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## PROFILE

Expert witness for the AI/Machine Learning, Mobile Wireless, Global Positioning System (GPS), Network Communications, and Software domains. 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 hugely successful licensing programs.

## EXPERT WITNESS HIGHLIGHTS

- Consulted in first successful appeal to Federal Circuit for PTAB ruling of unpatentability in *DSS v. Apple*
- Authored over 5000 pages of expert reports for Federal District Courts and ITC
- Authored over 1200 pages of declarations for PTAB

## TESTIMONY AND EXPERT DOCUMENTS

### Testimony:

- Deposition 10-28-2022, *Hewlett Packard Enterprises v. Intellectual Ventures* (Sterne Kessler Goldstein and Fox)
- Deposition 9-9-2022, *Hewlett Packard Enterprises v. Intellectual Ventures* (Sterne Kessler Goldstein and Fox)
- Deposition 1-16-2020, *Carucel v. Volkswagen* (Sterne Kessler Goldstein and Fox)
- Deposition 8-27-2019, *DSS v. Apple* (Buether Joe & Carpenter)
- Deposition 10-25-2016, *Alarm.com v. Vivint* (Sterne Kessler Goldstein and Fox)
- Deposition 9-7-2016, *Core Wireless v. LG* (Davidson Berquist Jackson Gowdey)
- Deposition 6-23-2015, *Parallel Networks v. IBM* (McKool Smith)
- Deposition 3-22-2014, *Parallel Networks v. Abercrombie, Inc., et al.* (Buether Joe & Carpenter)
- Deposition 10-22-2013, *LBSI v. Choice Hotels, Costco, Target, Wells Fargo, KeyCorp, U.S. Bank, Sally Beauty, Starbucks, and Kroger* (Buether Joe & Carpenter)
- Deposition 10-23-2013, *LBSI v. True Value, Safeway and Chick-fil-A* (Buether Joe & Carpenter)
- Deposition 10-24-2013, *LBSI v. JPMorgan Chase, ConocoPhillips, Hyatt Corporation, and American Express* (Buether Joe & Carpenter)
- Deposition 11-7-2013, *LBSI v. MapQuest and Microsoft* (Buether Joe & Carpenter)
- Deposition 11-8-2013, *LBSI v. American Express, Bed Bath & Beyond, Sunburst, Home Depot, Barnes & Noble* (Buether Joe & Carpenter)
- Deposition 1-15-2013, *ITC Inv. No. 337-TA-850, In the matter of: Certain Electronic Imaging Devices; Flashpoint v. HTC et al.* (H.C. Park & Assoc, PLC)

### Expert Reports:

- Infringement - *DSS v. Apple*; US 6,128,290 (Buether Joe & Carpenter)
- 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)

### Ex Parte Reexamination Declarations:

- US 6,618,736 valid - *Intellectual Ventures (Sterne Kessler Goldstein Fox, PLCC)*

### Inter Partes Review Declarations:

- US 10,049,387 valid - *Hardin and Hill (Winston & Strawn)*

- US 9,779,418 valid - Hardin and Hill (Winston & Strawn)
- US 10,984,447 valid - Hardin and Hill (Winston & Strawn)
- US 8,725,132 valid - Intellectual Ventures (Sterne Kessler Goldstein Fox, PLCC)
- US 6,779,082 valid - Intellectual Ventures (Sterne Kessler Goldstein Fox, PLCC)
- US 7,848,701 invalid - Volkswagen (Sterne Kessler Goldstein Fox, PLCC)
- US 7,979,023 invalid - Volkswagen (Sterne Kessler Goldstein Fox, PLCC)
- US 8,463,177 invalid - Volkswagen (Sterne Kessler Goldstein Fox, PLCC)
- US 8,275,358 invalid - Four Kites (Polsinelli LLP)
- US 9,429,659 invalid - Four Kites (Polsinelli LLP)
- US 8,031,677 valid - Huawei (Fish & Richardson, P.C.)
- US 8,537,779 valid - Huawei (Fish & Richardson, P.C.)
- US 8,638,750 valid - Huawei (Fish & Richardson, P.C.)
- US 6,147,601 valid - Vivint (Sterne Kessler Goldstein Fox, PLCC)
- US 6,535,123 valid - Vivint (Sterne Kessler Goldstein Fox, PLCC)
- US 6,462,654 valid - Vivint (Sterne Kessler Goldstein Fox, PLCC)
- US 8,434,020 valid – Core Wireless (Davidson Berquist Jackson Gowdey, LLP)
- US 8,713,476 valid – Core Wireless (Davidson Berquist Jackson Gowdey, LLP)
- US 5,900,825 invalid – Mercedes (Hogan Lovells, LLP)
- US 7,550,870 invalid (‘974, ‘758) - Avocent/Liebert (Davidson Berquist Jackson Gowdey, LLP)
- US 7,550,870 invalid (‘543, ‘934) - Avocent/Liebert (Davidson Berquist Jackson Gowdey, LLP)
- US 7,672,104 invalid - Avocent/Liebert (Davidson Berquist Jackson Gowdey, LLP)
- US 7,330,817 valid - Employment Law Compliance (Harper Washam, LLP)

