

Abraham Cabrera Gonzalez

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EDUCATION

University of Colorado Denver <i>Bachelor of Science in Mechanical Engineering, Minor in Electrical Engineering</i>	May 2025 GPA: 3.998
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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) <i>University of Colorado Denver</i>	Sep. 2023 – May 2025 Denver, CO
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- 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 <i>Trane Technologies</i>	May 2024 – Aug. 2024 Pueblo, CO
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- 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
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- 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
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- 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
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- 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 <i>Society of Hispanic Professional Engineers CU Denver Chapter</i>	Aug. 2023 – May 2025 Denver, CO
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- 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 <i>University of Colorado Denver (CO Epsilon)</i>	May 2025 Denver, CO
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