Glenn E. Vallee, Ph.D., P.E.

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PROFESSIONAL SUMMARY

Licensed professional engineer holding a Ph.D. in mechanical engineering with industrial experience since 1985. Expertise in the areas of consumer and industrial products, product design and development, numerical simulation, testing, and quality assurance. Technical expert in the areas of patent and products liability litigation, serving as an expert in over 80 cases. Extensive testimony history, including testimony in IPR and civil litigation, as well as testimony before the ITC and in jury trials. Professor Emeritus from Western New England University and former chair of the mechanical engineering department. Academic responsibilities included teaching courses in product design and development, materials science and testing.

EDUCATION AND LICENSING

Ph.D. May 1995, University of Rhode Island, Kingston, RI
Major: Mechanical Engineering and Applied Mechanics
Thesis: "A Study of the Dynamic Mechanical Behavior of Elastomeric Materials Under Impact Loading"

M.S. May 1990, University of Rhode Island, Kingston, RI
Major: Mechanical Engineering and Applied Mechanics
Thesis: "A Study of the Effect of Geometry on the Mechanical Behavior of an Epichlorohydrin Elastomer Used as an Impact Absorber in Pneumatic Fastening Tools"

B.S. May 1985, University of Rhode Island, Kingston, RI
Major: Mechanical Engineering

Registered as a Professional Engineer with the State of Rhode Island, lic. # 6765.

LITIGATION EXPERIENCE

G. Vallee Consulting, LLC, Westbrook CT (January 2025 to present)
Owner and Principal Engineer - Provide services as a technical expert in patent and product liability litigation.

Patent litigation experience in civil and ITC cases – including testimony by report, declaration, deposition or trial, last 5 years. (12 depositions and 2 ITC hearings since 2015)

P&F Brother Ind. Corp. v. The Home Depot, Inc., Case No. 2:23-cv-00312-JRG, and P&F Brother Ind. Corp. v. Lowes Home Centers, LLC, Case No. 2:23-cv-00313-JRG, Eastern District of Texas. Patent litigation regarding riving knife clamp assemblies used in table saws (plaintiff). Patent and prior art analysis, product testing, infringement report, validity report, deposition (October 2024 to January 2025).

Sharkninja Operating, LLC, Sharkninja Sales Co. and Omachron Alpha, Inc. and Omachron Intellectual Property, Inc. v. Dyson, inc. and Dyson technology, Ltd., Inv. No. 337-TA-1404, Washington DC. ITC Litigation regarding Certain Surface Cleaning devices and Components Thereof (plaintiff). Patent and prior art analysis product testing, infringement report, validity report, deposition (July 2024 to December 2024).

SIG Sauer, Inc. v. NST Global, LLC d/b/a SB Tactical , Case No. 1:19-cv-00792-PB, District of New Hampshire. Patent litigation regarding forearm-gripping stabilizing attachment for a handgun (plaintiff). Product research and technical review (October 2023 to March 2024).

Altria Group, Inc. and NJOY LLC, et. al. v. Juul Labs, Inc and VMR Products LLC, Inv. No. 337-TA-1372, Washington DC. ITC Litigation regarding Certain Vaporizer devices, Cartridges Used Therewith, and Components Thereof (e-cigarettes) (plaintiff). Patent and prior art analysis, product testing, claim construction brief, infringement report, validity report, depositions and ITC hearing testimony (September 2023 to June 2024).

Duke Manufacturing Co. EX1004
U.S. Patent No. 11,771,264

Tsteigen, Inc., et. al. v. Viking Drill & Tool, Inc., Case No. 0:21-cv-02759 (DMN), District of Minnesota. Patent litigation regarding twist drills (plaintiff). Patent and prior art analysis, technical review (May 2023 to June 2023).

Persawvere, Inc. v. Milwaukee Tool Corporation, Case No. 21-cv-00400-GBW, District of Delaware. Patent litigation regarding one handed electric band saws (plaintiff). Patent and prior art analysis, technical review (April 2023).

Signode Industrial Group, LLC v. Polychem, LLC, Case No. 22-519-VAC-CJB, District of Delaware. Patent litigation regarding electric strapping machines (defendant). Patent and prior art analysis, product testing, Preliminary Injunction declaration (June 2022 to September 2022).

