

T. Kim Parnell, PhD, PE

1150 Kelsey Drive
Sunnyvale, CA 94087

parnell-eng.com

(408) 203-9443 (Cell)

kim.parnell@stanfordalumni.org

Expertise Highlights

- Medical device/biotechnology – Cardiovascular, Orthopedic, Orthodontic
- Patents & Intellectual Property
- Product Liability; Personal Injury
- Consumer Electronics; Consumer Products
- Plastics, Molding, & Manufacturing
- Composite Materials Design & Damage
- Materials & Metallurgy
- Failure Analysis & Reliability
- Fracture & Fatigue
- System Specifications & Test Procedures
- Telephone set design; keypads
- Finite Element Analysis of Structures and Fluid/Heat Transfer (FEA/CFD)
- User experience & system interaction
- User interface design
- Transducers, Accelerometers, MEMs
- Software design, development, QA
- Shock & Vibration Sensitivity
- Green energy: Wind energy, Solar, Electric Vehicles, Battery technology, Trackers
- Structural Mechanics, Fluid Mechanics, Heat Transfer, & Thermodynamics
- Piezoelectric components
- Vehicle & Heavy-Truck Crashworthiness
- ATV & Vehicle Design, Crashworthiness
- Group Manager & Project Leader; Strategic & Budgetary Planning responsibility

Education

Year	University	Degree Awarded
1984	Stanford University	Ph.D., Mechanical Engineering
1979	Stanford University	MSME, Mechanical Engineering
1978	Georgia Tech	BES, Engineering Science & Mechanics (Highest Honors)
2004	San Jose State University	Silicon Valley Executive Business Program (SVEBP)

Ph.D. Thesis: “Numerical Improvement of Asymptotic Solutions and Nonlinear Shell Analysis”, June, 1984.

Professional Associations and Achievements

- Registered Mechanical Engineer (PE, M025550) in the State of California
- ASME Fellow; American Society of Mechanical Engineers (ASME)
- IEEE Senior Member; Institute of Electrical and Electronics Engineers (IEEE)
- Member, Society of Automotive Engineers (SAE)
- ASM International Member; SMST (Shape Memory and Superelastic Technologies) Member; EDFAS (Electronic Device Failure Analysis Society) Member
- IEEE Santa Clara Valley (IEEE-SCV) Section; Chair-2011, Vice Chair-2010
- IEEE Consultants’ Network of Silicon Valley (IEEE-CNSV), Board Member; Chair: 2008-2009
- NAFEMS – Composite Materials Working Group (CWG), Vice-Chair
- IEEE Vehicular Technology Society (IEEE-VTS); Vice-Chair, 2012-present.
- IEEE Consumer Electronics Society, IEEE Computer Society, IEEE Engineering in Medicine & Biology (IEEE-EMBS), IEEE Components, Packaging, and Manufacturing (IEEE-CPMT)
- Reviewer, *Journal of Composite Materials*
- Chinese American Semiconductor Professional Association (CASPA)
- NanoBioConvergence (NBC), Board of Directors
- CSIX Connect (CSIX), Board of Directors
- Medical Device Network (MDN), Stanford University
- The Bio2Device Group (B2DG)

Employment History

- From: 2000
To: Present
Position: **Parnell Engineering & Consulting (PEC)**
Sunnyvale, CA; Web: parnell-eng.com
Principal & Founder
Provides independent engineering consulting & expert witness services for high-technology applications including:
- Medical device/biotech product development & concept design
 - Medical device cardiovascular applications across wide product range
 - Medical device orthopedic, spinal, prosthetic devices
 - VC technical due-diligence for prospective medical device investment
 - Patent & intellectual property – litigation, IPR, research, due diligence
 - Expert Witness & Litigation Support services – multiple technologies
 - Nitinol, shape-memory applications; biomaterials applications
 - Portable devices, keypads: robust design, reliability & durability
 - Manufacturing technology; materials applications (metals, polymers)
 - Reliability and failure analysis services; accelerated testing
 - Research in application & damage of composite materials
 - Teaching intensive workshops & training seminars on simulation, design, and reliability for practicing engineers
 - Lecturer in Prof. Steve Tsai's *Stanford Composites Design Workshop*
 - Composite materials design & applications
 - Wind Energy, Solar Energy, Alternative Energy – technology
 - Electric vehicles, battery systems: design & development
 - Heavy-Truck Rollover, Vehicle & ATV Crashworthiness; Barriers
 - Software design, development, user experience, QA, testing
 - Application of CAE, FEA, and High-Performance Computing (HPC)
- From: 2010
To: 2012
Position: **Santa Clara University**
Santa Clara, CA
Faculty, Mechanical Engineering Department
Taught courses covering a range of topics including Materials Science, Manufacturing Methods, Composite Materials, Finite Element Methods, Mechanism Dynamics, Computer Graphics, & Design. Advised students on Design, Safety, and Simulation for Student Projects including SAE Formula-Hybrid Vehicles. Research in Composite Materials and High-Performance Computing. Interaction with Industry Advisory Board (IAB) & ABET Certification. Teamed with other faculty for strategic initiatives and equipment/tool grants for research. Promote IEEE, ASME, cross-disciplinary initiatives & social media avenues for student networking, professional development & project support.
- From: 2006
To: 2010
Position: **MSC Software Corporation**
Sunnyvale, CA
Senior Manager, User Experience; Lead Application Engineer
Integrated feedback from customers into user interface design & specifications; Beta testing of prototypes with users; CAE software Product Management role for user interface and analysis tools including:
- Product quality, testing, and improvement; drove customer satisfaction

- Application of advanced analysis technology in design & manufacturing
- Led corporate Wind Energy initiative & revival of Fatigue product
- Composite materials – acknowledged corporate & customer expert
- Customer training courses, workshops, webinars; developed & taught
- Software design, development, QA, testing of commercial apps
- Mentoring and development of junior staff; interviewed & hired staff for India; developed and trained staff using distance learning

Applied finite element technology to applications including automotive, medical device, and electronics. Created customer satisfaction via:

- Customer support & analysis process development
- Material testing & data reduction for development of properties

From: 1999
To: 2000
Position:

Rubicor Medical, Inc.

