

Expert Witness Consultant Curriculum Vitae

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Professional Summary

Deep technology background across many disciplines. Founding member of six Silicon Valley startups with three of the companies growing to significant size. Earlier in career, had significant executive experience at several Fortune 50 companies introducing and guiding new technologies critical to business. Participated on many U.S. & international technical standards bodies. Panel participant at many major technology conferences. More than fifty patents granted over several decades. Currently consulting as intellectual property developer, expert witness and technology advisor for patent litigation cases in US & Europe.

Areas of Technology Expertise:

Technology Systems: Video-on-demand systems; Television ad insertion systems; Interactive television systems; Cable and satellite set-tops; Automated content recognition (video and audio matching), Digital watermarking, Digital rights management, Cable TV plant design; Consumer electronics device design & development; Speech recognition systems; Digital signal processing including audio/video codecs; Advanced data modulation and error correction schemes; Mobile software apps; Embedded systems for automotive applications; WAN/LAN technologies including fiber backbone & satellite distribution; MPEG, H.264/5 & other media encoding schemes. Deep experience in computer languages including C, C++, C# & Java; Python, Perl, JavaScript; HTML/CSS; Significant experience in implementing Apache-based cloud server systems.

Employment History

To	Present	WLH Consulting, LLC
From	2011	Mountain View, CA
Position	<i>Intellectual Property and Technology Architecture Consultant</i>	

- Summary: IP consulting for technology companies writing patent applications, advising on portfolio structure, and assisting in prosecution.
- Expert witness and technology consulting for patent litigation matters with significant experience in prior art analysis; expert witness/IPR report generation; court room experience in US Federal Court & High Court of England; significant international patent litigation experience.
- Substantial patent generation and prosecution experience; more than 100 patent applications written, 45 in my name, and filed over 25-year period.
- Technology design consultant in cloud-based media management, automated content recognition, voice recognition systems, video-on-demand, targeted advertising, and mobile and telematics app development.

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To 2011 **Interactive Mobile Media Inc.**
From 2008 Campbell, CA
Position *President*

- Summary: company provided development of voice-activated and touch-based mobile and tablet applications for major media companies.
- Developed digital media discovery and control systems for smartphone/tablet apps and telematics applications. Company developed proprietary semantic search engine for media discovery, among several other areas of novelty.
- Customers included: 19 Entertainment (American Idol)—developed voice-response music service dba Aviga Systems, Inc.; Developed proprietary music recognition technology for the Viggie TV affinity app; ThumbPlay Music (Clear Channel)—developed music metadata and tagging system; Mediatronics (Tier 1 supplier to General Motors)—developed voice recognition system for automotive applications.

To 2007 **Google Inc.**
From 2006 Mountain View, CA
Position *Technology Consultant*

- Summary: assisted in the development of a new product division for auctioning of television ad slots for placement with major satellite and cable television operators.
- Developed architecture for automated processing of video for new service auctioning television advertising on satellite and cable television systems.
- Developed processing center for managing customer video induction into Google network for delivery to partner ad servers. Helped develop interface to EchoStar ad serving system at satellite facility in Wyoming for insertion of TV ads from Google.

To 2006 **Dotcast Inc.**
From 2000 Mountain View, CA
Position *Founder, President & Chief Technology Officer*

- Summary: raised significant funds from mix of strategic partners and VC's; grew company to 150+ employees; developed custom system-on-a-chip (3 million gates); developed set-top box using custom chip for service called 'MovieBeam'; won Best Of Show at the Consumer Electronics Show in Las Vegas two years (2004 & 2005); nationwide service distributed through BestBuy, Sears, Circuit City and Wal-Mart.
- Principle founder of Dotcast. Conceived of wireless metropolitan-area digital media service delivery system using "digital shelf" technique.
- System adopted by the Walt Disney Company-led MovieBeam consortium and used as the basis of their wireless feature film set-top service which was active in the top 50 US television markets.
- Principle interface to the FCC, successfully petitioned for regulatory approval of company's novel metropolitan-area wireless data transmission technology.

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To 1999 **EnCamera Sciences Corp.**
From 1998 Scottsdale, AZ
Position *Partner*

- Summary: helped develop core technology; positioned company for acquisition; sold company for 20x return on investment.
- Helped develop the underlying technology of high-speed, low-cost, metropolitan-area data transmission.
- Developed a novel MPEG video compression technique later used by Disney for MovieBeam (achieved a 4:1 improvement in efficiency for similar picture quality).

To 1998 **ICTV Inc. (renamed ActiveVideo Networks in 2006)**
From 1990 San Jose, CA
Position *Founder, President & Chief Technology Officer*

- Summary: raised significant funds from IBM, Cox Communications and venture capital companies; grew company to 125+ employees; products used by major cable operators.
- Developed and deployed first interactive TV and video-on-demand system for cable TV. Partnered with IBM and deployed system in Omaha, NE on Cox Cable in 1994.
- Company renamed ActiveVideo Networks and currently sells server-based products used by Cablevision Systems; Comcast, Charter Cable. Products also resold under Cisco brand.

