

Cole Rutkowski

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PERSONAL PROFILE

- Senior year Mechanical Engineering student with hands-on fabrication expertise and leadership experience in engineering projects. Passionate about designing and testing innovative solutions in mechanical systems and outdoor gear.

EDUCATION

BS in Mechanical Engineering, University of Colorado Boulder

Graduation Date: May 2026

- Extracurricular Courses: ACE CNC Machining Training, Welding, Machine Shop Safety and Technology, Operation of Universal Test Machines, 3-Week Bicycle Frame Building Class GPA: 3.52
- Relevant Coursework: Dynamics, Thermodynamics, Materials Science, Solid Mechanics, Fluid Mechanics, Heat Transfer, Component Design, Manufacturing, Data Analysis, Computational Methods

SKILLS

Fabrication: Lathes, Manual and 2-Axis CNC Mills, Waterjet, MIG/TIG Welding, Brazing, 3D printing

Measurement Operations: Keyence CMM and MMS, Universal Testing Machine, Ohaus Balance for Specific Gravity, Mark-10 Torque Gauge

Software: SolidWorks, MasterCam, CAM+, Matlab, C++, HTML, CSS, Microsoft Office, Excel

WORK EXPERIENCE

Research Technician, Granular Flow Lab at University of Colorado Boulder

January 2025 - Present

- Designed, manufactured, and assembled projects for rheology experiments, including a 3x3x3m T-slot frame to mount 150kg motor above experiment. Design was approved by a structural engineer.
- Streamlined design for manufacturability and cost reduction of photoelastic-particle casting mold.
- Produced 1m-diameter silicone gaskets for large rheometer experiment.

Machine Shop Assistant, Idea Forge at University of Colorado Boulder

October 2024 - January 2025

- Taught students basic machining processes including lathes, mills, bandsaws, presses, and tool selection.
- Instructed manufacturing and assembly of air-powered wobbler engines for class projects.

Quality Control Intern, Trelleborg Sealing Solutions Denver

June 2024 - August 2024

- Created detailed documentation for quality control processes, improving testing efficiency.
- Designed and standardized procedures for torque, tensile strength, and hardness testing.

ENGINEERING EXPERIENCE

Class Project

August 2024-December 2024

Drill-Powered Tricycle

- Designed, manufactured, and tested drill-powered tricycle for class competition. Set endurance competition record.
- Managed project lifecycle, including design, welding, machining, and testing of the frame and drivetrain.
- Welded frame components and machined adapters to optimize system performance.

Personal Project

September 2023 - Present

Making and Testing Climbing Nuts, Hexes, and Cams

- Machined custom components with waterjet, lathe, and mill from Aluminum 6061-T6.
- Researched mountaineer, homemade, and professionally-produced gear made between 1970 and present.
- Studied and modeled old gear, hand-sketched and CAD modeled custom variations.
- Tested aircraft-cable extensions in tension machines.
- Fall tested new gear on real rock with increasingly large falls (30ft max).

EXTRACURRICULARS

Distance Running and Triathlon

Trad Climbing and Mountaineering