

Matt Ingalls

http://sonomatics.com matt@sonomatics.com
106 Fairmount, Oakland, CA 94611
[510] 444.3595

SUMMARY

Audio DSP, Synthesis, MIDI, and Interactive Music

Macintosh Application Development

Cocoa, Carbon, Xcode, CoreAudio, CoreMIDI, AudioUnits, QuickTime, MIDI, ASIO, VST Audio Plug-Ins, Quartz, Carbon Porting

iPhone Development

Windows Application Development

Win32, MFC, Visual C++, CodeWarrior

Programming Languages

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

Cross-Platform Development, Porting, File Conversion

Sound Design, Editing, and Music Composition

EMPLOYMENT

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

Senior Software Engineer. Responsible for cross-platform [C++; Win32 and Mac OS X] development, maintenance, and migration to modern technologies for the *Encore* and *MusicTime Deluxe* music notation programs and the *Master Tracks Pro* MIDI sequencer. 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 to be used for copy protection and for archiving multiple files using Huffman coding for data compression.

Arboretum Systems <arboretum.com> [5/05 & 10/99 - 1/00]

Ported the company's *RayGunPro* and *Ionizer* noise remover plug-ins to MacOSX AudioUnits. Designed and implemented a software synthesizer for the multimedia editing application, *HyperEngine-AV*. This infinitely polyphonic/polytimbral synth was written in C++ and featured MIDI control, 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]

Development contract to perform 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 Carbon porting, drag and drop support, and evaluation of AudioUnit implementation.

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

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

Muscle Fish <audiblemagic.com> [4/03]

Macintosh audio consultant to implement CoreAudio support in a CFM application. Created a soundfile playback and looping routines.

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

Digital watermarking development in C++ and fully cross-platform. Major projects included: design and implementation of an audio fingerprinting scheme to identify and reconstruct sound files that had been edited after watermarking; design and implementation of a compression scheme for watermark data; implementation of video file parsing with Quicktime for watermark preparation; and implementation of MP3 and AIFF file handling.

ShadeTree, Inc. <shadetreinc.com> [5/97 - 7/98]

One of three programmers for this software consulting company. Major projects included: *ScriptThing* - a Macintosh [powerplant] port from Windows of the full-featured commercial text editor for writing scripts and screenplays; a Macintosh [powerplant] application that captured, displayed, and processed hand signatures using a WACOM graphics tablet; and *Extraction* - an Adobe Acrobat plugin 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

<SONOMATICS.COM>

Aardvark [2010]

iPhone app that functions as a virtual analog synthesizer. Uses a multi-touch interface to control modulators, envelopes, and other settings simultaneously with dynamic visual feedback. Underlying architecture is a complete C++ synthesis toolkit designed to be used in various applications.

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

Supporter and developer for the Macintosh port of the ubiquitous digital synthesis and signal processing application. Originally developed by Barry Vercoe [MIT Media Lab], the latest version of MacCsound includes a front-end interface written in PowerPlant running on Classic and OS X. 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 has become the standard for musicians world-wide 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 visually displays the surround-sound and stereo sound-field of file playback [sound manager and ASIO] and real-time input. In 2010, a new version was released as an *iTunes* visualizer plugin.

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 plugin to manipulate an audio stream's stereo image [rotation and zoom].

Fork [1999]

A digital tuner for MacOS [powerplant] and BeOS [C++] that includes a visual display of real-time pitch analysis. Output features include pitch correction and reference tones.

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]

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