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Industry Experience

Space Exploration Technologies Corp. (SpaceX) **Redmond, WA**
Starlink RF Test Co-op 01/2021 – 06/2021
- Reworked team's C# library for test-instrument control to streamline test-script development by designing a novel framework that helps translate instrument features to software objects.
- Implemented new drivers for a power sensor, signal generator, and spectrum analyzer using new framework.
- Performed Inter-Modulation Distortion (IMD) and Adjacent Channel Leakage Ratio (ACLR) measurements of custom RF amplifiers using new drivers.
- Designed a user-interface to make it easy for operators with less coding experience to run tests.

Astranis Space Technologies Corp. **San Francisco, CA**
Satellite SDR (Software-Defined Radio) Hardware Co-op 01/2020 – 06/2020
- Designed, built, and programmed electronic hardware to test the power system of the satellite's internet radio.
  - Implemented SPI-programmable current-sink circuits for each of 15+ unique voltage supply rails.
  - Wrote Python scripts to characterize supply metrics such as load/line regulation and sensing accuracy.
- Developed measurement automation and data visualizations using Python and Grafana for radio electronics.
- Performed S-parameter filter response tests on pieces of qualification hardware using a VNA.

Draper Laboratory **Cambridge, MA**
RF Systems Co-op 01/2019 – 06/2019
- Studied the feasibility of using ionospheric reflections of lightning strikes as a source for some radar system.
- Assessed the functionality of an Si5338 clock generator IC to unblock an interferometric gyroscope project.
- Worked with a team to prototype a bi-static radar system that could track a moving target.

Research Experience

MIT Haystack Observatory **Boston, MA**
Undergraduate Research Intern (REU) 06/2021 – 08/2021
- Worked on the software team for the AERO-VISTA mission, a pair of CubeSats for measuring auroral emissions in Earth's ionosphere.
- Developed a software infrastructure for ground-to-satellite communications using Python and GNURadio.
- Created flexible interfaces enabling asynchronous access to satellite data uplink/downlink from any location.
- Presented a poster focused on this project at the 2021 New England SDR (NEWSDR) conference.

Northeastern SPIRAL **Boston, MA**
Undergraduate Research Student 06/2020 – 08/2020
- Developed a simulation in Python for Wi-Fi 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.

Technical Skills

Hardware Development:
Altium, LTSpice, GNURadio, Arduino, Network Analyzer, Spectrum Analyzer, Signal Generator

Software Development:
Python, C#, .NET Framework, ASP.NET Core, Java, Angular.js, Linux, Git, MATLAB, Verilog, C++, C

Education

Northeastern University **Boston, MA**
Bachelor of Science in Electrical and Computer Engineering Expected Graduation: 5/2022
GPA: 3.83
Honors: National Merit Finalist, University Dean's List, University Honors Program
Electives: GNSS Signal Processing, Wireless Comm. Circuits, Object-Oriented Design, Computer Vision

Interests

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