Flygrip, Inc. v. Five Below, Inc., Case No. 6:21-cv-01080-ADA, Western District of Texas, Waco Division. Patent litigation regarding movable grip for holding handheld devices (defendant). Patent and prior art analysis, claim construction brief (April 2022).

Solo Brands, LLC V. Target Corporation, SAS Group, Inc and Duraflame, inc., Case No. 2:22-cv-00115-JRG , Eastern District of Texas, Marshall Division. Patent litigation regarding fire pits (defendant). Product research and testing, design patent analysis (December 2021 to August 2022).

Robert Bosch Tool Corp v. Delta Power Equipment Corp., Case No. 7:21-cv-02107-TMC, District of South Carolina, Spartanburg Division. Patent litigation regarding beveling miter saws (plaintiff). Patent and prior art analysis, infringement and rebuttal reports and rebuttal declarations, deposition (November 2021 to August 2022).

Unicorn Global, Inc. and Hangzhou Chic Intelligent Technology CO., LTD. V. DGL Group, LTD, Case no. 1:21-cv-1443-MKB-SJB, Eastern District of New York. Patent litigation regarding hover boards (defendant). Patent and prior art analysis, product testing, claim construction declaration (October 2021 to April 2023).

One Two Cosmetics, LLC v. American International Industries, Inc., et. al., Case No. 20-cv-00988-JAK-KS, Central district of CA. Patent litigation regarding magnetic eyelashes (plaintiff). Patent and prior art analysis, design patent analysis. (July 2021 to August 2021).

H-E-B, LP v. Wadley Holdings, LLC et al., Case No. 6:20-CV-00081-ADA, Western District of Texas. Patent litigation regarding vacuum coolers (plaintiff). Patent and prior art analysis, validity report, rebuttal validity report, deposition (July 2021 to October 2021).

Fuma International, LLC v. RJ Reynolds Company, Case No. 1:19-cv-260 [Lead Case] 1:19-cv-660, Middle District of North Carolina. Patent litigation regarding electronic nicotine delivery systems (e-cigarettes) (plaintiff). Patent and prior art analysis, product testing, declaration opposing summary judgment, infringement declaration, validity rebuttal declaration, reply declaration to infringement declaration (December 2019 to November 2021).

Koki Holdings Co., LTD v. Kyocera Senco Industrial Tools, Inc., Case No. 18-313-CFC, District of Delaware. Patent litigation regarding certain gas spring nailers products and components thereof (plaintiff). Patent and prior art analysis, product testing, claim construction and rebuttal claim construction declarations, initial report and supplemental report on validity, deposition (June 2019 to August 2021).

Koki Holdings Co., Ltd. V. Kyocera Senco Industrial Tools, Inc., Case No. 18-313-CFC, District of Delaware. Patent litigation regarding power nailers (plaintiff). Patent and prior art analysis, product testing, claim construction report, rebuttal to claim construction report, Infringement report, rebuttal to invalidity report, deposition (May 2019 to August 2021).

Ever Victory Technology LTD V. SAS Group, Inc., Case No. 1:19-cv-486 (JPO), Southern District of New York. Patent litigation regarding toy car and track system (defendant). Patent and prior art analysis, product testing, noninfringement declaration, rebuttal infringement declaration, supplemental noninfringement declaration, depositions, (March 2019 to July 2022).

Senco Brands, Inc. v. Hitachi Koki, USA, Ltd, Inv. No. 337-TA-1082 with modification, Washington DC. ITC Patent litigation regarding gas spring nailers, products and components thereof (defendant). Patent and prior art analysis, product testing, claim construction declaration, declaration opposing summary judgment, invalidity and supplemental

invalidity reports, rebuttal infringement report, non-infringement report, deposition, ITC hearing testimony, modification and rebuttal modification reports and deposition (December 2017 to October 2018 and December 2020 to March 2021).

Testimony in support or response of IPR, PGR, Interference or Ex Parte Reexaminations, last 6 years. (10 depositions since 2015)
Note: Retaining party is underlined.

