

# MARSHALL BRUNER

Denver, CO

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## EXPERIENCE

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### Ball Aerospace

#### RF Engineer

Jun 2021 — Jul 2023

Broomfield, CO

- Used Python knowledge to create useful plotting and RF analysis tools
- Simulated, designed, and tested an RF Front-End PWB at extreme temperatures
- Debugged complex, mission-critical RF boards under strict time constraints
- Built an embedded webpage used to interact with a phased array antenna
- 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

## EDUCATION

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### 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

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### Algorithmic Stock Trading Server

Aug 2022 — Present

- Task scheduling system (backfilling data into PostGreSQL database, computing custom indicators, run entry / exit strategy)
- Containerized using docker
- Command-line interface for checking status, getting recent trades, etc.
- Discord bot for general notifications / monitoring
- Dashboard using Plotly Dash and a Flask API (early stages)

### FMCW Radar Bootcamp

Mar 2023

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

### 5G Electronics Senior Design Project

Jun 2020 — May 2021

- Simulated, assembled, and measured a full 5G receiver system
- Created teaching documentation for a 5G transmitter and receiver for FR1 and FR2 frequency bands

## SKILLS & ABILITIES

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

**Technologies / Tools:** Git, L<sup>A</sup>T<sub>E</sub>X, Linux, Docker, PostGreSQL/TimescaleDB, Flask, Celery (Distributed Tasks)

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