

FORCON INTERNATIONAL

JOHN P. LEFFLER, PE

EDUCATION

Bachelor of Mechanical Engineering, Georgia Institute of Technology, 1993 - emphasis: mechanical design

- Pi Tau Sigma - Honorary Mechanical Engineering Fraternity

Continuing Education

Engineering & Design

- Design for Manufacture and Assembly (DFMA) - University of Wisconsin
- Designing Plastic Parts for Assembly - University of Wisconsin
- Plastic Injection Molded Part Design & Molding Processes Workshops - GE Plastics
- Geometric Dimensioning and Tolerancing - Clemson University
- Advanced Plastic Gear Design - Universal Technical Systems
- The Bolted Joint - American Society of Mechanical Engineers

Safety

- Occupational Safety & Health Standards for General Industry (30 hour) - OSHA Training Institute / Georgia Tech
- OSHA Recordkeeping Requirements - OSHA Training Institute / Georgia Tech
- English XL™ VIT Slip Resistance Tester Certification Training - ESIS / International Safety Academy
- National Standardized Child Passenger Safety Training - NHTSA / National Safe Kids Campaign
- Child Passenger Safety Technician Update Training - Georgia Traffic Injury Prevention Institute

Vehicles

- Injuries, Anatomy, Biomechanics & Federal Regulation - Society of Automotive Engineers (SAE)
- Occupant and Vehicle Kinematics in Rollovers - SAE
- Forensic Analysis of Medical Records in Injury Biomechanics and Accident Reconstruction Studies - SAE
- Air Brake Training School - Bendix Commercial Vehicle Systems
- Vehicle Fire, Arson, and Explosion Investigation - Eastern Kentucky University

Miscellaneous

- Law School for Experts - SEAK Incorporated
- General Topics in Forensic Engineering - National Academy of Forensic Engineers
- National Advanced Fire, Arson, and Explosion Investigation - Eastern Kentucky University
- Advanced Dynamics of Machinery (graduate level 3 credit hour course) - Georgia Tech
- Machine Tools (undergraduate level 2 credit hour course) - Columbus State Community College

REGISTRATIONS & CERTIFICATIONS

Licensed Professional Engineer in GA, FL, AL, NC, SC, PA, VA, WY

Board Certified Diplomat in Forensic Engineering through NAFE, a CESB Member Board

Certified Automobile Technician - ASE

Certified Fire and Explosion Investigator, Certified Vehicle Fire Investigator - NAFI

Certified XL™ Tribometrist - ESIS / International Safety Academy

Child Passenger Safety Technician - NHTSA / National Safe Kids Campaign

CAREER HISTORY - ENGINEERING

FORCON International: Forensic Mechanical Engineer (2/03-present): Conduct forensic engineering investigations and provide expert witness services and forensic computer graphics related to:

- vehicle mechanical issues: analysis of brake, driveline, suspension, steering, and other mechanical systems.
- consumer products and mechanical equipment: analysis of design, manufacturing, and maintenance issues on machinery, power tools, furniture, and consumer commodity products.
- pedestrian walking surface safety: analyze slip resistance & other extrinsic factors, code compliance.
- vehicle and mechanical equipment fires: origin and cause determination.
- vehicle occupant safety systems: restraint systems, child safety seat & child passenger safety issues.
- injury causation and workplace accidents: analysis of extrinsic factors and OSHA/standards compliance.

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CAREER HISTORY - ENGINEERING - continued

Precistems, Incorporated: (9/98-12/06) Owner of product engineering consulting company. Lead designer of four Sears Craftsman power tools and two American Gardener power tools.

- created the “industrial design” of each product: user interface, ergonomics, and aesthetics.
- used advanced master-surface 3D CAD solid modeling to design plastic housings and internal components.
- designed plastic and metal geartrains, accounting for extreme environmental variation.
- designed die-cast and plastic gearbox housings with insert-cast & insert-molded gearshafts.
- designed complex sheetmetal stampings.
- selected all materials, manufacturing processes, anti-corrosion coatings, and fasteners.
- performed finite element analysis on the structure of critical mechanical components.
- ensured compliance with applicable UL and customer safety & durability standards.
- created engineering drawings and documentation.
- invented a slim-profile orbital reciprocating saw actuation mechanism.

