SIMAO FERNANDES ANDRADE
Randolph, MA | 857-559-3187 | sfandrade06@gmail.com
linkedin.com/in/andradesimao | https://github.com/mao-debug/

EDUCATION:

University of Massachusetts, Riccio College of Engineering — Amherst, MA
Bachelor of Science in Electrical Engineering — May, 2028

Honors/Awards: John and Abigail Adams Scholarship, AP Scholar, UMass Amherst Flagship Award
Extracurriculars: National Society of Black Engineers, Bottom Line Success Program, Cape Verdean Student Alliance, Amherst College Squash Club
Relevant Coursework: Digital and Computer Systems, Embedded Systems, Circuits & Electronics II, Signals and Systems, Fields and Waves

TECHNICAL SKILLS:

HDLs & Programming: Verilog, SystemVerilog, C, C++, Python, Java, JavaScript, TypeScript, Embedded Linux
Digital Design & RTL: RTL Design, Digital Logic, Combinational & Sequential Logic, Testbench Development, Hardware Verification
Hardware & Embedded Systems: ESP32, Arduino, Raspberry Pi, Circuit Prototyping, Soldering, SPI, I2C, UART, CAN Bus
Engineering Tools & Methods: Digital Signal Processing (DSP), MATLAB, LTspice, SolidWorks, Fusion 360, Git, GitHub, RTL-SDR

RELEVANT EXPERIENCE:

Takeda Pharmaceuticals | Automation Engineering Intern — Lexington, MA | May 2026 – Aug 2026

- Integrated a biocapacitance sensor in a DeltaV development environment, applying feedback control and PID principles for real time monitoring
- Verified automation system functionality against design specifications and test procedures with validation engineers.
- Troubleshot instrumentation, control hardware, and software interfaces to isolate faults in a GMP manufacturing environment.

SOCOM Ignite Innovation Program | Engineering Researcher — MIT Lincoln Lab | Nov 2025 – Jan 2026

- Designed an ECU hardware testbench with power distribution and signal integrity considerations for validation testing.
- Reverse engineered ECU communication behavior and diagnostic messaging using Linux based automotive simulation environments.
- Investigated architectures for bridging CAN bus traffic over RF, evaluating communication reliability, interference effects, and security implications.

UMass SuperMileage Vehicle Team | Telemetry Engineer — Amherst, MA | Aug 2024 – May 2026

- Helped integrate onboard sensors with the vehicle's data acquisition system and troubleshoot sensor signals during bring-up.
- Refined grounding and applied signal filtering to reduce electrical noise in vehicle telemetry measurements.
- Designed enclosures in SolidWorks to secure onboard telemetry electronics and protect them from vehicle vibration.

TECHNICAL PROJECTS:

VIDI Smart Glasses | HackUMass XIV (Major League Hacking) — Amherst, MA | Nov 2026
Hardware Engineer | GitHub | vidiai.us

- Designed and implemented the ultrasonic sensor interface for assistive smart glasses, soldering and wiring two HC-SR04 sensors and building resistive voltage dividers to bring their 5 V echo signals within the ESP32's 3.3 V GPIO range.
- Applied digital signal processing to ultrasonic measurements, using a three-sample median filter to reject transient spikes and an alpha-beta tracker to stabilize distance and range-rate estimates for obstacle detection.
- Programmed the ESP32 in C++ to measure ultrasonic echo pulse widths and stream separate left and right range data to a Raspberry Pi.

Surgical Robotics Competition | AdvaMed's MedTech Conference — Boston, MA | Oct 2026
Biomedical Engineer | Moonshot

- Trained an RF-DETR Small instance segmentation model in Roboflow for simulated hip arthroscopy, using 384 × 384 inputs and training-only rotation, brightness, and blur augmentations. Evaluated pixel-level masks on held-out test images (58.6% mAP@50).
- Registered a 3D hip model to simulated endoscopic images in Forge and verified alignment using anatomical landmarks.
- Tuned image-based feedback for a simulated robotic endoscope, setting target position and apparent-size tolerances to determine when the robot corrected its viewing angle or insertion depth.

LEADERSHIP:

Resident Assistant | University of Massachusetts Amherst — Amherst, MA | Aug 2025 – Present

- Lead and support a residential community of 33 students while promoting safety, accountability, and engagement.
- Develop leadership, communication, and conflict-resolution skills through crisis response and community management.