Warrick Lo

+1 778 378 9071 | warrickl@ece.ubc.ca | warricklo.net | linkedin.com/in/warricklo

Skills

Technical Languages: C, C++, Python, MATLAB, SystemVerilog, ARM/8051/x86 Assembly, Bash, VBA, SQL
Software: Altium Designer, Fusion 360, SolidWorks, Ansys HFSS, LTspice, Linux, FreeBSD, Git, GDB
Hardware: Vector Network Analyser, Spectrum Analyser, SDR, DE1-SoC, STM32, Peripheral Interfaces, Oscilloscope
Certifications: Amateur Radio Operator Certificate, WHMIS

Education

The University of British Columbia 2024 September–2028 April
Bachelor of Applied Science in Electrical Engineering
Co-op program

Technical Experience

ALEASAT, *UBC Orbit Satellite Design Team* 2024 September–Present

- Measured S-parameters, third-order intermodulation distortion (IMD3), and 1 dB compression point (OP1dB) of the GRF5504 power amplifier (PA) to determine its linear range for satellite-to-ground communication
- Conducted detailed simulations of spacecraft antenna using Ansys HFSS to determine theoretical antenna gain, analyse radiation patterns, and verify compliance with link budget requirements
- Employed software-defined radios (SDR) to spoof GPS signals, allowing for controlled testing of GNSS sensors

Projects

Simple RISC Processor 2024 November–2024 December

- Architected and implemented a Turing-complete, 5-stage, non-pipelined RISC processor in SystemVerilog, synthesised onto the DE1-SoC development board, achieving the 3rd fastest performance in a class of 350 students

Reflow Oven Controller 2025 February

- Developed a state machine in assembly for a reflow oven controller using an 8051-based microcontroller
- Integrated a K-type thermocouple wire and an LM335 temperature sensor for precise measurements of oven and ambient temperatures
- Utilised UART to interface with a computer, enabling real-time data plotting and logging via Python

FM Radio Receiver 2024 July–2024 August

- Utilised Altium Designer to design schematics for a radio receiver circuit, incorporating an LC oscillator circuit to select FM signals and an LM386 audio amplifier circuit to boost volume

Quadcopter 2024 April–Present

- Implemented a Kalman filter in Arduino C code to combat gyroscopic drift caused by sensor noise
- Interfaced with the MPU-6050 inertial measurement unit (IMU) by communicating using I2C
- Designed and developed a prototype in Fusion 360, incorporating an Arduino, brushless motors, electronic speed controllers, and a lithium polymer battery

Other Experience

Pack Buildings *Richmond, BC*
Construction Management Intern 2024 July–2024 August

- Organised 10 spreadsheets of financial data in Excel, enhancing clarity for project investors
- Participated in meetings with project investors and construction team, ensuring investor priorities were addressed

Lingyen Mountain Temple *Richmond, BC*
Teaching Assistant 2023 April–Present

- Delegated tasks to a group of around 40 youth volunteers, resulting in approximately a 30% increase in efficiency
- Authored 16 pages of technical documents outlining job procedures, improving workflow and reducing errors