

CURRICULUM VITAE OF MARK W. ARNDT

Mark W. Arndt
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Introduction

Mark W. Arndt is the founder and president of Transportation Safety Technologies, Incorporated. Principal work involves consultation, research and testing in the evaluation and design of motor vehicle safety systems with special expertise in fuel system design, motor vehicle fire cause and origin, occupant protection systems, crash investigation, crash reconstruction, occupant response during collisions, motor vehicle handling and stability, and motor vehicle testing and analysis. Nominated and serve as President (2005/06) of the Association for the Advancement of Automotive Medicine (AAAM) and awarded the AAAM 2003 A. J. Mirkin Service Award. Professional activities include participation as faculty on crash investigation courses, appointment to the Association for the Advancement of Automotive Medicine Executive Committee, and the Editorial Advisory Board of Accident Analysis & Prevention. Have served on SAE committees and participated as paper reviewer for SAE technical sessions.

Education

1986, B.S., Mechanical Engineering, Arizona State University

Experience

November 2006 to Present

Principal work involves providing consulting services and litigation support. Appointed and served on the AAAM AIS Steering Committee. Additional significant activities include development of handling test capabilities for evaluating electronic stability control. Paper published at the 2009 SAE International World Congress announced to have received the honor of selection for publication in a SAE Journal reserved for publication of technical papers judged by a panel of engineering experts to be among the most outstanding in a given year.

April 2004 to October 2006

Principal work involves providing consulting services and litigation support. Additional significant activities include development of handling test capabilities utilizing a steering robot, and in depth testing that developed and validates test methods for evaluating tire tread separation induced axle tramp. Honored by SAE's selection of 2004 paper on "Force Response During Tire Tread Detachment" in the SAE Transactions for publication in Journal of Passenger Cars – Mechanical System. The paper was judged by a panel of engineering experts to be among the most outstanding technical papers of 2004. Planned, organized and executed a test program designed to examine comparative performance of vehicle design modification in the fishhook rollover test maneuver. In 2005/2006 served as the President of the Association for the Advancement of Automotive Medicine.

January 2001 to April 2004

Principal work involves providing consulting services and litigation support. Additional significant activities include development and execution of independent testing program documenting the consequences of tire tread separation events on light truck, SUV's and passenger cars. Awarded the Association for the Advancement of Automotive Medicine 2003 A. J. Mirkin Service Award. Founding independent testing firm, Automotive Proving Corporation, capable of full-scale vehicle handling testing and diverse vehicle component tests. Serving as consultant to City of Dallas, Texas, Missouri State Highway Patrol and the New York Police Benevolent Association in crashes involving the Ford Crown Victoria Police Interceptor (CVPI). Testified before the New York Senate Investigation's Committee regarding the Ford CVPI.

January 1998 to December 2000

A primary activity over this time involves providing consulting services and litigation support. Clients include a diverse group of lawyers and insurance companies. Represented Association for the Advancement of Automotive Medicine (AAAM) as a party at the National Transportation Safety Board's Public Hearing on Bus Crashworthiness. Honored by SAE's selection of two papers published in 1999 judged by a panel of engineering experts to be among the most outstanding SAE technical papers. Participated as an invited lecturer at the Society of Automotive Engineers (SAE) TOPTEC "Passenger Car Vehicle Rollover: Cause and Prevention. Elected to the AAAM Board of Directors and since February 1998 authored five published papers on rollover protection systems, testing of motor vehicle handling and spilled fuel ignition properties.

Appointed to the Executive Committee of AAAM and the Editorial Advisory Board of Accident Analysis & Prevention.

January 1997 to December 1997

Founder and President of Transportation Safety Technologies, Inc., a firm providing independence and excellence in consulting, research and analysis in motor vehicle safety. Co-organized, designed and served as faculty for the interdisciplinary crash investigation course offered for the first time in April of 1997 by the Association for the Advancement of Automotive Medicine. Authored and presented the manuscript, "The Identification and Quantification of Incidents Involving General Motors (GM) Trucks with Side Mounted Fuel Tanks," at the AIRIL Conference in Brisbane, Queensland, Australia.