Decl./depo Date	Petition #	Patent(s)	Parties/Device
4/29/24 1/20/25 7/1/24 4/14/25 11/5/24 9/12/25 1/16/26	IPR2024-00858 Deposition IPR2024-01137 Deposition IPR2024-01502 Deposition Deposition	8,905,252 10,676,255 11,851,250	Trove Brands LLC v. Camelbak Products LLC and Vista Outdoor, Inc., Beverage containers
3/7/24 1/14/25	IPR2024-00642 Deposition	10,660,473	Loco Crazy Good Cookers, Inc v. North Atlantic Imports, LLC, Barbecue griddles
7/20/2022, 11/11/2022	*Ex Parte Reexamination*	8,118,204	Senco Brands, Inc. v. Hitachi Koki, USA, Ltd, Portable battery powered fastening tool
6/30/2022, 12/16/2022 2/22/2023	PGR2022-00030 Deposition	11,235,486	Gillette Company, LLC v. Sphere USA, LLC, Handheld razor
4/6/22 6/4/21 4/42023	IPR2022-0084 *Ex Parte Reexamination* Deposition	10,597,107 RE46,964	DGL Group, Ltd. v. Hangzhou Chic Intelligent Technology Co., Ltd., Hoverboards
1/23/20	*Ex Parte Reexamination*	9,592,349 and 8,920,382;	Taiwan Semiconductor Manufacturing Co Ltd v. STC.UNM, Patient controlled analgesia devices
1/18/20	PGR2020-00001	10,174,547	Dong Guan Leafy Windoware Co. Ltd. v. Anli Spring Co., Ltd. et. al., Spring powered blinds and curtains
4/9/20	PGR 2020-00056	10,422,617 B1	Apex Tool Group LLC v. Milwaukee Electric Tool Corp., Tape measures
5/6/2019 7/18/2019	IPR2019-01067 IPR2019-01364	9,958,107 10,054,259	Quest USA Corp. v. Popsockets LLC, Attachments for mobile devices

Additional patent litigation experience regarding the following:

- Air mattresses with embedded pumps
- Collapsible sockets for mobile electronics
- Filler assemblies for cable glands
- Power nailers
- Spring powered desktop staplers
- Children's play yards
- Hole saws
- Attachments for barbecue grilles

Products Liability Litigation Experience last 5 years. (8 depositions and 5 trials since 1997)

Anthony Walters and Erikson Walters v. Sky Harbour Opa Locka Airport, LLC, case No. 2023-020045-CA-01, District of Miami Dade County, Florida. Product liability case involving aircraft hangar door (defendant). Review of incident report, case documents, medical records, site inspection and deposition, (March 2025 to July 2025).

Richard Echols v. Koki Holdings America, LTD, Lowes Home Centers, LLC et. al., Case No. 2:24-cv-00570-RFB-BNW, District of Nevada. Product liability case involving a compound miter saw related injury (defendant). Review of incident report, case documents and product testing, (July 2023 to November 2024).

Todd B. Offenbecker v. Hitachi Koki, filing pending, Ocala Florida. Product liability case involving a pneumatic nailer related injury (defendant). Review of incident report, case documents, medical records and product testing, (February 2022 to Present).

Justino Montiel v. Koki America, et al., case No. CIVSB2028102, San Bernadino California. Product liability case involving a pneumatic nailer and related injury (defendant). Review of incident report, case documents and product testing, deposition and trial testimony, (June 2020 to January 2026).

Raymond Wilson v. Metabo HPT, Lowe's Companies, Inc. and Koki Holdings Co., LTD Case No. 3:23-cv-01992, District of South Carolina. Product liability case involving a pneumatic nailer related injury (defendant). Review of incident report, case documents, medical records and product testing and expert report, (September 2023 to July 2024).

Whamysthon Castro, Amilis Menezes Castro v. Brickyard Urban Renewal, LLC, Koki Holdings Co., LTD. Et. al., Case No. BER-L-5394-20, Bergen County New Jersey. Product liability case involving a pneumatic nailer related injury (defendant). Review of incident report, case documents and medical records, product testing and expert report, (March 2022 to February 2024).

Horsey v. Makita, complaint, Camp Hill, Pennsylvania. Product liability case involving a pneumatic nailer related injury (defendant). Review of engineering documents, plaintiff interview, product testing, (February 2023).

Andres Catalan v. Koki Holdings America LTD, Case No. 2:21-cv-01451, Central District of California. Product liability case involving a pneumatic nailer related injury (defendant). Review of incident report, case documents, medical records and product testing (August 2021 to January 2023).

