Marshall Bruner

Denver, CO

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EXPERIENCE

Ball Aerospace — **Jun. 2021 — Present**
RF Engineer — *Broomfield, CO*

- Debugged complex, mission-critical RF boards under strict time constraints
- Simulated, designed, and tested an RF Front-End PWB at extreme temperatures
- Schematic and layout of RF T/R systems (RF, digital, power), antenna range test equipment, component testing coupons, etc.
- Used Python knowledge to create useful plotting and RF analysis tools
- Built an embedded webpage used to interact with a phased array antenna
- High sensitivity testing (noise, high power, etc.) of electonics

Colorado State University — **Jan. 2021 — May 2022**
Graduate Research Assistant — Thesis — *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 Internation Phased Array Symposium
- Phaser board work was presented by ADI at IMS 2022 and IEEE-APS 2022
- Built a server to host and display real-time and historical radar data using PostGreSQL, Flask, Python

CHILL Radar Lab — **May 2020 — May 2021**
Lab Assistant — *Greeley, CO*

- Built a real-time radar display to easily display and animate radar data
- Performed characterizations and measurements of radar equipment

EDUCATION

Colorado State University — **Jan. 2021 — May 2022**
M.S. Electrical Engineering — ***GPA: 3.9*** — *Fort Collins, CO*
Thesis - Design, Deployment, and Cost Considerations for DARMA; A Low-Cost and Lightweight FMCW Radar

Colorado State University — **Aug. 2017 — May 2021**
B.S. Electrical Engineering — ***GPA: 3.47*** — *Fort Collins, CO*

PROJECTS

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 to radar data to filter clutter

Environment-Mapping Car — **Nov. 2020 — Dec. 2020**

- Built and programmed a battery-powered car with attached ultrasonic sensor for mobile mapping of the surrounding environment

SKILLS & ABILITIES

Languages: Python, C, Bash, SQL, Matlab, JavaScript, HTML, CSS
Design / Simulation Tools: KiCad, AWR Microwave Office, HFSS, QucsStudio, LTSpice, Cadence Virtuoso
Technologies / Tools: Git, LaTeX, 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