#### LITIGATION RELATED EXPERT SERVICES ENGAGEMENTS

- AutoConnect v. Toyota (Reichman Jorgensen Lehman & Feldberg LLP) *Provide client-server software mobile device related analysis, expert report, validity rebuttal, and testimony against US 11,163,931 and 12,039,243 for Toyota*  
**Status: ongoing**
- Weisner v. Google (Fenwick & West LLP) *Provide location-based services and search related analysis, expert report, validity rebuttal, and testimony against US 10,394,905 and 10,642,911 for Google*  
**Status: ongoing**
- DivX v. Alps Alpine (Tyz Law Group PC) *Provide video file and software analysis, expert report, and testimony for DivX in software licensing related litigation*  
**Status: complete**
- Samsung v. Hardin and Hill (Winston & Strawn) *Provide analysis, declaration, review of IPR petition and testimony regarding prior art against US 9,779,418, US 10,049,387 and US 10,984,447 for Hardin and Hill*  
**Status: complete**
- Hewlett Packard Enterprises v. Intellectual Ventures (Sterne Kessler Goldstein Fox, PLCC) *Provide analysis, declaration, review of IPR petition and testimony regarding prior art against US 6,618,736, 8,725,132 and US 6,779,082 for Intellectual Ventures*  
**Status: complete**
- Carucel v. Volkswagen (Sterne Kessler Goldstein Fox, PLCC) *Provide analysis, declaration, review of IPR petition and testimony regarding prior art against US 7,848,701, 7,979,023 and US 8,463,177 for Volkswagen*  
**Status: complete**
- DivX v. Harman (Morrison Foerster) *Provide video file and software analysis, expert report, and testimony for DivX in software licensing related litigation*  
**Status: complete**
- Mednet v. Veeva (Keker, Van Nest & Peters LLP) *Provide software analysis, expert report, and testimony for Veeva in trade secret theft litigation regarding proprietary clinical study software technology*  
**Status: complete**
- ADT v. Vivint (Maschoff Brennan) *Provide device and software analysis, claim construction, non-infringement report and testimony for Vivint in ITC investigation*  
**Status: complete**
- Lithero v. AstroZenica (Robins Kaplan LLP) *Provide analysis, expert report, and testimony for Lithero in trade secret theft litigation regarding proprietary machine learning technology*

- Status: complete**

  - DSS v. Apple (Buether Joe & Carpenter LLP) Provide Bluetooth related analysis, claim construction, Markman tutorial, infringement report and testimony for DSS

**Status: complete**
- Red Sabre Consulting v. Vertical Knowledge (Calfee, Halter & Griswold LLP) Provide analysis, declaration, and testimony regarding source code analysis of 2 separate sources for clone detection regarding breach of contract for Vertical Knowledge

**Status: complete**
- Advanced Voice Recognition Systems v. Nuance (Buether Joe & Carpenter LLP) Provide analysis, declarations, expert reports and testimony regarding AVRS's speech recognition technology and Nuance's infringement of US 7,558,730, US 7,949,534, US 8,131,557, US 8,498,871, and US 9,142,217 for AVRS

