Pablo Pena

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EDUCATION

University of Texas at Austin - *Expected (2024 - 2028)*
Pursuing a Bachelor of Science in Mechanical Engineering
Cumulative GPA: 4.0/4.0

EXPERIENCE & ACTIVITIES

NASA L'SPACE MCA Apprenticeship | Payload Mechanical Engineer | - *(May 2025 - Present)*

- Optimized rover chassis material density by 66.25% by conducting a trade study on Aluminum 6061 and Stainless Steel
- Reduced wheel subsystem mass by 89.63% through subtractive CAD and used edge blend to increase stress tolerance
- Designed a 3-DOF robotic arm CAD model with custom gripper for planetary rover concept

Landry's Information Technology Internship - *(2024)*

- Consolidated 9 critical IT performance metrics into a single Power BI dashboard, streamlining access and improving visibility across departments
- Audited and updated Landry's General Manager intranet site; reviewed and updated over 60 entries and corrected outdated restaurant and staff listings for accuracy
- Developed a C# automation tool to transfer data between loyalty systems via API, eliminating the need for manual CSV data pulls

CLUBS & SOCIETIES

Texas Design Build Fly | Systems Engineer | - *(2024 - Present)*

- Developed, prototyped, and soldered the electrical system for the X-1 vehicle
- Designed and manufactured a pylon capable of securely holding 8.165 kg of steel shot, utilizing CAD software and 3D printing techniques for precision and functionality
- Improved payload integration of the X-1 vehicle by reducing weight by 11.1%

Student Engineers Educating Kids | Volunteer Educator | - *(2024 - Present)*

- Led weekly engaging STEM activities to over 20 students, including materials engineering (bouncy ball creation with borax and glue) and electrical engineering (RC car assembly using breadboards, DC motors, and batteries)
- Developed and adapted lesson plans to ensure accessibility and engagement

PROJECTS

Mini-Battle Bot | - *(January - May 2025)*

- Designed and modeled a functional 1 lb battle bot in SolidWorks, including custom-printed wheels and integrated chassis features
- Designed a spinner with 100% PLA infill to ensure optimal momentum and damage
- Laser-cut chassis to fit a kill switch for emergency shutdown

Hmm: Mathematics & Physics Website | - *(June 2025)*

- Reference website for over 190 essential Mathematics and Physics formulas, including Mechanics, Electromagnetism, Thermodynamics, and Fluid Mechanics
- Built with HTML, CSS, and JavaScript. Rendering done with KaTeX and MathJax
- Developed a dynamic search feature, improving formula lookup speed by 23.39% based on a timed comparison study

Custom Chess Timer & Board | - *(July 2025 - Present)*

- Designed and manufactured a custom-themed 32-piece chess set and board using SolidWorks
- Achieved 93.75% print success rate after optimizing part designs
- Integrated Arduino-based timer with pushbutton inputs and OLED display; ongoing circuit prototyping and enclosure fitting; planning laser-cut frame for housing

ACHIEVEMENTS & AWARDS

- Hispanic Scholarship Fund Scholar - *(11/27/2024)*
- 6th Place in the American Institute of Aeronautics & Astronautics Design Build Fly Competition - *(04/16/2025)*
- University Honors - *(05/08/2025)*

ADDITIONAL INFORMATION

Programming Languages: C++, C#, CSS, HTML, Java, Python, SQL, DAX, LaTeX
Technical Skills: SolidWorks, Siemens NX, Arduino, VS Code, Power BI, 3D Printing, Laser Cutting, Soldering
Soft Skills: Problem Solving, Communication, Leadership, Teamwork