Scott Andrew Denning

Expertise

- Mobile Technologies
    - Location-Based Services
    - Location-Based Advertising,
    - Navigation
    - Image/Video- panning, feature recognition
    - Communications- NFC, Bluetooth, LTE, OFDMA, mobile hotspot, GPRS, GSM, 3G
    - Power management
    - Power Architecture

- Digital Video
    - Compression / Decompression
    - Hardware and Software CODECS
    - Formats- MPEG, H.262-H.264 AVC, WebM, VP8, VP9

- Global Positioning System (GPS)
    - Receiver technology
    - Display generation- coords to pixels
    - GIS / Mapping software- Google Maps, Bing Maps, MapPoint, Know-Where Systems, Arc View
    - Route Planning

- Internet / Network Technologies
    - Network processors
    - Deep packet inspection
    - Packet routing
    - Caching servers
    - JavaScript- applets
    - Embedded website device controls

Professional Summary

Expert witness for the Mobile Wireless, Global Positioning System (GPS), Network Communications, Software, Storage, and Embedded Computing industries. Known for the ability to read patents and to quickly identify infringing products. Highly proficient in reverse engineering and claim chart construction. Proven technical expertise and IP proficiency has led to the successful defense against patent assertions, invalidation of numerous patent claims, and the establishment of highly successful licensing programs.

Employment History

From:	2010-	**Applied Sciences Corp**
To:	Present	Colorado Springs, CO
	Position:	*Principal*

Intellectual property consulting and brokerage services for numerous high-tech industry segments. Assertion target and prior art identification, reverse engineering and expert witness services. Numerous litigation related expert engagements, *see Expert Services Retainers section*. Patent portfolio license broker for Parallel Networks. Provided storage

related portfolio mining and expert analysis for Teradata Corp. Exclusive broker for select high-value patent portfolios for Avaya and HP. Developed custom software tools for clients including PatentSelect portfolio management system and PatentSelect patent acquisition database. Custom implementations for Apple and Teradata. Maintain database of 60k+ patents currently for sale involving more than 100 brokers and IP owners.

From:	2008-	**Allied Security Trust**	
To:	2010	Colorado Springs, CO	
		Position:	*Chief Technology Officer*

Member directed trust for identifying and acquiring patents currently for sale that could pose a threat to member companies if acquired by an adversarial party. 19 member companies including HP, Intel, IBM, Cisco, RIM, Motorola, Ericsson, Philips, Verizon and Avaya. Directly supported the acquisition of over $45M in patent assets between Aug 2008 - Sept 2010. Analyzed 200-600 patents per week along with all accompanying claim charts and other marketing materials to identify a match with member company's products. Built close working relationships with the IP staff of all member companies. Built relationships with over 250 brokers and other patent sellers so that the large majority of all patents for sale were offered to AST. Developed numerous procedures and business models for dealing with very high patent volume including identifying, analyzing, classifying and cataloguing patent portfolios currently for sale. Recruited and managed network of technical experts to assist in patent analysis. Notified high-level IP execs from each member company of patents that could be used against them.

From:	2007-	**Purple Mountain, LLC**	
To:	2008	Colorado Springs, CO	
		Position:	*Founder and President*

Intellectual property consulting service providing patent usage evaluation, portfolio management and reverse engineering services. Developed search methods and platform independent software suite for textually evaluating patents using Google's document database index system for quickly identifying infringing products and prior art. Identified prior art on Tivo's Time Warp patent for Dish Networks resulting in 60 of 61 claims being invalidated. Performed reverse engineering and claim chart construction in support of licensing and litigation for Dish Networks against Sling Media's SlingBox including communications protocol and video CODEC (SIMPTE 421M). Consulting engineer for Dish Networks for in-home video streaming (placeshifting) using MPEG-4. Evaluated large patent

portfolios and specifically identified many unlicensed and quality patents and corresponding infringing products for NCR, Avaya, Qualcomm and Haliburton. Performed reverse engineering and/or claim chart construction in support of licensing and litigation for major law firms including Baker Botts and Greenberg Traurig.

From:	2007-	**Purple Mountain Labs**
To:	2008	Colorado Springs, CO
	Position:	*Founder and President*

Supercomputing and high-speed communications research and development company. Raised $400k startup and $600k second round private funding. Led product development including competitive reverse engineering for new compact massively parallel multi-core supercomputing architecture for Lockheed Martin for deployment on military radar, ballistic missile defense and spy-plane applications. Designed and built 256 CPU quad-core MIPS64 based 2.7 TeraFLOP VITA-41 embedded super-computer implemented with InfiniBand data plane and 1Gb Ethernet control plane. Modified and extensively tested SUSE Linux 2.6 kernel for above system. Delivered functional and benchmarked above described super-computing prototype to Lockheed Martin in 18 months from startup.