**Status: complete**
- West View Research v. BMW (Gazdzinski & Associates, PC) Provide infotainment device and software analysis, claim construction, expert report, and testimony regarding infringement of US 9,299,053 for West View Research

**Status: complete**
- Four Kites v. Macropoint (Polsinelli LLP) Provide analysis, declaration, review of IPR petition and testimony regarding prior art against US 8,275,358 and US 9,429,659 for Four Kites

**Status: complete**
- Advanced Media Networks v. AT&T (Buether Joe & Carpenter LLP) Provide analysis, declarations, review of AT&T's Petition for MSJ, expert reports and testimony regarding validity and AT&T's infringement of US 5,960,074 for Advanced Media Networks

**Status: complete**
- Advanced Media Networks v. Deutsche Telekom, et.al. (Pinsent Masons, Munich) Provide analysis, review of Deutsche Telekom / T-Mobile's Petition for dismissal, expert reports and testimony regarding infringement of WO1998012832A1 for Advanced Media Networks

**Status: complete**
- Nokia v. Huawei (Fish & Richardson, P.C.) Provide analysis, declaration, review of IPR petition and testimony regarding prior art against US 8,031,677 and 8,537,779 for Huawei

**Status: complete**
- T-Mobile v. Huawei (Fish & Richardson, P.C.) Provide analysis, declaration, review of IPR petition and testimony regarding prior art against US 8,638,750 for Huawei

**Status: complete**
- Core Wireless v. LG (Davidson Berquist Jackson Gowdey, LLP) Provide analysis, declaration, review of IPR petition and testimony regarding prior art against US 8,434,020 and US 8,713,476 for Core Wireless

**Status: complete**
- Core Wireless v. Apple (Davidson Berquist Jackson Gowdey, LLP) Provide analysis, declaration, review of IPR petition and testimony regarding prior art against US 8,434,020 and US 8,713,476 for Core Wireless

**Status: complete**
- Refco v. Cantor Fitzgerald (Grant & Eisenhofer P.A.) Provide system and source code analysis, expert report and testimony of online gambling systems and wireless terminals for Refco

**Status: complete**
- Vivint v. Alarm.com (Sterne Kessler Goldstein Fox, PLLC) Provide analysis, declaration, review of IPR petition and testimony regarding prior art against US 6,147,601 and US 6,535,123 for Vivint

**Status: complete**
- Mercedes Benz v. Manitto (Hogan Lovells, LLP) Provide analysis, declaration, review of IPR petition and testimony regarding prior art against US 5,900,825 for Mercedes Benz

**Status: complete**
- Avocent/Liebert (Davidson Berquist Jackson Gowdey, LLP) Provide analysis, declaration, review of IPR petition and testimony regarding prior art against US 7,550,870 for Avocent/Liebert

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

**Status: complete**
- Avocent/Liebert (Davidson Berquist Jackson Gowdey, LLP) Provide analysis, declaration, review of IPR petition and testimony regarding prior art against US 7,672,104 for Avocent/Liebert

**Status: complete**

- 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: complete**
- GPNE v. Fleetmatics (Frommer, Lawrence & Haug, LLP) *Provide GPRS - LTE (3GPP mobile phone) related analysis, claim construction, non-infringement report and testimony for Fleetmatics*  
**Status: complete**
- 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: complete**
- 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*  
**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: complete**
- 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: complete**
- Pragmatus v. Pantech, et al. (H.C. Park & Assoc, PLC) *Provide GPS/Navigation (mobile phone) related analysis, claim construction, non-infringement report and testimony for Pantech*  
**Status: complete**
- 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: complete**
- Honeywell v. Furuno Electric Co., et al. (Bickel & Brewer) *Provide Navigation related software and hardware analysis, invalidity report, non-infringement report and testimony for FLIR Systems and Raymarine*  
**Status: complete**
- 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: complete**
- Beacon Navigation v. Mitsubishi (Quinn Emanuel Urquhart & Sullivan, LLP) *Provide GPS Navigation related C and C++ software and microprocessor hardware analysis, report and testimony for Mitsubishi*  
**Status: complete**
- Beacon Navigation v. Clarion (Quinn Emanuel Urquhart & Sullivan, LLP) *Provide GPS Navigation related C and C++ software and microprocessor hardware analysis, report and testimony for Clarion*  
**Status: complete**
- 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: complete**
- Taylor v. IBM (Buether, Joe & Carpenter LLP) *Provide C++ source code analysis of 1.2M lines of IBM code for Taylor*  
**Status: complete**
- 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: complete**
- 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 forensic computer log analysis and report for HP in product liability litigation related to virtual disk arrays*  
**Status: complete**