American Freight Outlet Stores, LLC v. General Electric Company and Heir US Appliance Solutions, Inc., Case No. 3:20-cv-01695, District of Connecticut. Product liability case involving a clothes dryer fire (defendant). Review of incident report, case documents and product inspection (June 2022 to September 2022).

Frank Judson v. Richard Zampiello, Case No. UWY-cv-19-6047734-S, District of Waterbury Connecticut. Product liability case involving a step ladder and related injury (defendant). Review of complaint, case documents, site inspection, product testing, (November 2019 to April 2022).

Ernanes DeAraujo v. Toll Brothers and Hitachi Koki USA, LTD, ID No. 171000452, Court or Common Pleas Philadelphia County, Pennsylvania. Product liability case involving a pneumatic nailer related injury (defendant). Review of incident report, case documents, product testing and expert report, (November 2019 to April 2022).

Brian Stott v. Stanley Fastening Systems, LP, ID No. 2598, Court or Common Pleas Philadelphia County, Pennsylvania. Product liability case involving a pneumatic nailer related injury (defendant). Review of incident report, case documents, product testing and expert report, (March 2018 to March 2022).

Jeferson DaSilva and Deneen DaSilva v. Ronivon Pinto Carmago, Hitachi Koki USA, LTD et. al, Case ID No. 171202863, Court of Common Pleas Philadelphia County, Pennsylvania. Product liability case involving a pneumatic nailer related injury (defendant). Review of incident report, case documents, product testing, expert report and expert rebuttal report, (June 2019 to August 2021).

Marshall Daigle v. Stanley Black & decker, Inc., Case No. 2:2020-cv-00132, District Court of Vermont. Product liability case involving a pneumatic nailer related injury (defendant). Review of incident report, case documents, product testing, (May 2021).

Additional products liability litigation experience regarding the following:

- Cold/pressure therapy device
- Hand-held orbital sander
- Acupuncture heat lamp
- Plumbing fittings
- Pneumatic nailers
- Passenger Van Transportation
- Walking canes

INDUSTRIAL EXPERIENCE

Remington Products Company, L.L.C., Bridgeport, CT (September 1997 to August 2002)
Director of Engineering and Quality Assurance, Worldwide
Directed activities of Design and Product Engineering, Quality Assurance and Manufacturing departments in the U.S., U.K. and Asia responsible for the design and development of international consumer products. Responsible for focusing new product engineering toward continuously improving customer satisfaction through improved product design, performance and quality.

- Co-authored the corporate New Product Development (NPD) process to improve product quality and assess consumer feedback, resulting in a 35% drop in product returns over three years.
- Supervised the corporate laboratories (US and Hong Kong) and brought them up to UL, CSA and Demko regulatory standards. Responsible for developing all test protocols and methodologies for new product testing.
- Introduced solid modeling (Pro/E) and rapid prototyping to the engineering department and integrated Finite Element Analysis, Design of Experiments and Failure Mode and Effects Analysis and into the NPD process.
- Introduced modern Quality Assurance techniques into the company and brought the US factory to CGMP standards. Integrated QA into the NPD process and directed input from QA, returned product analysis and consumer feedback into improved products,
- Helped create QA offices in both Hong Kong and mainland China to implement much of the QA function at supplier location, resulting in improved communications and more efficient corrective actions and lot dispositions. Reduced inspection costs by over 50% while reducing manufacturing defects by nearly 20%.
- Created and programmed an electronic engineering documentation system, enabling the sharing engineering documentation, test data, product returns data and customer feedback within the worldwide organization.

Stanley-Bostitch Company, East Greenwich, RI (October 1985 to September 1997)

Manager, Engineering Laboratories (June, 1995 to September, 1997)
Responsible for managing the largest Engineering Laboratory in the Stanley Works, supervising 18 employees. Coordinated testing and allocated resources to meet stringent scheduling requirements of Product Development, Manufacturing and Marketing departments.

- Developed and implemented standard test batteries and comprehensive test methods for all product testing.
- Introduced and programmed high speed data acquisition and control systems, increasing productivity by over 50%, while providing support to new product development and existing product lines.
- Coordinated physical expansion of laboratory by 40% to support testing of all new and existing products. Responsible for performing periodic quality audits on all major products.
- Coordinated research efforts as required to solve a wide range of design and manufacturing problems throughout the company.
- Principal Finite Element Analyst for company, and technical liaison to international segments of the corporation responsible for coordinating adherence to international safety standards.
- Company representative and technical expert in product liability litigation.