Redwood City, CA

Director of R&D

Led the R&D team for this start-up medical device company developing breast diagnostic and therapeutic devices. Designed device considering interaction of Physician with Device and human factors. System included a mechanical subsystem and RF generator/control electronics. Developed initial prototypes and conceptual designs; researched IP and competing technologies.

From: 1986
To: 1999
Position:

Exponent, Inc. and Failure Analysis Associates (FaAA)

Menlo Park, CA

Senior Managing Engineer

Delivered consulting services for failure analysis, accident investigation, product liability, patent/IP, insurance-related litigation, medical device and biotechnology product development, FDA submission, and forensic/failure investigation. Performed analyses involving stress, thermal, & fluid applications; testing of material properties and use of laboratory techniques such as SEM & Optical Microscopy for inspection of material samples. Led the SAE Heavy Truck Crashworthiness, Phase II project with testing & simulation of heavy-truck cabs in rollovers. Managed the Engineering Analysis Group and had profit/loss responsibility for the Engineering Computer Center. Maintained high personal utilization/billable hours and had increasing personal/group profitability with consulting services revenue generation >\$600K.

From: 1995
To: 1996
Position:

Stanford University

Stanford, CA

Visiting Associate Professor, Mechanical Engineering Department

Taught graduate courses in Theory of Plates and Theory of Shells in the Applied Mechanics Division (now Mechanics & Computation) of Mechanical Engineering. Part-time appointment while full-time staff-member at Exponent.

From: 1984 **SST Systems, Inc.**
To: 1986 Sunnyvale, CA
Position: *Principal Engineer in Pressure Vessels, Piping & Structures Division*
Managed software development, facilitated university collaboration, developed product specifications and enhancements based on customer feedback, supported and trained over 30 new customers, and created standardized product documentation. Provided sales and technical marketing support to CEO during product launch; formulated go-to-market campaign.

From: 1980 **Stanford University**
To: 1984 Stanford, CA
Position: *Research Assistant, Mechanical Engineering Department*
Established the theoretical basis and developed computational tools for nonlinear shell mechanics. Emphasized computational mechanics and engineering applications, including linear & nonlinear finite element methods and other numerical analysis techniques.

From: 1978 **AT&T Bell Laboratories**
To: 1980 Indianapolis, IN
Position: *Member of Technical Staff (MTS), Physical Design Group*
Design, development, and manufacturing of high-volume telecommunication components. Researched and designed dials, keypads, electromechanical systems, and piezoelectric polymer applications. Employed range of materials including elastomers, metals, polymers, and piezoelectrics for keypad and transducer applications. Emphasis on cost, reliability, and manufacturing simplicity. Developed new technologies to ultimately drive field improvements. Applied finite element simulation to improve designs and reduce prototypes.

From: 1976 **General Motors Corporation**
To: 1977 Atlanta, GA
Position: *Engineering Assistant, Plant Engineering Department*
Production line design and manufacturing applications for the GM Lakewood assembly plant. Supervised demolition and production line installation during changeover. Installed automated spotweld robot for sheet metal panels. Studied automotive manufacturing & assembly operations from start to finish.

Selected Grants & Research Programs

SA Photonics, Inc.

- 2013 – Phase I Navy SBIR – Post-IED Hull Inspection Tool, Topic N123-156

Stanford University

- 2012 – Phase II Army SBIR – Development and Implementation of Micro-Mechanics of Failure (MMF) Model for Composites in Commercial Finite Element Codes

Santa Clara University

- 2012 – Kuehler Summer Undergraduate Research Grant – student support for composite materials testing & characterization
- 2011 – Technology Innovation Grant – Acquisition of advanced DSC/TGA System for improved lab capability

- 2011 – Technology Innovation Grant – Acquisition of High-Performance Workstation for advanced simulation of large dynamic and nonlinear systems
- 2011 – Technology Innovation Grant – Materials Laboratory equipment upgrades and reorganization

Selected Presentations

- “SMA Seismic Damping Devices: Fabrication, Testing, Analysis, and Projections”, SMST-2014, Monterey, CA, May, 2014.
- “Mechanical Design for Reliability: What does it Mean?”, ASME Santa Clara Valley Section, Sunnyvale, CA, Mar, 2014.
- “Prosthetic Feet using Carbon Fiber Composites: Design, Simulation, & Testing”, ASME Santa Clara Valley Section, Jun, 2013.
- “Mechanical Design for Reliability: Beating the Tough Problems”, IEEE-SCV Reliability Society, Santa Clara, CA, Jun, 2013.
- “Prosthetic Feet using Carbon Fiber Composites: Design, Simulation, & Testing”, MSC Software 50th User Conference, Irvine, CA, May, 2013.
- “Composite Materials: Improved Understanding of Composite Failure Mechanisms with DIC Testing & Analysis”, Trillion User Conference, Philadelphia, PA, Sep, 2012.
- “Medical Device Failures – ‘Not so Good, Very Bad, and Truly Ugly’!!”, ASM (Materials Information Society) Santa Clara Valley Chapter, May, 2012.
- “C-Ply Bi-Angle NCF Tape Seam Assessment & Design Considerations for Automated Tape Laying”, Composites Design Forum, JEC Composites Conference, Paris, Mar, 2012.
- “Failure of Structures Designed with Composite Material – Delamination”, *Meet the Experts’ Forum on Composite Materials*, Joint with Prof. Steve Tsai, SMP Tech, Feb 28, 2012.
- “Shape Memory Alloy Fundamentals & Advanced Simulation Techniques for Medical Products”, *Meet the Experts’ Forum on Nitinol Properties and Unique Behavior for Medical Product Design*, SMP Tech, Sep 14, 2011.
- “Stiffness and Strength of Laminates Fabricated with Bi-Directional Tape”, ICCM-18 (International Conference on Composite Materials, Korea, Aug, 2011, (with Daniel D. Melo & Christine Tower))
- “Composite Materials – Damage & Delamination”, Santa Clara University, Mechanical Engineering Seminar, Feb, 2011
- “Composites Damage, Delamination, Failure & Curing” and “Workshop on Mic-Mac/FEA” with Prof. Steve Tsai, Stanford Composites Design Workshop, 2010-2012
- “Composite Damage, Delamination, and Failure” and “Workshop on Mic-Mac/FEA” with Steve Tsai, Stanford Composites Design Workshop, Jan, 2010
- “Composite Failure Methods – Application Comparisons”, Composites Durability Workshop-14 (CDW-14), UCLA, Jul, 2009
- “Composites Damage, Delamination, and Failure Analysis”, Stanford Composites Workshop, May 2009
- “Finite Element Analysis using a Thermomechanical Shape Memory Alloy Model”, SMST-2006, Monterey, CA, 2006.
- “Medical Device Issues & Trends”, in “Biomedical Wave: Opportunities for Non-Biologists”, MedTech Bridge Seminar Series, 2005.
- “Medical Device Development and Entrepreneurship”, IEEE Consultants’ Network of Silicon Valley (IEEE-CNSV), www.CaliforniaConsultants.org, 2004.

