

Abraham Cabrera Gonzalez

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EDUCATION

University of Colorado Denver

Bachelor of Science in Mechanical Engineering, Minor in Electrical Engineering

May 2025

GPA: 3.998

TECHNICAL SKILLS

Software: SolidWorks (CSWA), Creo, Fusion 360, MATLAB, Simulink, ANSYS, Python, Linux, LabVIEW, PTC Windchill, Excel

Instruments: Oscilloscopes, DMMs, NI DAQs, Function Generators, Power Supplies, Strain Gauges, Pressure Transducers

WORK EXPERIENCE

Test Engineering Assistant (Undergraduate Research)

Sep. 2023 – May 2025

University of Colorado Denver

Denver, CO

- Developed, documented, and executed test plans and procedures in a wind tunnel campaign to evaluate power line conductor vibration under simulated icing conditions.
- Integrated and calibrated instrumentation (hot-wire anemometers, laser displacement sensors, oscilloscopes) with NI DAQ hardware, establishing synchronized data acquisition workflows.
- Analyzed collected data using MATLAB (FFT and signal processing) to extract system natural frequencies and characterize vortex-induced vibrations.

Product Engineering Intern

May 2024 – Aug. 2024

Trane Technologies

Pueblo, CO

- Directed a 5-person team on a quality improvement project, achieving a 66% increase in chiller safety label durability through material optimization and supplier collaboration.
- Reduced part redundancies in bill of materials by consolidating identical components, streamlining production workflows.
- Organized components and work instructions at a key assembly station, enabling operators to consistently achieve a 15-minute cycle time target.

PROJECT EXPERIENCE

Automated Pulse Tool Tester | Atlas Copco

Aug. 2024 – May 2025

- Designed and integrated mechanical and electrical subsystems for an automated industrial tool calibration system.
- Utilized SolidWorks to design and Fusion 360 CAM to machine aluminum components on a CNC Mill, incorporating design-for-manufacturing practices; validated structures with FEA and additive manufacturing prototypes.
- Performed electrical transient testing on high-power stepper motors (NEMA 34), using an oscilloscope to capture voltage/current spikes during shutdown, improving system reliability.

Soda Can Strain and Pressure Analysis

Sep. 2023 – Nov. 2023

- Configured and calibrated strain gauges in a Wheatstone bridge circuit, integrating a LabJack DAQ with DMM verification to acquire voltage signals during soda can depressurization.
- Calculated internal pressurization of the can by converting bridge outputs into strain and stress using strain equations, Hooke's Law, and hoop stress relations.

Rocket Lynx (Hybrid Rocket Engine)

Jan. 2023 – May 2023

- Developed and validated a battery-powered ignition system for a hybrid rocket engine using DMMs, oscilloscopes, and power supplies; achieved a 24-second static fire test with a peak thrust of 73 lbf.
- Coordinated avionics sensor calibration and DAQ setup (load cell), enabling real-time performance monitoring.

ORGANIZATIONS / LEADERSHIP

Vice President

Aug. 2023 – May 2025

Society of Hispanic Professional Engineers CU Denver Chapter

Denver, CO

- Collaborated with faculty and industry partners to expand career-readiness opportunities for underrepresented STEM students.
- Coordinated with university and corporate sponsors to fund SHPE National Convention attendance for 15 students.

Tau Beta Pi Engineering Honor Society

May 2025

University of Colorado Denver (CO Epsilon)

Denver, CO