- Dish Network *Provide video CODEC and data streaming related patent analysis on Sling Media products prior to company acquisition*  
**Status: complete**
- Tivo v. Echostar Corp *Prior art search on US 6,233,389 for EchoStar*  
**Status: complete**

## TECHNICAL EXPERTISE

### Publications

- The Coefficient of Synonymy, Denning/Kalita 2019

### Intellectual Property

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

### Deep/Machine Learning and Computational Linguistics

- Deep learning/data engineering in Python using Pandas, NumPy, SciKit learn, Keras, and Tensorflow
- Knowledge representation and concept mapping/matching using semantic networks and syntactic analysis in Python using PySpark
- Implementation of Deep Learning supervised and unsupervised Neural Networks in Python using Keras and Tensorflow
- Natural Language Processing (NLP) using BERT, word2vec, GloVe, SpaCy, ClearNLP, WordNet, and Latent Semantic Analysis (LSA)
- Domain specific language models (word2vec, GloVe) created from corpora from various technical fields including econ and medical for automatically determining domain specific word and phrase meanings
- Systems deployed on Azure and Amazon AWS

### Engineering

- User Interface design - embedded graphical and menu interfaces for IOS, Android, GPS, robotic and security applications
- GIS mapping software interface and design including Google Maps, Microsoft MapPoint - Bing Maps, Know-Where Systems, ArcView
- Vector Processor signal processing routines including FFTs, DCTs, and FIR filters for FPGAs, AltiVec, MIPS64, and proprietary ASICs
- Parallel processing communications with MPI and OpenMP
- Software / algorithm development using C, C++, Java, Python, Perl - personally written ~ 2.5 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, 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

## EMPLOYMENT EXPERIENCE

**SNAPLOGIC, INC., San Mateo, CA Remote**

**2024 - Present**

*Team lead for creating LLM based system to migrate IBM DataStage and Informatica PowerCenter ETL workflows to SnapLogic*

### **Research Data Scientist**

- Provided pipeline design, architecture selection, and initial implementation of agentic LLM based metadata translation engine to migrate IBM DataStage and Informatica PowerCenter workflows to SnapLogic Designer, accelerating migration timelines and greatly reducing migration cost. Uses several different LLMs to build 43 specialized agents. Informatica ETL workflow migrations that took weeks are now done in a few minutes.

**DIVERSIFIED SOLUTIONS, INC.** Anderson, SC  
*Large Language Model and machine learning systems architect*  
**Head of Artificial Intelligence**

**2022 – Present**

- Developed **AI powered Hydrogen Aircraft design suite** for H2 aviation startup. Captures airframe and hydrogen propulsion package design and predicts acquisition and direct operating costs. **Uses machine learning and LLMs to create vehicle performance models** and compute mission parameters.

**ONTRAK INC., Santa Monica, CA**

**2018 – 2021**

*A healthcare provider that improves health and reduces the cost of care for people who suffer from the medical consequences of behavioral health conditions*

