

## **EARL VICKERS**

San Jose, CA

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### **AUDIO DSP ENGINEER**

Creative, self-motivated audio DSP engineer with extensive experience in algorithm design and product development. Effectively analyzes, designs and implements signal processing algorithms for a wide range of embedded and host-based platforms. Strong track record of generating intellectual property and creating award-winning products. Excellent communication skills, and proven ability to manage other engineers. Effective team player who welcomes collaboration and mentoring opportunities.

2 patents and 7 patents pending. Core strengths in:

- Audio signal processing
- New product ideas
- Proactive problem solving
- Algorithm development
- Collaborating on design and implementation
- Bringing projects to completion

### **PROFESSIONAL EXPERIENCE**

**MEDICAL DEVICES STARTUP**, Santa Clara, CA

**2013-present**

**DSP Firmware Engineer**

**THE SOUND GUY, INC.**, San Jose, CA

**2001-present**

**Founder**

Designed, programmed, and managed development of award-winning cross-platform effects plug-ins for VST, Audio Unit and RTAS formats. Designed and managed development of an award-winning Mac/Windows application and a 5-star rated iPhone app.

- Managed 12 programmers and interns, plus a number of sound designers and artists
- Developed analog and digital prototypes and wrote a patent application for a cat collar ("Purr Detector") that lights LEDs when it detects the cat is purring
- Audio software:
  - Spectral Machine (2011) – Frequency-domain multi-effects
  - SFX Machine Pro RTAS (2008) – Upgrade for Pro Tools
  - Backwards Machine (2007) – Real-time time reversal
  - ReSpatializer (2007) – Advanced spatializer and surround panner
  - ChatterBlocker (2006, 2011) – Conversation masker (Mac/Windows, iPhone)
  - SFX Machine Pro (2006) – Multi-effects, winner of 2 Editor's Choice awards
  - SFX Machine RT (2003) – Multi-effects unit with almost 300 presets

**STMICROELECTRONICS, INC.** (and Genesis Microchip), Santa Clara, CA

**2007-2013**

**Principal Audio Algorithm Engineer**

Created ST's TV audio post-processing road map and architecture, and designed numerous audio effects algorithms. Designed and programmed an advanced loudspeaker compensation system that helped ST obtain three design wins.

- Managed projects, supervised and mentored engineers

- Filed six patent applications
- Prepared presentations for the Genesis acquisition
- Designed:
  - Stereo widening
  - Subwoofer crossovers
  - Compressor / limiter
  - Pseudo-stereo
  - Channel upmix
  - Graphic equalizer
  - Psychoacoustic bass enhancement
  - Speech enhancement
  - Headroom management
  - Virtual surround
  - Quasi-anechoic speaker response analysis
  - Frequency-domain processing

**CREATIVE ADVANCED TECHNOLOGY CENTER**, Scotts Valley, CA

2000-2004

**Senior Staff DSP Engineer**

Designed and programmed audio effects plug-ins in Matlab and assembly language for sound cards and MP3 jukeboxes using EMU10K2 and X-Fi processors. Supervised two interns.

- Developed and programmed the EAX4 reverb, meeting rigorous legacy specifications
- Designed and programmed a dynamic range compressor, a 10-band equalizer with inter-band interference compensation, and 12 other audio effects (fixed- and floating-point)
- Patented a method for minimizing loudness variations between songs and implemented it for sound cards and MP3 jukeboxes
- Presented a frequently-cited paper at an AES Convention

**AUREAL SEMICONDUCTOR**, Fremont, CA

1999-2000

**Senior Audio DSP Engineer**

Designed and programmed an efficient, good-sounding host-based reverb for the Vortex driver. Designed and programmed a sample-rate converter and various digital filters.

**ATARI GAMES CORPORATION**, Milpitas, CA

1982-1988

**Audio Engineer / Programmer**

Wrote audio software for Atari's coin-operated games. Created sound effects, speech synthesis and music for games such as Star Wars, Paperboy, Gauntlet, Temple of Doom, Roadrunner, Xybots and 720°, including two of the top ten favorite arcade games of all time.

