

Adrian Saavedra

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EDUCATION

Virginia Tech

B.S. Electrical Engineering, Focus: Applied Electromagnetics
Secondary Focus: Mixed Signal IC Design

Blacksburg, VA

Expected May 2027

Cumulative GPA: 3.1

Relevant Coursework: Analog Electronic Circuit Design, AC Circuit Analysis & Design Lab, Electromagnetic Fields I-II, Signals and Systems, Embedded Systems, Digital Systems (Verilog/FPGA), Physical Electronics, Intro to Communication Systems, Analog IC Design (Cadence).

WORK EXPERIENCE

Ingersoll Rand – Compressor System Solutions (CSS) Engineering Electrical Engineering Intern

Quincy, IL

May 2026 – Aug 2026

- Implemented a Hardware-in-the-Loop (HIL) test bench using a Speedgoat real-time target and plant models to validate a new embedded controller platform, eliminating the need for \$250K in traditional hardware testing costs.
- Designed analog and digital simulator PCBs in Altium for bench testing embedded controller systems, enabling engineers to validate hardware without deploying full systems.
- Designed and built an automated test bench to validate PCB and firmware for a Bosch ambient condition sensor across 1 hardware and 3 firmware revisions.
- Benchmarked sensor performance against specifications, identifying design deficiencies and providing data-driven recommendations that informed the hardware and firmware teams' revisions.

Astrobotics (University Rover Challenge / Lunabotics) Electrical Subteam Lead

Blacksburg, VA

Aug 2024 – May 2026

- Led a 14-person electrical engineering team developing communication, power, and control systems for autonomous rover platforms competing in the University Rover Challenge and NASA Lunabotics.
- Designed and laid out master control PCB integrating power electronics, GNSS-RTK, and SPI/I2C sensors around an RP2350 microcontroller for control and telemetry.
- Integrated EMI filtering and controlled grounding into 4-layer PCBs, increasing system reliability.
- Implemented a wire-to-wire mating system, reducing maintenance time by 50% and allowing for modular board swapping.
- Designed a dual-band, non-line-of-sight wireless communication system combining LoRa and IEEE 802.11 for rover connectivity over distances up to 1 mile, achieving 95% system uptime.

PROJECT EXPERIENCE

IMU Integration with Psionic Doppler Lidar Team Lead

Blacksburg, VA

Aug 2026 – Present

- Leading a 6-person team in the design of a robust 4-layer IMU PCB integrating a gyroscope, accelerometer, magnetometer, barometer, and STM32G microcontroller for drone and automotive applications.
- Developing bare-metal firmware and hardware, including circuit schematics, PCB layout, power regulation and filtering, and sensor interfaces for reliable IMU operation.
- Collaborating with Psionic engineers to meet industry requirements, including an M.2 form factor and custom serial interface for integration with existing Doppler LiDAR systems in automotive environments.

SolarCar at Virginia Tech Electric Vehicle Systems Member

Blacksburg, VA

Aug 2026 – Present

- Designing a 4-layer data logger PCB within a multidisciplinary team, built around an ESP32-WROOM MCU and interfacing with vehicle peripherals, GPS, the driver display, and an RFD900 900 MHz ISM radio modem for live telemetry during competition.
- Designing a custom GaN-FET VESC-based motor controller for 7.5Kw motor to increase car performance & thermals.
- Building design verification and validation test benches with oscilloscopes, bench power supplies, and DMMs.

TECHNICAL SKILLS

Hardware & PCB Design: PCB Design & Layout (KiCad, Fritzing), Circuit Analysis, Analog Filter Design, Signal Integrity, Analog IC Design, Power Electronics, Mixed Signal, LTspice, Soldering, Rapid Prototyping, Test Equipment.

Embedded, Test & Simulation: MATLAB/Simulink, Speedgoat Real-Time Targets, Hardware-in-the-Loop (HIL) Testing, STM32 (CubeIDE), Raspberry Pi 4/Pico, Arduino, FPGA/Verilog, ESP32, LORA Radio, CAN Bus, SPI, I2C, UART, ROS 2, Embedded Linux (Yocto Project), Cadence Virtuoso.

Software, Data & ML: C, C++, Embedded C, Questa, Python, Java, JavaScript, MATLAB, Git.

Enterprise, CAD & Collaboration: SAP (ERP), Windchill (PLM), Jira, Confluence, Bitbucket, Fusion 360, Onshape, AutoCAD, CNC Machining, 3D Printing.