

PROFESSIONAL EXPERIENCE

Current ITC Experts – Sugar Grove, Illinois

Dr. Salmon specializes in the investigation and analysis of consumer, military and industrial products and systems in the transportation, industrial and manufacturing environments. He specializes in the investigation of the performance of consumer products, or accidents involving products, vehicles, industrial and military equipment. Dr. Salmon investigates concerns relating to the mechanical design of parts, assemblies or systems, evaluating the real world performance of products. Dr. Salmon has consulted and assisted companies with the design, analysis and test of their products and systems. He specializes in the analysis of product trade secrets and has over 10 years of experience in product reverse engineering and the evaluation of reverse engineering activities.

Prior to becoming an engineering consultant Dr. Salmon spent 23 years in industry as an engineering leader in research, product design and manufacturing environments. He has designed, tested and analyzed products and systems in the naval ship, military aircraft and automobile industries.

2006 – 2011 PACKER ENGINEERING, INC. – Naperville, Illinois

Senior Director, Mechanical Transportation Group

- Forensic investigation of automobile accidents specializing in body structure, door and latching system performance
- Product defect investigation and analysis
- Product design, analysis and consulting
- Manufacturing methods and quality system evaluation and consulting
- Intellectual property and trade secret investigation
- Reverse engineering
- Product design performance analysis
- Design failure modes analysis
- Mechanical test and analysis
- Structural test and analysis

1993 – 2006 Ford Motor Company - (Headquarters: Dearborn, Michigan)

2004–2006 Process Engineering Supervisor – Sharonville, Ohio

Responsible for the department that performs the machining of the carriers, ring, sun and pinion gears and the final assembly of the planetary sets for the Ford 6-speed rear wheel drive transmission. In charge of maintaining output quality of all department machines, \$200M of broaches, hobs, grinders, hones, welders and CNC machining centers. Meet the production demands of the final assembly plant. Lead and supervise the efforts of 5 direct report process engineers and 50 hourly personnel.

2000-2004 6-Sigma Level II Master Black Belt – Sharonville, Ohio

2001-2002 6-Sigma Black Belt

Responsible for the deployment, integrity and the delivery of metrics associated with the 6-Sigma program in the Sharonville Transmission Plant. Teach/Mentor 6-Sigma Black Belts in the Sharonville organization in the DMAIC and DCOV processes and conduct several of the 4-week 6-Sigma technical training courses to corporate Black Belt candidates. Provide assistance and act as a resource to the Sharonville plant senior leaders, functional departments and business units in effective project identification, resource planning and implementation of Consumer Driven 6-Sigma. Provide technical guidance to the organization, Project Champions, Process Owners, Black Belts and Green Belts, review and concur on proper 6-Sigma tool usage throughout the organization. Act as the technical champion to lead key projects that will provide the optimum benefits to consumer and business results. Created a statistical method and developed software for defining a continuous production line side quality operating system that is becoming the standard within Powertrain at Ford Motor Company.

1998-2001 Technical Specialist – Dearborn, Mi

1993-1998 Product Design Engineer

Design Engineer in Interior Systems Department of Body and Chassis Engineering responsible for the design and development of vehicle closure systems hardware, including latching and locking systems, inside and outside release mechanisms. Developed a transient inertia analysis methodology and utilized the method to redesign closure system structure, latch and release mechanisms to address and resolve prototype crash test issues. Responsible for the development and validation of computer aided prototyping methods of dynamic mechanisms and closure systems for Body Engineering commodities as part of Ford Advanced Vehicle Technology. Developed instrumentation plan for full vehicle crash tests and subassembly sled and component tests. Authored numerous design criteria and numerical and physical performance verification methods. Developed structural dynamic analysis methods for estimating vehicle closure and hardware system dynamics allowing optimization for NVH performance and definition of loads for stress and durability analysis.

Created and validated numerous unique and powerful techniques used to calculate closure system static and dynamic closing efforts. Developed an analytical robustness statistical method for vehicle mechanism design allowing assessment of performance sensitivity to sources of noise. Key technical contributor on several critical vehicle system issues on body closure systems, braking systems and transmission systems.

1985-1993 General Electric Aircraft Engines - Evendale, Ohio

1989-1993 Technical Staff Engineer

1985-1989 Product Design Engineer

Design Engineer in the Advanced Military Group responsible for providing technical leadership during conceptual definition, design and testing of advanced aircraft propulsion systems. Performed the preliminary and detailed design, analysis and development of components in the propulsion system of the United States Air Force B2 Stealth Bomber and multiple military technology demonstration aircraft. Responsibilities included stress analysis using finite element methods, fatigue life predictions and mechanism performance assessment for several aircraft propulsion system components fabricated from metallic and advanced composite materials. Tasks included the planning and coordination of engine component and system tests required for feasibility, optimization and qualification of aircraft engine flight test hardware. Submitted 2 Department of Defense classified patents of advanced military engine low observable thrust vectoring system designs. Work in the Advanced Military group required a DoD Top Secret security clearance and knowledge of the codes, standards and procedures associated the United States Air Force.

