Robbie Laughlen

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Education

University of British Columbia *Vancouver, Canada*

BSc Combined Computer Science and Physics *Sept 2020 - April 2025*

- Dean's Honour List

Experience

MineSense | *7x Global Cleantech 100* *Vancouver, BC*

XRF and VNIR Integration Co-op *May 2022 - Jan 2023*

- Conducted high-voltage testing and contributed to sensor research with the goal of optimising ShovelSense, a pioneering mining solution integrating high-speed XRF sensors on mobile equipment for real-time ore body analysis.
- Developed software to interact with x-ray detector hardware and output metrics as an improved user experience, reducing the average XRF sensor testing time by over 50%.

UBC Instructional Support and Information Technology Office *Vancouver, BC*

Project Assistant *Sept 2023 - May 2024*

- Performed routine diagnostics and maintenance for instructional technology systems, covering software applications like Office 365 and classroom AV hardware.
- Played a role in the systematic deployment of software updates and patches to enhance system security and functionality.

Projects

yapyap | *React Native, Python, Tensorflow, MongoDB, AWS* *Vancouver, BC*

nwHacks Project Winner *2024*

- Co-developed 'yapyap', a platform that leverages the therapeutic benefits of journaling, providing a space for users to share their thoughts safely.
- Utilized React Native for mobile development, Figma for UI/UX design, AWS for cloud services, and TensorFlow for machine learning.
- Incorporated a Bidirectional Recurrent Neural Network (RNN) as a sentiment analyzer to analyze emotions within journal entries.
- Integrated Amazon Web Services Lambda and API Gateway to establish an efficient API for reading and modifying a MongoDB database.

X-ray Detector Analytics Program | *Python, Dash, Linux, Qt* *Vancouver, BC*

Minesense *2022*

- Developed a Dash-based interactive interface to streamline data collection and analysis.
- Implemented real-time metrics display, including radiation count rate, for the Ketek VIAMP H50 detector, improving operational efficiency.
- Designed and created a dynamic live graphing service for XRF data using Python in conjunction with the Dash framework, facilitating real-time visualization and analysis of data trends for enhanced insights and decision-making.

Multiband Compressor Audio Plugin | *C++, JUCE* *Vancouver, BC*

Personal Project *2024*

- Created an audio processing application featuring a 3-Band Compressor with Spectrum Analyzer, leveraging the JUCE framework and modern C++ for real-time audio signal manipulation.
- Focused on integrating digital signal processing algorithms, GUI design, and efficient coding practices to minimize latency.

Skills

Languages Python, HTML/CSS, JavaScript, C/C++, R, Java, Typescript

Software Git/GitHub, Visual Studio Code, IntelliJ IDEA

Technologies React, React Native, Node.js, Flask, Dash, Qt, Expo, TensorFlow, Tailwind

Achievements

2024 **Best Design, Community and Connection Track Winner**, nwHacks *BC*

2023 **Research Grant**, Google Vulnerability - LLM bugSWAT *BC*

2022 **Best Music (x2)**, UBC Game Developer Awards *BC*