

# Francesco Marrocco

M.S. ECE with 2+ years of professional experience in hardware/chip design and characterization

<https://frankiemarrocco.com>

Boston, MA | francescom.marrocco@gmail.com | 201-509-0310

LinkedIn: <https://www.linkedin.com/in/fmmarrocco/> | GitHub: <https://github.com/Vision314>

## EDUCATION

### Worcester Polytechnic Institute

#### M.S. Electrical & Computer Engineering

Worcester, MA

GPA 3.9 May 2026

Thesis: *Design and Characterization of a 4MS/s 8-bit Flash ADC in 180nm CMOS for Dual-Channel Image Sensor Readout*

#### B.S. Electrical & Computer Engineering and Minor in Data Science

GPA 3.8 May 2025

*High Distinction & Dean's List 2023-2025*

## TECHNICAL SKILLS

### Circuit Rework

Hands-on experience with tricky PCB alterations that require patience & skill

### High-Level Programming

**Python** – pandas, pyserial, pyvisa, numpy, matplotlib, scipy

### Altium

Schematic & layout experience with DFM, DFT, and avoiding R-EMI issues

### Hardware Testing

Strong understanding of testing equipment to properly characterize a DUT

### Hardware Description Languages

**Verilog/SV** – timing considerations, FSMs, serial comms (SPI, I2C, UART)

### Simulation

**LTSpice** – analog simulation

**Xilinx Vivado** – testbenches for FPGA's

### Documentation & Writing

**L<sup>A</sup>T<sub>E</sub>X** in Emacs; technical writing for academic papers and documentation

### Embedded Programming

**C/C++** with microcontrollers like MSP430 and Arduino

### Other Tools

**Cadence Virtuoso** – simulation & IC layout; **Fusion360** – 3D printing

## EXPERIENCE

### Design Engineer - Medical Power Supplies

**GlobTek Inc.** — Northvale, NJ

June 2025 – Present

*Skills Used: Altium, Python, EMI debugging, LTSpice, L<sup>A</sup>T<sub>E</sub>X, PCB rework and hardware testing*

- Design and test power supplies for medical-grade applications, with careful consideration of IC and topology selection, thermal management, EMI compliance, size constraints, transformer optimization, and manufacturing capabilities.
- Developed Python automation tools that modernize legacy test equipment, replacing many hours of tedious lab work with immediate results.

### Affiliate Research Associate - Mixed Signal Microelectronics Testing/Characterization

**WPI CHIPS Design Studio** — Worcester, MA

August 2024 – Present

<https://chips-design-studio.wpi.edu/>

*Skills Used: Altium, Python, Cadence Virtuoso, L<sup>A</sup>T<sub>E</sub>X, chip testing, C/C++, Verilog/SystemVerilog, Xilinx Vivado*

- Led by Dr. Suat Ay, the CHIPS Studio focuses on solving problems with custom integrated circuits.
- Completed my master's thesis with funding provided by the CHIPS Studio and CEMiD (Center for Education of Microchip Designers @ UCLA) where I designed, taped-out, and characterized a Flash ADC on 180nm CMOS.
- Currently a volunteer researcher leading validation and testing for upcoming research.

## INVOLVEMENT

### First Place Robert H. Grant Invention Award, WPI

*Skills Used: C/C++, Fusion360, Altium*

March 2024 – May 2024

- Built a food spoilage detection device ("Freshness Finder") by measuring the methane emitted from rotting food; delivered a fully functioning prototype in three weeks: Perfboard assembly, Arduino programming, 3D-printed enclosure

### Microelectronics Tutor & Electronics Design Mentor, WPI

Worcester, MA

August 2024 – October 2024

- Lab instructor and tutor for topics surrounding fundamental semiconductor physics, including in-depth analysis of diode behavior, MOSFET operation, and op-amp characteristics.

### DIHI Men's Varsity Rowing, WPI

August 2021 – May 2025

- Strong work ethic demonstrated by 4 years of 25+ hours per week of training along with rigorous academics