From:	2004-	**Taleus International**
To:	2005	Colorado Springs, CO
	Position:	*Director of Business Development for Central US Region*

Provider of intellectual property evaluation and reverse engineering services with over 20,000 patent evaluations and a network of over 700 subject matter experts. Responsible for developing marketing strategies and developing key target accounts in new Central US region. Closed $600k in IP licensing related projects in first three months with all new customers. Established new key partnerships with major IP law firms including Holm, Roberts and Owen (HRO), Baker Botts, and Greenberg Traurig. Developed and presented award winning licensing strategies at 2005 Licensing Executive Society conference.

Position: *Program Manager*

Responsible for managing reverse engineering (RE) projects and retaining appropriate subject matter experts (SME). Managed a team of 6 subject matter experts for RE projects for HP on many notebook computers including Acer, Gateway, Sony, Toshiba and others generating over 75 claim charts and over $700k in 5 weeks. Managed a team of 4 subject matter experts for RE projects for HP

on numerous iPaq clones by Dell, Toshiba, Philips, Mitac and others generating 35 claim charts and over $400k in 4 weeks. Designed and implemented thesaurus based patent portfolio management software for quickly searching and sorting large patent portfolios (+30,000 patents) based on related technologies.

Position: *Subject Matter Expert- projects > $1M*

Performed RE on competing Java processor and prepared claim charts for Philips, US 5,937,193, 6,298,434, 6,349,377. Performed 4 RE projects and prepared claim charts on processor clock adjustment for power conservation, US 6,490,688, 6,883,104 (Zelle, Hofmann, Voelbel, Mason & Gette, LLP). Performed RE and prepared claim charts on competing media player algorithms for Dolby Labs, US 4,790,016, 4,914,701, 5,235,671 (Farella Braun & Martel LLP). Performed RE and prepared claim charts on competing FPGA for Actel, US 6,160,420.

From: 2001-
To: 2004

DRS Technologies / Catalina Research
Colorado Springs, CO
Position: *Systems Architect/Sr. Software Engineer*

Fortune 500 defense technology provider that primarily serves tier 1 defense contractors. Competes with Mercury Computer Systems, Curtiss Wright and GE Fanuc. Conceived of and designed hardware and software architecture for TeraFLOP class massively parallel embedded computer for Lockheed Martin for deployment on US Navy Aegis class destroyer shipboard radar processing. Gave customer presentations and gathered requirements for above system from numerous tier 1 customers including multiple divisions of Lockheed Martin, Raytheon, and MITRE. Helped sales dept. close over $2.5M in preproduction orders. Negotiated with Broadcom for product design and engineering services for above system for $200k total. Systems Engineer and team lead on active radar project for Predator UAV for Harris Corp. Built prototype TMS320C6201 H.263 based video CODEC for SSD and hard drive recording of RADAR, Infra- Red and HD video images for Raytheon U2 and Global Hawk UAV programs. Architect and team lead on software improvement initiative. Team converted, tested and documented 310k lines of legacy C source code from DOS to VxWorks on time.

From: 1999-
To: 2001

NAVSYS
Colorado Springs, CO
Position: *Principal Engineer*

Global Positioning System research and development company.

Identified technologies and equipment infringing companies patents US 6,727,846, 5,379,224, 5,225,842. Prepared claim charts, diagrams and other technical information enabling IP litigators to file law suits against Garmin, Magellan and SnapTrack (Qualcomm). Led meetings and assisted CEO in licensing negotiations with Garmin and SnapTrack. Filed 2 patent apps on high precision positioning system. Filed 2 patent apps on MEMS GPS signal sensor. Led research and development activities and built vehicle tracking prototypes that used AMPS cellular communication with the tracking / mapping console - used ArcView GIS later converted to MS MapPoint. Designed and presented vehicle tracking prototypes to Coca Cola and closed $1.2M in preproduction orders. Transferred technology and trained Japanese engineers from Matsushita / Panasonic on companies IP prior to production run.