Additional consulting work for other customers:

- implemented a comprehensive engineering data management system for 12 companies.
- designed tooling and processes for the remanufacture of service station pump components.
- created several concepts for a laundry machine clutch assembly.

Panasonic Wireless / MMCD: (5/98-9/98) Contracted to transition company from one 3D CAD system to another one, and set up an engineering data management system. Created all CAD and data management process infrastructure. Created detailed user guides and trained users.

Motorola Energy Systems Group: (9/97-5/98) Designed AC power supply enclosures for cellular phones. Designed an international, interchangeable AC adapter system used on several power supplies. Additional design tasks included extensive research into applicable safety standards (UL, ISO, IEC, BS, AS) for England, Germany, Australia, USA, and the European Union. Designed the power supply housings for the high-volume StarTAC and V-series phones.

Firearms Training Systems: (10/96-9/97, 4/93-4/94) Design of training weapon simulators. Created company's first complete 3D CAD based product, a missile simulator. Responsible for production release of a prototype military mortar simulator line, with over 80 manufactured components. Designed three military firearm simulator conversions. Wrote the mechanical engineering sections of a winning proposal for an \$8M military ship simulator.

Decibel Products, Inc.: (3/96-9/96) Responsible for modular panel antenna production line. Extensively involved with quality troubleshooting. Initiated many process improvements.

Herman Miller, Incorporated: (5/94-3/96) Design of custom office furniture system products. Developed a line of modular bank teller gates for panel systems, with 20 unique versions. Designed complicated sheetmetal components. Participated in process improvement teams.

Woods Hole Oceanographic Institution: (6/91-9/91) Summer employment during college. Assisted with mechanical and CAD design of the prototype Autonomous Benthic Explorer (ABE), an autonomous deep-sea research submarine.

CAREER HISTORY - AUTOMOTIVE

Ohio State University – College of Mechanical Engineering: created a complete & competitive design for the school's Formula SAE racecar during sophomore year of college (1990), prior to transferring to Georgia Tech. Project leader for the construction of the racecar and its entry in the 1991 intercollegiate competition. Design tasks:

- designed 95% of the car - selected all components, materials, and fabrication processes.
- designed the highly adjustable suspension, which featured pullrod-actuated rising-rate shock actuation and carefully controlled roll centers, bump steer, and camber gain.
- fabricated the frame and numerous other components of the racecar.
- designed and built the patterns for the heat-treated cast aluminum suspension uprights.

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CAREER HISTORY - AUTOMOTIVE - continued

Porsche Club of America: racecar driving instructor at Road Atlanta racetrack in Braselton, Georgia, 1997 - 2001. Raced a sponsored Porsche at Road Atlanta and Atlanta Motor Speedway.

Sports Car Club of America (SCCA): National competitor in the Pro Solo professional series and Central Division Championship autocross series, 1986 -1990. Trophied in 40+ events. Sponsored by Goodyear.

Budweiser/Truesports Racing: winning team of the 1986 Indy 500 and the 1986 -1987 Indy Car championships. Employed from 1986 -1989 as a mechanic, fabricator, and machinist.

- extensive mechanical experience with maintenance, repair, and inspection of suspension, steering, braking, tire/wheel, chassis, clutch, transaxle, differential, cockpit, and engine subsystems.
- fabrication of suspension parts, wings, and other components using shears, brakes, rollers, forms, presses, and other sheetmetal working tools on steels, aluminum, and titanium.
- fabrication of wings and body panels using vacuum-bagged carbon/Kevlar composites.
- extensive welding experience with TIG, MIG, and gas welding of steels and aluminum.
- machining experience using lathes, mills, and grinders on steels, aluminum, and titanium.
- experienced with Magnaflux and Zygo non-destructive testing of metals.

Mechanic & fabricator for a racing school and four racecar preparation shops, 1982 -1985. Worked on SCCA racecars in the Production, GT, Showroom Stock, Formula Ford, Formula Atlantic, and Sports 2000 classes. Crewed on Super Vee and Trans-Am professional series racecars. Built racing ATVs and street rods. Restored and maintained several vintage racecars. Graduate of the Jim Russell School Of Motor Racing at Laguna Seca Raceway, Salinas, CA, 1983.

