



DAVE HOWELL

Expert Software Analysis and Testimony

Expert Witness specializing in software patent litigation, providing code analysis, expert reports, and testimony. Digital inventor, designer, engineer. Creating and monetizing emerging technologies for 30+ years.

Infringement and Invalidity Patent Litigation ▪ Expert Testimony
Expert Reports and Rebuttals ▪ Source Code Analysis
C/C++/C# ▪ Python ▪ Android (Java, Kotlin) ▪ iOS (Objective-C, Swift)
Deep Learning ▪ SDKs and APIs ▪ Engineering Strategy ▪ App Design

EXPERT WORK

Assisting legal teams with software disputes, lawsuits, and patent infringement litigation since 2017

- Contract disputes, IPRs, patent infringement and validity cases
- Claim constructions, expert opinions
- Source code inspection and infringement reports
- Research into prosecution history and prior art
- 13 declarations, three depositions, two testimonies in Federal court

CREDENTIALS

Portland State University, Maseeh College of Engineering and Computer Science
PhD, Computer Science, expected 2025: research in deep learning and computer vision
MS, Computer Science, expected 2022

Cornell University, Johnson Graduate School of Management
MBA, 2008

Queen's University, Smith School of Business
MBA, 2008

Case Western Reserve University, School of Graduate Studies
National Merit Scholarship, Tau Beta Pi, Phi Beta Kappa, Mortar Board, Phi Mu Alpha Sinfonia.
MS, Computer Science (all coursework, incomplete thesis)
BS, Computer Science and Engineering with High Honors, 1986
BA, Music with High Honors, 1987

Amazon AWS Certification, Amazon Web Services Cloud Practitioner

PATENTS

U.S. patent 10,706,815 *Accelerated secondary display system*
U.S. patent 10,163,422 *Accelerated secondary display system*
U.S. patent 9,058,759 *Virtual display device drivers compatible with Windows display driver model*
U.S. patent 7,643,037 *Method & apparatus for titling by applying effects to computer-generated characters*
U.S. patent 7,594,180 *Method and apparatus for titling by presenting computer-generated characters*
U.S. patent 8,694,888 *Method and apparatus for titling*
U.S. patent 7,199,805 *Method and apparatus for titling*
U.S. patent 7,483,041 *Method and apparatus for titling*

EXPERIENCE

Avatron (2008–present)

Founder & CEO

*Bootstrapped startup funded entirely by app sales, developing innovative hardware and apps for iOS, Android, macOS, and Windows. Hired 50–60 highly employees and contractors to design, create, and sell **\$14M of apps to 3M customers**, fueled by a culture of solving the harder problems, love of design elegance, geeky camaraderie, and a fierce respect for customers' time and productivity. Growing via traditional and guerrilla channel strategies.*

PRODUCTS

- **Supercast**: software system that allows a host device to broadcast a presentation to attendee devices.
- **Air Display**: **patented** app that turns an iPad, Android tablet, Mac, or PC into an extra display for a host computer. **#2 top-grossing** iOS Utility app. **\$9M+ sales** over 7 years.
- **Air Sharing**: document management and remote file access app. Apple's first **App of the Week** and #1 top-downloaded iOS app, was installed on **20% of all iPhones** after a **million downloads** in its first 2 weeks. **\$4M+ sales** over 5 years.
- **True Display**: **patented** hardware adapter that turns a tablet into a Mac/PC monitor.
- **Air Connect**: tunnels to remote Mac for screen sharing or file sharing. Launched on Kickstarter.
- **Air Dictate**: enabled voice dictation on a Mac via an iPhone mic, before Apple launched Siri for Mac.
- **Print Sharing**: prints documents to shared printers, using an embedded CUPS client.
- **Avatron Publishing**: **50+ apps** built with licensed media.
- **App Group**: contract development services for productivity and healthcare apps.

Negotiated and performed engineering contracts. Clients included Samsung and Intel.