- “CFD Fundamentals and Applications in Biotechnology”, ASME Professional Development Seminar, 2003 & 2004.
- “Medical Device Business Opportunities in China”, multiple presentations to key government and industry representatives, CASPA Delegation, Oct, 2003.
- “Using Simulation with Testing for Maximum Benefit”, WESCON 2003, Low Cost Tools: Alternatives for Problem Solving in Development, Design and Application, San Francisco, CA, Aug, 2003.
- “Fracture Mechanics: Overview and Applications”, Aeronautics & Astronautics Department, Stanford University, May, 1999.
- “Integrated Fluid/Thermal/Structural Analysis of a Turbine Blade”, American Society of Mechanical Engineers Bay Area Technical Conference, May, 1995.
- “Failure Analysis Projects”, Mechanical Engineering Department, Stanford University, May, 1992.
- “Finite Element Applications in Failure Analysis”, Mechanical Engineering Department, Stanford University, Mar, 1991.
- “Soil-Pipeline Interaction Associated with a Process-Plant Explosion”, Seminar in Solid Mechanics, Stanford University, Nov, 1989.
- “*Typical Failures: Causes and Consequences*”, Construction Engineering and Management Program, Civil Engineering Department, Stanford University, 1989.
- “Shell Analysis Using Personal Computers”, Solid Mechanics Seminar, Stanford University, 1985.

Selected Publications

- “Numerical Simulation of Seismic Response Control of Frame Structure Using High-Temperature Shape Memory Alloy Wire”; In proceedings of: International Conference on Earthquake Engineering (SE-50EEE), At MAEE, Skopje, Macedonia, May 2013, (with Md. Golam Rashed and Raquib Ahsan).
- “Equivalent Properties for Finite Element Analysis in Composite Design”, JEC Composites Magazine, No.68 (Bi-Angle NCF Special Issue), Oct, 2011, (with Stephen W. Tsai)
- “Stiffness and Strength of Laminates Fabricated with Bi-Directional Tape”, ICCM-18, Aug, 2011, (with Daniel D. Melo & Christine Tower)
- "How Reliable Is Your Product: 50 Ways to Improve Product Reliability"*, Mike Silverman, 2011 (2-Book Chapters contributed by T.Kim Parnell).
- “Heavy Truck Roll Cage Effectiveness”, IMECE2009-12423, Proceedings of IMECE: ASME-Mechanical Engineering Congress and Exposition, Nov, 2009, (with Stephen Batzer, Bruce Enz, Grant Herndon, Chandrashekar Thorbole, Robert Hooker, and Mariusz Ziejewski).
- “Composite Failure Methods – Application Comparisons”, Proceedings of Composites Durability Workshop-14 (CDW-14), UCLA, Jul, 2009
- “Thermoelastic Shape Memory Modeling of Medical Devices with FEA”, SMST-2006, The International Conference on Shape Memory and Superelastic Technologies, ASM International, May, 2006, (with Sanjay Choudhry and Jesse Lim).
- “Finite Element and Fatigue Analysis of CardioVasc Stent Graft”, CardioVasc, Inc., 2004.
- “Analysis of Rail Cracking and Development of a Rail Screening Guideline Based on Fracture Mechanics Principles”, Fatigue & Durability Assessment of Materials, Components & Structures, Proceedings of the Fifth International Conference of the Engineering Integrity Society, Queen's College, Cambridge, UK, Apr 7-9, 2003.
- “Finite Element and Fatigue Analysis of CP Stent Expansion”, NuMed, Inc., 2003.

