Nick Cardamone

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Education

- **Masters of Applied Science, Electrical and Computer Engineering** — Ottawa Canada
  University of Ottawa — *Sept 2023 - Present*
  Thesis: Transmission Line Autorouter using Shape Synthesis with Dr. McNamara and Dr. Acimovic
  Specialization: Electromagnetics, CEM, Microwave and RF Design
  Courses: Phase Locked Loops and RX Synchronizers, Nonlinear Microwave Devices and Modeling, Signal and Power Integrity in High-Speed Designs, Antenna Engineering, Method of Moments
- **Bachelor of Applied Science, Electrical Engineering** — Ottawa, Canada
  University of Ottawa; Magna Cum Laude — *Sept 2018 - April 2023*
  Courses: Microwave Circuits, Antennas, Electronics Design, Modern Controls and Signal Processing, Wireless and Optical Communication Systems, Embedded Systems and Scripting

Skills Summary

- **Electronics**: PCB and Circuit Design, Automated Testing, Test Equipment Expertise
- **Embedded Systems**: ARM, STM32, FPGA (Lattice, Xilinx, Altera), Embedded Linux (PetaLinux)
- **Programming**: C/C++, Python, MATLAB, VHDL, Rust, LaTeX, Git, SPICE, Bash
- **Software**: Altium Designer, AWR Microwave Office, HFSS, Fusion 360, SPICE

Experience

- **Skyworks** — Ottawa, ON
  RFIC Design COOP — *Sept 2024 - Present*
  - **RF Testing**: Validated power amplifier IC prototypes and managed automated test benches.
  - **RF Simulation**: Used HFSS and ADS to analyze amplifier and package performance.
  - **Troubleshooting**: Debugged automated test software to support tapeout deadlines.
  - **IC Rework**: Performed soldering and rework on GaAs and SOI die with 01005 components.
- **University of Ottawa** — Ottawa, ON
  Teaching Assistant — *Sept 2023 - April 2024*
  - **Lab Instruction**: Taught Circuit Theory 1 labs covering soldering, AC/DC circuits, and lab instrumentation.
  - **Tutorials**: Delivered weekly sessions on circuit analysis techniques.
  - **Project Management**: Guided student projects, ensuring structured development and progress.
- **Arkalumen** — Ottawa, ON
  Sr Hardware Design COOP — *Jan 2021 - April 2023*
  - **PCB Design**: Developed and tested IoT lighting control systems, including DC-DC converters.
  - **Firmware**: Implemented embedded software on nRF52, MSP430, and PIC microcontrollers.
  - **Fabrication**: Produced PCB layouts, BOMs, and prototypes for manufacturing.
- **Sino-can Energy** — Tweed, ON
  COOP Student — *May 2020 - Aug 2020*
  - **Design**: Developed electronics hardware for an autonomous greenhouse.
  - **Fabrication**: Constructed greenhouse structures using 6061 aluminum.
  - **Installation**: Installed PV solar systems at multiple Ontario locations.

Projects

- **USB-C Galvanic Isolator**: Designed a USB 3.2 isolator with 100W power isolation and 20 Gb/s data throughput.
- **Microwave Power Amplifier**: Designed a 3 GHz Class A RF amplifier with S-parameter optimization.
- **Patch Antenna Array**: Designed a 5 GHz microstrip antenna array and characterized it in an anechoic chamber.
- **Neural Network Buck Converter**: Developed an NN-based controller in Simulink to regulate DC-DC power conversion.
- **Reconfigurable FPGA-Based Filter**: Designed an FPGA-based adaptive filter for real-time signal processing.
- **Python Instrument Drivers**: Developing automated test instrument control drivers using SCPI and PyVISA.

Hobbies and Interests

- **Electronics**: Prototyping circuits, RF systems, and power electronics.
- **3D Printing**: Building enclosures and mechanical parts for electronics projects.
- **Music**: 10+ years playing drums and piano in jazz and concert bands.