research 06/2020 – Present

- Building a simulation in Python for Wi-Fi access-point signals in a room based on real data with visualizations. Entails using Pandas, PyTorch, and trajectory estimation with a cubature Kalman filter.

Personal Projects

eKondo (Winner, Hacktech 2020): Worked with a team to build a web-based eBay listing tool for quick sale of home clutter. Handled the "web-scraping" of online store data to determine listing info.

Audio Visualizer: Drafted schematic and layout for a Teensy-based WS2815 LED strip controller to visualize an incoming audio signal. Built circuit on a protoboard and am now working out resulting errors.

Education

Northeastern University **Boston, MA**

Bachelor of Science in Electrical and Computer Engineering 05/2022

Relevant Coursework: **GPA:** 3.79

EE: GNSS Signal Processing, Noise and Stoch. Proc., Wireless Comm. Circuits, Electronics 1

CE: Object-Oriented Design (Java), Digital Design and Comp. Org. (Verilog), Engineering Algorithms (C++)

Other: Princ. of Microecon., Customer Driven Innovation, Product Prototyping, Calculus 3, Physics 2

Honors: Northeastern University Honors Program, National Merit Finalist

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.