

ADIN AVIV

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EDUCATION

McMaster University

Hamilton, ON

Bachelor of Electrical Engineering, CO-OP

2028

Courses: Digital Signal Processing, Signals and Systems, Digital and Analogue Communication Systems, Logic Design, Energy Conversion, Control Systems, Circuits I and II, Electronics I and II, Electromagnetics I and II, Principles of Programming, Data-Based Structures and Algorithm Optimization, Microprocessor System Project, Electrical System Integration Project, Integrated Engineering Design Projects, Advanced Probability and Random Processes, Computer-Aided Engineering, Engineering Economics, Engineering Ethics

EXPERIENCE

Application Engineering Intern

May 2026 – Present

Semtech Corporation

Burlington, ON

- Engage in laboratory management tasks for the RD lab, including performing ESD bench and floor safety checks, maintaining an up-to-date record of lab equipment in Indysoft, and facilitating equipment repair and calibration.
- Test high-speed signal integrity products using high-speed laboratory equipment such as VNAs, BERTs, oscilloscopes, LCAs, MCBs, DCAs, and more; set them up through optical, RF, and electrical connections. Analyze eye diagrams, BER data, power consumption, and device-specific settings and registers
- Developed a Python script to replace outdated software for an active MCB, using a Beagle to read the I2C transactions of the important functionality in LabVIEW, connecting the device to Lab PCs with an internal dongle using I2C communication.
- Utilize SAP to create PRs for equipment calibration and repair, as well as lab-related purchases.
- Facilitated and maintained the 3D printer in the lab and used Fusion360 to design relevant assemblies such as cases for equipment.

Silicon Photonics Research Assistant

May 2022 – August 2022

McMaster University (Department of Engineering Physics)

Hamilton, ON

- Led a research project titled "Spectroscopy for Rare-Earth Dopant Cross Sections", designing and building an optical setup to measure absorbance data and extract rare-earth dopant cross sections, with results presented at the McMaster Society for Engineering Research 2022 Poster Showcase.
- Maintained lab organization and cleanliness, assisted the Principal Investigator in evaluating and selecting equipment for future projects, and supported implementation of laser safety interlocks to ensure a safe working environment.
- Applied fiber optic and spectroscopic principles including single-mode and multimode fiber propagation, white light laser sources, and free-space coupling; alongside cross-section theory to characterize rare-earth doped materials.
- Operated and troubleshoot lab equipment including an optical spectrum analyzer (OSA), metricon, spectrometers, oscilloscope, signal generator, and white light laser sources.

PROJECTS

MTI Radar Signal Processor | DSP, Oscilloscope, MATLAB

- Developed real-time signal processing algorithms in C targeting a TMS320 DSP processor to process raw radar data.
- Implemented and validated both two-pulse and three-pulse Moving Target Indicator (MTI) filters, successfully suppressing stationary clutter to isolate moving targets in high-noise environments.

- Conducted rigorous hardware validation using oscilloscope measurements, comparing filtered real-time outputs against raw radar sweeps to verify zero-Doppler component suppression.
- Optimized signal fidelity by refining DSP routines and implementing a Hanning windowing routine, correlating frequency domain analysis to analyze signal attenuation and noise amplification tradeoffs.

Embedded Spatial Measurement System | *Python, Assembly, Digital Communication Interfaces*

- Designed and built an embedded spatial measurement system using a time-of-flight LiDAR sensor and a microcontroller to acquire information about the area around the user.
- Used a sensor that rotates 360 degrees to capture distance measurements in a full circle within a single vertical plane.
- Mapped spatial information is stored in onboard memory and later communicated to a personal computer or web application for reconstruction and graphical presentation.
- Used C++ and assembly code to control the stepper motor and Python for visualization; utilized communication protocols I2C to obtain sensor data and UART to process it to the computer.

Custom Autonomous Electric Vehicle | *System Integration, Linux, C++*

- Used Jetson Nano running Linux and ROS to control the AEV, integrating LiDAR, IMU, and VESC for real-time sensing and motor control; joystick input enabled manual driving through ROS topics.
- Developed a wall-following controller using feedback linearization to maintain center alignment between hallway walls; speed dynamically adjusted based on obstacle proximity.
- Designed a navigation algorithm in Python to find the largest gap in front of the AEV and applied a quadratic program to create virtual barrier zones for safe path planning.
- Used Python for self-driving algorithm that navigated around static obstacles using real-time adjustments to turning radius and velocity based on stop/safe distance parameters.

SKILLS

Software: Python, C/C++, Verilog, Assembly, MATLAB, LTSpice, Linux, CAD design tools (Autodesk Inventor and Fusion360), Microsoft Office (Excel, Word, PowerPoint), Visual Studio, Quartus Prime, Altium Designer, PSpice

Hard: signal integrity, digital signal processing, lab equipment (oscilloscope, BERT, optical attenuators, signal generators), 3D printing, embedded systems, circuit design, object-oriented programming, PCB design, RTL design

Soft: problem-solving, communication, collaboration, leadership, initiative, time management, critical thinking, organization, reliability

Hobbies: chess (19 years), saxophone (11 years), piano (9 years, self-taught), baking, cooking

CERTIFICATES

- Introduction to FPGA Design for Embedded Systems (Aug 23, 2025, University of Colorado Boulder)
- Armv8-M Architecture Fundamentals (Aug 12, 2025, ARM)
- Altium Education PCB Basic Design Course (Aug 11, 2025, Altium)