From: 1994- **Video Design**
To: 1999 Marietta, GA
Position: *Founder & President*

Contract electronic design firm specializing in digital video streaming and recording equipment and robotic controls. Designed and implemented CCIR-601 PC based closed circuit television monitoring and recording system, implemented using wavelet video CODEC. A number of prototypes were built and installed for Pac-Tel Cellular stores (now Verizon) and Stockholder's Systems, Inc. (now Checkfree Corp.) corporate campus. Designed video database for archiving alarm activated video capture. Originally built using wavelet CODEC based on Analog Devices ADV601, later switched to H.263 using Creative Labs Video Blaster board. Provided design services to optical robotics company for pipeline inspection camera, robot control systems and data logger. Included design of DVD recorder using proprietary file format and H.263 video compression.

From: 1988- **Interface Solutions**
To: 1994 Marietta, GA
Position: *Hardware Engineer*

Contract electronic design firm specialized in microcontroller-based products. Designed mainframe ink-jet and laser printer IBM PC interface for Lexmark. Designed American Magnetics, Inc. compatible mag-stripe security card encoder. Designed credit card reader with IBM keyboard interface for First Data Corp.

Litigation Support Experience

Date: 6-23-15 **McKool Smith**
Case Parallel Networks v. IBM
Project: Deposition.

Date: 1-15-13 **H.C. Park & Associates, PLC**
Case Flashpoint v. HTC et al.
Project: Deposition, ITC Inv. No. 337-TA-850, In the matter of: Certain
Electronic Imaging Devices

Date: 3-22-14 **Buether Joe & Carpenter**
Case Parallel Networks v. Abercrombie, Inc., et al.
Project: Deposition

Date: 11-23-13 **Buether Joe & Carpenter**
Case LBSI v. BP America, Inc., et al
Project: Deposition

Expert Reports

Validity - *LBS Innovations LLC, v. BP et al.;* US 6,091,956 (Buether Joe &
Carpenter)

Infringement - *LBS Innovations LLC, v. BP et al.;* US 6,091,956 (Buether Joe &
Carpenter)

Non-Infringement - *ITC Inv. No. 337-TA-850, In the matter of: Certain Electronic
Imaging Devices;* Flashpoint v. HTC et al. US 6,222,538, US 6,223,190, US
6,400,471 (H.C. Park & Assoc, PLC)

Infringement - *LBS Innovations LLC, v. Aaron Bros et al.;* US 6,091,956 (Buether Joe
& Carpenter)

Validity - *LBS Innovations LLC, v. Aaron Bros et al.;* US 6,091,956 (Buether Joe &
Carpenter, LLC)

Opinion for defendant - *Ulyssix v. Wyle Labs;* Trade Secret Theft (Cochran & Owen,
LLP)

Opinion for defendant - *BDP v. HP;* Product Liability (Coughlin Betke, LLP)

Inter Parties Review Declarations

US 7,550,870 invalid ('974, '758) - Avocet/Liebert (Davidson Berquist Jackson Gowdey, LLP)
US 7,550,870 invalid ('543, '934) - Avocet/Liebert (Davidson Berquist Jackson Gowdey, LLP)
US 7,330,817 valid - Employment Law Compliance (Harper Washam, LLP)
US 7,672,104 invalid - Avocet/Liebert (Davidson Berquist Jackson Gowdey, LLP)

Expert Services Retainers

Avocet/Liebert (Davidson Berquist Jackson Gowdey, LLP) Provide analysis, review of IPR petition, declaration, and testimony regarding prior art including US 5,949,974 and US 6,816,758 against US 7,550,870
Status: pending

Avocet/Liebert (Davidson Berquist Jackson Gowdey, LLP) Provide analysis, review of IPR petition, declaration, and testimony regarding prior art including US 7,043,543 and US 7,099,934 against US 7,550,870
Status: pending

Employment Law Compliance (Harper Washam, LLP) Provide analysis, review of IPR petition, declaration, and testimony regarding prior art including US 7,672,104 and asserted prior art
Status: pending

Avocet/Liebert (Davidson Berquist Jackson Gowdey, LLP) Provide analysis, review of IPR petition, declaration, and testimony regarding prior art including US 5,596,473 and US 6,721,672 against US 7,672,104
Status: pending

Parallel Networks v. Abercrombie, Inc., et al. (Buether Joe & Carpenter) Provide analysis regarding dynamic web page generation and applets, infringement report and testimony for Parallel Networks
Status: settled

LBSI v. BP, Buether Joe & Carpenter LLP, Provide geo-mapping and web technologies related analysis, claim construction, infringement report, invalidity rebuttal and testimony for LBSI
Status: settled

Unwired Planet v. Google (Munger, Tolles, & Olson LLP) - Provide telecommunications network and user app related analysis, claim construction, non-infringement report and testimony for Google