GoDoc (2020–2021)

Chief Technology Officer

Startup revolutionizing telehealth while obsolescing urgent care

- Leading software engineering, IT, UX/UI design, quality assurance, project management, and customer support.
- Managing internal and overseas software design and development.
- Working with executive team to define vision, pursue mission, and achieve strategic goals.

Perfect Company (2019–2020)

Vice President of Engineering

Startup dedicated to reimagining kitchen workflows

- **Perfect Bake, Perfect Drink**: Patented consumer apps that control a connected digital scale, for precise baking and cocktail mixing.
- **NutriBullet**: App that controls a patented connected blender, available from Costco.
- **AIM**: Advanced ingredient management system to forecast ingredient preparation requirements and guide kitchen staff through recipe completion, including control of connected appliances, with a focus on data reporting and analytics.
- **PUC**: App, web API for point-of-sale integration, and connected cabinets for secure food delivery.

Apple (2002–2008)

Senior Engineering Manager, Applications

Tech giant focused on transforming the mundane into something delightful

Managed the **FxPlug** plug-in architecture for visual effects in professional film & video production apps.

- Developed and documented the FxPlug framework and SDK.
- Supported third-party and internal FxPlug developers. Hosted developer kitchens.
- Guided internal Apple teams to integrate FxPlug, Core Image, and After Effects plug-in support into Pro Apps suite, including Final Cut Pro and Motion.

Managed and led the LiveType engineering team.

- Led engineering team to turn my India Pro animated-fonts technology into an Apple app.
- Coordinated the human and visual interface teams with engineering to refine user experience.

- Invented and implemented support for animated vector-based LiveFonts.
 - Worked with Apple Legal to patent LiveFonts, LiveType, and LiveType Effects titling technology.
- Contributed to code in *Final Cut Pro*, *Motion*, *LiveType*, *Keynote*, *Pages*, *iWeb*, *Numbers*, and *Aperture*.

Pablo Media (1994–2002)

Founder & Principal Engineer

Boutique software engineering firm with 20+ clients, specializing in making games and tools for creative users
 Negotiated **30+ software development contracts**. Led a network of engineers to fulfill the contracts, while building a platform for media-creation and image-processing apps. **IP acquired by Apple in 2002**.

SELECTED CLIENTS

Prismo Graphics: Co-designed and wrote *India Pro Special Effects Titler* (predecessor of Apple's LiveType), an animated titling app for film and video, with animated fonts, scripted special effects, live video preview, and movie compositing. Helped prepare for Apple acquisition. Wrote all code for macOS and Windows.

Sarnoff Corporation: Developed VideoBrush Panorama, a macOS app that seamlessly tiled panoramic images from live video capture, using advanced pixel-flow algorithms.

Lucasfilm, Iomega, Videonics, Xaos Tools, DigiEffects, Burnett Group, Stomper, AVerMedia, PicoStar: Developed serial and USB drivers, image-processing plug-ins and components for QuickTime, Director, Photoshop, and After Effects. Designed and developed video capture, playback, and editing tools.

Hasbro, Zombie, Westwood Studios, Realtime Associates: Ported games to macOS and Sony Playstation. Titles: *Candy Land Adventure*, *Tonka Construction Site*, *Locus*, *Young Blood*, and *Legends of Kyrandia*.

New Video, MetaCreations, Passport Designs, Digitalk **Lead Software Engineer**

First four jobs. Developed tools for composers, video producers, and developers, on the bleeding edge of digital technology.

- Led a software engineering team at the **first joint venture funded by Apple and Intel**, to create the *EyeQ* hardware and software for full-screen 30-fps video playback, before Apple launched QuickTime.
- Ported Intel's *Indeo* video codec to macOS, under contract to Intel.
- Wrote music composition apps for macOS and Apple IIGs when MIDI was exciting and new, and received *Electronic Musician's* **Most Innovative Software Product** award for *Master Tracks Pro 4*.
- Led macOS engineering for the *Smalltalk/V Mac* development environment.

AVOCATIONS

Teaching Assistant, Portland State University.

Lecturer in graduate course called *Computers, Sound, and Music*.

Corporate project sponsor for *Computer Science Senior Capstone I and II*.