Product Design/Development Engineer (August 1987 to June 1995)
Responsible for guiding product development from concept through production in a highly competitive manufacturing environment. Extensive design and analysis experience using Unigraphics and AutoCAD CAD/CAM software and ABAQUS and ANSYS FEA software.

Test Engineer (August 1986 to August 1987)
Directed and conducted activities in the engineering lab to evaluate product performance. Extensive work in the areas of vibration testing and experimental stress analysis utilizing photo elastic coatings and strain gauge technology.

Technician (October 1985 to August 1986)
Conducted a wide range of testing in the engineering lab to evaluate product performance. Extensive work using a variety electronic transducers and signal conditioning devices.

ADDITIONAL CONSULTING ACTIVITIES

Design, Analysis and Product Development

Utility Composites Inc., Round Rock, TX.
- Developed a hammer tacker for polymeric staples with integrated antennae, 2016. Patent granted for "Fastener Insertion System for Fasteners with Antennas", US Patent No. 10,599,969, March 24, 2020.

Shark/Ninja Co., Newton MA.
- Supervised engineering group in mainland China responsible for Finite element Analysis, 2016-2018.

The Hillman Group, Tempe, AZ.
- Perform numerical simulations to optimize deck screw performance, May 2017.

Lenox Saw Company, East Longmeadow, MA.
- Developed a finite element model for simulation of band saw cutting. December 2007.
- Developed improvements to band coil annealing processes using finite element analysis. February 2008.
- Developed a numerical model for the prediction of the onset of crooked cutting. April 2008.
- Developed a fully 3D finite element-based methodology for the design of improved band saw cutting systems. October 2010.

Flow Design Inc., Springfield, MA.
- Design and development of surgical clips and clip applier used in cardiac bypass surgery, April 2007.
- Inspection and Testing of Titanium Vascular Clips, June 2007.
- Tooling and Testing of Titanium Surgical Clips, August 2007.

S*tanley Fastening Systems, East Greenwich, RI.*
- Developed and fabricated a prototype of a CO_2 cartridge powered fastening tool June 2004.
- Developed a dynamic material model for a nitrile elastomer used in impact bumpers in pneumatic fastening tools. November 2004.
- Developed a dynamic load-deflection fixture for the experimental verification of dynamic FEA results. November 2005.
- Designed an impact bumper for a small brad tool. January 2006.
- Developed an energy measuring device for pneumatic fastening tools based on the Split Hopkinson Pressure Bar Apparatus. August 2006.

Bacou-Dalloz Eye and Face group, Smithfield, RI.
- Developed an engineering documentation system for experimental data and document control. August, 2006.

Chimney Works Company, Higganum, CT.
- Designed an alternate knuckle boom extension system for improved positioning of prefabricated concrete chimney sections, November, 2004.
- Performed a finite element stress analysis of a prefabricated concrete chimney chase to assess strength. April 2004.

Hamilton Sundstrand Corporation, Windsor Locks, CT.
- Performed a finite element stress analysis of a titanium starter rotor used in jet engines, February, 2003.

PROFESSIONAL ACTIVITIES

Professional Societies
American Society of Mechanical Engineers
Tau Beta Pi Engineering Honor Society, Rhode Island Chapter
Pi Tau Sigma Engineering Honor Society, Rhode Island Chapter

ACADEMIC EXPERIENCE

Western New England University, Springfield, MA (August 2002 to June 30, 2025)

Promoted to the rank of Professor Emeritus, June 2025, upon retirement from the University.

Chair, Department of Mechanical Engineering (July 2022 to June 2025)

- Developed new Aerospace Concentration in Mechanical Engineering. Partnered with Aerospace professionals to determine program requirements which fulfil the needs of the aerospace industry.
- Advises Dean as to staffing and other resource needs that are required for the effective delivery of the academic programs of the department. Successfully recruited five new faculty to the mechanical engineering department.
- Oversees the work of department faculty and evaluates departmental personnel.
- In conjunction with the Dean's Office, schedules classes during the academic year both on-campus and off-campus, day and evening, and assigns all instructional duties.
- Assists the Dean in preparing and administering the budget (including preparation of grant proposals), and in allocating resources in the most effective way.
- Represents the Department to other units of the University, promotes the Department to prospective students, and coordinates faculty involvement in admission processes including active recruitment and open houses.
- Sets annual departmental goals and objectives, including curricular and program development. Reviews and updates the catalogue regularly.
- Ensures that the programs of the department meet the professional accreditation standards and leads accreditation efforts while coordinating input from key constituents. Successful re accreditation achieved in the Fall of 2023.