- “Evaluation of a Failure in a Chlorine Production Facility”, Proceedings of IMECE 2001, ASME International Mechanical Engineering Congress and Exposition, Nov, 2001, New York, NY (with S. Andrew, R. Caligiuri, and L. Eiselstein).
- “Physical Testing for Good Analysis: Experimental Validation for Quality Finite Element Analysis of Medical Devices”, feature article for *ANSYS Solutions*, Fall 2000 (Machine Design Custom Media, Penton Media, Inc.).
- “Finite Element Simulation of 180° Rollover for Heavy Truck Vehicles”, ASCE Engineering Mechanics Conference, Baltimore, MD, Jun, 1999 (with Christopher V. White and Shari E. Day).
- “Finite Element Analysis of the S670 Cardiovascular Stent”, Arterial Vascular Engineering, Inc., 1999.
- “Finite Element Analysis of the S660 Cardiovascular Stent”, Arterial Vascular Engineering, Inc., 1999.
- “Finite Element Analysis of the Six Crown Extra Support Renal Stent – Minimum Dimensions”, Arterial Vascular Engineering, Inc., 1998.
- “Finite Element Analysis of the SVG Stent”, Arterial Vascular Engineering, Inc., 1998.
- “Finite Element Analysis of the GFX-II Cardiovascular Stent”, Arterial Vascular Engineering, Inc., 1998.
- “Analysis of Drill Pipe Joint Failures and Recommendations For Service”, Failure Analysis Associates, Inc. Report, Nov, 1997 (with R.D. Caligiuri, L.E. Eiselstein, M. Wu, R. Huet).
- “Finite Element Analysis of the GFX Cardiovascular Stent”, Arterial Vascular Engineering, Inc., 1997.
- “Stress Analysis: AVE MicroStent-II Cardiovascular Stent”, Arterial Vascular Engineering, Inc., 1997.
- “SAE Report CRP-12 Heavy Truck Crashworthiness – Phase II (180° Dynamic Rollover, Static Roof Crush Simulation)”, SAE Headquarters, 1997.
- “Heavy Truck 180° Dynamic Rollover and Static Roof Crush Simulation”, Failure Analysis Associates, Inc. Report, Apr, 1996 (with C. White, S. Day, T. Khatua, and L. Cheng).
- “Fracture Toughness by Small Punch Testing”, *Journal of Testing and Evaluation*, Vol. 23(1), pp. 3-10, Jan, 1995 (with J. R. Foulds, P. J. Woytowicz and C. W. Jewett).
- “Safety Analysis of Custom Designed Manufacturing Equipment”, Proceedings, American Society of Mechanical Engineers Winter Annual Meeting, Safety Engineering and Risk Analysis, New Orleans, Louisiana, Nov, 1993, Vol. 1, pp. 111 (with G. L. Rao and R. D. Caligiuri).
- “American Azide Corporation Reactor and Dryer Safety Studies”, Failure Analysis Associates, Inc. Report, Jan, 1993 (with G. L. Rao, V. B. Rao, and R. D. Caligiuri).
- “Combustion Tests on and Chemical Analysis of Therminol 66 Heat Transfer Fluid Used at American Azide”, Failure Analysis Associates, Inc. Report, 1993 (with A. Reza and R. D. Caligiuri).
- “Gas Release from Leaky Natural Gas Pipeline: The PEPCON Explosion in Henderson, Nevada”, Failure Analysis Associates, Inc. Report, 1992 (with A. Reza, M. El-Fadel and R. D. Caligiuri).
- “Computational Modeling of Dynamic Failure in Armor/Anti-Armor Materials”, Failure Analysis Associates, Inc. Final Report to U.S. Army Research Office, Contract DAA-L03-88-C-0029, May, 1992.
- “Analysis of Cracking in the Windsor Recovery Boiler Superheater”, Failure Analysis Associates, Inc. Report to Domtar, Inc., Apr, 1992 (with R. D. Caligiuri, C. H. Lange and S. P. Andrew).
- “Analysis of the Dynamic Response of a Buried Pipeline due to a Surface Explosion”, *Computational Aspects of Impact and Penetration*, L.E. Schwer and R.F. Kulak, eds., Elme Press International, 1991 (with R. D. Caligiuri).
- “Failure Analysis of Aerzen Screw Compressor Male Thrust Bearings”, Failure Analysis Associates, Inc. Report to AECI Chlor-Alkali & Plastics, Ltd., Sep, 1991 (with C. C. Schoof).

- “Gas Flow and Heat Transfer in a Pipe Tee Joint”, Failure Analysis Associates, Inc. Report to Chevron Corporation, Nov, 1990 (with R. D. Caligiuri and A. Reza).
- “Development of Dynamic Failure Criteria for Ceramic Armor Materials”, Failure Criteria and Analysis in Dynamic Response Symposium, ASME Winter Annual Meeting, Nov, 1990, H.E. Lindberg, ed.
- “DYNA3D Analysis of the Dynamic Response of a Buried Pipeline due to a Surface Explosion”, DYNA3D User Group Conference, Bournemouth, Dorset, United Kingdom, Sep, 1990.
- “Con Edison Hellgate Facilities Gas Main Rupture”, Failure Analysis Associates, Inc. Report to Consolidated Edison Company of New York, Inc., Feb, 1990.
- “Stress and Fracture Mechanics Analysis of Weld Cracking in a Rotary Ball Mill”, American Society of Mechanical Engineers Winter Annual Meeting, Paper 89-WA/DE-17, San Francisco, California, Dec, 1989 (with C. A. Rau, Jr., H. F. Wachob and E. L. Kennedy).
- “Analysis of the Plunger-to-Plunger Rod Joint in an Automotive Fuel Injector”, Failure Analysis Associates, Inc. Report to Hitachi, Ltd., Oct, 1988 (with P. R. Johnston and B. Ross).
- “Analysis of the Circumferential Seam Weld Cracking of Raw Grinding Mills”, Failure Analysis Associates Report to Kaiser Cement Corporation, Nov, 1986 (with C.A. Rau, Jr., H.F. Wachob).
- “Local Flexibility and Stresses in Cylindrical and Spherical Shells Due to External Loadings on Nozzles and Lug Attachments”, A.F.I.A.P. Conference, Paris, France, Oct, 1986.
- “Analysis of Piping Systems with Local Nozzle Flexibility Using Personal Computers”, American Society of Mechanical Engineers Pressure Vessel and Piping Conference, New Orleans, LA, 1985.
- “Numerical Improvement of Asymptotic Solutions and Nonlinear Shell Analysis”, Ph.D. dissertation, Stanford University, Jun, 1984.
- “Numerical Improvement of Asymptotic Solutions for Shells of Revolution with Application to Toroidal Shell Segments”, *Computers & Structures*, Vol. 16, No. 1-4, 1982.

Consulting Projects - Selected

- Client: Silver Spring Networks, Inc.; Ops A La Carte LLC
- Project: Mechanical Accelerated Life Testing and Reliability Assessment of Commercial IoT Network-Connected Natural Gas Metering Equipment; Failure Analysis support; plastic component design, accelerated life testing;

- Client: F-Prime Capital Partners (former Fidelity Biosciences)
- Project: Technical Due-Diligence review of prospective stealth-mode medical device investment

- Client: SI-Bone, Inc.
- Project: Design review of iFuse sacroiliac (SI) joint fixation devices; Competitive comparison

- Client: TexasLDPC, Inc.
- Project: Business Advisor; Flash Memory Technology development for error-correction; LDPC – Low-Density Parity Check; start-up

- Client: Cerevatech Medical, Inc.
- Project: Business Advisor; Medical Device developer of innovative Nitinol neurovascular stent and flow diverter devices, start-up

Client: Promed Medical Inc.
Project: Evaluation of deployment failure associated with Nitinol scaffold and bioabsorbable PLGA cover material. Test protocols; assessment of data and development of strategy to increase device reliability.

