Gaelan McMillan

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Work Experience

Software Content Developer
PG Music Limited

Victoria, BC
10/2015 - 11/2020

- Edited WAV Audio and created musical transcriptions with careful attention to detail for integration into a mature software product
- Successfully met deadlines to release software content updates over **5 yearly release cycles**
- **Showcased software** on behalf of the company at the National Association of Music Merchants trade show in Anaheim, California in 2017

Composer and Musician
Self-Employed

North America and Europe
01/2013 - Present

- **Communicating with people of varying technical backgrounds** to meet the needs of musical projects
- Performing 500+ shows as a bassist across the United States, Canada, Iceland and Denmark for 1000+ person audiences
- **Collaborating remotely and in person with teams of up to 10+ artists** to create polished creative products
- Adapting to changing requirements and priorities of gigs as a member of a touring band

Software Projects

Dub Dragon (Graph-based Musical Sequencer)
Graph-based Musical Sequencer — JavaScript and C++

Interactive Prototype
05/2022 - Present

- Creating a rapid web prototype with **P5.js** to gauge the feasibility of the project
- Designing and analyzing algorithms to ensure reliability in the soft-real time domain of digital audio
- Unit testing to enable an agile debugging process when iterating on the application
- Employing the **MVC Architecture** to create a responsive, data persistent **VST plugin** with **Juce**

Real-Time Audio Visualizer
Native Application — Rust

Demo Video
01/2023

- Writing a performant, **multi-threaded**, **memory-safe** native application using the Rust programming language
- Applying the **Fast Fourier Transform** algorithm to an **audio stream** to generate **real-time graphics** at **60+** frames per second
- Utilising a **static Ring Buffer** to share data between the audio and graphics threads.

More Generic (Static Blog Site)
A blog about Generic Programming and other technical topics — JavaScript, HTML and CSS

Website Link
11/2022

- Creating static blog posts with **thorough documentation** and dynamic, illustrated code walkthroughs using React.js and MDX
- Configured a Continuous Integration pipeline using **GitHub Actions**, enabling a **one step deployment process**
- Designing custom, responsive layouts with **Sass** and **Bootstrap**

Volunteer Experience

Cpp North 2022
Conference Volunteer

Toronto, ON
07/2022

- Accommodated **200+ conference attendees** in an equitable and inclusive manner
- Learned techniques on writing **reliable, reusable and optimized** generic algorithms in modern C++ from Patrice Roy's workshop on Generic Programming
- Presented a **lightning talk** about the intersection of music composition and computer science

TMU Algorithms and Coding Club
Member, Vice President since 06/22

Toronto, ON
09/2021 - Present

- Coordinating an 8+ member executive team in the planning of budgets and events for the academic year
- Competing on behalf of the TMU to **solve challenging algorithmic problems** in the International Collegiate Programming Contest
- Problem solving and writing **easy to understand** solutions and editorials to share with club members

Education

Bachelors of Science, Computer Science
Toronto Metropolitan University

Toronto, ON
09/2020 - 05/2025

- CGPA 3.74/4.33

Technical Skills

Programming Languages	C++, Rust, Python, JavaScript, HTML, CSS, SQL, C, C#, Java, Common Lisp, APL
Development Tools	Git, MySQL, React, Next, CLion, Bootstrap, Sass, JUCE, SDL2, Unity, Processing, NumPy, LateX