Assistant/Associate Professor of Mechanical Engineering (August 2002 to June 2022)

- Responsible for development of a curriculum of instruction for courses in solid mechanics, mechanical vibrations, materials science, mechanical design, experimental methods and new product development.
- Obtained corporate sponsorship for over 40 senior projects and filed 6 utility and 9 provisional patents for product innovations.
- Faculty advisor for more than 100 interdisciplinary team projects and 100 capstone senior design projects.
- Received the one of the highest student teaching evaluation ratings in the College of Engineering (4.6/5.0).
- Served as faculty liaison to the Mechanical Engineering Industrial Advisory Council.
- Secured resources from corporations for laboratory equipment totaling over $35,000.
- Coordinator for the approval of University Patent Filings for the College of Engineering.

Courses Taught:

Graduate Level:	ME-619 Analytical and Experimental Stress Analysis*
Senior Level:	ME-423/BME-423/BUS 423 – Product Innovation and Development*
	ME-425 Design of Machine Elements
	ME-427 Kinematics and Control of Electro-Mechanical Systems
	ME-435 Senior Interdisciplinary Laboratory Project (Hybrid Electric Car*)
	ME 440 Capstone Senior Design Project
	ME-490 Mechanical Engineering Product Innovation and Development*
Junior Level:	ME-309 Materials Science
	ME-312 Kinematics
	ME 313 Junior Laboratory I
	ME-314 Junior Interdisciplinary Laboratory II - Product Innovation Project*
	ME-320 Mechanical Vibrations

Sophomore Level: ME-202 Statics
ME-203 Dynamics
ME-208 Mechanics of Materials
Freshman Level: ENGR-110 Computer Applications in Engineering (Labview, Matlab, MathCAD, Excel)
* Course developed by Glenn Vallee

***Courses Taught at Other Institutions as an Adjunct Professor*:**
University of Rhode Island, Kingston, RI
Mechanical Systems Design (Machine Design), Introduction to the Finite Element Method, Basic Graphics
Community College of Rhode Island, Warwick, RI
Mechanics of Materials, Dynamics, Statics, Mechanical Engineering Laboratory, Machine Design
New England Institute of Technology, Warwick, RI
Engineering Economics, Electromechanical Devices, Engineering Materials

Research/Capstone Senior Design Projects (since 2015):

Consumer Product Development
- Modular Mounting System for Automobile Interiors
- Handless Jar Opener
- One-Handed Fishing Reel
- Auto Belay Device for Lead Climbing
- Mechanically Self-Tightening Shoe
- Universal Modular Wall Receptacle
- Deflation-Proof Air Mattress
- PTSD Sleep Aid
- Push Type Electric Golf Cart
- Automated Ping Pong Server
- Powered Eyeglass Cleaner
- Novel Snow Shovel
- Safety Candle Topper
- Affordable Products for Goodwill Industries
- Improved Guitar Bridge

DIY Product Development
- Drill-Powered Sharpening Tool for Mowers
- Novel Clamping Device
- Bicycle Spoke Cutter and Re-threader
- Novel One Handed Clamp
- Hammer with Integrated Drill
- Extruding Soldering Iron

Industrial Product Development
- Design of a Human Powered Energy Generator
- Multi-use Cycle Counter
- Waterboy Water Purification System*
- Recoil Reduction Device for Power Nailers
- Punch Tool with Improved Wear Characteristics
- Energy Producing Floor Tile
- Tubing Straightener for HVAC Applications
- Wireless Thermocouple for HVAC Applications
- Improved Fire Protection Fitting
- Camper Slide-out Cleaner
- Dog Toy Making Machine
- Motorcycle Food Delivery System

*Resulted in a publication.