Client: Topera Inc.
Project: Evaluation of Nitinol device failure in test and clinical setting used for 3D mapping associated with treatment of arrhythmia. Comparison of current design with proposed redesign.

Client: LC Therapeutics
Project: Assessment of Nitinol coronary device.

Client: CrossRoads Extremity Systems
Project: Design evaluation of Nitinol orthopedic devices for bone fixation with focus on foot & ankle devices including staples and plates; Report for 510K submission to FDA

Client: Bridgelux, Inc
Project: Design evaluation of LED Outdoor Lighting Module (OLM) for assembly and service conditions; assessment of polymeric, injection-molded components including FRP (fiber-reinforced plastic)

Client: Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.
Project: MEMs Patent Portfolio review and assessment

Client: Design Standards Corporation (DSC)
Project: Design analysis & report for injection-molded surgical ligation clip;

Client: Sirius Engineering LLC
Project: Nitinol Vena-Cava Filter; Implantable cardiovascular medical device

Client: Nitinol Technology, Inc.
Project: Design and assessment of large-scale nitinol components for seismic damping in civil structures (buildings, bridges, roadways); analysis & testing collaboration

Client: Varian Medical, Inc.
Project: Medical radiation oncology capital equipment; shipping hazard assessment

Client: Atsina Surgical LLC
Project: Injection molded surgical ligation clip; material testing; product design, development, and optimization

Client: Home Dialysis Plus
Project: Development of reliability & accelerated testing protocols for innovative dialysis system including mechanical, electronic, & software components

Client: Freedom Innovations, LLC
Project: Carbon Fiber Prosthetic Foot – failure analysis, simulation

Client: Ops A La Carte LLC
Project: Mechanical Design for Reliability classes; failure analysis; simulation of mechanical & thermal performance; accelerated testing and root-cause analysis; solar tracker design, failure analysis, full system loss due to wind;

Client: OLT Solar
Project: Product improvement under high-temperature exposure

Client: VX Aerospace
Project: Composite material product design and validation

Client: Fidelity Biosciences
Project: Medical device due-diligence and technology evaluation pre-investment

Client: DJS Associates
Project: Automated food packaging equipment - failure analysis and assessment of root cause issues

Client: Tribal Engineering, LLC
Project: Various simulation and customer training projects

Client: Gerson Lehrman Group
Project: MEMs Sensors; Various other projects

Client: Ops A La Carte LLC
Project: Various Reliability Consulting projects; Mechanical Design for Reliability Training

Client: Revascular Therapeutics, Inc (acquired by Boston Scientific)
Project: Implantable medical device for treatment of calcified lesions

Client: City and County of San Francisco
Project: Glass failure; Trial prep

Client: Sagalio LLC
Project: Retractable screen for portable cellular devices

Client: New Energy Technologies, Inc
Project: Alternative Energy concept assessment & review

Client: Square One Medical
Project: Implantable medical device design, development, simulation

Client: Kyphon
Project: Device improvement for spinal interventional device

Client: ProMed, Inc
Project: Implantable medical device for spinal application

Client: Nuvation
Project: Instrumentation assessment

Client: Ovalis, Inc
Project: Nitinol PFO Closure Device development and design improvements

Client: Gateway Medical
Project: Vascular Closure Device

Client: Ensure Medical
Project: Vascular Closure Device

Client: Abbott Laboratories
Project: Continued development and cost reduction aspects for StarClose device.

Client: Integrated Vascular Solutions (IVS) (acquired by Abbot Labs)
Project: Design & development of StarClose nitinol closure device for arterial closure following interventional procedures. 2005 MDM Excellence Award

Client: Prolifix Medical
Project: Nitinol device to excise plaque buildup from arteries

Client: Coapt Systems
Project: Bioabsorbable devices for surgical and cosmetic procedures

Litigation Support Experience

Litigation Cases; Depositions & Expert Reports as Shown:

2018 to Present Client: Davidson, Davidson & Kappel LLC
Case: ArcelorMittal Project
Project: Patent IPR
Status: IPR Declaration, Mar 2018; Ongoing

2018 to Present Client: Ropes & Gray LLP
Case: *CPI Card Group, Inc. v. Multi-Packaging Solutions, Inc* , United States District Court for the District of Colorado
Project: Patent associated with secure packaging of transaction/gift cards; Testing
Status: Ongoing

2017 to 2018 Client: Rimom Law
Case: *Imogene D. Johns v. Invacare Corporation*, Tulare County Superior Court Case No. 270201
Project: Alleged medical equipment product defect
Status: Settled

2017 to Present Client: The Scranton Law Firm
Case: *Cesar Lopez & Moses Sepulveda v. DOES-1*
Project: Alleged design defect in ATV Rollover Protection System (RoPS); Design and Failure Analysis
Status: Ongoing

2017 to Present Client: Troutman Sanders LLP; Vinson & Elkins
Case: *Blackbird Tech LLC d/b/a Blackbird Technologie v. Lenovo (United States) Inc.*; C.A. No. 16-cv-140-RGA, United States District Court for the District of Delaware
Project: Patent infringement allegations around laptop computer screen display technology
Status: Declaration May 2018; Deposition Feb 2018; Reply Report Dec 2017; Non-Infringement Report Nov 2017; Invalidity Report Sep 2017; Ongoing

2017 Client: White & Case LLP
Case: *Maquet Cardiovascular LLC v. Abiomed Europe GmbH and Abiomed R&D, Inc.*; C.A. No. 1:16-CV-10914, United States District Court for the District of Massachusetts
Project: Multiple Patent & Technology dispute associated with Implantable Circulatory Support System Pumps
Status: Ongoing

