

# Julia DiTomas

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https://github.com/JuliaDiTomas

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Interests: RF/antenna design, construction, environmental science, communication protocols, robotics, AI, mathematics  
Skills: Python, SQL, C/C++, Matlab, Linux, UI design, Arduino, data analysis, RF analysis, AWR Microwave Office, analog circuits, debugging/troubleshooting, technical writing, collaboration, SIMetrix, FEKO, Verilog, Altium Designer

## Education

*University of Colorado Boulder, Bachelor of Science*

Anticipated Graduation: May 2025

GPA: 4.0

In-Progress Major: Electrical and Computer Engineering

In-Progress Minor: Computer Science

*Fairview High School, Boulder, Colorado, Class of 2021*

GPA: 4.6

## Work Experience

*Maxar Technologies: Absolute Radiometric Calibration Technician -- May 2023 - present*

- Collected field data to perform and improve each sensor's calibration. With team, set up specialized tarps in field, measured reflectance from ground at time of satellite image using spectrometers, and maintained all field equipment, such as solar panels, wind turbine, sun photometer, and weather station.
- With fellow interns, designed and built a camera system to monitor weather at our field site and automatically upload images to AWS during calibration data acquisition. This project involved COTS components research, enclosure design, API integration, hands-on construction, and presentation skills.
- Built a Python Dash app for the radiometric calibration team to visualize image orders and deliveries during the initial stages of the new Legion satellites. This project involved SQL, API development, and interactive web dashboard design.
- Built a Python Dash app to monitor and display the stability and radiometric health of each sensor. This project involved user interface design, data analysis, scheduling jobs with Linux cron, and document generation in Python.

*Julia's Painted Pet Art: Artist and Owner -- May 2021 - August 2024*

- Designed and built a website, paintedpetart.com, and operated a custom pet portrait business, learning about entrepreneurship, communication, leveraging feedback, and visual design.

*University of Colorado: Discovery Learning Apprentice -- August 2022 - May 2023*

- Conducted research for LunaNet project, simulating an emergency alert system for astronauts on or near the Moon and comparing transmission with different modulation schemes.
- This project involved software-defined radio with GNU Radio, communications protocols research, programming with Python, and technical writing.

*University of Colorado: Teaching Facilitator -- August 2022 - December 2022*

- Hosted office hours, answered questions, and assisted students in ASEN 1320, a C++ and Matlab introduction course for aerospace engineers.
- Developed skills in teaching and communicating technical concepts for the students' best understanding.

## Projects

*Environmental Variance Analyzer (EVA) -- September, 2024 - present*

- For our senior capstone project, my team and I are currently developing a battery-powered environmental sensing module to support NASA's STELLA project. The EVA pod will run autonomously in the outdoor region of interest, collecting data such as air temperature, pressure, and soil moisture, and allow the user to upload the data to the EVA website for later viewing and sharing publicly.

*Digital Tilt Maze Game -- March, 2024 - May, 2024*

- In Real-Time Operating Systems (ECEN 3753) programmed an STM32F4 microcontroller to play a game in which the user tilts the board to move a ball through a maze. This project involved embedded software and project planning and organization.

*Remote-Controlled Robot with Custom Controller -- August, 2023 - December, 2023*

- In Electronics Design Lab (ECEN 2270), built a remote-controlled robot using Bluetooth Low Energy modules that drives around and plays a selection of melodies. This project involved analog circuit design, Arduino, feedback control systems, and motor control.

*Repurposed Materials Antenna Build and Analysis -- April, 2024 - May, 2024*

- In Electromagnetic Waves and Transmissions (ECEN 3410), teamed up with a partner and built an antenna out of semi-random material (a wine rack) bought from the thrift store, modeled and simulated it using FEKO software, and compared with measurements taken by vector network analyzer.