

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

WORK EXPERIENCE

Undergraduate Fluids Research Assistant

Sep. 2023 – May 2025

University of Colorado Denver

Denver, CO

- Led system-level **wind tunnel integration and testing** to evaluate vibrational characteristics of power lines under simulated icing conditions.
- Calibrated and integrated **hot-wire anemometers** and **laser displacement sensors** with a **NI DAQ system** for high-fidelity airspeed and displacement measurements.
- Performed test data analysis using **MATLAB (FFT algorithms)** 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 the 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.
- Conducted **FEA simulations** to assess structural loading and validate mechanical subsystem integrity; produced rapid prototypes via **additive manufacturing**.

CFD and Wind Tunnel Comparison of Airfoil

Aug. 2023 – Dec. 2023

- Conducted experimental **wind tunnel testing** of NACA 4412 airfoil to measure **lift coefficients** at various angles of attack.
- Developed a **2D CFD domain** replicating test conditions using **ANSYS Fluent**; compared experimental and computational results.
- Compiled and analyzed lift coefficient data graphically in **Excel** to assess **CFD model accuracy**.

Rocket Lynx

Jan. 2023 – May 2023

- Designed and validated a **battery-powered ignition system** for a hybrid rocket propulsion engine; achieved a **24-second static fire test** with peak thrust of **73 lbf**.
- Coordinated sensor calibration and **DAQ setup (load cell, pressure transducers)**, enabling real-time performance monitoring.

TECHNICAL SKILLS

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

Instruments: NI, LabJack & Keyence DAQs, Oscilloscopes, Strain Gauges, CNC Mill, 3D Printers

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

Denver, CO