



Jacob Ramirez

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SUMMARY

Senior Mechanical Engineering student at the University of Houston (Fall 2026) seeking a Summer 2026 internship or co-op opportunity to apply hands-on experience in mechanical design, thermal analysis, and system integration. Skilled in CAD modeling, rapid prototyping, and hardware testing for high-performance systems.

EDUCATION

The University of Houston

Bachelor of Science, Mechanical Engineering

Expected Date: Fall 2026

GPA: 3.2

WORK EXPERIENCE

Boeing Thermal Engineer Intern (LZ Technologies, Inc Contract), Houston, Texas

January 2025-Present

- Performed ISS ATCS thermal analyses using Thermal Desktop and Simulink, modeling pump speed effects on outlet temperatures to guide detailed simulations.
- Developed a 3D graphing tool to visualize and plot the relationship between three key heat pump variables using Excel VBA and MATLAB, increasing evaluation efficiency by 15% and allowing for simpler data interpretation.
- Completed pump refill procedure in less than the 4 hour estimate with 100% nominal pressures by coordinating with flight directors at the Johnson Space Center.
- Built a script to auto-refresh Excel graphs using VBA, eliminating ~1.7 hrs of manual work each week.
- Analyzed ISS coolant line schematics, flight photos and CAD drawings to locate potential leak sites to support on-orbit troubleshooting.

PROJECTS

Automated Lawn Mowing Robot

June 2023

- Developed an autonomous lawn mower robot using Arduino, integrating ultrasonic sensors and DC motors to automatically detect obstacles and adjust its path.
- Programmed real-time obstacle avoidance and automated grass cutting and achieved 90% accuracy by testing the mower in randomized obstacle courses and measuring successful 90° turn-and-clear maneuvers without collisions.
- Designed and assembled the robot's mechanical and electrical systems, utilizing BLDC motors for high-speed grass cutting and ensuring reliable operation with rechargeable LiPo batteries.

Stocking Holder Prototype

April 2024-May 2024

- Designed and fabricated a multi-material stocking holder prototype using CNC milling, 3D printing, and laser cutting with 7 unique parts
- Programmed CNC mill to achieve precision 0.5mm clearance fits with a 3D printed hook component and cardboard laser cut pieces.
- Completed prototype production in less than 45 minutes across the three manufacturing processes and validated strength to support a 50g load.

RC Rover with Mechanical Arm

September 2024-November 2024

- Led a team of 4 to design a rover with a mechanical arm capable of picking up and sorting objects into designated zones, focusing on precision and efficiency.
- Implemented control systems with the Bluetooth controller module for accurate movement and coordination between the rover and arm, achieving stable performance over a 10-meter range.
- Programmed motor speed control and conducted iterative prototyping to optimize driving efficiency, enabling the rover to complete an obstacle course in under 60 seconds with enhanced stability and battery life.

Soft Robotic Pneumatic Gripper (Capstone)

October 2025-Present

- Designing a lightweight, soft robotic gripper using silicone and embedded dielectric elastomer sensors to enable adaptive gripping for space operations.
- Performing hyperelastic and viscoelastic modeling, pneumatic pressure-force analysis, and preliminary CAD/FEA to validate safe operation under 60 kPa pressure limits.
- Developing control and sensing strategies to improve precision, dust tolerance, and grip reliability for extraterrestrial sample handling.

LEADERSHIP & COMMUNITY INVOLVEMENT

Society of Hispanic Professional Engineers, Wellness and Athletic Committee

August 2024-May 2025

- Organized athletic events for up to 40 SHPE members, fostering community engagement and promoting work-life balance through physical activities.
- Collaborated with fellow committee members to plan and execute team practices for events such as Lone Star Showdown. Includes creating sign-in forms and scheduling.

UH Cougar Wrestling Club Officer

August 2024-May 2025

- Organized and scheduled wrestling practice for up to 20 members
- Utilized social media to post practice footage and increase membership by roughly 30%.

SKILLS

Skills: Python, MATLAB, C++, ROS (Robot Operating System), 3D Printing, CAD (AutoCAD, SOLIDWORKS), Microsoft Office, COMSOL, Thermal Desktop, Simulink, Bilingual English/Spanish (Fluent)