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Status: complete

GPNE v. Pantech, et al. (H.C. Park & Assoc, PLC) - Provide GPRS - LTE (3GPP mobile phone) related analysis, claim construction, non-infringement report and testimony for Pantech
Status: settled

Adaptix v. Pantech, et al. (H.C. Park & Assoc, PLC) - Provide LTE - OFDMA (3GPP mobile phone) related analysis, claim construction, non-infringement report and testimony for Pantech
Status: settled

Motorola (Hogan Lovells, LLP) - Provide operating system software and microprocessor hardware expert analysis
Status: complete

Flashpoint v. HTC, et al. (H.C. Park & Assoc, PLC) - Provide Imaging Device (mobile phone camera) related GUI and software expert analysis, claim construction, non-infringement report and testimony for Pantech in ITC investigation
Status: settled

Honeywell v. Furuno Electric Co., et al. (Bicklel & Brewer) - Provide Navigation related software and hardware analysis, invalidity report, non-infringement report and testimony for FLIR Systems and Raymarine
Status: settled

Beacon Navigation v. Daimler (Hogan Lovells, LLP) - Provide GPS Navigation related C and C++ software and microprocessor hardware analysis, report and testimony for Daimler (Mercedes Benz)
Status: pending

Beacon Navigation v. Mitsubishi and Clarion (Quinn Emanuel Erquhart & Sullivan, LLP) - Provide GPS Navigation related C and C++ software and microprocessor hardware analysis, report and testimony for Mitsubishi and Clarion
Status: pending

Beacon Navigation v. BMW (Finnegan Henderson Farabow Garrett & Dunner, LLP) - Provide GPS Navigation related C and C++ software and microprocessor hardware analysis, report and testimony for BMW
Status: pending

Taylor v. IBM (Buether, Joe & Carpenter LLP) - Provide C++ source code analysis for Taylor
Status: settled

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HTC (Finnegan Henderson Farabow Garrett & Dunner, LLP) - Provide microprocessor, GPS and GUI patent related analysis
Status: complete
Ulyssix v. Wyle (Cochran & Owen, LLP) - Provide analysis and expert report for Wyle Labs in trade secret theft litigation involving military satellite downlink processor technology
Status: settled

Opti v. VIA Technologies (Buether Joe & Carpenter LLP) - Provide semiconductor analysis and reports including semiconductor instrumentation and reverse engineering for VIA
Status: complete

BDP v. HP (Coughlin Betke, LLP) - Provide expert forensic computer log analysis and report for HP in product liability litigation related to virtual disk arrays
Status: settled

Technical Expertise

Intellectual Property
- Testifying expert and expert report preparation
- Detailed patent analysis and file history review
- Identification and analysis of prior art
- Consulting expert assisting with Preliminary Infringement Contentions, Markman claim terms, depositions, reverse engineering and testifying expert preparation
- Target ID, reverse engineering, and claim chart construction for patent assertion and invalidation
- Patent brokering and licensing

Engineering
- User Interface design - embedded graphical and menu interfaces for mobile, GPS, robotic and security applications
- GIS mapping software interface and design including Google Maps, Microsoft MapPoint - Bing Maps, Know- Where Systems, ArcView
- GPS, Teleconferencing, Radar and wireless circuit design and signal processing algorithms
- Software / algorithm development using C, C++, Java, Python, Perl - personally written ~ 1.2 M lines of code
- High performance computing architectures and switched fabrics
- Database development using MySQL and Oracle
- Network communications including TCP/IP, HTTP, SMTP, NTP, Ethernet, 802.x
- Wireless communications including Bluetooth, NFC, LTE, WiFi, CDMA, GPRS,

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3G, GSM and CDPD
- Textual and natural language processing in Python
- Enterprise network applications development using BSD sockets on Linux/Unix
- Audio and Video CODECs including Dolby, DBX, wavelet/JPEG2000, SMPTE 421M (VC-1), H.263, H.264, VP8, VP9, and WebM
- 8/16/32/64 bit microprocessor circuitry design

Reverse Engineering
- CPU and FPGA firmware code extraction
- Software / algorithm decomposition and disassembly
- Custom disassemblers and circuit simulations in Python and Perl
- Signal Processing algorithm identification
- Communications protocol decomposition and identification
- Digital and Analog circuitry reverse engineering and schematic capture
- Proficient with most modern test equipment including HP, Agilent and LeCroy O-Scopes, Network Analyzers, Spectrum Analyzers etc.

Education

Year	College/University	Degree
Current	University of Colorado	PhD student, Machine Learning and Natural Language Processing
1993	Southern College of Technology	Bachelor of Science, Computer Science

Round Table Group

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