1983-1985 Newport News Shipyards - Newport News, Virginia
Mechanical Design Engineer

Design Engineer in the Reactor Plant Planning Department of Newport News Shipbuilding in the primary plant design and analysis of Nimitz Class Nuclear Aircraft Carriers. Responsibilities focused on performance analysis of the reactor plant coolant pressurizing system. Work performed included fluid flow and finite element transient thermal, vibration and stress analysis of the ship system components. Predicted system fatigue life and potential failure modes were identified and recommendations were formally communicated to the United States Navy leading to continued service, replacement or overhaul. The assignment required a Department of Defense (DOD) confidential security clearance and knowledge of the codes, standards and procedures associated with system operation on United States Naval ships.

ACADEMIC

Ph.D. University of Cincinnati, Cincinnati, Ohio - Engineering Mechanics, Dynamics and Structures (1997)

- M.S. University of Cincinnati, Cincinnati, Ohio - Engineering Mechanics, Mechanics of Structures (1989)
- B.S. Michigan State University, East Lansing, Michigan - Mechanical Engineering (1983)

CONTINUING EDUCATION

- Vehicle Accident Analysis and Reconstruction Methods
- Certified Ford Motor Company Level II 6-Sigma Master Black Belt
- Certified Ford Motor Company 6-Sigma Black Belt
- Robust Design Methodology, Ford Design Institute
- Low Observable Design Methodology, Georgia Technological University
- Advanced Course in Engineering, General Electric
- Statistical Process Control, General Electric

PROFESSIONAL LICENSES, CERTIFICATIONS AND AFFILIATIONS

LICENSES

Licensed Professional Engineer in the State of Michigan (License No. 6201056997)

COMPUTER SKILLS

- Design Software, SolidWorks
- Finite Element Analysis, ABAQUS, Algor[®], Ansys[®], Nastran, Patran[®]
- Dynamic Simulation Software, PC Crash[™], Working Model[®]
- Statistical Software, Minitab[®], Q-Das

PUBLICATIONS, PATENTS AND PRESENTATIONS

PUBLICATIONS

1. Hamidieh, Jalluri, Viswanathan, Magadi, Carter, Duffey, Salmon "Tuned Vibration Based Gear Checker for Gear Profile Anomaly Detection", Submitted to ASME (2006)
2. T.W. Taylor, J.L. Salmon, "Computer Prototyping of Controlled Electromechanical Systems", Ford Technical Journal, Volume 3, Issue 1, (2000)
3. J.L. Salmon, A.H. Nayfeh, "Crash Worthiness of Automobile Mechanisms", Crashworthiness, Occupant Protection and Biomechanics in Transportation Systems, AMD-Vol 225/BED-Vol 38, ASME (1997)

4. J.L. Salmon, "Time Dependent Inertia Analysis of Vehicle Mechanisms", Doctoral Thesis, University of Cincinnati (1997)

PATENTS

- Five US Patents (5,853,060) (6,099,048) (6,350,090) (6,565,134) (6,575,508)
- Submitted seven Additional Automotive Industry and two Aerospace Industry Invention Disclosures

PRESENTATIONS

1. NHTSA/Ford FMVSS 206 Review (2004)
2. "Transient Inertia Analysis Methodology," Technical communities throughout Ford Motor Company and the supply base (1995-2001)
3. "Computer Aided Design and Analysis in Industry," University of Cincinnati Aerospace Engineering and Engineering Mechanics Lecture Series (1995, 1996, 1997)
4. "Crash Worthiness of Automobile Mechanisms," ASME International Mechanical Engineering Congress and Exposition (1997)
5. "Computer Prototyping of Mechanical Systems," Ford Motor Company Technical Conference (1995)

MISCELLANEOUS MEMBERSHIPS

- Society of Automotive Engineers (SAE)
- American Society of Mechanical Engineers (ASME)

HONORS

- 1996 Ford Customer Driven Quality Award
- Adjunct Faculty, University of Cincinnati Clermont, Lawrence Technological University
- Guest Lecturer, Wayne State University, University of Cincinnati
- Held Department of Defense Top Secret Security Clearance
- Dean's Honor List, Michigan State University
- Ford Motor Company 6-Sigma Technical Trainer