

Curriculum Vitae
John M. Strawn, Ph.D.
(contact information on last page)

Professional Profile

- Seasoned testifying expert witness with litigation experience (patent, copyright, trade secret, class action), skilled at explaining complex ideas to attorneys and juries.
- 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.
- 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

S Systems, Inc. (1992-present; 1986-1988); *Owner and Full-time Consultant.*

- **Testifying Expert witness** in patent and copyright litigation relating to software and source code, digital devices, processor architecture, media, compression, signal processing and client/server interactions. See Expert Witness section, below.
- **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. See Consulting Assignments, below.

Yamaha Music Technologies USA; 1989-1991: President; 1987-1989: Vice President.

- Helped establish, and managed, 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, user interfaces, 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.
- Patent listed below.

Lucasfilm/Droid Works (1985-1986); Programmer.

- 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.

Stanford University (1976-1985), *Doctoral Student*.

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. My Ph.D. dissertation (*Modeling Musical Transitions*, 1985) involved 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).

Revox (1972); *Summer intern*

Solder cables, write German- and Dutch-English translations, manufacture PC boards, assemble hardware.

Education and Training

When	Where	Degree
1985	Stanford University	Ph.D., CCRMA. Advisor: John Chowning. Graduate course work in music, computer and processor architecture, high-level and assembly-language programming, digital audio, digital signal processing, acoustics, psychoacoustics, and digital hardware. Dissertation on analysis of music instruments with the short-time Fourier transform. Software development experience listed elsewhere in this resume.
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.
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.
1968-1973	Oberlin	B. Mus, double degree in organ performance and music theory. Programming in BASIC, FORTRAN, MUSIC V on an IBM 360 mainframe. Experience with analog synthesizers and digital music synthesis, Exchange semester, University of Hamburg, Germany, 1971, course work in German literature and psychology.

Expertise

- Seasoned testifying expert witness with litigation experience (patent, copyright, trade secret, class action), skilled at explaining complex ideas to attorneys and juries.
- Software analysis for litigation including patent, copyright, trade secret, software theft.
- Assembler, object-oriented, C, C++, HTML, XML, Java, Javascript, SQL.
- 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.
- Extensive experience optimizing code in assembler
- PC, Mac, Unix.
- DSP processor 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 processor architectures quickly.
- Embedded processors: Hitachi SH-DSP, SH3-DSP, SH-4, and SH-5; ARM7/ARM9; configurable processors (Tensilica).
- Processor architecture.
- Debugging hardware prototypes.
- Media 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.
- Functionally bilingual in German; able to read French, Dutch; some Japanese

Expert Witness and Litigation Support Experience

Summary: 19 depositions to date, 3 times testimony at trial, 10 declarations filed in 17 Inter Partes Reviews (IPRs). Patent litigation, ITC investigations, Inter Partes Reviews, USPTO declarations, class action litigation, trade secret litigation, copyright litigation involving software. Expert reports, declarations, prior art research and analysis, infringement analysis (e.g., analyze devices, documents; source code analysis, source code comparison), claim charts, tutorials, Markman hearings. Technical areas include software and source code; computers, laptops, cell phones, mobile devices, handheld devices (e.g. medical); processor architecture; user interfaces; media: audio, music, speech, video; compression (e.g., MPEG, MP3); digital signal processing, mathematics, algorithms; file downloading, file streaming, client/server; protocols such as internet protocol (IP); video games. Links regarding specific cases are also available online (<http://www.s-systems-inc.com/hi-tech-litigation-expert-witness/>).

Testimony at Trial:

Microsoft v. Lucent. Fish Richardson.

Two days testimony at three-week jury trial, after **deposition** and **seven expert reports/declarations** on non-infringement, invalidity, inventor not included, defects in specification, and secondary considerations. Two patents related to audio compression and MP3 in Windows Media Player. Source code analysis (C, C++, assembler, machine code). Research. Analysis of German documents including dissertations. The Court ruled for Microsoft, finding non infringement on one patent and lack of standing on the other patent, as a matter of law, upheld on appeal. (CASD 3-02-cv-2060, CAFC 2007-1546, 2005 – 07).

Nice v. Witness. Fish Richardson.

Telephone call centers (telephony, hardware architecture, digital recording, functionality). **Expert reports** on invalidity and non-infringement, three patents. **Deposition, jury trial testimony.** (DED 1-cv-311, 2007 – 08).

Motorola v. Apple. Quinn Emanuel.

Cell phone GPS. Analyze iPhone and Motorola Droid source code (C, C++, JAVA) and schematics. **Three expert reports** and **two witness statements** relating to infringement, technical prong of domestic industry, and validity. **Deposition. Testimony at trial.** (ITC 337-TA-745, 2011).