May 1996 to December 1996

Director of Engineering and Research and Development at Arndt & Associates, Ltd. Responsibilities for all engineering activities including management and direction of consulting activities, engineering support, technical library and computer systems. Directed all research and development activities. In addition, responsibilities included participation in the corporation's advisory board, which assisted in developing company planning and policy. Professional activities include finalizing the design and development of a crash investigation course promoting interdisciplinary interaction in the prevention, diagnosis and treatment of motor vehicle injuries.

January 1995 to December 1996

Principal activity provided consulting services and litigation support. Additional significant activities in various independent research projects and overall requirements associated with managing and directing the day-to-day and long-term Arndt & Associates, Ltd. business activities. Consulting provided in broad area of motor vehicle failure and crash analysis including motor vehicle fires cause and origin, vehicle fuel system design and crashworthiness, motor vehicle crash reconstruction, motor vehicle limit handling and rollover stability, and aspects of motor vehicle occupant compartment and structural crashworthiness. Research activities include the development and publication of methods for evaluating and testing motor vehicles at a range of possible passenger and cargo loadings, continued research into the affects and possible improvements of occupant protection systems in rollover conditions, testing and observation of airbag deployments and design and execution of a program which digests the

known field performance of GM C/K pickup trucks relative to fuel containment crashworthiness.

January 1994 to December 1994

Work and professional activities include review, discussion, and design of several Society of Automotive Engineering (SAE) standards and technical reports relative to plastic fuel tank testing through participation in the SAE Fuel Containment Standards Committee. Research activities concentrated in vehicle handling and stability issues, particularly the development of protocols for describing and evaluating vehicle parametrics and performance. Research for “General Motors Light Truck Fuel System Crashworthiness Improvement” included participation in meetings and presentations with the Department of Transportation and others, and follow-up consultation with Department of Transportation engineers and administrators. Consulting activities are largely in litigation support. Activities

include consulting to attorneys representing plaintiffs in the Ford Bronco II class action litigation, specifically in the area of possible improvements to motor vehicle safety and the content and presentation of video, visual, and written instructional and warning material.

October 1992 to December 1993

Generated and actively participated in research and development at Arndt & Associates, Ltd. Research activities are in the areas of vehicle crash reconstruction, design, and crash safety. Managing and participating in research project, “General Motors C/K Light Truck Fuel System Crashworthiness Improvement Program.” Participated in developing static and dynamic test protocols for evaluation of vehicle handling and roll stability in limit maneuvers. Participated in the development of Society of Automotive Engineers, Inc., Information Report, J1664, “Passenger Car and Light Truck Fuel Containment.”

January 1988 to August 1994

General Manager of Arndt & Associates, Ltd. In addition to consulting, new responsibilities include all aspects of consulting and shop testing operations.

July 1985 to January 1988

Full-time employment at Arndt & Associates, Ltd. Responsibilities include working as an expert consultant and witness in the area of automotive safety. Activities include investigating vehicles and crash scenes, crash reconstruction, design crashworthiness analysis, and testing.

Activities general require analysis/reconstruction of vehicle crashes and technical consultation involving questions of injury cause/prevention; the linkage of these events to crash facts, negligent acts, or defects. Specific research and analysis of the effects of restraints on occupant response during collisions and crashworthy design of vehicle fuel systems.

Designed and conducted full-scale testing of automobile systems and components. The testing experience includes complete brake performance characterization, characterization testing of vehicle roof structures, and in-depth research and testing conducted on the dynamic response of seat belt components during impact.

Conducted testing for Mesa Unified School District. Testing involved the inspection of the school bus brake systems and road test to determine brake effectiveness.

Work also involves providing technical support for litigation, such as designing and conducting tests, researching technical literature, and preparing graphics/visual aids.

March 1983 to July 1985

Part-time employment at Arndt & Associates, Ltd. Role was to provide support for more senior engineers in the field of automotive safety research and consultation. Some specific areas of work include inspecting crash vehicles and crash scenes; vehicle crash reconstruction; testing, including development of transmission test methodology.

September 1979 to March 1983

Responsible for management of Arndt & Associates, Ltd. shop and warehouse. Activities performed included fabricating test apparatus, courtroom display sand full-scale vehicle mockups, providing support at vehicle/accident scene inspections, and case development technical support.

