

ALEJANDRO HERRERA

alejandro.herrera24@icloud.com

(915) 526-8793

[linkedin.com/in/alexh7](https://www.linkedin.com/in/alexh7)

PROFESSIONAL SUMMARY

I am a Mechanical Engineering graduate from the University of Texas at Austin with a strong foundation in design, manufacturing, hardware reliability testing, and dynamic systems. Experienced in leading cross-disciplinary engineering projects from concept to delivery, with a proven track record in CAD design, FEA validation, product testing and prototype development. Showing exceptional leadership, having balanced full-time work while completing a rigorous engineering degree.

CORE SKILLS AND CERTIFICATIONS

- **CAD:** SOLIDWORKS, PTC Creo, Autodesk Fusion 360, AutoCAD, Revit, OnShape
- **Simulation & Analysis:** FEA, CFD (course experience), Thermofluids, Systems Dynamics
- **Programming:** Python, C++, MATLAB
- **Certifications:** CSWA, CSWP, Microsoft Office Specialist, Adobe Creative Cloud
- **Languages:** Fluent in English and Spanish (Native)

EDUCATION

The University of Texas at Austin — B.S. in Mechanical Engineering

Graduated: December 2024

- **Technical Focus:** Design and Manufacturing; Dynamics, Vibrations, Acoustics, and Controls

ENGINEERING EXPERIENCE

Lead Mechanical Engineer – *UTME Medical Training Device (Senior Project)* *August 2024 – December 2024*

- Applied fluid mechanics and biomechanics principles to achieve blood analog flow and behavior within $\pm 8\%$ of targeted physiological parameters, ensuring realistic training system response.
- Designed anatomical flow paths and 3D-printed lung components, increasing prototype durability to withstand 50+ hours of repeated use under variable storage and handling conditions.
- Conducted reliability testing that identified three critical failure modes, leading to design changes that improved system reliability by 33%.
- Collaborated with engineers and physicians to implement design and material adjustments that reduced total cost per unit by 70% while meeting clinical standards and training objectives.

Lead Mechanical Engineer – *Canine Wheelchair Design* *January 2024 – May 2024*

- Engineered a lightweight, load-resilient frame that improved gait stability, reducing vibration and wear by 10% through CAD optimization and FEA validation.
- Translated user needs into measurable engineering requirements, achieving a prototype weight 25% below the standard available product while maintaining comfort and durability.
- Performed product reliability tests simulating repetitive loading cycles, identifying weak points that were redesigned to extend expected service life by 2x.
- Translated user needs into precise design constraints under real-world conditions.

Lead Design Engineer – *Remote Controlled Car Competition* *August 2023 – December 2023*

- Developed an RC vehicle with optimized steering and suspension kinematic control, achieving 10% faster lap times compared to baseline designs.
- Designed under strict cost and mass constraints, securing 2nd place overall in competition performance rankings.

Co-Lead Mechanical Engineer – *Wind Turbine Project* *January 2023 – May 2023*

- Designed and built an energy system incorporating rotational mechanics and energy conversion.
- Embedded voltage monitoring via microcontroller to test output under controlled aerodynamic conditions.

EXPERIENCE

Trek Bicycle Corporation – *Full Time Service Writer-Tech/Rental Management; Austin, TX* *August 2021 – Present*

- Balanced full-time technical service responsibilities with a rigorous engineering program, demonstrating strong prioritization and work ethic.
- Increased rental program performance to the top 5% nationally through workflow redesign and technical oversight.
- Built and implemented custom maintenance tracking systems that reduced downtime by 30% and improved customer satisfaction scores.

LEADERSHIP EXPERIENCE AND ACTIVITIES

Longhorn Car Club – *Automotive officer (Spring 2021 - Present)* *Fall 2021 - Present*

- Hosted performance tuning and mechanical repairs workshops to teach and get students involved in the car culture.
- Engaged over 400 members through hands-on design, repair, and modification of club vehicles.

ADDITIONAL INFORMATION

- **Interests:** Aerospace Systems, Propulsion, Simulation, High-Performance Engineering, Spaceflight, Cycling