Other Litigation Engagements:

Harris Computer Corporation et al v. DSI Investments et al. English, Lucas, Priest & Owsley.

Trade secret litigation regarding jail management software. Review source code (e.g., javascript, visual basic, python), GitHub logs, user interfaces, database contents. Expert Report. (WDKY 1:19-cv-00142, 2020 - present).

GREE v. Supercell. Kilpatrick Townsend & Stockton.

For GREE, analyze source code (C++, Java) of SuperCell mobile games such as Brawl Stars, Clash of Clans, and Clash Royale to determine infringement of five GREE patents. Topics included user interfaces, game play, game character capabilities, graphics, and messages passed between mobile device and server. Jury verdict September 2020 found damages of \$8.5 million, and willful infringement. (EDTX 2-19-cv-00070 , 2-19-cv-00071, 2019-2020).

Inter Partes reviews (two) for Spotify. Sheppard Mullin.

Two IPRs. Two patents owned by Excalibur related to fingerprinting audio, involving e.g. filtering, power measurements, time sequencing, database storage. First invalidity **declaration** re 19 challenged claims, 132 pages. (PTAB-IPR2020-00421, 2019-2020). Second invalidity **declaration** re 18 challenged claims, 159 pages (PTAB-IPR2020-00422, 2019-2020). Related district court case (DDE-1-19-cv-00165) settled 4 months after IPRs were filed, and IPRs were terminated before institution decision.

Dolby Laboratories Licensing Corp., et al. v. Adobe Inc. King & Spalding.

Copyright claims regarding audio compression software (AC-3, E-AC-3). Analyze various source code collections, standards documents, copyright office filings for software, deposition

testimony, technical documentation, object code libraries, and historical Windows applications. **Expert report, deposition.** (CAND-4-18-cv-01553, 2019 – 2020.)

Inter Partes review for Panasonic. Orrick.

IPR. Patent owned by Cellspin Soft related to transferring photographs from a digital camera to a cell phone via Bluetooth, and from the cell phone over the Internet to an image publishing website. Invalidity **declaration** re 16 challenged claims, 119 pages; Reply **declaration**, 32 pages. **Deposition.** All challenged claims determined to be unpatentable. (IPR2019-00131, 2018 – 2020).

Inter Partes review for GoPro (Rimon Law) and Garmin (Erise IP).

Declaration from Panasonic IPR above also submitted by GoPro and Garmin in separate PTAB-IPR2019-01108 (2019 – 2020).

JDS Technologies v. Avigilon. Robins Kaplan.

Analyze source code of both parties (Visual Basic, C++) regarding security camera patents. (MIED-2-15-cv-10385, 2018 – 19).

Inter Partes reviews for Jaguar Land Rover. Latham Watkins.

IPR. Patent owned by Blitzsafe related to integrating a portable media device (e.g., cell phone, MP3 player) wirelessly (e.g., Bluetooth) with car multimedia system for playback and control. Invalidity **declaration** re 40 challenged claims, 140 pages. (IPR2018-00544). Second patent owned by Blitzsafe again related to car multimedia device integration. Research. Invalidity **declaration** re 32 challenged claims, 260 pages. (IPR2018-01203, 2017 – 19).

Inter Partes review for Daimler (Mercedes). Quinn Emanuel.

Declaration from first Jaguar IPR above also submitted by Daimler in separate IPR2018-01209 (2018 – 19).

MONKEYmedia v. Samsung. DLA Piper.

Several patents relating to playback of interactive multimedia such as popup advertising or the movie editor's comments on Blu-Ray players, settop boxes, televisions, cell phones, laptops. **Declaration and deposition** for Markman. (TXED-2-17-cv-460, 2017 – 18).

Atlantic Recording Corp. v. Spinrilla. Lilenfeld PC.

Analyze Ruby source code for hip hop music web site. Evaluate methods for identifying sound recordings. Engaged by defendants accused of copyright infringement. **Expert report, deposition.** (GAND 1-17-cv-431, 2017 – present).

Rogue Wave Software v. BTI Systems and Juniper Networks. Katten Muchin Rosenman.

Analyze Java source code involving graphic user interfaces and remote control of Internet hardware. Compare versions of source code. Reconstruct opposing party's source code from obfuscated deposit copy filed with US Copyright Office. Engaged by defendants accused of copyright infringement. Two **expert reports**. (NYSD-1-16-cv-7772, 2017 – 19).

Two Inter Partes Reviews for Samsung. Fish Richardson.

Patent owned by Tivo related to real-time audio/video streaming, recording and playback, and DVR (set top box) architecture. Research. Two invalidity **declarations** re 2 challenged claims,



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