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Summary

Macintosh Application and iOS App Development

Cocoa, Carbon, Xcode, CoreAudio, CoreMIDI, AudioUnit and VST Audio Plug-Ins, QuickTime, MIDI, ASIO, Quartz, and Carbon/Intel/Universal porting.

Windows Application Development

Win32, Visual C++, MFC, GDI+

Programming Languages

C/C++, Objective-C/C++, Forth, Pascal, BASIC, Fortran, Arduino, Csound

Cross-Platform Development and Porting

Audio DSP, Synthesis, MIDI, Interactive Music, Sound Design, and Sound Editing Tools

Employment

The Blindsight Corporation <blindsight.com> [5/11-8/11]

Developed a client iPhone app for "Sight on Call", an on-demand assistance service for the Blind, Low-vision and Elderly. The app communicates with a remote server, uploading GPS position and other status data. The app allows users to take photos, which are then automatically transformed and uploaded when a request is received from the server. The app also automatically downloads and extracts data from the server through an XML parser.

Rogue Amoeba <rogueamoeba.com> [4/11-7/11]

Created a Cocoa-based soundfile playback utility for MacOS. Functionality included drag-and-drop files from finder, localized keyboard hotkey editor, file scrubbing, looping, and threaded file position display.

MIDI Keyz <midikeyz.com> [2/11-3/11]

Created utility to identify musical chords from a streaming MIDI input.

GVOX <gvox.com> [8/05 - 11/09]

Senior Software Engineer. Sole programmer responsible for cross-platform [C++ on Win32 and MacOS] development, maintenance, and migration to modern technologies for the *Encore* and *MusicTime Deluxe* music notation programs and the *Master Tracks Pro* MIDI sequencer. Improvements included: MacOS Universal Binary migration; Quartz/GDI+ migration; MacOS CoreMIDI migration; unicode migration; MusicXML implementation; registration and copy protection; localization; countless other bug fixes, performance optimization, and feature implementations. Duties also included coordinating beta testing team, customer support, and supervising contract programmers.

Livid Instruments <lividinstruments.com> [7/05]

Created Max/MSP externals for querying ethernet card addresses for copy protection and Huffman coding compression.

Arboretum Systems [5/05 & 10/99 - 1/00]

Ported *RayGunPro* and *Ionizer* noise remover plug-ins to AudioUnit plug-ins. Designed and implemented a software synthesizer for the multimedia editing application, *HyperEngine-AV*. Written in C++, the synth featured unlimited polyphony, MIDI control, an unlimited number of band-limited oscillators, LFO, ADSR, filters with resonance control, user-selected samples, a user interface with real-time display, patch routing, and the ability to save patch files.

Bias <bias-inc.com> [9/04 - 2/05]

Performed various improvements and feature implementations to the multitrack audio recording application, *DECK*. Duties included: 24-bit and 32-bit support; audio file conversion and playback upgrades; various GUI bug fixes due to a previous Carbon port; drag and drop support; and evaluation of AudioUnit implementation.

Cycling74 <cycling74.com> [9/01 - 7/04]

Implemented CoreAudio drivers for the OSX version of Max/MSP. Created *csound~*, a Max/MSP object interface to Csound. Created *Soundflower*, a MacOS kernel extension that allows low-latency audio routing from any application to another. [Named a top new technology "certified hit" of the 2004 Winter NAMM show by *MIX Magazine*.]

Muscle Fish (a division of Audible Magic) <audiblemagic.com> [4/03]

Added CoreAudio support to a MacOS CFM application. Created soundfile playback and looping routines.

Blue Spike <bluespike.com> [4/99 - 2/01]

Cross-platform digital audio watermarking development in C++. Implemented an audio fingerprinting scheme to reconstruct sound files that had been edited after watermarking; designed a compression scheme for watermarked data; implemented Quicktime video parsing for watermark preparation; implemented MP3 and AIFF file handling.

ShadeTree, Inc. [5/97 - 7/98]

Junior Software Engineer. Major projects included: *ScriptThing*, a MacOS [Powerplant] port of the Windows screenplay text editor; a MacOS application for processing handwritten signatures on a WACOM graphics tablet; *tExtraction*, an Adobe Acrobat plug-in for Macintosh and Windows to intelligently extract text from a PDF file.

Center for Contemporary Music <mills.edu> [6/96 - 8/96]

Development/Research Grant to encapsulate Digidesign Audio Hardware and OMS MIDI Driver API inside the Forth based Macintosh music application, *HMSL*.

Software

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Transbay Creative Music Calendar [2011]

An iPhone app to display the most current listings of this bay area new music concert calendar. Data is retrieved in XML from a server, and presented in a table view. Each listing includes a detailed HTML view, a map view, and an option to add to event to the user's calendar.

Aardvark [2010]

An iPhone virtual analog synthesizer app that uses a multi-touch interface to simultaneously control modulators, envelopes, and other settings with dynamic visual feedback. Underlying architecture is a complete C++ synthesis toolkit designed to be used in a wide range of cross-platform applications.

MacCsound <csounds.com/matt> [1996-2010]

Supporter and developer for the Macintosh port of the ubiquitous open-source digital synthesis and signal processing application. Originally developed by Barry Vercoe [MIT Media Lab], *MacCsound* includes an interface written in PowerPlant running on Classic and OSX. It includes CoreAudio and CoreMIDI support, user editable GUI control/display objects, a text editor with syntax highlighting, multi-processing support, and allows simultaneous rendering by loading the Csound Kernel as a shared library. This version became the standard for musicians worldwide and has been featured in *Keyboard Magazine*, *Electronic Musician(x4)*, and two penned articles in *The Csound Book* [MIT Press]. Winner of *Electronic Musician Magazine's 2004 Editor's Choice Award*.

Fielder [1999-2001; 2010]

Real-time audio application for MacOS [Powerplant] and MacOS X [Cocoa] that displays the surround-sound and stereo sound-field of file playback and real-time input. In 2010, a new version was released as an *iTunes* visualizer plug-in.

Invalid Sync [1999-2001]

A BeOS performance instrument/composition written in C++ that automatically finds and extracts sound events from large files. The performer triggers these events and manipulates them from the computer keyboard.

Imager [2000]

A VST plug-in to manipulate an audio stream's stereo image [rotation and zoom].

Fork [1999]

A digital tuner for MacOS [Powerplant] and BeOS written in C++ that includes a visual display of real-time pitch analysis. Audio output includes pitch correction and reference tone features.

CLAIRE [1995-1999]

A real-time virtual improviser that interacts with a human instrumentalist, written in Forth/HMSL.

Education

Master of Arts Mills College, Oakland, CA [1996]

Paul Merritt Henry Prize | Alumnae Scholarship | Heller Scholarship | Carruthers Scholarship | TA: Computer Music
Relevant Course Work: C, Macintosh Programming, Computer Graphics, Computer Music

Bachelor of Music University of Texas at Austin [1994]

Dean's List | Golden Key National Honor Society | Tuition Waiver Scholarship
Relevant Course Work: C, Fortran, Calculus, Linear Algebra, Computer Music