- Wrote software to produce speech using Composite Sine Modeling synthesis with Yamaha FM chips, eliminating the cost of a separate speech chip

**EDUCATION**

**U.C. Berkeley Extension**

C++ Programming course

**De Anza College**, Cupertino, CA

C Programming course

**School of the Art Institute of Chicago, M.I.T., and Stanford University**

Various courses in Electronic Music, Computer Audio & Signal Processing

**Duke University**, Durham, NC

BSEE degree, graduated Cum Laude

## **ADDENDUM**

### **PUBLICATIONS**

“Frequency-domain Implementation of Time-varying FIR Filters,” AES 133<sup>rd</sup> Convention, Oct. 2012.

“The Loudness War: Do Louder, Hypercompressed Recordings Sell Better?,” *Journal of the Audio Engineering Society*, May 2011.

“The Loudness War: Background, Speculation and Recommendations,” AES 129<sup>th</sup> Convention, Nov. 2010. (The presentation video has been viewed over 25,000 times.)

“The Non-flat and Continually Changing Frequency Response of Multiband Compressors,” AES 129<sup>th</sup> Convention, Nov. 2010.

“Fixing the Phantom Center: Diffusing Acoustical Crosstalk,” AES 127<sup>th</sup> Convention, Oct. 2009.

“Frequency Domain Two- to Three-Channel Upmix for Center Channel Derivation and Speech Enhancement,” AES 127<sup>th</sup> Convention, Oct. 2009.

“Frequency Domain Artificial Reverberation using Spectral Magnitude Decay,” AES 121<sup>st</sup> Convention, 2006.

SFX Machine Pro User Guide, white papers, etc., The Sound Guy, Inc., 2006-7.

“Automatic Long-term Loudness and Dynamics Matching,” AES 111<sup>th</sup> Convention, 2001.

“Using Voice to Bring Game Characters to Life” (with Wally Fields), CGDA, 1995.

Short stories published in English, and Russian and Japanese translations by third parties.

### **PATENTS**

Diffusing Acoustical Crosstalk, U.S. Patent Applications 20100303245 & 20120155652, Filed 12/2/2010 & 2/21/2012

Multiband Dynamics Compressor with Spectral Balance Compensation, U.S. Patent Application 20110320210, Filed 12/29/2011

Frequency Domain Multiband Dynamics Compressor with Automatically Adjusting Frequency Band Boundary Locations, U.S. Patent Application 20110320209, Filed 12/29/2011

Method and Apparatus for Audio Loudness and Dynamics Matching, U.S. Patent 7,848,531, with Jean-Marc Jot, Issued 12/7/2010

Two-to-three Channel Upmix for Center Channel Derivation, U.S. Patent Application 20100296672, Filed 11/25/2010

Asymmetric Polynomial Psychoacoustic Bass Enhancement, U.S. Patent Application 20100158272, Filed 6/24/2010

Frequency Domain Reverberation Method and Device, U.S. Patent Application 20080085008, Filed 4/10/2008

Programmable Sound Circuit for Electronic Games, U.S. Patent 4,475,228, Issued 10/2/1984

## **LANGUAGES and PROGRAMS**

Matlab (including Filter and Signal Processing Toolkits), C, C++, Z80, 68000, 6502, 6805, TMS320, MSP430, Creative 10K1 and 20K1 X-Fi, Fortran, AppleScript, HTML, Javascript, Microsoft Project, CodeWarrior, Visual Studio, Xcode, CVS, SVN, etc.

## **AFFILIATIONS**

Member: Audio Engineering Society (AES), IEEE.

## **HONORS AND AWARDS**

National Merit Scholarship Finalist. Two Editor's Choice awards from Electronic Musician. Editor's Choice award, Mac Life magazine. Key Buy Award, Keyboard magazine. Editor's Choice award, MacWorld U.K. Chaired a session at an Audio Engineering Society convention. Invited reviewer for Journal of the AES.