2017 to Present Client: Baker & Hostetler, LLP
Case: *SCA Hygiene Products AB et.al., SCA Tissue North America, LLC v. Tarzana Enterprises, LLC*; United States District Court, Western District of Wisconsin, No. 3:16-cv-00728
Project: Patent infringement claims associated with paper goods manufacturing, stacking, folding, and packaging methods and equipment
Status: IPR Response Declarations, May 2018; Ongoing

2017 Client: Vinson & Elkins
Case: *Inter Partes Review of U.S. Patent No. 7,129,931; Lenovo (United States) Inc. v. Blackbird Tech LLC d/b/a Blackbird Technologies, IPR2017-yyyy*
Project: Patent IPR involving laptop computer display apparatus
Status: IPR Declaration May 2017;

2017 to Present Client: The Joe C. Savage Law Firm
Case: *Bauer v. Parks, Hyundai Motors America, and Deskins Motor Company and other related cases;*
Project: Vehicle Accident Investigation, Design, Crashworthiness, Fire
Status: Ongoing

2017 to Present Client: Hill, Kertscher & Wharton, LLP
Case: *Trans Technologies Company v. Hendrickson USA LLC, et.al.,* United States District Court for the Northern District of Georgia, Atlanta Division, Civil Action No. 1:16-cv-01778--AT
Project: Patent litigation involving heavy-truck tire inflation/deflation technology
Status: Deposition Apr 2018; IPR Declaration Aug 2017; IPR Reply Declaration Feb 2018; Ongoing;

2017 to Present Client: Morgan, Lewis & Bockius LLP
Case: *Advanced Circulatory Systems, Inc. v. AutoMedx, Inc., and AutoMedx, Inc v. ZOLL Medical Corp., Advanced Circulatory Systems, Inc.;* CPR Institute for Dispute Resolution, CPR File No. G-16-07
Project: Medical Ventilator Technology Development; Medical equipment
Status: Ongoing

2017 Client: Dorsey & Whitney LLP
Case: *Hovik Nazaryan v. FemtoMetrix Inc.,* Superior Court of the State of California for the County of Orange Case No. 34-30- -2015-00795246-CU-BC-CJC
Project: Semiconductor lithography equipment technology development
Status: Settled

2016 to Present Client: Casper, Meadows, Schwartz & Cook
Case: *Rovner v. Medtronic, Inc. et.al.* Contra Costa Superior Court, Case No. C16-01768
Project: Medical Device defect of NSC spinal lumboperitoneal (LP) Shunt/Valve for hydrocephalus shunting of excess cerebrospinal fluid (CSF); associated personal injury
Status: Ongoing

2016 to Present Client: Rimom Law
Case: *Heather Ciechanowski v. Invacare Corporation, Folsom Care Center, Bluff Enterprises, Inc. and Calvin Callaway,* Sacramento County Superior Court Case No. 34-2016-00188724
Project: Alleged medical equipment product defect
Status: Ongoing

2016 to 2017 Client: Rucka, O'Boyle, Lombardo & McKenna
Case: *Concepcion Hernandez v. Helen of Troy, Inc.*;
Project: Medical equipment personal injury
Status: Settled

2016 to 2017 Client: Quinn Emanuel Urquhart & Sullivan, LLP
Case: *TriReme Medical LLC v. AngioScore, Inc.*, Northern District of California; Case No. 14-cv-2946
Project: Patent litigation involving cardiovascular medical device
Status: Deposition, Dec.2016; Expert Reports, Nov.2016 & Dec.2016; Settled

2016 to Present Client: Baker Manock & Jensen, PC
Case: *California Fire-Roasted LLC v. General Mills Operations, LLC*; Sacramento County Superior Court
Case No. 34-2014-00170784-CU-BC-GDS
Project: Patent licensing and royalty case for food-processing equipment
Status: Ongoing

2016 to 2017 Client: DLA Piper, LLP
Case: *Inter Partes Review of U.S. Patent No. 6,099,882; Olam West Coast, Inc. v. California Fire-Roasted LLC*
Project: Patent IPR involving food-processing equipment
Status: IPR Declarations Filed Oct.2016;

2016 to Present Client: Plews Shadley Racher & Braun, LLP
Case: *Rick C. Sasso, M.D., and See LLC v. Warsaw Orthopedic, Inc., Medtronic Inc., Medtronic Sofamor Danek, Inc.*, Indiana State Court, Case No. 43C01-1308-PL-44.
Project: Patent litigation involving spinal medical device
Status: Ongoing

2016 to Present Client: Christensen Fonder, P.A.
Case: *Willis Electric Co., Ltd v. Polygroup Limited (Macao Commercial Offshore), Polygroup Macau Limited (BVI), Polytree (H.K.) Co. Ltd.*, 15-cv-3443, 3:15-cv-00552, United States District Court for the District of Minnesota.
Project: Patent litigation involving modular mechanical and electrical connectors
Status: Ongoing

2016 to Present Client: Locke Lord LLP
Case: *Denneroll Holdings Pty Limited and Denneroll Industries International Pty Limited v. ChiroDesign Group, LLC and Marie L. Webster, Individually and D/B/A ChiroDesign Group*; Civil Action No. 4:15-cv-740; United States District Court for the Southern District of, Houston Division.
Project: Patent litigation involving chiropractic pillows
Status: Settled; Infringement Expert Report, May 2016; Validity Expert Report, June 2016

2016 to Present Client: Mass Montes LLP
Case: *Logan W. Hensley vs. Michael J. Skyhar, MD.; Cayenne Medical, Inc., and DOES 1 thru 40, inclusive*; Case no. 37-2015-00005140-CU-MM-NC, Superior Court for the State of California for the County of San Diego, North County Division.
Project: Personal injury involving failed medical device and medical practice
Status: Settled

2016 to Present Client: Hamrick & Evans, LLP
Case: *Laurence Johnson vs. Raytheon Company, Systems XT, Inc. Brownco Construction Company, Inc., Power Edge Solutions, Inc. (aka PES Controls), et.al.* United States District Court for the Central District of California; Case No. 2:15-cv-00132-MWF-E.
Project: Personal Injury; Product Performance & Product Liability
Status: Ongoing;