**VP and Chief Scientist of Deep Learning**

- Led team in developing chronic condition models from database comprised of 4+ billion health plan claims records covering 3.2 million patients for probabilities of demographics, chronic conditions, comorbidities, procedures, specialists, and drugs
- Led team in developing TensorFlow based predictive models for forecasting health risk, ER/inpatient admit probability, motivation to change, and social determinants of health.
- Led team in developing the Opportunity Score metric for providing an intelligent summary of health plan member's chronic conditions, behavioral risk, and other factors and costs to be used in enrollment decisions.
- Developed health plan member & outreach agent, care coach, and physician pairing algorithms based on personas, specialties, demographics, and patient health history
- Developed LifeLine, a web-based graphical display for visualizing patient profiles comprising all chronic condition intensity and costs over time
- Developed Intensity Transform algorithm for determining a member's chronic condition intensity over time from health plan claims data
- Developed NLP based classification system for categorizing 7,800 CPT codes according to major organs and body systems
- Developed NLP based classification system for categorizing 32,000+ ICD9 and ICD10 codes comprising 1650 categories for lifestyle and 10 major organs and body systems
- Recruited team of research scientists and data engineers

**Principal Data Scientist**

- Created data-pipeline for automatically processing health plan eligibility and claims files and transforming health plan member data into the Ontrak standard format. This process was formerly done manually by a team of 5 employees and required up to 2 weeks after receipt of health plan files. The data-pipeline process completes in less than 20 minutes and is fully automated.
- Developed artificial neural network based data mapper for automatically mapping incoming health plan data fields to Ontrak standard data fields
- Defined Ontrak standard health plan data format for eligibility, medical and pharmacy data

**APPLIED SCIENCES CORP,** Colorado Springs, CO

**2010 - 2019**

*Intellectual property consulting and brokerage services for numerous high-tech industry segments. Assertion target and prior art identification, reverse engineering, and expert witness services.*

**Principal**

- Numerous litigation-related expert engagements, *see Litigation Related Expert Services Engagements 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 BERT based analysis engine for creating concept maps of patent text allowing patents on similar technologies to be identified automatically
- Developed NLP based patent classification system utilizing proprietary deep learning for categorizing patents by primary technology, system included 215 technologies central to client company's products
- Developed multiuser web-based patent portfolio management system and patent acquisition database
- Designed custom intellectual property data mining and analytics systems for Apple and Teradata Corp
- Numerous (52) litigation related expert engagements

**ALLIED SECURITY TRUST,** Colorado Springs, CO

**2008 – 2010**

*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. 28 member companies including Apple, Google, Samsung, Oracle, HP,*

*Intel, IBM, Cisco, RIM, ARM, Sony, Motorola, Ericsson, Philips, Verizon, Comcast, Time Warner, SAP, Avaya, Philips and Kodak*

**Chief Technology Officer**

- Directly supported the acquisition of over \$45M in patent assets for members 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's products
- Built close working relationships with the Chief Counsel and senior IP staff of all member companies
- Developed LSA based analysis engine for textually analyzing patent specifications and claims using a Google-compatible document database index system for quickly identifying infringing products and prior art. This system was integrated into Google Patents!
- Developed NLP data mining tools for analyzing and identifying key technologies from patent text
- Built relationships with over 250 brokers and other patent sellers ensuring that most of all patents for sale were offered to AST
- Architect for web-based mission-critical patent asset tracking database, designed elastic search and patent analysis functions
- 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 team of 15 subject matter experts to assist in patent analysis

**PURPLE MOUNTAIN, LLC, Colorado Springs, CO**

**2007 – 2008**

*Intellectual property consulting service providing patent usage evaluation, portfolio management and reverse engineering services*

**Founder and Chief Scientist**

- Identified prior art on Tivo's Time Warp patent for Dish Networks resulting in claims 31 and 61 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, Teradata, Avaya, Qualcomm, and Haliburton
- Performed reverse engineering and/or claim chart construction in support of licensing and litigation for Baker Botts and Greenberg Traurig

**PURPLE MOUNTAIN LABS, Colorado Springs, CO**

**2005 – 2007**

*Supercomputing and high-speed communications research and development company*

**Founder and Chief Architect**

- Raised \$400k startup and \$600k second round private funding
- Led product development for compact massively parallel multi-core supercomputing architecture for Lockheed Martin for deployment on military radar, ballistic missile defense, and reconnaissance aircraft 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 tested SUSE Linux 2.6 kernel for quad-core MIPS64
- Ported VISPL math library to Linux 2.6 for MIPS64 SIMD vector processor
- Ported MPI communications library to Linux 2.6 for MIPS64
- Ported Mellanox InfiniBand HCA Linux 2.6 device driver to MIPS64
- Wrote highly optimized signal processing library including FFTs, DCTs, and FIR filters utilizing MIPS64 SIMD instructions
- Delivered functional and benchmarked super-computing prototype described above to Lockheed Martin in 18 months from startup

