

FRANCIS GENCO

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PROFESSIONAL PROFILE

Electrical Engineering senior experienced focused on embedded systems integration and test, with hands-on experience combining firmware, electronics, Linux, communications, motion control, and computer vision. Builds, debugs, and validates hardware-software prototypes from microcontroller interfaces through bench testing and real-time deployment.

EDUCATION

Bachelor of Science in Electrical Engineering, Embry-Riddle Aeronautical University **Expected Dec 2026**

Daytona Beach, FL | Engineering GPA: 3.36 | Dean's List (3 semesters); Honor Roll

Relevant coursework: Microprocessor Systems, Computer Architecture, Radio Communications, Control Systems, Digital Logic, Signals and Systems, Electronic Circuits

TECHNICAL SKILLS

Programming: Python, C, C++, MATLAB, ARM assembly, VHDL

Embedded systems: STM32, SAMD21, Teensy 4.1, Raspberry Pi 5, Hailo-8L, SEGGER J-Link; UART, SPI, I2C, BLE, LoRa

Design and analysis: Altium Designer, EasyEDA, Keysight ADS, MATLAB/Simulink; PCB design, RF filters, impedance matching, controls, signal conditioning

Software and test: Linux, Git/GitHub, SSH, OpenCV, YOLO, ONNX; oscilloscopes, function generators, digital multimeters

SELECTED ENGINEERING PROJECTS

EMG-Controlled Prosthetic Hand | Capstone Project **2025 - 2026**

- Built an end-to-end sEMG classification pipeline using Myo armbands, a 2D ResNet CNN, Teensy 4.1, Raspberry Pi 5, and Hailo-8L hardware acceleration.
- Achieved ~90% classification accuracy and ~15 ms inference latency; deployed the trained network through ONNX for real-time edge inference.

Automated Digital Microscope and Motion Platform **2026**

- Developed a Raspberry Pi 5 and IMX477 microscopy platform integrating stepper-motor control, trajectory planning, autofocus, image acquisition, and diagnostic automation.
- Implemented OpenCV image-processing and YOLO cell-detection workflows on Linux with remote video streaming and system control over SSH.

RF and Embedded Communications Projects **2025 - 2026**

- Developed SAMD21 firmware for LoRa wireless communication, RF signal visualization, pulse-width decoding, authentication, encrypted key storage, and safety interlocks.
- Designed and simulated RF filters and impedance-matching networks using Keysight ADS and evaluated signal transmission and reception using MATLAB and laboratory instrumentation.

Control-System Design and Hardware Validation **2026**

- Modeled SRV02 position-control and flexible-link dynamics in MATLAB/Simulink; designed PV, PIV, lead, and PI controllers and validated rise time, overshoot, steady-state error, and actuator voltage on laboratory hardware.

EXPERIENCE

Teaching Assistant | Embry-Riddle Aeronautical University **Jan 2025 - Aug 2026**

Microprocessor Systems, Basic Electronics, and Electrical Communications | Daytona Beach, FL

- Provided individual and laboratory instruction in STM32CubeMX/CubeIDE, C/C++, ARM assembly, circuit transients, and radio communication theory.
- Evaluated firmware, circuits, and MATLAB simulations against functional requirements; delivered actionable feedback and coordinated with faculty to improve laboratory instruction.