Erik MacLennan

erikmaclennan@me.com erikmaclennan.com

Technical Skills

Software	Mechanical	Electrical
• C++, Python (Django), MATLAB, JavaScript (Node.js), Swift • LabVIEW 2017, NI VeriStand • Git, Subversion • AWS (S3, RDS, EC2)	• Prototyping (3D Printing, laser cutting, water-jet cutting, basic metalwork) • CATIA V5, SOLIDWORKS 2020 (CSWP, CSWPA-SM, CSWPA-WD) • GD&T (per ASME Y14.5M-1994) • Computational Analysis (CFD, FEA)	• Circuit analysis (SPICE) • PCB schematic, layout design (Altium) • CAN, I^2C, SPI, SDI-12

Education

2014 - 2019

BASc Engineering Physics, University of British Columbia (UBC)

- 16 months co-op work experience (UBC Science Co-op)
- UBC Formula Electric, Accumulator Lead (Formula SAE Electric student team)
- Faculty Award, 2019 Faculty of Applied Science Design and Innovation Day

Work Experience

January 2020 - Present

Instrumentation Engineer, Precision NanoSystems, Vancouver

Support current engineering activities across multiple high-precision microfluidic research-use instruments.

- Develop testing criteria and test equipment to maintain a high level of consistency in outgoing instruments.
- Build and manage internal software tooling to better facilitate internal processes, including product lifecycle management/version control, corrective action/root cause analysis, and internal documentation.

March 2019 - January 2020 (9 months)

Full-Stack Software Engineer, UBC Ecohydrology, Vancouver

Development of an end-to-end solution for capturing sensor data from remote deployment locations in North and South America to support research in water/land use practices.

- Full design and bring-up of a custom circuit board assembly complete with LoRa radio, GPS, and power management functionality.
- Firmware for the embedded system written for data acquisition from 20+ sensor variants with various communication protocols, and wireless transmission with LoRa. Written in C++ in an OOP model.
- Created and maintained a relational database for sensor data, along with a web front-end for data accessibility and visualization purposes. Written in the Django framework for Python, hosted with various AWS services.

May - August 2018 (4 months)

Drive Systems Test Engineering Intern, Tesla, Inc., Palo Alto

Development of test equipment for the Tesla Model 3 Drive Unit (3DU).

- Created LabVIEW APIs for interfacing with Tesla drive inverters, in-house power distribution units, and other CAN devices.
- Designed and fabricated a new 3DU motor mount for use in production, with potential application in Service centres. Mass optimization and DFM emphasized. 10+ units manufactured and in use.
- Collaborated with Production Engineers across multiple production lines to quantify inefficiencies and design solutions to mitigate them.

May - December 2017 (8 months)

Systems/Electro-mechanical Engineering Co-op, Kodak, Vancouver

Developed precision opto-mechanical test jigs that interface with peripherals including power meters, linear actuators, USB cameras, and Kodak's thermal imaging heads.

- Performed image acquisition and live analysis for automatic micron precision alignment and quality control of optical components during production.
- Created detailed documentation for each jig, outlining the method of operation.