March 1978 to September 1979

Employed at Rainco as shop foreman. Responsibilities included building sailplane trailers, fabricating fixtures and small trailer components, and other general shop duties.

Articles, Reports, Publications

Arndt, Mark W., Rosenfield, Michael, Arndt, Stephen M., “How Tires Change a SUV’s Performance in Fishhook and Sine-with-Dwell Testing,” Paper Number 09-0532, 21st ESV Conference, Stuttgart, Germany, June 2009,

Arndt, Mark W., Rosenfield, Michael, and Arndt, Stephen M., “Effectiveness of Electronic Stability Control on Maintaining Yaw Stability When an SUV Has a Rear Tire Tread Separation,” 2009 SAE World Congress, April 2009 Detroit, Michigan, Paper No. 2009-01-0436,

Arndt, Mark W., Rosenfield, Michael, Stevens, Don, and Arndt, Stephen M., “Test Results: Ford PCM Downloads Compared to Instrumented Vehicle Response in High Slip Angle Turning and Other Dynamic Maneuvers,” 2009 SAE World Congress, April 2009 Detroit, Michigan, Paper No. 2009-01-0882,

Arndt, Mark W., and Hubele, Norma, “A Streamlined Initial Test Regime Utilizing the NHTSA NCAP Rollover Maneuver,” 20th International Technical Conference on the Enhanced Safety of Vehicles (ESV), Lyon, France, 2007, Paper No. 07-0395,

Arndt, Mark W., Rosenfield, Michael J., Arndt, Stephen M., and Stevens, Donald C., “Analysis of Causes of an Unintended Rollover During a Tread Separation Event Test” ICRASH Conference, Athens, Greece, July 4-6, 2006,

Arndt, Mark W., Rosenfield, Michael J., and Arndt, Stephen M., “Measurement of Changes to Vehicle Handling Due to Tread-Separation-Inducted Axle Tramp,” Society of Automotive Engineers, Inc., Paper No. 2006-01-1680, International SAE 2006 World Congress, Detroit, Michigan, April 3-6, 2006,

Arndt, Mark W., and Arndt, Stephen M., “Tests Documenting Vehicle Handling with a Temporary-Use Rear Tire and a Run-Flat Rear Tire,” Society of Automotive Engineers, Inc., Paper No. 2006-01-0905, International SAE 2006 World Congress, Detroit, Michigan, April 3-6, 2006,

Arndt, Mark W., “Safety Standards Failure to Reveal Defects in Police Vehicles Fuel System Crashworthiness”. Proceeding of the ICRASH 2004 Conference, San Francisco, CA, July 14-16, 2004,

Arndt, Mark W., Rosenfield, Michael J., Arndt, Stephen M., and Stevens, Don C., "Force Response During Tire Tread Detachment Event," Society of Automotive Engineers, Inc., Paper No. 2004-01-1075, International SAE 2004 World Congress, Detroit, Michigan, March 8-11, 2004.

Arndt, Stephen M., Stevens, Don C., Arndt, Mark W., and Metz, L. Daniel, "The Importance of Dynamic Testing In Determining The Yaw Stability of Vehicles," Paper No. 438, Enhanced Safety of Vehicles Conference, Nagoya, Japan, June 2003.

Arndt, Stephen M., and Mark W. Arndt, Transportation Safety Technologies, Inc., "The Influence of a Rear Tire Tread Separation on a Vehicle's Stability and Control," Paper No. 258 Enhanced Safety of Vehicle Conference, Amsterdam, Netherlands, June 2001.

Arndt, Mark W., Thorne, Michael, Dickerson, Charles P., "Properties of Passenger Car Tires with Tread Detachment," Society of Automotive Engineers, Inc., Paper No. 2000-01-0697, International SAE 2000 World Congress, Detroit, Michigan, March 6-9, 2000.

Arndt, Mark W., Dickerson, Charles P., Arndt, Stephen M., "Influence of Passenger and Cargo Load on the At Limit Handling of a Mini Van," Society of Automotive Engineers, Inc., Paper No. 1999-01-0449, International Congress and Exposition, Detroit, Michigan, March 1-4, 1999.

Dickerson, Charles P., Arndt, Mark W., Arndt, Stephen M., "Vehicle Handling with Tire Tread Separation," Society of Automotive Engineers, Inc., Paper No. 99-01-0120 and International Congress and Exposition, Detroit, Michigan, March 1-4, 1999.

