# SAM CARTER

samcarter@gmail.com | (481) 516-2342 | Boulder, CO | Portfolio/GitHub/LinkedIn

## EDUCATION

**University of Colorado,** College of Engineering & Applied Science — Expected: Dec 2020
B.S. Aerospace Engineering — GPA: 3.9

## EXPERIENCE

**Course Grader,** *University of Colorado*, Boulder, CO — Aug 2024 - Present

- Grade homework for an introductory fluid mechanics class, reviewing course topics regularly to ensure accurate and consistent grading

**Undergraduate Lab Intern,** *University of Colorado*, Boulder, CO — May 2024 - Aug 2024

- Improved accuracy of a Python data-processing script by 82 percent and reduced runtime by 60 percent for sustainable-fuel combustion testing.
- Identified the start of compression in rapid compression machine tests within 0.1 ms by comparing pressure data with displacement sensor readings.
- Analyzed noise and timing differences between pressure and position data, improving detection accuracy by 90 percent.

**Robotics Team Mentor,** *Boulder High School*, Boulder, CO — Oct 2022 - May 2023

- Mentored a team of twelve students in engineering design and basic coding.
- Worked with school staff to organize materials and support competition deadlines.

## PROJECTS

**Liquid Rocket Engine,** Liquid Rocketry Club — Sept 2024 – Present

- Working with teammates to develop a heat-transfer analysis tool for a rocket engine chamber.
- Working with teammates to design and manufacture an ablative sleeve in Siemens NX to protect the combustion chamber from extreme temperatures.
- Analyzing stresses on key components to define safe design limits.
- Designing a controlled “fail-safe” feature to prevent major damage during testing.

**6-Axis Robot Arm,** American Society of Mechanical Engineers (ASME) — Sept 2024 – Present

- Leading a group of fifteen students in designing a 6-DOF robotic arm for the annual engineering expo.
- Designing links and joints that house motors, wiring, and sensors.
- Using Python to run basic forward and inverse kinematics and create motion simulations.

**Hand-Controlled Drone,** American Society of Mechanical Engineers (ASME) — Jan 2024 – Apr 2024

- Designed and built a lightweight remote-controlled drone using Fusion 360 and 3D printing tools.
- Created a wireless circuit to send and receive signals for a servo-powered claw with a range of up to twenty meters.

## SKILLS

- **Design:** SolidWorks, Siemens NX, Fusion 360, Inventor, Arduino, Cura, JavaScript, DFM, DFA
- **Analysis & Control:** Python, C++, ROS, MATLAB, FEA, aPriori, Java, Excel