

Contact

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www.linkedin.com/in/aaron-c-robinson (LinkedIn)

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apu.software (Company)

Top Skills

C++

Python (Programming Language)

x86 Assembly

Aaron Robinson

Founder & Principal Engineer

Sylvania, Ohio, United States

Summary

Senior Engineer with heavy experience in cross-platform development (windows, linux, mac, android, ios, etc) focused on C/C++/assembly from architecture to design to performance optimizations (advanced threading strategies, SIMD assembly, lockfree algorithms, etc). Career has tended toward video and audio technologies and also experienced with Python for automation, build systems, and code generation at scale.

Experience

APU Software, LLC

Founder & Principal Software Engineer

November 2022 - Present (3 years 8 months)

United States

Sole engineer and architect of a C++20 mono-repo shipping a suite of cross-platform real-time audio plug-ins (VST3, AU, AAX, standalone) for macOS and Windows.

Real-time DSP across loudness measurement (LUFS/RMS/Peak/True Peak per ITU-R BS.1770), dynamics processing, true-peak limiting with oversampling, histogram-based optimization, equal-loudness contour modeling (ISO 226), SPL-calibrated filters, FFT spectrum analysis, and many other elements. Multi-channel and Dolby Atmos signal paths.

OpenGL-based real-time visualization. JUCE framework, header-only Boost. constexpr-driven product differentiation across a shared codebase enabling rapid iteration on new plug-ins.

Python-based code generation pipeline producing GitHub Actions CI/CD, VS Code configurations, installer scripts, product assets, website, and documentation from a single source of truth.

Shipped products: APU Loudness Meter, Loudness Compressor, Loudness Leveler, Loudness Limiter, Dynamics Optimizer, Loudness Contour, TrueGain, Spectrum Analyzer.

Interactive Fitness

1 year 11 months

Senior Software Engineer

September 2020 - April 2022 (1 year 8 months)

Developed a wide variety of projects in C++ (DBus/bluez integration, serial interface to bikes, engine plugins), Python (high performance delta patching, real-time monitoring and analysis tools, curve fitting for resistance calculations), Node/Angular (bike UI, peripheral support, etc), C (firmware fixes, optimizations, diagnostic instrumentation). Fully remote.

Senior Software Engineer

June 2020 - September 2020 (4 months)

Started as contract and was hired full time after a few months.

MainConcept

7 years

Senior Codec Engineer

September 2014 - May 2020 (5 years 9 months)

HEVC (h.265) decoder implementation and optimization (C,C++,x86/sse assembly, arm/neon assembly, NaCl assembly, lockfree algorithms, advanced threading strategies and memory management, NUMA). Fully remote.

Senior Software Engineer

2013 - August 2014 (1 year)

Continued multimedia software development and began HEVC decoder development, migrating under MainConcept umbrella for full time codec focus.

SweetLabs, Inc.

Senior Software Engineer

2010 - 2012 (2 years)

San Diego

Built custom layer on top of the chromium project which serves as the foundation for the Pokki project (web apps integrated with the desktop). Various Windows development, Node.JS related development and tweaking.

DivX, LLC

Senior Software Engineer

2003 - 2010 (7 years)

Most recently developing client/server real-time multimedia distribution protocols and system. Developed renderers, encoders, decoders, filters, and other video technologies on Windows and Consumer Electronics devices. Was awarded the Chairman's award.

Chumby

Senior Software Engineer

2007 - 2008 (1 year)

San Diego County, CA

Built an API for interacting with crypto processor, various Linux work including some ALSA sound and kernel driver debugging.

VIA Technologies, Inc.

Software Consultant

2003 - 2003 (less than a year)

WinXPe (embedded) user-level and system-level function interception and instrumentation. Developed non-intrusive techniques for allowing software to run on an embedded board without requiring installation or product key entry.

Microsoft

Software Design Engineer (intern)

2001 - 2001 (less than a year)

Developed components for next generation Microsoft Project product. Primarily C# design and implementation involving client-server communication and graphical representation of central server database.

Synchrony Communications

Software Engineer (intern)

2001 - 2001 (less than a year)

Developed Java and C++ product testing tools. Designed and implemented automated software for use in regression and stress testing. Designed and implemented an efficient real-time log monitoring and analyzation tool.

Education

Case Western Reserve University