Arndt, Stephen M., Stevens, Don, Arndt, Mark W., "The Motor Vehicle in the Post-Crash Environment, an Understanding of Ignition Properties of Spilled Fuels," Society of Automotive Engineers, Inc., Paper No. 1999-01-0086, International Congress and Exposition, Detroit, Michigan, March 1-4, 1999.

Arndt, Mark W., "Testing of Seats and Seat Belts for Rollover Protection Systems in Motor Vehicles," Society of Automotive Engineers, Inc., Paper No. 982295, International Body Engineering Conference & Exposition, Detroit, Michigan, September 29-October 1, 1998.

Arndt, Mark W., "Testing for Occupant Rollover Protection," Society of Automotive Engineers, Inc., Paper No. 980213, Society of Automotive Engineers World Congress, Detroit, Michigan, February 23-26, 1998.

Arndt, Mark W., Roberts, Chell, "The Identification and Quantification of Incidents Involving General Motors (GM) Trucks with Side Mounted Fuel Tanks," International conference Accident Investigation, Reconstruction, Interpretation and the Law, Brisbane, Queensland, Australia, October 13-16, 1997.

Arndt, Mark W., Gregory A. Mowry, Pete E. Baray, David A. Clark, Arndt & Associates, Ltd. "The Development of a Method for Determining Effective Slack in Motor Vehicle Restraint Systems for Rollover Protection" SAE 970781, Society of Automotive Engineers World Congress, February 24-27, 1997.

Hubele, Norma F., Arizona State University, and Mark W. Arndt, Arndt & Associates, Ltd. "A Review of Crash Data Analysis in a Defect and Recall Investigation of the General Motors C/K Pickup Trucks." Accident Analysis and Prevention, Volume 28, No. 1, January 1996, pg. 33-42.

Arndt, Mark W., Charles P. Dickerson, Stephen M. Arndt, and Gregory A. Mowry, Arndt & Associates, Ltd. "The Effects of Passenger and Cargo Load on Light Truck/Van and Sport Utility Mass Properties." Society of Automotive Engineers, Inc., Paper no. 952676, SAE 1995 Truck and Bus Meeting and Exposition, Winston-Salem, North Carolina, November 13-15, 1995.

Arndt, Mark W., Charles P. Dickerson, Gregory A. Mowry, and Stephen M. Arndt, Arndt & Associates, Ltd. "Evaluation of Experimental Restraints in Rollover Conditions." Society of Automotive Engineers, Inc., Paper no. 952712, Stapp Car Crash Conference, San Diego, California, November 8-10, 1995.

Arndt, Mark W., Charles P. Dickerson, Gregory A. Mowry, Stephen M. Arndt, and Steven C. Shapiro, Arndt & Associates, Ltd. "Motor Vehicle Mass Property Envelopes." Society of Automotive Engineers, Inc., Paper no. 951065, Warrendale, Pennsylvania, February 1995.

Dickerson, Charles P., Mark W. Arndt, Stephen M. Arndt, and Gregory A. Mowry, Arndt & Associates, Ltd. "Evaluation of Vehicle Velocity Predictions Using the Critical Speed Formula." Society of Automotive Engineers, Inc., Paper no. 950137, Warrendale, Pennsylvania, February 1995.

Shapiro, Steven C., Charles P. Dickerson, Stephen M. Arndt, Mark W. Arndt, and Gregory A. Mowry, Arndt & Associates, Ltd. "Error Analysis of Center-of-Gravity Measurement Techniques." Society of Automotive Engineers, Inc., Paper no. 950027, Warrendale, Pennsylvania, February 1995.

Arndt, Mark W., Arndt & Associates, Ltd. "Failure Modes of General Motors C/K Light Truck Outboard Frame, Side-Mounted Fuel Containment System." Tempe, Arizona, March 24, 1994.

Dickerson, Charles P., Stephen M. Arndt, Mark W. Arndt, and Gregory A. Mowry, Arndt & Associates, Ltd. "Effects of Outrigger Design on Vehicle Dynamics." Concepts in Vehicle Dynamics and Simulation, Society of Automotive Engineers, Inc., Paper no. 940226, Warrendale, Pennsylvania, February 1994.

