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

Technical Experience

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

- Characterised the GRF5504 power amplifier by measuring S-parameters, third-order intermodulation distortion, and 1 dB compression point to evaluate its linear range for reliable satellite downlink signal integrity
- Conducted detailed simulations of spacecraft antenna designs using Ansys HFSS to analyse radiation patterns, calculate theoretical gain, and verify performance against mission link budget constraints
- Employed software-defined radios (SDR) to spoof GPS signals, allowing for controlled testing of GNSS sensors

Projects

5-stage RISC Processor on DE1-SoC FPGA 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
- Developed and executed over 100 test cases in ModelSim to ensure correct system functionality

Autonomous Coin Collecting Robot 2025 March

- Built an autonomous and remote-controlled coin-collecting robot, capable of detecting and retrieving Canadian coin denominations within a wire-defined boundary using inductive sensors and a Colpitts oscillator-based metal-detection system
- Developed embedded systems in C using STM32 and EFM8 microcontrollers, integrating wireless communication, motor control via H-bridge and optoisolators, and a servo-actuated electromagnetic arm
- Developed autonomous functions including startup calibration, sonar-based obstacle avoidance, boundary detection, and randomised path rerouting, ensuring reliable operation in both manual and automatic modes

FM Radio Receiver 2024 July–2024 August

- Designed detailed schematics for a radio receiver circuit using Altium Designer
- Incorporated a tuned LC oscillator circuit for frequency selection and demodulation of FM signals and an LM386 audio amplifier circuit to enhance signal output and audio clarity

Reflow Oven Controller 2025 February

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

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