Guest Lecturer, PSU Graduate School of Engineering Management, University of Phoenix

Advisory Board Member, myGoDoc

Advisory Board Member, Swag'r Digital Media

Advisory Board Member, Bizmati

Board Member, Chair of Entrepreneur Services committee, Oregon Entrepreneurs Network (two years)

Board Secretary and Co-founder, Jazz Society of Santa Cruz County (four years)

Helped achieve non-profit 501(c)(3) status, performed as house pianist for a weekly jam session

Speaker, Apple WWDC, National Association of Broadcasters, One More Thing Melbourne, CocoaHeads, Voices that Matter Philadelphia, OEN Pub Talks, OEN CEO Panel, Mosaic Vail Summit, Data Management Association, Innovations Mobile, REAP, Portland MUG, Clark County PubTalks, Mobile Portland, Alt-WWDC

Jazz Pianist, solo, duo, trio, quartet, and big band

Licensed Real Estate Broker, Oregon First, Realtors®

LITIGATION HISTORY

Captova Technologies, Inc. v Amazon Web Services, Inc. 08/30/2022 <i>Amazon Web Services, Inc.'s Expert Report</i>	AAA/ICDR No. 01-21-004-9950
Vivint, Inc. v. SkyBell Technologies, Inc. 08/10/2022 <i>Source code review</i>	No. 2:21-cv-09472
SensorRx, Inc. v. Eli Lilly & Co. 11/12/2021 Deposed re my expert report 11/10/2021 <i>SensorRx's Expert Report</i>	No. 3:19-cv-643
KuhnMcCullen Logistics, LLC and OurCampus, Inc. v Impeccable LLC, Pek Pongpaet, Christopher Kennedy, and Does 1-10 08/2021 <i>Advised legal team, analyzed evidence and source code repository</i>	No. 20-cv-362436
Miller Mendel Inc et al v. Oklahoma City City of 12/29/2020 <i>Plaintiff's Expert Rebuttal Report on Claim Construction</i> 12/11/2020 <i>Plaintiff's Expert Report on Claim Construction</i> 02/07/2020 <i>Software platform inspection</i>	No. 5:18-cv-00990
Guardian Alliance Technologies, Inc. v. Tyler Miller 01/21/2020 <i>Declaration of David Howell</i>	PTAB-IPR2020-00031
Perfect Company v. Adaptics Limited 04/02/2019 <i>Perfect Company's Expert Rebuttal Report on Validity of '365 and '217 Patents</i> 03/23/2019 Deposed regarding my reports on infringement 03/06/2019 <i>Perfect Company's Amended Expert Report on Infringement of U.S. Patent 8,829,365 B2</i> 03/06/2019 <i>Perfect Company's Expert Report on Infringement of U.S. Patent 9,772,217 B2</i> 11/30/2018 Proceedings held before Judge Ronald B. Leighton. Markman Hearing. Plaintiff called David Howell. 10/11/2018 <i>Supplemental Declaration of David Howell filed by Plaintiff Perfect Company re 252 Motion to Compel</i> 10/02/2018 <i>Declaration In Support of Perfect's Responsive Claim Construction Brief of David Howell by Plaintiff Perfect Company</i> 09/20/2018 <i>Declaration of David Howell filed by Plaintiff Perfect Company re 252 Motion to Compel</i> 09/13/2018 Deposed regarding my expert report and rebuttal report 03/07/2018 <i>Perfect Company's Expert Rebuttal Report on Validity</i> 02/27/2018 <i>Attended deposition of expert Harry Direen on behalf of plaintiff, wrote internal report on observations</i> 01/22/2018 <i>Perfect Company's Expert Report on Infringement</i> 10/20/2017 Proceedings held before Judge Ronald B. Leighton: Markman Hearing. Plaintiff called David Howell.	Nos. 3:14-cv-05976 & 3:17-cv-05922
Adaptics Limited et al v. Perfect Company 05/09/2017 <i>Perfect Company's Expert Report on Claim Construction by David S. Howell</i>	PTAB-IPR2018-01596