Felix Maldonado

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EDUCATION

The TASIS School in Dorado, Puerto Rico — May 2022
High School Diploma — Cumulative GPA: 3.96/4.00
Purdue University, West Lafayette, Indiana — August 2022 - Present
Bachelor of Science in Mechanical Engineering, Minor in Electrical Engineering — Cumulative GPA: 3.65/4.00

PROJECTS

Purdue SAE Electric Racing – Battery Cooling Plate Test Engineering *Fall 2023*

- Designed and developed a MATLAB program for real-time visualization of transient thermal responses during cooling plate performance testing.
- Engineered a hardware setup featuring 5 thermistors, 1 flow-rate sensor, and 2 pressure transducers, integrated with a microcontroller to collect precise performance data.
- Implemented MATLAB scripts to interface with the microcontroller, enabling real-time data capture and live plotting, with a built-in feature to export instantaneous data to an Excel sheet at the click of a button for detailed steady-state analysis.

Purdue SAE Electric Racing – Tester Board PCB *Fall 2023*

- Collaborated on designing, manufacturing, and testing a PCB to assess drive-critical components of the team's electric vehicle.
- Developed the schematic for a voltage regulator with built-in noise reduction, clamping digital signals up to 30V to 5V using zener diodes and Schmitt triggers.
- Soldered through-hole and surface-mount components onto the PCB.

Pipsqueak Engine Assembly using NX CAD *Fall 2023*

- Designed, modeled, and assembled a 20-part model of the pip-squeak engine using Siemens NX.
- Sourced stock parts based on appropriate specifications using UNF and UNC standards.
- Created exploded, assembled, and individual part drawings for the entire assembly.

Analog Heartbeat Sensor *Spring 2024*

- Designed and constructed a 4-stage electrical circuit composed of basic components like photo-transistors, MOSFETs, and operational amplifiers to output a flashing LED in sync with the user's heart rate.
- Designed the active low and high-pass filters to isolate analog signals in the 40–200 Hz range from the heartbeat while reducing inherent noise.
- Designed the analog-to-digital conversion stage using a comparator with built-in hysteresis to produce a stable and accurate digital signal.

RELEVANT COURSEWORK

- Mechanical Engineering Design, Innovation, and Entrepreneurship
- Fluid Mechanics
- Electrical Engineering Fundamentals II
- Basic Mechanics II
- Measurement and Control Systems I

SKILLS AND HONORS

- **Programming:** Python, MATLAB, C, Arduino
- **Manufacturing and CAD:** Siemens NX, Altium Designer, Fusion360, LTSpice, mill and lathe
- **Languages:** Fluent in English and Spanish
- **College of Engineering Dean's List** (GPA 3.5 and above) *2022-2023*
- **BCFS Academic Excellence Award** *Spring 2024*