Russell McClellan

Somerville, Massachusetts 02144
web: russellmcc.com/resume
email: russell.mcclellan@gmail.com

Summary

I'm a software developer with a career focus on building innovative products to inspire creativity in customers. I've contributed to over 20 new software product launches as a developer, tech lead, or architect, including software that has won an Emmy and software that applies deep learning to solve problems never solved before.
I have a collaborative, pragmatic approach to software development - I believe in using the best tool for the job. I have a track record of enabling teams to excel technically through mentorship and collaborative system design.

Key Skills

- Development and productization of **machine learning** solutions, using **pytorch**, **Tensorflow** and **ONNX**, including edge deployment with **Tensorflow Lite** and custom code
- Deep professional experience creating software in **C++20**, **Typescript**, and **Python**, strong personal experience with **Rust** and **Haskell**
- Guiding teams to continuous improvement of practices and tools such as **codebase design**, **CI/CD**, **automated regression testing**
- Signal processing algorithm design and implementation for **audio effects**
- Designing APIs, systems, and libraries to enable teams to quickly create valuable features
- Communicating the needs and goals of engineering teams to non-technical stakeholders
- Developing robust and high quality **cross-platform**, **multi-threaded**, and **soft real-time** software
- Developing software for **Apple** platforms, **Windows**, **embedded Linux**, **bare-metal embedded**, **Linux-based servers** and **containers**, and the **web**
- Improving quality and adding new capabilities to large, pre-existing codebases
- Measuring and improving run-time performance of code
- Technical leadership for agile product teams

Work Experience

2016-
2014-2016 Principal Software Engineer
Senior Software Engineer
iZotope, Inc., Cambridge, Massachusetts

Technical System Design

I've been responsible for technical design of important systems that enabled teams to rapidly deliver novel features in cross-platform audio software, including:

- Deep learning driven audio analysis and processing
- Cloud delivery of signal processing and UI code for audio plug-ins
- Multithreaded audio analysis engine powering "assistant" features
- Protocols and APIs enabling communication between embedded web-based Typescript UIs and real-time audio processing algorithms in C++
- Inter-plug-in communication protocols and APIs
- High-framerate audio metering engine with best-in-market temporal accuracy
- Behavioral Analytics reporting, enabling valuable insights about how customers use our products

Team Enablement

- Provided frequent mentoring and technical guidance across all levels of the engineering team.
- Introduced or created developer productivity tools to the company, including automated C++ refactoring, static analysis and runtime sanitizers in CI, automated statistical analysis and regression testing of runtime performance in CI, and Python bindings to allow faster development of integration-level testing
- Acted as technical product owner of the "DSP Chapter", a working group of cross-team engineers dedicated to improving signal processing codebase

Signal Processing

- Invented and co-invented numerous innovations in signal processing, enabling first-to-market product features

Product Strategy

- Acted as the technical voice in cross-functional "Product Strategy Taskforce" responsible for setting stratgic pillars for iZotope's music-focused products
- Participated as the technical member of a cross-functional discovery and prototyping team, leading to a new design direction for our assitive features, enabling improvements across our product line.

2009-2014 Software Developer, Mark of the Unicorn, Cambridge, Massachusetts

- Created and expanded tools for musicians on Mac and Windows using C++
- Led development on browser-based mixing board control app for audio interface hardware

2008 Software Intern, Line 6, Calabasas, California

- Contributed subsystems written in C for a portable sound recorder for guitarists

Education

2009 B.S. in Computer Science, California Institute of Technology, Pasadena, CA. GPA 4.0

Patents and Selected Publications and Presentations

- US Patent 10,972,065 Systems and Methods for identifying and remediating sound masking
- US Patent 10,635,389 Systems and methods for automatically generating enhanced audio output
- A Practical Perspective on Deep Learning in Audio Software Audio Developer Conference 2019
- Case Study: Eliminating C++ Undefined Behavior, Plug-in Contract Violation, Intel Assumptions in a Legacy Codebase Audio Developer Conference 2022
- DAFx20in22 K.J. Werner, R. McClellan, Time-Varying Filter Stability and State Matrix Products
- DAFx23 S. Nercessian, R. McClellan, C. Goldsmith, A. Fink, N. LaPenn, Real-time Singing Voice Conversion Plug-in

More information

Please refer to the extended online version of this resume for further information, including discussion of selected open source and commercial projects.