Vehicle Design
- Four-Wheel Drive SAE Mini Baja Vehicle
- Improvement of SAE Baja Drivetrain Performance
- Stacked/Compound Epicyclic Gear Train Design
- Sprag Clutch Differential and Gear Optimization
- Jeep Wrangler Door Check Mechanism
- Low-Cost Motorized Transportation Vehicle
- Development of a Torsen Differential

General Research Projects
- Mechatronic Model of Bird Flight
- Traditional and Polymer Constructed Point Shoes
- Modeling Screw Withdrawal in Concrete Using FEA
- Development of a Vibration Lab Experiment
- Automated Loading System for Bridge Testing

Additional Product Development since 2002

Consumer Products

- Portable knife sharpening shell
- Heated guide fishing pole
- Inflationless basketball
- Golf laser trainer
- Combination blade/line trimmer
- Autonomous window washing robot
- Athletic training sleds
- Surgical clip applier
- Two-part beverage bottle

DIY Products

- Quick-change hole saw arbor
- Power driven pipe expander
- One-handed manual pipe swager
- Improved Tape Measure Housing
- Double capacity nailer magazine
- Cordless reciprocating saw
- Recoil reduction in fastening tools
- Stud finder accessory for nailers
- New feed system for nailers
- Cycle Counter for a pneumatic fastening tool
- New hammer tacker design
- Nailer drive piston retaining device

Industrial Products

- Secondary power generating unit
- Impact pendulum for carbide tips
- Segmented band saw blade tester
- Robotic saw tester
- Automated nail withdrawal device
- Measurement system for compressor nailer efficiency
- Energy measurement device for pneumatic tools
- Measurement device for determining closeness of shave
- Device for dynamic loading of pneumatic fastening tools

RESEARCH AREAS OF INTEREST

- Dynamic mechanical behavior of materials using experimental and Finite Element techniques
- Static and dynamic mechanical behavior of elastomeric materials
- Experimental verification techniques for Finite Element Analysis
- Finite Element Analysis and applications to design
- New product development process and methods used to reduce time to market as related to consumer and industrial products
- Unique methodologies for experimentally determining performance of consumer products and assessing consumer satisfaction.

PUBLICATIONS / PRESENTATIONS

Schoonmaker, M., Gettens, R., Vallee, G., "Building the Entrepreneurial Mindset Through Cross-Functional Innovation Teams", Entrepreneurship Education and Pedagogy, Volume 3 Issue 1, January 2020, pp. 41-59.

Vallee, G. E., and Eheander, J., Development of a Motorcycle Food Delivery System from an International Perspective", technical publication, presented at the ASME International Mechanical Engineering Congress and Exposition, Tampa, FL, November 2017, Paper no IMECE2017-70343.

Vallee, G. E., "Implementation of Multi-Year Product Innovation Projects", technical publication, presented at the ASME International Mechanical Engineering Congress and Exposition, Montreal, Canada, November, 2014. Paper No. IMECE2014-36443.

Jackson, J. R., and Vallee, G. E., "Development of a Predictive Design Methodology for Structural Polymers Subject to Long-Term Loadings", technical publication, ASME International Mechanical Engineering Congress and Exposition, Houston, TX, November, 2012. Paper No. IMECE2012-87912, pp. 389-396.

Vallee, G., and Bowen, M., "Development of a Curved Hopkinson Bar for Long Wavelength Impact Events", technical publication, presented at the ASME International Mechanical Engineering Congress and Exposition, Denver, CO, November, 2011. Paper No. IMECE2011-62914, pp. 707-715.

Vallee, G., and Benoit, R., **"**Translating Dental Performance into Engineering Science within a Senior Capstone Design Project", technical publication and presentation at the New England Regional Conference of the American Society of Engineering Educators, Boston, MA, May, 2010.

Vallee, G., Casey, P. and Pinsinneault, J., "An Interdisciplinary Laboratory Experience for Sustainability", technical publication presented at the ASME International Mechanical Engineering Congress and Exposition, Lake Buena Vista, FL, November, 2009. Paper No. IMECE2009-10389, pp. 325-334.

Vallee, G., "A Novel Course in Product Innovation", technical publication presented at the ASME International Mechanical Engineering Congress and Exposition, Boston, MA., November, 2008. Paper No. IMECE2008-66632, pp. 143-150.

