

# MARSHALL BRUNER

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## EXPERIENCE

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### Ball Aerospace (DoD Clearance)

#### RF Engineer

Jun 2021 — Jul 2023

Broomfield, CO

- Designed and debugged multiple complex, mission-critical RF boards under strict time constraints
- Schematic capture and layout of RF T/R systems (RF, digital, power), antenna range test equipment, component testing coupons, etc.
- **Built data analysis and visualization tools in Python**
- Built an embedded webpage used to control/monitor phased array electronics
- High sensitivity testing (noise, high power, etc.) of electronics

### Colorado State University

#### Graduate Research Assistant — Thesis focused on Radar

Jan 2021 — May 2022

Fort Collins, CO

- **Signal processing** / data visualization for Analog Device's FMCW Phaser Radar Board
- **Design, schematic, and layout** of a modular, X-band, FMCW drone radar
- Presented the work at the IEEE International 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 server to host and display real-time and historical radar data using Post-GreSQL, Flask, Python
- 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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### FMCW Radar Bootcamp

Mar 2023

- **Developed signal processing software and a presentation for an FMCW radar** to present at 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
- Experience using FieldFox, EMPro, ADS, SystemVue

### Fuzzy Logic Clutter Filter

Nov 2020 — Dec 2020

- **Designed a radar clutter filter using machine learning**

## SKILLS & ABILITIES

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

**Design / Simulation Tools:** AWR Microwave Office, HFSS, KiCad, AutoCAD, QucsStudio, LTSpice, Cadence Technologies / **Tools:** **Git**, **Numpy**, Pandas, **Scipy**, Benchtop measurement equipment,  $\text{\LaTeX}$ , Linux

**Communication:** Worked with customers through pre- and post-sales phases, Excellent Technical

Communication and Presentation Skills, Experience Presenting PDR/CDRs, Technical Presentation Formatting