Andres Perez

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Aspiring Electronics & Embedded Systems Engineer at the University of Notre Dame

SUMMARY

I am passionate about the advancement of space exploration technology and, specifically, embedded systems for electronics with in-space applications. My goal is to design and optimize the hardware and software for space grade avionics and full electrical systems to be on the cutting edge of revolutionizing human space exploration. For more about me, check out my portfolio website!

EDUCATION

University of Notre Dame | Notre Dame, IN **Graduation Date: May 2028**

Bachelor of Science: Computer Engineering | Minor: Engineering Corporate Practice | QuestBridge Scholar GPA: 3.713

Engineering Study Abroad: London, England May 2025 – June 2025

ENGINEERING LEADERSHIP

IrishSat's Gravitational Orbital Attitude Thermal Lab (GOAT Lab) **Notre Dame, IN**

Electronics Lead | CubeSat Team Aug. 2024 – Present

- Spearheading a team of 6+ engineers for the embedded systems development and PCB design initiatives for testing equipment, particularly a Helmholtz cage project, coordinating hardware-software integration across CubeSat projects.
- Collaborated under expert mentorship to refine IrishSat's Helmholtz Cage design, integrating PCB design (KiCad), control algorithms (MATLAB), and embedded Linux systems (Raspberry Pi) into a unified testing platform.
- Designed and assembled a custom 7.2V 7000 mAh 2S2P Li-ion battery pack using 18650 cells and spot welding.

ENGINEERING PROJECT

Hardware-Accelerated Human Activity Classifier | Independent Project **Long Beach, CA**

Designer July 2025 – Aug. 2025

- Built a wireless data acquisition system using two Arduino Uno R3s, an MPU-9250 IMU sensor, and nRF24L01 RF transceivers.
- Developed a C++ sketch to stream accelerometer/gyroscope data wirelessly and a Python script to parse it into a labeled walking/sitting dataset.
- Achieved 96.7% classification accuracy with a PyTorch 1D CNN, documenting performance across various hyperparameters.

Helmholtz Cage Driver PCB | GOAT Lab **Notre Dame, IN**

Lead Designer Mar. 2025

- Designed a custom Arduino R3 hat PCB using KiCad to integrate and optimize Arduino, magnetometers, and H-bridge circuits, reducing assembly complexity.
- Amended the generated Bill of Materials and Component Placement List files export to JLCPCB for manufacturing.

Air Quality Sensor Housing | Engineering Design **Notre Dame, IN**

Lead Designer Dec. 2024

- Collaborated with a team of four engineering students to develop and iterate on sensor housing with a rack-and-pinion opening mechanism actuated by a servo motor and ESP32-based microcontroller.
- Designed and prototyped (3D printing) with SolidWorks in two design phases, optimizing for form, fit, function, and durability through iterative testing and feedback.

RESEARCH & WORK EXPERIENCE

Student Researcher | Notre Dame Department of Electrical Engineering **Aug. 2025 – Present**

- Developing a real-time Python software interface for tracking and visualizing GPS-enabled test resources, for drones and software-defined radios, that parses NMEA strings to extract GPS data and displays it on a live map using the folium library, supporting various research experiments.

Engineering Career Assistant | Meruelo Family Center for Career Development **Sept. 2025 – Present**

- Coauthoring a bi-weekly newsletter for undergraduates, specifically seniors, highlighting career opportunities and alumni spotlights from various majors and post-graduate experiences.
- Grew the newsletter to 76.3% open rate with a 2.3% click rate of 517 recipients.

TECHANICAL SKILLS, LANGUAGES, & INTERESTS

Skills: Microsoft Office Suite (Excel, PowerPoint, Word), KiCad, Vim, SolidWorks, Fusion360, Technical Writing, Electronics Test Bench (Function Generator, Oscilloscope, Multimeter, LCR meter, Power Supplies, Logic Analyzer, Electronics Soldering)
Programming: C/C++, Python (Threading, Socket, PyTorch, Pandas, NumPy), Git, GitHub, MATLAB, Astro
Language: English (Native), Spanish (Native), Japanese (Elementary)
Interests: Embedded Systems, Spacecraft Electronics, Machine Learning, Space systems, Avionics, PCB Design, Chess, Pokémon Go