

Austin Reitz

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EDUCATION

Western Colorado University / CU Boulder Partnership

B.S. in Mechanical Engineering. Dean's List (All Semesters). GPA: 3.82.

May 2028

EXPERIENCE

Laser Texturing Research

Summer 2026

Western Colorado University / CU Boulder

Gunnison, CO

- Investigated laser surface texturing (LST) across five metal alloys to characterize how laser parameters affect surface roughness for biomedical surface-engineering applications.
- Designed and executed a parametric study varying laser power, scan speed, and line density across 81+ engraved samples, measuring surface roughness (Ra) via profilometer.
- Analyzed surface morphology using SEM and EDX (Hitachi SU8600, CU Boulder) to identify ablation thresholds and oxide-layer formation.
- Built regression models in Excel linking laser parameters to roughness outcomes ($R^2 > 0.9$ for select metal/parameter pairs).

Makerspace Teaching Assistant

Jan 2026 – Present

Western Colorado University

Gunnison, CO

- Support hands-on learning in a fabrication and prototyping environment, guiding 2–3 students per class period in the safe and effective use of tools, equipment, and design software.
- Designed and fabricated a boom arm to route a vacuum hose to a router table, improving chip clearance and access around the table; contributed to the manufacturing of a metal storage rack rated for 4,000 lbs across variable stock dimensions.
- Design, fabricate, and implement projects to improve makerspace user efficiency and safety, applying Kaizen principles for the betterment of the Makerspace and the engineering program.
- Collaborate with fellow TAs to support workshop faculty during instructional hours.

PROJECTS

CNC Wind Tunnel Sensor Slot Guide

Jul 2026

Engineering Lead

- Led a collaborative project with the capstone wind tunnel team to reduce sensor data noise caused by sting twist during testing.
- Diagnosed twisting motion in the sting as the primary noise source affecting sensor data quality.
- Designed and CNC machined a guiding slot to constrain sting movement; iterative adjustments to slot mounting reduced sting twist and sensor noise by roughly 20–30%.
- Collaborated with the wind tunnel team to integrate and validate the fix, confirming improved data reliability across test runs.

CNC Derby Car

Nov 2025 – Dec 2025

- Modeled, manufactured, and tested a derby car using precision metalworking instruments as part of a team project, delivering a fully functional vehicle.
- Developed proficiency in Autodesk CAM and HAAS TM-P1 CNC operation, including the nuances of translating CAM toolpaths to machine execution.
- Applied engineering principles and manufacturing processes to maintain dimensional accuracy and precision within software and machine tolerances.

SKILLS

Technical Tools: HAAS TM-P1 CNC, Autodesk CAM, Profilometer, SEM/EDX (Hitachi SU8600), Microsoft Excel

Methods: CNC Machining, Fabrication & Prototyping, Parametric Study Design, Regression Modeling, Laser Surface Texturing (LST)