Curriculum Vitae
John M. Strawn, Ph.D.

Professional Profile

Several decades of involvement in software, digital audio, digital music, digital signal processing, and processor architecture. Successful independent software consultant in high-level languages and assembly language. Seasoned testifying expert with experience in patent and class action litigation, skilled at explaining complex ideas to attorneys and juries. Stanford Ph.D. Former Fulbright Scholar. Prolific author. Experienced manager with long-range research and development experience. Facile with foreign languages and working with people from outside the USA.

Professional Experience

From:	1992	**S Systems, Inc.**
To:	Present	Larkspur, CA
	Position:	*Owner*
	Duties:	Full-time independent consultant:

- **Programming** hand-crafted audio and music software for signal processing, written in C, C++, JAVA, and especially assembly language for digital signal processing chips. Consulting on processor architecture and networking.
- **Testifying Expert witness** in patent litigation relating to software, computers, signal processing.

From:	1987	**Yamaha Music Technologies USA**
To:	1991	Larkspur, CA
	Position:	*1989-1991: President; 1987-1989: Vice President*
	Duties:	Helped establish and manage a nine-person Ph.D.-level research group, including site search, architectural design, construction, move-in, and hiring. Conducted original research on electronic musical instruments, software, micromachining, networking, and recent technological developments. Extensive experience designing scientific, engineering, and musical object-oriented applications, especially C++ (UNIX). Research on Yamaha's Vocaloid started in this group. Patents listed below.

From:	1986	**S Systems**
To:	1988	Larkspur, CA
	Position:	*Full-time Consultant*
	Duties:	This was my first stint as a consultant. See Consulting Assignments, below.

From:	1985	**Lucasfilm/Droid Works**
To:	1986	San Rafael, CA
	Position:	*Programmer*
	Duties:	Full-time programming experience as an employee, designing signal-processing modules and writing (96-bit VLIW) microcode for the ASP/SoundDroid developed by James A. Moorer. Experience in audio and video post-production. Extensive work in C (Unix). Another six months full-time experience writing tightly packed assembly code for the TI TMS32010 signal processor, especially for a two-channel hard-disk audio record playback unit that played without bugs on the exhibit floor of the National Association of Broadcasters convention, 1986.

From:	1976	**Stanford University**
To:	1985	Stanford, CA
	Position:	*Doctoral Student*
	Duties:	Nine years programming experience developing code in high-level languages (Algol, Fortran, SAIL) and PDP-10 assembly language for musical and audio signal processing applications during doctoral thesis work. Includes original published research in spline fitting and pattern recognition, a 30,000-line two- and three-dimensional graphical editor for waveforms and spectra, implementation (with John Gordon) of the short-time Fourier transform, device drivers, and libraries for graphic user interfaces. Also part-time consulting work:

- SRI International (FORTRAN for mechanical engineering).
- Mattel Electronics (music in consumer electronic toys).
- IntelliGenetics (ALGOL-like code for biotechnology).
- Digital Keyboards (product specification and complete manuals for GDS and Synergy Synthesizers).

From:	1972	**Revox**
To:	1972	Long Island, New York
	Position:	*Summer intern*
	Duties:	Solder cables, write German- and Dutch-English translations, manufacture PC boards, assemble hardware.

Education and Training

Year	College/University	Degree
1973	Oberlin	B. Mus, double degree in organ performance and music theory. Experience with analog synthesizers and digital music synthesis, BASIC, FORTRAN, MUSIC V on an IBM 360.
1973-1975	Technical University, Berlin	Fulbright Scholar. Graduate-level coursework in music theory/history, audio engineering, electronics, information theory, cybernetics, Japanese; all coursework in German. Extensive recording studio and live concert sound reinforcement experience. PDP-11 and PDP-8 assembly and machine language. Travel throughout Europe.
1975-1976	IBM Thomas Watson Foundation	Grant to study electronic music, Tokyo, Japan, 1976. Live performances on piano and Roland System 700 analog synthesizer. Also travel through Turkey, Iran, Afghanistan, Pakistan, India, Thailand, and Hong Kong.
1985	Stanford	Ph.D., CCRMA. Advisor: John Chowning. Graduate course work in music, computer and processor architecture, high-level and assembly-language programming, digital audio, acoustics, and digital hardware. Dissertation on analysis of music instruments with the short-time Fourier transform. Software development experience listed elsewhere in this resume.

Expertise

- Implement/optimize signal processing algorithms: Fourier transform (FFT), discrete cosine transform (DCT), DTMF, speech synthesis.
- Port/optimize audio compression algorithms: AC-3, MP-3, AAC.
- Implement audio algorithms: reverberator, pitch shifter, sample rate converter, compressor, filter, flanger, 3-d audio (Dolby surround), dither.
- Implement music synthesis (additive, physical modeling, wavetable, FM).
- Create bug-free software from academic signal processing research.
- Work in floating- and fixed-point math.
- Assembler, object-oriented, C, C++.
- Extensive experience optimizing code in assembler
- PC, Mac, Unix.
- DSP architectures: Motorola 56000, 56300, and 56800 families; TI TMS320C10 and TMS320C54 family; Code Composer Studio; Analog Devices 21xx family and TigerSharc; VLIW; custom processors; I learn new architectures quickly.

