

MARSHALL BRUNER

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EXPERIENCE

Ball Aerospace (DoD Clearance)

RF Engineer

Jun 2021 — Jul 2023

Broomfield, CO

- **Built an embedded webpage** to control and monitor a phased array antenna
- Built data visualization and analysis tools in Python
- **Debugged firmware, hardware, and software** of complex, mission-critical RF boards under strict time constraints
- **Firmware, software, and hardware I designed is currently in real-world deployment**
- High sensitivity testing (noise, high power, etc.) of electronics

Colorado State University

Graduate Research Assistant — Thesis

Jan 2021 — May 2022

Fort Collins, CO

- Built a server to host and display real-time / historical radar data using PostGreSQL, Flask, **Python**
- Design, schematic, and layout of a modular, X-band, FMCW drone radar
- Signal processing / data visualization for Analog Device's FMCW Phaser Board
- Presented the work at the IEEE Internation Phased Array Symposium
- Phaser board work was presented by ADI at IMS 2022 and IEEE-APS 2022

CHILL Radar Lab

Lab Assistant

May 2020 — May 2021

Greeley, CO

- Built a real-time radar display to easily display and animate radar data
- Performed characterizations and measurements of radar equipment
- **Helped develop firmware** for a large weather radar system

EDUCATION

Colorado State University

M.S. Electrical Engineering — GPA: 3.9

Jan 2021 — May 2022

Fort Collins, CO

Thesis - Design, Deployment, and Cost Considerations for DARMA; A Low-Cost and Lightweight FMCW Radar

Colorado State University

B.S. Electrical Engineering — GPA: 3.47

Aug 2017 — May 2021

Fort Collins, CO

PROJECTS

Algorithmic Stock Trading Server

Aug 2022 — Present

- Task scheduling system (backfilling data into PostGreSQL database, computing custom indicators, run entry / exit strategy)
- Command-line interface for checking status, getting recent trades, etc.
- Analysis / forecasting using Pandas, Numpy, PyTorch
- Dashboard using Plotly Dash and a Flask API

FMCW Radar Bootcamp

Mar 2023

- Helped develop a talk on FMCW radar and corresponding software for the 2022 AESS Radar Bootcamp

Keysight 5G Electronics Senior Design Project

Jun 2020 — May 2021

- Simulated, assembled, and measured a full 5G receiver system
- Created documentation for an instructional university course

SKILLS & ABILITIES

Languages: **Python**, **C**, Rust, Bash, SQL, NuShell, **Matlab**, JavaScript

Technologies / Tools: **Git**, **Linux**, Docker, PostGreSQL, SQLite, Pandas, Numpy, Flask, Celery

Communication: Excellent Technical Communication and Presentation Skills, Experience Presenting PDR/CDRs, Technical Paper/Presentation Formatting, Concise Code Documentation