**TAEUS INTERNATIONAL, Colorado Springs, CO**

**2004 – 2005**

*Provider of intellectual property evaluation and reverse engineering services with over 20,000 patent evaluations and a network of over 700 subject matter experts*

**Regional Director of Business Development**

- Closed \$600k in IP licensing related projects in first three months
- 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.

**Program Manager**

- Responsible for managing reverse engineering (RE) projects and recruiting subject matter experts (SME).
- Managed team of SMEs 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 SMEs 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

**Subject Matter Expert – projects > \$1M**

- Performed RE and prepared claim charts on competing Java processor 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

**DRS TECHNOLOGIES / CATALINA RESEARCH, Colorado Springs, CO**

**2001 – 2004**

*Fortune 500 defense technology provider that primarily serves tier 1 defense contractors. Competes with Mercury Computer Systems, Curtiss Wright and GE Fanuc.*

**Systems Architect/Sr Software Engineer**

- Developed VxWorks signal processing library for PowerPC AltiVec vector processor, including FFTs, DCTs, and numerous FIR filters
- Conceived of and designed hardware and software architecture for PowerPC and Broadcom switched fabric-based 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.
- Developed software and built prototype VxWorks/VME Cheetah based signal processor of submarine direction finder project for Southwest Research Institute
- Developed software and built prototype VxWorks/VME Cheetah based signal processor for active RADAR project for Harris Corp Predator UAV
- Developed software and built prototype VxWorks/VME Cheetah based signal processor of satellite communication system measuring bandwidth and utilization for ITT IMPCS program
- Developed VxWorks signal processing butterfly algorithm library for company's Cheetah family of high-speed vector processors, included FFTs, DCTs, and numerous FIR filters
- 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.

**NAVSYS, Colorado Springs, CO**

**1999 – 2001**

*Global Positioning System research and development company.*

**Principal Engineer**

- Identified competitor's systems infringing Navsys patents US 6,727,846, 5,379,224, 5,225,842
- Prepared claim charts, systems diagrams, and other technical information for lawsuits against Qualcomm, Garmin and Magellan
- Designed and built vehicle tracking prototype system based on Philips GPS module, Compaq iPaq, and satellite communications to dispatch center with Microsoft MapPoint for Coca Cola; wrote device software, and developed communications protocols
- Designed and built prototype SpotterSensor, a Naval munitions targeting system using proprietary GPS receiver, Leica laser range finder binoculars, and Teledyne fiber optic gyroscope to determine precise location coordinates of objects viewed in binoculars; wrote device software, developed Kalman filters, and communications protocols
- Developed and built prototype vehicle tracking systems based on Garmin GPS chipset and Novatel AMPS cellular modem along with tracking/mapping console - used ArcView GIS later converted to MS MapPoint; wrote software, developed cellular modem firmware, and communications protocols

- Led design and development on the Personal Guardian handheld emergency locator used company proprietary GPS TIDGET and Novatel CDPD modem module; wrote software, developed Kalman filters, communications protocols, and modem firmware
- Filed 4 patent apps regarding MEMS based GPS signal sensor

**VIDEO DESIGN, Marietta, GA**

**1994 – 1999**

*Contract electronic design firm specializing in digital video streaming and recording equipment and robotic controls.*

**Founder & President**

- Designed and built Windows PC based CCIR-601 closed circuit television monitoring and recording system, 10 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.

**INTERFACE SOLUTIONS, Marietta, GA**

**1988 – 1994**

*Contract electronic design firm specialized in microcontroller-based products.*

**Hardware Engineer**

- Designed mainframe inkjet 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.

**EDUCATION:**

Ph.D. (ABD), Machine Learning and Natural Language Processing, University of Colorado, Colorado Springs, CO  
 1993 Bachelor of Science in Computer Science - Southern College of Technology, Marietta, GA