Vallee, G. and Army, S., "Determination of the Temperature Dependent Dynamic Response of Elastomeric Materials Using the Split Hopkinson Pressure Bar", technical publication presented at the ASME International Mechanical Engineering Congress and Exposition, Chicago, Ill., November, 2006, Paper No. IMECE2006-13262, pp. 173-179.

Vallee, G., and Short, R., "Design and Development of an Economical Torsion Testing Machine", presented at the ASEE New England Regional Conference, WPI, Worcester, MA, March, 2006.

Northrup, S, Vallee, G., and Moriarty, J., "A Successful Interdisciplinary Design Experience", Presented at the American Society of Engineering Educators Conference, Nashville, TN., June, 2003.

Vallee, G. E., and Shukla, A., "Static and Dynamic Response of Elastomeric Materials -An Insight Into the Design of Durable Elastomeric Components", International Journal of Engineering Design, Vol. 8, No. 3, August, 1997. Presented at the International Conference on Finite Element Analysis of Rubber and Rubber-Like Materials, University of Akron, Akron, Ohio, May 19-20, 1999.

Vallee, G. E., and Shukla, A., "A Study of Elastomeric Materials Using Finite Elements", ASME Journal Of Engineering Materials and Technology, Vol. 118, No. 4, October, 1996, pp. 503-508.

Vallee, G. E., and Shukla, A., "A Study of Elastomeric Materials Using Finite Elements", ASME Journal Of Engineering Materials and Technology, Vol. 118, No. 4, October, 1996, pp. 503-508. Presented at the International Conference on Finite Element Analysis of Rubber and Rubber-Like Materials, University of Akron, Akron, Ohio, March 20-21, 1997.

Vallee, G. E. and Shukla, A., "Development of a Dynamic Load-Deflection Apparatus for Elastomeric Materials", ASTM Journal of Testing and Evaluation, Vol. 23, No. 5, September, 1995, pp. 358-364.

GRANTS

"Woody Biomass Demonstration Project at Western New England College" Massachusetts Clean Energy Center, co-PI with Dr. S. Dini and Dr. A. Klimes, Western New England College, 2010. ($74,000)

"Next Generation Wind Turbine", Department of Energy Award No. DE-EE0003276, in conjunction with FloDesign Wind Turbine, LLC. One month summer salary to study structural dynamics of wind turbine support and control structure.

"Creation of a Product Development and Innovation Course", National Collegiate Inventors and Innovators Alliance (NCIIA), co-PI with Dr. S. Schriener and Dr. J. McKeon, Western New England College, 2008. ($25,000)

"Development of a New Computer-Aided Data Acquisition and Processing Course", Western New England College, Faculty Development Grant, Spring, 2008. ($1,500)

"Development of a Senior ME Design Elective Course in Product Innovation", Western New England College, Faculty Development Grant, Fall, 2007. ($1,500)

"Development of a Web Based Course in Applied Machine Design", Western New England College, Research Grant, Summer, 2006. ($3,000)

"Development of a Demonstration Kit for Enhanced Learning in Mechanics of Materials", Western New England College, Faculty Development Grant, Spring, 2005. ($2,000)

"A Study of the Dynamic Mechanical Properties of Elastomers Under Multiple Deformation Modes", Western New England College, Research Grant, Summer, 2003. ($3,000)

"Development of a Demonstration Kit for Enhanced Learning in Statics and Dynamics", Western New England College, Faculty Development Grant, Spring, 2003. ($1,875)

PATENTS

- "Convertible Contact/Sequential Trip Trigger, US Patent No. 5,551,620, September 3, 1996.
- "Convertible Contact/Sequential Trip Trigger with Double Actuation Prevention Structure", US Patent No. 5,551,621, September 3, 1996.
- "Portable Drill Bit Sharpener", US Patent No. 8,690,643, April 8, 2014.
- "Biopsy Spacer Device and Method of Operation", US Patent No. 8,932,251, January13, 2015.
- "Water Purification System", US Patent No. 9084949, July 21, 2015.
- "Biopsy Spacer Device and Method of Operation", US Patent No. 9,233,231, January 12, 2016.
- "Flexible Electrical Power Strip", US Patent No. 10,038,272, July 31, 2018.
- "Combination Tool", US Patent No. 10,232,449B2, March 19, 2019.
- "Fastener Insertion System for Fasteners with Antennas", US Patent No. 10,599,969, March 24, 2020.