

Andrew Munro-West

Software Engineer

604-710-3037 | andrewmunrowest@gmail.com | github.com/amunwes

Technical Skills

Languages: Python, Java, Javascript, C/C++, SQL, MATLAB

Skills: Databases, NLP/Machine Learning, CI/CD, Data Analysis, Backend Development, OOP, DSA, Agile development

Experience

Technical Support Engineer

May 2021 – Present

Verdi

Vancouver, BC

- Monitored and managed a fleet of smart irrigation controllers
- Detected and responded to issues with deployed devices determining root cause possible fixes
- Assigned service staff to resolve issues based on investigation results
- Led the assembly and QA of thousands of smart irrigation controllers
- Wrote technical documentation for the software back end and production line
- Designed and implemented QA testing pipelines to ensure product quality

Research Software Engineer

Jan 2022 – Aug 2022

Cadex Electronics

Richmond, BC

- Initiated daily software stand-up meetings, code reviews, and lunch & learns
- Debugged issues between networks of EV battery testing equipment, controllers and applications
- Refactored relational database schemas to optimize performance
- Wrote and integrated Python code to safely interact with AWS secure cloud PostgreSQL databases
- Presented research, trends and optimizations to upper management, informing plans for development
- Built data acquisition pipelines to gather, catalogue and clean data of over 6000 battery tests
- Co-Authored a research paper on utilizing machine learning algorithms to predict battery health
- Led the hiring process of new employees giving technical interviews and eventually on-boarding

Projects/Certifications

Freecodecamp Certifications | [freecodecamp.org](https://www.freecodecamp.org)

- Certifications each requiring the equivalent completion of 300 work hours and 5 projects
- Backend development certification utilizing Node.js, Express, React, NPM, MongoDB, and Mongoose
- Data Analysis Certification using Numpy, Pandas, Matplotlib, and Seaborn Python libraries

• Link to certifications:

<https://www.freecodecamp.org/fccadceb9f8-7d46-411b-9f73-f0da0f312724>

Movie Genre Classification with NLP | *UBC Project*

- Self-guided term project exploring multi-label genre classification of movies
- Cleaned a dataset of 40,000 movies with over 100 unique genre tags using natural language processing
- Compared the accuracy, training time, and biases of several algorithms determining the optimal choice
- Recorded the findings and procedure in a comprehensive research report providing insights into the strengths and shortcomings of each algorithm for NLP classification

Suika Game | *Personal Development Project*

- Built a version of the popular Suika game utilizing the Godot 4.1 Open source game engine
- Designed using a tree based structure and OOP principles
- Utilized the builder and factory patterns to effectively create/modify assets during play
- Built a global leader board to save high scores between instances

Digital Systems Design Projects | *UBC Project*

- Programmed a DE1-Soc FPGA in System Verilog using the Intel Quartus II design software to complete the following projects during the 4-month course curriculum
- Programmed the FPGA to act as a simple music player, utilizing FSMs to handle keyboard inputs and read data out of memory to play, pause, and stop music
- Implemented a signal intensity meter for the music player by interfacing with the embedded picoblaze processor to apply real-time averaging
- Designed and implemented an RC-4 encryption core and then utilized a brute force algorithm to crack the RC-4 encryption on a otherwise unknown message
- Instantiated a 5 bit LFSR operating at 1Hz and a DDS to generate a 3Hz carrier signal and then utilized the LFSR to modulate the carrier sine to generate ASK and BPSK signals
- Connected the modulated signals through muxes to a VGA oscilloscope for display and then generated an FSK signal using QSYS and Nios interrupts

Personal website | *Personal Development Project*

- Built a personal website to act as a portfolio and personal blog: <https://amunwes.github.io/>
- Utilized the Jekyll static website builder to automate implementation
- Hosted on GitHub pages and maintained using a CI/CD workflow

Auto Testing Application With Graphical Interface | *Cadex Electronics*

- Designed and implemented a python application to automate testing
- Interacted with proprietary hardware over USB, to control, monitor and log the device's status
- Wrote automatic reliability tests, boosting testing efficiency and productivity of research engineers 85%
- Built a responsive GUI with read/write access and cloud capabilities to name and catalogue results

Education

University of British Columbia Vancouver, BC
Bachelor of Applied Science in Electrical Engineering with Distinction Sept. 2019 – May 2023

University of British Columbia Vancouver, BC
Bachelor of Computer Science (ICS) Sept. 2024 – May 2027 Expected

Publications

Conference	Paper Title	Publication Date
PHM2023	“Electrochemical Impedance Spectroscopy and Machine Learning based Battery State of Health Estimation” https://ieeexplore.ieee.org/document/10194065	05 June 2023