2015 to 2016 Client: Nixon Peabody LLP
Case: *Johnstech International Corp v. JF Microtechnology SDN BHD* United States District Court for the Northern District of California; Case No. 3:14-cv-02864-JD
Project: Patent litigation involving semiconductor test technology
Status: Invalidity Expert Report, Non-Infringement Expert Report – Dec 2015; **Patent Trial Testimony – Sep 2016.**

2015 Client: Susman Godfrey LLP
Case: *Bonutti Skeletal Innovations, LLC v. Globus Medical, Inc*
Project: Patent litigation involving spinal medical devices
Status: Ongoing

2015 Client: Richardson, Patrick, Westbrook, & Brickman, LLC
Case: *Smart v. PACCAR*
Project: Heavy-Truck Rollover & Crashworthiness
Status: Settled

2014 to 2018 Client: Harris and Graves, P.A.
Case: *Dineen v. Sprint and Apple*
Project: Investigation of alleged cellular telephone defect and Lithium-Ion battery breach; Personal injury (victim sustained burns) due to ignition & combustion of cell phone; Non-Destructive & Destructive Inspections
Status: Settled
Deposition Oct 2017; Expert Report, July 2015, July 2017;

2014 to Present Client: Law Offices of David McQuade Leibowitz, P.C.
Case: *Ricardo Garza v. Daimler Truck of North America (DTNA), Freightliner LLC*; Texas Circuit Court, Bexar County, Texas
Project: Heavy Truck Crashworthiness
Status: Ongoing

2014 Client: Kolisch Hartwell, P.C.
Case: *TMI Products, Inc. v. Rosen Entertainment Systems, L.P*
United States District Court for the Central District of California;
Case No. EDCV12-02263 RGK (SPx)
Project: Patent case involving consumer electronics & vehicle entertainment applications
Status: Settled
Deposition March 2014; Declaration & Report March 2014;
Declaration & Rebuttal Report March 2014;

2014 to 2018 Client: Corsiglia, McMahon, & Allard
Case: *Avalos v. Balt, Stanford Hospital & Clinics, et.al.*
Project: Personal Injury during Medical Procedure & Medical Device Product Liability; Failure analysis of micro-catheter for neurovascular treatment; embolization of a cerebral AVM during procedure at Stanford Hospital
Status: Settled

2014 to 2015 Client: The Previant Law Firm, S.C.
Case: *Kaminski v. DongGuan, et.al.*
Project: Personal injury (eye damage) due to failure of consumer product (elastomeric strap tie-down); Failure analysis, material testing, and evaluation of elastomeric material components
Status: Settled
Expert Report, July 2014

2013 to 2015 Client: Guajardo & Marks, LLP
Case: *Bertha A. Flores Individually and as Representative of the Estate of Jose Flores, et.al. v Daimler Trucks North America, LLC.*
United States District Court for the Southern District of Texas, Corpus Christi Division, and is Civil Action No. 2:13-cv-87
Project: Heavy-Truck Rollover & Crashworthiness
Status: Settled, Mar 2015
Deposition, Feb 2015; Report, Oct 2014

2012 to 2014 Client: Edwards Life Sciences; Kilpatrick, Townsend & Stockton, LLP
Case: *Medtronic v. Edwards*
Case No. 11-CV-1650-JNE/JSM (D. Minn.)
Project: Medical device patent claims, infringement & invalidity
Status: Settled
Invalidity Report Aug 2013;
Non-Infringement Report Oct 2013;
Deposition Oct 2013, Oct 2012

2013 to 2014 Client: US Securities and Exchange Commission
Case: *Securities and Exchange Commission (SEC) v. Inteligentry, Ltd., Plasmerg, Inc., PTP Licensing, Ltd., and John P. Rohner in Civil No. 2:13-CV-00344-GMN-NJK*
Project: Securities associated with “Plasmic Transition Process Engine” technology; Technology assessment
Status: Resolved

2013 to 2015 Client: Beasley, Allen, Crow, Methvin, Portis & Miles, P.C.
Case: *Walker v. PACCAR, Inc;*
Alabama Circuit Court, Barbour County; 06-CV-2013-900032.00
Project: Heavy-Truck Rollover & Crashworthiness
Status: Settled

2013 Client: Retained in a metal component manufacturing technology patent litigation case.
Case: *Confidential*
Project: Metal manufacturing process patent for smart-phone and consumer electronics applications

2013 to 2015 Client: Beasley, Allen, Crow, Methvin, Portis & Miles, P.C.
Case: *Lacy v. Freightliner*
Project: Heavy-Truck Rollover & Crashworthiness
Status: Settled Mar 2015

2013 to 2015 Client: Beasley, Allen, Crow, Methvin, Portis & Miles, P.C.
Case: *Jones vs. Daimler Truck North America (DTNA)*
Alabama Circuit Court
Project: Heavy Truck Rollover & Crashworthiness
Status: Settled Nov 2015; Deposition Jan 2014

2012 Client: Smart-phone technology patent litigation case involving embedded electro-mechanical components
Case: *Confidential*
Project: Patent issues associated with specific user-feedback technologies
Status:

2010 to Present Client: Warren & Associates, LLC
Case: *Jones vs. MSE Hauling*
Project: Heavy Truck Rollover
Status: Settled Nov 2015; Deposition Jan 2014

2009 to 2014 Client: Schwarz & Mongeluzzi; Nelson, Levine, DeLuca & Horst
Case: *Carrera v. Navistar*
Project: Heavy-Truck Rollover & Crashworthiness
Status: Settled 2014; Deposition Feb 2013

2010 Client: Sico, White, Hoelscher & Braugh L.L.P.
Case: *Ramirez v. Sterling Truck*
Project: Heavy-Truck Rollover & Crashworthiness
Status: Settled; Expert Report; Deposition May 2010

2008 to 2010 Client: Beasley, Allen, Crow, Methvin, Portis & Miles, P.C.
Case: *Thibadeaux vs. PACCAR*
Project: Heavy-Truck Rollover Accidents
Status: Settled; 2010.

