Alexander Reich

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EDUCATION

University of Colorado, Boulder - Class of 2027
Bachelor of Science in Aerospace Engineering, Minor in Electrical Engineering

- **GPA: 3.973/4.0**, Dean's List Fall 2023, Spring 2024
- Current and previous coursework includes Materials Science for Aerospace Engineering, Experimental Computational Methods in Aerospace, Intro to Statics and Structures, Intro to Aerodynamics and Thermodynamics, and Intro to Circuits and Electronics

EXPERIENCE

MAXWELL Cubesat – *ADCS Engineer* Anticipated start date: Sep 2024
Responsibilities will include:

- Debugging flight code and control systems in embedded C
- Ground testing reaction wheel and torque rod hardware, ensuring control authority through operation

CU Sounding Rocket Lab
Avionics Team Lead Jun 2024 - Present

- Updating custom adapter board to include new capabilities such as RF downlink and recovery
- Onboarding new members through leading workshops in the basics of FPrime, embedded software

Avionics Engineer Aug 2023 - Jun 2024

- Wrote custom sensor driver for the DPS310 barometric altitude sensor in C++
- Employed low-level communication protocols to interface between microcontroller and sensors

NASA SUITS – *Team Co-Lead* Dec 2023 - Jun 2024

- Co-led a team of 12 in designing an augmented reality display and mission control console for astronaut EVAs
- Prioritized and scheduled software development tasks to meet mission requirements
- Developed Human-In-The-Loop testing procedures, providing critical feedback during the design process and providing an assessment of cognitive load on the astronaut
- **Ran mission simulation scenarios at Johnson Space Center Rock Yard and presented in front of a NASA panel**
- **Awarded $4,000 research grant from the California Space Grant Consortium**

PROJECTS

5th Kibo Robot Programming Challenge – *Software Engineer* Jun 2024

- Developed and implemented system to navigate a robot through a simulated ISS module autonomously, while avoiding Keep-Out-Zones (KOZs) and using computer vision to scan various items using Java
- Created algorithm to automatically find a near-optimal path to a desired point, while avoiding KOZs
- Team was awarded **Top 10 Nationally** out of 42 teams

NASA Space Apps Hackathon – *Software Engineer* Oct 2023

- Analyzed space weather using DSCOVR solar probe data and developed prediction algorithm, providing advance warning to impacted industries
- Created a Kalman filter to remove anomalous data and enable short term space weather forecasting
- Team was awarded **Local Event Winner** and **Global Award Nominee**

SKILLS

Programming languages and tools: C, C++, MATLAB, Unix, bash, Git
Software Packages: OnShape, LTSpice, FPrime, OpenRocket
Embedded systems: Arduino, BeagleBone Black, ESP32
Other: Soldering