CAREER HISTORY - ACADEMIA

Georgia Institute of Technology, School of Industrial Design, College of Architecture: (8/04-present) Visiting Instructor. Teach junior-level and graduate-level 3-credit hour courses entitled "Materials & Processes". Graduate student thesis advisor.

SOFTWARE TRAINING

Computer Aided Design (CAD)

- Pro/ENGINEER: Basic Training and Advanced Part / Advanced Assembly Design
- Pro/INTRALINK: Engineering Data Management Administrator Training
- Pro/MECHANICA: Structural / Thermal Finite Element Analysis

PROFESSIONAL ASSOCIATIONS

American Society of Mechanical Engineers (ASME)

American Society of Safety Engineers (ASSE)

ASTM International (formerly American Society for Testing and Materials)

- Vice-Chairman, Technical Committee E58 - Forensic Engineering
Subcommittee Chairman, E58.01 - General Practice
- Member of Technical Committee F13 - Pedestrian/Walkway Safety & Footwear
- Member of Technical Committee F15 - Consumer Products

National Academy of Forensic Engineers (NAFE) - Member

National Association of Fire Investigators (NAFI)

National Society of Professional Engineers (NSPE)

National Council of Examiners for Engineering & Surveying (NCEES) - Mechanical PE test preparation committee

Society of Automotive Engineers (SAE)

PATENTS

"Combination Line Trimmer and Edger", US Patents 6,769,494 (August 3, 2004) and 7,131,499 (November 7, 2006)

PUBLICATIONS

"Forensic Engineering Use of Surrogates in Injury and Fatality Cases", Journal of the National Academy of Forensic Engineers, December 2007, page 25.

"Tips for showing non-standard bulk items in drawing BOMs", Pro/E, The Magazine, December 2000, page 18.
"Hints on migrating Pro/INTRALINK", Pro/E, The Magazine, January/February 1999, page 36.

SPEAKING ENGAGEMENTS

Topic: "**Forensic Analysis of Recovered Stolen Vehicles**", presented to
• International Association of Special Investigative Units - Progressive Insurance

Topic: "**Walkway Surface Materials and Selection**" presented as guest speaker to:
• Georgia Tech, Building Construction Program, course name "Construction Technology I"

The following seminars are approved for continuing education credit:

Topic: "**Extrinsic Analysis of Same Level Fall Incidents**" presented to:
• Acordia - Intercontinental Hotels Group - ESIS / Ace - Risk Enterprise Management, Ltd - Liberty Mutual - Gallagher Bassett - FCCI Insurance Group - Broadspire - Hertz

Topic: "**Product Failures and Subrogation**" presented to:
• National Association of Subrogation Professionals - Jacksonville Claims Association - Crawford University - Risk Enterprise Management, Ltd

Topic: "**Effective Use of Surrogates in Investigating Bodily Injury Claims**" presented to:
• Georgia Defense Lawyers Association - FCCI Insurance Group

Topic: "**Forensic Analysis of Alleged Child Restraint Failures**" presented to:
• Childrens Healthcare of Atlanta

Topic: "**Slip Resistance Testing - Something to Consider**" presented to:
• State Bar of Georgia, Advanced Slip & Fall Seminar

Topic: "**Forensic Engineering Use of Surrogates in Injury and Fatality Cases**" presented to:
• National Academy of Forensic Engineers

Topic: "**Vehicle and Occupant Response in Evasive Maneuvers**" presented as guest speaker to:
• Society of Automotive Engineers seminar "*Forensic Analysis of Medical Records in Injury Biomechanics and Accident Reconstruction Studies*"

Topic: "**Forensic Engineering Investigation of Vehicle Wheel Separations**" presented to:
• National Academy of Forensic Engineers

Topic: "**Forensic Engineering Investigation of Lumber Temporary Guardrails**" presented to:
• National Academy of Forensic Engineers

Topic: "**Forensic Engineering Use of Walkway Traction Testing**" presented to:
• National Academy of Forensic Engineers