2008 to 2010 Client: Beasley, Allen, Crow, Methvin, Portis & Miles, P.C.
Case: *Price vs. Navistar*
Project: Heavy-Truck Rollover Accidents
Status: Settled; 2010.

2008 to 2009 Client: Beasley, Allen, Crow, Methvin, Portis & Miles, P.C.
Case: *Martin vs. Kenworth*
Project: Heavy-Truck Rollover Accidents
Status: Settled; 2009.

2007 Client: Beasley, Allen, Crow, Methvin, Portis & Miles, P.C.
Case: *Strode v. Freightliner, LLC*; Civil Action No. 02-132
Circuit Court of Greene County Alabama
Project: Heavy-Truck Rollover Accident
Status: Settled; 2007. Testified at trial.

- 2006 Client: Gibson, Dunn, & Crutcher
Case: *Jang v. Boston Scientific Corp., et.al.*
United States District Court, Central District of California; Eastern Division – Riverside; Case No: EDCV 05-00426 VAP (SGLx)
Project: Patent case for matters involving design features of Cardiovascular Stents.
Status:
- 2005 Client: Beasley, Allen, Crow, Methvin, Portis & Miles, P.C.
Case: *Mongan vs. MACK Truck*
Project: Retained as fact witness in heavy truck rollover accident.
Status: Settled, 2005
- 2005 Client: Lucas Wash Petway Tucker & Stephens, P.C.
Case: *Gable v. International Truck & Engine Corporation*
United States District Court, Middle District of Pennsylvania; Civil Action No: 3:03-CV-01353
Project: Heavy-Truck Rollover Accident
Status: Closed; Deposition June 2005.
- 2004 Client: Kenyon & Kenyon Intellectual Property Law Firm
Case: *Medtronic Vascular, Inc. vs. Boston Scientific Corp., et al.*
C.A. No. 98-478-SLR (D-Del)
Project: Patent case involving Cardiovascular Stent design
Status: Closed; Expert Report filed; No Deposition.
- 1997 Client: Grimaldi, Pearson, and Weyand, P.C.
Case: *Herbolsheimer v. Warner-Swasey*
Case No. 9357487NP
Project: Product defect of CNC machine equipment
Status: Closed; Deposition.
- 1994 Client: Jones, Jones, Close & Brown
Case: *Pioneer Chlor-Alkali Co., Inc. v. National Union Fire Insurance Co.*, United States District Court, District of Nevada, Case No. CV-S-93-276-HDM (RLH)
Project: Accident investigation, insurance claim.
Status: Closed; Deposition.
- 1994 Client: Clapp, Moroney, Bellagamba, Davis and Vucinich
Case: *Thomas Fujisaka and Sandra Fujisaka v. Livermore Valley Unified School District*, Superior Court of the State of California In and For the County of Alameda, Case No. 700921-1
Project: Accident Investigation, Personal Injury
Status: Closed; Deposition.

- 1994 Client: GEA In-House Counsel
 Case *GEA Power Cooling Systems, Inc. v. Hyspan Precision Products*,
 Superior Court of the State of California for the County of San
 Diego, Case No. 669769
 Project: Product Liability; Failure analysis root cause.
 Status: Closed; Deposition.
- 1993 Case *Bobbye J. Phaneuf v. Edith D. Roman*, Superior Court of the State
 of California County of Alameda, Case No. H - 154330-4
 Project: Product Design.
 Status: Closed; Deposition, Trial.
- 1993 Case: *Patricia C. Barbera v. H. B. Instrument Company*, Superior Court
 of the State of California In and For the County of Marin,
 Case No. 138929
 Project: Product Design.
 Status: Closed; Deposition, Trial.
- 1990 Client: Chevron In-House Counsel
 Case: *Secretary of Labor v. Chevron U.S.A, et al.*, Occupational Safety
 and Health Review Commission, Region 9,
 OSHRC Docket No. 89-3125
 Project: Accident investigation; Failure analysis root cause.
 Status: Closed; Deposition.

Trials & IPRs:

- 2018 Case: Davidson, Davidson & Kappel LLC; ArcelorMittal Project
Status: IPR Declaration, Mar 2018; Ongoing
- 2018 Case: *SCA Hygiene Products AB et.al., SCA Tissue North America, LLC v. Tarzana Enterprises, LLC*;
United States District Court, Western District of Wisconsin,
No. 3:16-cv-00728
Status: IPR Response Declarations, May 2018; Ongoing
- 2017 Case: *Trans Technologies Company v. Hendrickson USA LLC, et.al.*,
United States District Court for the Northern District of Georgia,
Atlanta Division, Civil Action No. 1:16-cv-01778--AT
Status: IPR Declaration Aug 2017; IPR Response Declaration Feb 2018;
- 2017 Case: *Lenovo (United States) Inc. v. Blackbird Tech d/b/a Blackbird Technologies*, Review of U.S. Patent No. 7,129,931;
Status: IPR Declaration May 2017;
- 2016 Case: *Olam West Coast, Inc. v. California Fire-Roasted LLC; Inter Partes* Review of U.S. Patent No. 6,099,882
Status: IPR Declarations, Oct 2016;
- 2016 Case: *Johnstech International Corp. v. JF Microtechnology SDN BHD*;
Action 14-cv-02864-JD, US Federal Court, District of Northern California
Status: Testified in Patent trial, Sep 2016
- 2007 Case: *Strode v. Freightliner, LLC*; Civil Action No. 02-132
Circuit Court of Greene County Alabama
Status: Testified in Product Liability/Personal Injury case;
- 1995 Case: *Bobbie J. Phaneuf v. Edith D. Roman*; Superior Court of the State of California County of Alameda, Case No. H-154330-4
Status: Testified in Product Liability/Personal Injury case;
- 1994 Case: *Patricia C. Barbera v. H. B. Instrument Company*; Superior Court of the State of California In and For the County of Marin,
Case No. 138929
Status: Testified in Product Liability case;