MAXWELL STONHAM

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EDUCATION

M.S. in Electrical Engineering | GPA: 4.00 | University of Nevada, Las Vegas — August 2023 – December 2025

B.S. in Electrical Engineering | GPA: 3.87 (Cum Laude) | University of Nevada, Las Vegas — August 2020 – May 2023

SKILLS

Simulation/Design: LTspice, Altium, KiCad, Cadence Virtuoso, MATLAB, COMSOL, SolidWorks, Quartus II

Embedded/Hardware: ESP32, Arduino, FPGA (Cyclone IV), SMD/through-hole soldering, spectrum/network analyzers

Programming/HDL: C, C++, Python, SystemVerilog, RISC-V Assembly

EXPERIENCE

Graduate Research Assistant | University of Nevada, Las Vegas — August 2024 – December 2025

- Led quantum-sensing research using NV-center nanodiamonds and performed optics-based experiments and characterization.
- Built automated MATLAB acquisition/analysis pipeline for spectrometer data, curve fitting, and magnetic/thermal sensing.
- Designed, fabricated, and tested RF/microwave spoof plasmon waveguides using photolithography in a Class 1000 cleanroom.
- Modeled RF electromagnetic fields in COMSOL and correlated simulation results with measured optical data.
- Established lab infrastructure (532-nm laser, optical/RF setup, DAQ, anechoic chamber, SOPs) and mentored new researchers.

Electrical Engineering Intern | Airspool LLC — May 2025 – August 2025

- Designed and validated inverter-based power electronics for HVAC systems through LTspice and prototyping.
- Performed hardware bench-top testing and characterization with detailed technical documentation to support future development.

Electrical Engineering Intern | Pololu Corporation — May 2024 – December 2024

- Designed voltage regulator PCBs in Altium and reviewed schematics/layouts for current sensors and motor driver boards.
- Characterized electronics through efficiency testing, thermal profiling, dropout analysis, and quiescent current measurements for product verification; assembled and validated PCB test hardware using laser-cut components and prototypes.
- Supported electronics manufacturing including SMT assembly, pick-and-place, reflow soldering, and DFM practices.

Lab Supervisor (ECE Department) | University of Nevada, Las Vegas — January 2022 – May 2023

- Managed department-wide electronics inventory and equipment checkout for all ECE laboratory courses and senior design teams (microcontrollers, FPGA kits, prototyping components, sensors, power electronics).
- Assembled and prepared 200+ student lab kits per semester and maintained/tested benchtop lab equipment including oscilloscopes, multimeters, function generators, power supplies, and soldering equipment to reinforce lab safety.

Aerospace Electronics Reliability Intern | NASA — September 2022 – December 2022

- Analyzed reliability of COTS electronics in CubeSat missions, focusing on power, microcontroller, and avionics subsystems.
- Evaluated failure trends across 1000+ CubeSat launches and investigated radiation-induced effects and mitigation strategies.
- Conducted mission-assurance & risk-assessment studies and presented subsystem testing recommendations to NASA mentors.

PROJECTS

CMOS Buck Converter IC Design — Fall 2023

- Designed and laid out a buck converter IC in Onsemi's 0.5µm CMOS process using Cadence Virtuoso (4-5.5V to 3.125V @100mA)
- Integrated a bandgap reference, comparator, ring oscillator, latch circuit, hysteresis control, and various other logic gates.
- Characterized efficiency (53-77%) through simulations, tuned switching frequency (7MHz), ripple (<20mV), and power dissipation.

Wearable Sensor-Based Knee Rehabilitation Device (1st Place Winner | Senior Design Competition) — Fall 2022 – Spring 2023

- Designed and fabricated a custom KiCad PCB and 3D chassis integrating ESP32, MPU6050 (I2C), and vibration motors.
- Developed embedded firmware (ESP32/Arduino) for real-time angle tracking and Wi-Fi data transmission to Flutter/Firebase smartphone app for exercise monitoring and progress tracking to use alongside physical therapists for remote rehabilitation.

Flyback Switch-Mode Power Supply Design — Fall 2022

- Designed an isolated AC-DC flyback converter (100–130 VAC at 60Hz to 5V @ 1A) using LTspice for a USB charger.
- Implemented a ramp generator, PWM feedback, opto-isolated control loop, and compensation network using COTS parts.
- Evaluated load regulation, ripple (~12mV), power dissipation, and efficiency through simulation across varying loads.