Andres Perez

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Aspiring Embedded Systems Engineer at the University of Notre Dame

EDUCATION

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

Bachelor of Science: Computer Engineering | Minor: Mathematics| QuestBridge Scholar GPA: 3.760

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

- **Current Coursework: System Programming**, **Logic and Processor Design**, **Introduction to Artificial Intelligence**, Signals and Information Systems, Digital Design for Smart Interconnected Systems, Electronics Devices & Systems

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 PROJECTS

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

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 a best 81.70% open rate with a 3.89% click rate of 517 recipients.

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

- Designed and implemented a real-time client-server visualization system to track tether ORION drones, parsing GPS data and rendering live positions on an interactive map using Python and the Folium library
- Analyzed drone telemetry traffic with Wireshark to determine GPS data was transmitted via MAVLink rather than NMEA strings; Integrated PyMAVLink to extract and forward real-time telemetry from drones to the visualization client.

TECHANICAL SKILLS, LANGUAGES, & INTERESTS

Skills: Microsoft Office Suite (Excel, PowerPoint, Word), KiCad, Vim, Wireshark Network Analyzer, Technical Writing, SolidWorks, Electronics Test Bench (Function Generator, Oscilloscope, Multimeter, LCR meter, Power Supplies, 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, Deep Learning, Space systems, Avionics, PCB Design, Chess, Pokémon Go