Arndt, Stephen M., Gregory A. Mowry, Mark W. Arndt, Arndt & Associates, Ltd. "Characterization of Automotive Seat Belt Buckle Inertial Release." The Proceedings of the 37th Conference of the Association for the Advancement of Automotive Medicine, San Antonio, Texas, November 4-6, 1993.

Arndt, Mark W. "Mesa School Bus Testing" prepare for the Mesa Unified School District, Mesa, Arizona, May 5, 1987.

Affiliations

Association for the Advancement of Automotive Medicine
Society of Automotive Engineers, Inc.
American Society of Mechanical Engineers
Southwestern Association of Technical Accident Investigators, Inc.
The National Association of Professional Accident Reconstruction Specialists, Inc.
Correspondent, National Academy of Forensic Engineers
National Fire Protection Association

Committee Memberships

Society of Automotive Engineers, Accident Investigation and Reconstruction Practices Committee, 2008 to Present

Society of Automotive Engineers, Accident Investigation and Reconstruction Practices Committee – EDR Task Force, 2008 to Present

Association for the Advancement of Automotive Medicine, Abbreviated Injury Scale Steering committee, 2008 to Present

Association for the Advancement of Automotive Medicine Finance Committee, 2008 to Present

Accident Analysis & Prevention, Editorial Advisory Board, November 1999 to January 2007.

Association for the Advancement of Automotive Medicine, Executive Committee, 1999- to 2007 (Treasurer 2000 to 2004, President Elect 2004/2005, President 2005/2006 and Past President 2006/2007).

Association for the Advancement of Automotive Medicine, Education Advisory Task Group, 1998 to 2003.

Association for the Advancement of Automotive Medicine, Board of Directors, 1998-2003.

Accident Analysis & Prevention, Panel of Referees, 1996 to 1999.

Association for the Advancement of Automotive Medicine, Membership and credentials Committee, 1991 - 1994.

Society of Automotive Engineers, Inc., Fuel Containment Standards Committee, 1992 to September 2001.

Society of Automotive Engineers, Inc., Motorcycle Committee, Fuel & Lubricant Tank Task Force, May 1996 to 2002.

Society of Automotive Engineers, Inc., Trailer Sway-Mode Subcommittee, 1998 to 2003.

Presentations

“Test Results: Ford PCM Downloads Compared to Instrumented Vehicle Responses In High Slip Angle Turning and Other Dynamic Maneuvers,” at the SAE 2009 World Congress, Detroit, Michigan, April 20– 23, 2009

“Analysis of Causes of an Unintended Rollover During a Tread Separation Event Test” ICRASH Conference, Athens, Greece, July 4-6, 2006

“Measurement of Changes to Vehicle Handling Due to Tread-Separation-Inducted Axle Tramp,” Presented at the International SAE 2006 World Congress, Detroit, Michigan, April 3-6, 2006.

“Safety Standards Failure To Reveal Defects in Police Vehicles Fuel System Crashworthiness.” In San Francisco, CA, July 14-16, 2004.

“Car Crashes and Occupant Injuries: A Team Approach to Crash Investigation” Association for the Advancement of Automotive Medicine, Tempe, Arizona, April 19-20, 2004.

“Force Response during Tire Tread Detachment Event,” Presented at Society of Automobile Engineers International SAE 2004 World Congress, Detroit, Michigan, March 10, 2004.

“Accident Reconstruction – The Black Box & Beyond” invited lecturer at the Phoenix Chapter of the Arizona Trial Lawyers Association, Learn At Lunch Seminars, November 11, 2003.

“Crash Data Recorders” invited lecturer at the 46th Association for the Advancement of Automotive Medicine Annual Scientific Conference, Phoenix, Arizona, September 29 – October 2, 2002.

“Engineering Safety” presentation given at the Arizona Emergency Medical Systems, Inc., EMS Odyssey 2002 Conference, Phoenix, Arizona, June 13 14, 2002.

“Properties of Passenger Car Tires with Tread Detachment,” Presented at Society of Automobile Engineers International SAE 2000 World Congress, Detroit, Michigan, March 7, 2000.

“Car Crashes and Occupant Injuries: A Team Approach to Crash Investigation.” Association for the Advancement of Automotive Medicine, Miami, Florida, April 13-14, 2000.