- Embedded processors: Hitachi SH-DSP, SH3-DSP, SH-4, and SH-5; ARM7/ARM9; configurable processors (Tensilica).
- Processor architecture.
- Debugging hardware prototypes.
- Audio networks, such as AES/EBU (IEC 60958), IEEE-1394/FireWire, AV/C, 61883, mLan, and others.
- File downloading.
- Practical audio experience in live sound and in studios.
- Testifying expert witness (including expert reports, deposition).
- Software analysis for litigation.
- Functionally bilingual in German; able to read French, Dutch; some Japanese

Expert Witness and Litigation Support Experience

Summary: patent litigation, class action litigation, ITC actions, and USPTO declarations relating to software (in a wide variety of areas), cell phones, audio, music, speech, processor architecture, compression, multimedia, digital cameras, telephony, video games, and file downloading, among others.   Testimony at trial, prior art analysis, infringement analysis, expert reports, deposition, tutorials, Markman hearings.

Date:	2011 - Present	**Fliesler Meyer, San Francisco; Kirkland & Ellis, Chicago**
	Case:	Adobe v. <u>Wowza</u>, CV 11-02243-CW, California Northern District.
	Project:	Deposition related to Markman. Expert Report and deposition on non-infringement.
Date:	2012 - 2013	**Morgan, Lewis & Bockius, Washington, DC**
	Case:	**SmartPhone v LG, 6:10-cv-74, Eastern District of Texas, Tyler.**
	Project:	**Expert report and deposition related to invalidity.**
	2012	**Quarles + Brady**
Date:		
	Case:	<u>SmartSound</u> v. Avid, 3:12-cv-223, Wisconsin Western District.
	Project:	Non infringement for two patents involving automated composition of sound tracks for video. Settlement discussions in progress.
Date:	2012	**Jones Day**
	Case:	LSI v. <u>Vizio</u>, 8:10-cv-01602, California Central District.
	Project:	Invalidity and non infringement for four patents involving digital memory and MPEG audio. Case settled before Markman.
Date:	2011	**Quinn Emanuel, New York**
	Case:	<u>Motorola</u> v. Apple (Certain Wireless Communication Devices, Portable Music and Data Processing Devices, Computers and Components Thereof, ITC 337-TA-745).

Project:		Three expert reports and two witness statements relating to infringement by Apple Accused Products (iPhones), technical prong of domestic industry, and non-invalidity, focusing on cell phone GPS. Source code analysis. Deposition. Testimony at trial, 8-15 December 2011.
Date:	2008-9, 2011-present	**Alston Bird, Atlanta**
Case:		Move Inc. v. Real Estate Alliance Ltd et al., 2:07-cv-02185, Central District of California, Los Angeles.
Project:		Expert reports concerning real estate sales website. Source code analysis. Deposition. Scheduled to testify at trial.
Date:	2010-2011	**Finnegan, Henderson, Washington, DC**
Case:		HTC v. Apple (In the Matter of Certain Portable Electronic Devices and Related Software, ITC 337-TA-721).
Project:		Expert reports relating to technical prong of domestic industry for 24 HTC Windows Mobile cell phones, including source code analysis relating to user interface, memory, and caller ID. Consulting expert relating to iPhone, iPad, and iPod touch concerning invalidity and power management.
Date:	2010-2012	**Robins, Kaplan, Miller, & Ciresi, Minneapolis**
Case:		Fair Isaac v. Actimize and NICE, 1:2009cv00688, Delaware.
Project:		Infringement and source code analysis relating to financial transaction verification.
Date:	2010	**Orrick, Washington, D.C.**
Case:		Affinity Labs v. Alpine Electronics, JVC Kenwood, et al., 08-171-RC, Eastern District Texas.
Project:		Involved car audio, marine audio, and home theatre products that connect to iPod/iPhone. Rebuttal expert report on non-infringement. Deposition.
Date:	2009-10	**Wolf Haldenstein, New York**
Case:		In re Apple & ATTM Antitrust Litigation, Northern District of California, San Jose, C 07-5152.
Project:		Analyze iPhone source code for antitrust plaintiffs. Expert report and various declarations, in particular regarding class certification. Deposition.
Date:	2008-10	**Paul Hastings, Palo Alto, CA**
Case:		Konami Digital Entertainment v. Harmonix Music Systems, Texas Eastern District 6:08-cv-00286
Project:		Analyze Rock Band video game source code (Playstation 2, PS3, Wii, XBox). Expert reports. Two-day deposition.

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