To 1989 **PaineWebber**
From 1986 New York
Position *Vice President, Capital Market Systems*

- Summary: VP in charge of specially formed team of technologists in the development of advanced real-time information management systems for support of securities trading.
- Pioneered client-server architectures for trading floor support using real-time computer systems. First to exploit the then new Sun Micro distributed computing systems. Created display system consolidating multiple live market feeds.
- Deployed first functioning artificial intelligence-based system on Wall Street. Lisp-language-based expert system provided hedging advisories in real-time to equities block trading.
- Led technology team that significantly improved PaineWebber's competitive position in equity, fixed-income and program trading.

To 1986 **Goldman Sachs & Co.**
From 1984 New York
Position *Senior Manager, Trading Support Systems*

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- Summary: led one of the first real-time computing technology groups on Wall Street; developed trading support and derivative computing systems.
- Designed financial data analysis systems for equities trading desks working with Fischer Black (Black-Scholes Option Model) to develop computed equities hedging analysis using optimized options strategies.
- Designed and led team to deploy first large, flat screen multi-function trader workstation for use on trading floors, replaced the existing IBM mainframe-based system.
- Helped setup the Goldman Sachs branch offices in London and Tokyo.

To 1984 **United Nations**
From 1981 International
Position *Technical Advisor, United Nations Development Program (UNDP)*

- Summary: served as technical advisor in computer method in support of field projects in developing nations.
- Based at UN headquarters in New York. Traveled extensively to dozens of third-world countries in Africa, South America and Asia to assist with computer installations for UNDP field projects including population census and natural resource development.
- Designed, developed and deployed in China novel Chinese-language graphics workstations and local area network to support first computerized population census of mainland China in 1981.

To 1981 **United Nations**
From 1978 New York
Position *Systems Engineer*

- Designed and deployed three computer voting systems for the General Assembly Hall of the UN headquarters. Systems utilized IBM Series 1 mini-computers with custom-designed digital logic interfaces for delegate voting, system control and result display billboards.

To 1978 **ACM Technology**
From 1973 San Francisco, CA
Position Owner, Electronics Engineer

- Contract engineering firm employing two engineers. Developed custom electronic systems for: professional audio equipment; numerically controlled machining systems using microprocessor-based controllers; medical electronics monitoring devices.

Education:

To: 1972 **Ohio State University**
From: 1970 Electronics Engineering

Expert Witness Consulting History

Represented underlined party; all cases in the U.S. unless noted

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1. 2016: TQ Delta v Dish Network
 - a. Representing Dish Network as technical expert.
 - b. Prepared expert declaration for IPR submission.
2. 2015: CRFD Research v Dish Network
 - a. Representing Dish Network as technical expert.
 - b. Prepared expert declaration for IPR submission.
 - c. Deposed by CRFD counsel.
3. 2015: HBAC MatchMaker Media v DirectTV
 - a. Representing DirecTV as technical expert.
 - b. Prior art and analysis research.
4. 2014: HBAC MatchMaker Media v Google
 - a. Representing Google as technical expert.
 - b. Prepared expert declaration for IPR submission
5. 2014: Rovi Corp. v Virgin Media
 - a. Represented Rovi as expert witness in UK (patent 6)
 - b. Analyzed prior art, generated claim charts, produced expert report
 - c. Testified in the High Court of England, June 2014
6. 2014: Telebuyer LLC v Amazon.com, Inc.
 - a. Representing Amazon as technical expert
 - b. Case underway in March, provided background information on prior art to assist in case formation
7. 2013: Straight Path IP Group, Inc. v Vizio, Inc.
 - a. Represented Vizio as technical expert
 - b. Analyzed prior art, built claim charts
8. 2013: Rovi Corp. v Virgin Media
 - a. Representing Rovi as expert witness in U.K. (patent 5)
 - b. Prepared expert report
9. 2013: Rovi Corp. v Virgin Media
 - a. Represented Rovi as technical consultant (patent 4)
 - b. Assisted in preparation of expert report.
10. 2013: Mitsubishi Electric Corp. v Motorola Mobility Corp. (Google)
 - a. Represented Motorola as technology expert
 - b. Researched and analyzed prior art, case settled
11. 2012: Rovi Corp. v Virgin Media
 - a. Represented Rovi as technical consultant in U.K. case (patent 3)
 - b. Assisted in preparation of expert report.
12. 2012: Rovi Corp. v Virgin Media
 - a. Represented Rovi as technical consultant in U.K. case (patent 2)
 - b. Prepared expert report.
13. 2012: Rovi Corp. v Virgin Media
 - a. Represented Rovi as technical consultant in U.K. case (patent 1)

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