

MARSHALL BRUNER

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EXPERIENCE

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
- Simulated, designed, and tested an RF Front-End PWB at extreme temperatures
- **Schematic capture and layout** of RF T/R systems (RF, digital, power), antenna range test equipment, component testing coupons, etc.
- Built data visualization and analysis 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

Jan 2021 — May 2022

Fort Collins, CO

- **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 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 PostgreSQL, Flask, Python
- Performed characterizations and measurements of radar equipment

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

FMCW Radar Bootcamp

Mar 2023

- Developed a presentation 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
- Experience using FieldFox, EMPro, ADS, SystemVue

Fuzzy Logic Clutter Filter

Nov 2020 — Dec 2020

- Applied the Fuzzy Logic machine learning technique as a radar clutter filter

SKILLS & ABILITIES

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

Design / Simulation Tools: **KiCad**, AWR Microwave Office, HFSS, **AutoCAD**, QucsStudio, LTSpice, Cadence Virtuoso

Technologies / Tools: **Git**, \LaTeX , Linux, Docker, PostgreSQL, Flask, Celery

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