“Car Crashes and Occupant Injuries: A Team Approach to Crash Investigation.” Association for the Advancement of Automotive Medicine, Tempe, Arizona, April 29-30, 1999.

“Influence of Tires on Vehicle Handling.” Presented at Society of Automotive Engineers TOPTec, Passenger Car Vehicle Rollover: Cause and Prevention, San Diego, California, January 22, 1999.

“Car Crash and Occupant Injury: A Team Approach to Crash Investigation,” Association for the Advancement of Automotive Medicine, Tempe, Arizona, April 1998.

“Testing of Seats and Seat Belts for Rollover Protection Systems in Motor Vehicles.” Presented at IBEC '98, Detroit, Michigan, September 29-October 1, 1998.

“Testing for Occupant Rollover Protection.” Presented at Society of Automotive Engineers World Congress, February 23, 1998.

“The Identification and Quantification of Incidents Involving General Motors (GM) Trucks with Side Mounted Fuel Tanks.” Presented at the first Plenary Session of the Accident Investigation, Reconstruction, Interpretation and the Law (AIRIL) conference in Brisbane, Queensland, Australia, October 13, 1997.

“Car Crashes and Occupant Injuries: A Team Approach to Crash Investigation.” Association for the Advancement of Automotive Medicine, Tempe, Arizona, April 24-25, 1997.

“The Development of a Method for Determining Effective Slack in Motor Vehicle Restraint Systems for Rollover Protection.” Presented at Society of Automotive Engineers World Congress, February 24-27, 1997.

“Evaluations of Experimental Restraints in Rollover Conditions.” Presented at 39th Stapp Car Crash Conference, San Diego, California, November 8, 1995.

“Effects of Passenger and Cargo Loading on a Motor Vehicle’s Mass Properties.” Poster presentation at the 1995 Association for the Advancement of Automotive Medicine Annual Conference, Chicago, Illinois, October 16, 1995.

“Effects of Passenger and Cargo Loading on a Motor Vehicle’s Mass Properties.” Presented at the 1995 Western Trial Lawyers Association Automobile Crashworthiness Seminar, Tempe, Arizona, October 7, 1995.

“Characterization of Automotive Seat Belt Buckle Inertial Release.” Association for the Advancement of Automotive Medicine Annual Meeting, San Antonio, Texas, November 5, 1993.

Hands-on Accident Reconstruction. Attorneys’ Information Exchange Group, Tempe, Arizona, September 26, 1989, October 11, 1991, and October 30, 1993.

Hands-on Accident Reconstruction. Arizona Trial Lawyers Association, Tempe, Arizona, February 22, 1992 and April 17, 1993.

Presentation of Crash Test Survey Results. Association for the Advancement of Automotive Medicine Annual Meeting, Scottsdale, Arizona, October 1- 3, 1990.

“Seat Belt Investigations” presentation given at the National Association of Legal Investigators, Region VI Seminar, Tucson, Arizona, April 13 - 15, 1989.

Continuing Education Symposium

Basic Hybrid and Electric Vehicle Safety Webinar, Society of Automotive Engineers, January 22, 2009.

Vehicle Safety Restraint Systems TOPTEC, Society of Automotive Engineers, Costa Mesa, California, August 9-10, 1999.

Airbag Design and Performance TOPTEC, Society of Automotive Engineers, Costa Mesa, California, August 14-15, 1997.

Biomechanics of Impact and its Relationship to Crash Performance Standards, Association for the Advancement of Automotive Medicine, Chicago, Illinois, November 13-14, 1995.

Medicine for Engineers, Association for the Advancement of Automotive Medicine, Chicago, Illinois, October 15, 1995.

Children in Traffic: Exploring their Special needs as Occupants, Pedestrians and Bicyclists, Association for the Advancement of Automotive Medicine, Washington, DC, March 23-24, 1995.

Sensor Design for Automobile Air Bag Systems, Society of Automotive Engineers, Inc., Irvine, California, January 20, 1995.

DYNAMAN Course, GESAC, Inc., Tempe, Arizona, January 17 - 19, 1995.

Three-Day High Performance Driving Course, Bondurant School of High Performance Driving, Phoenix, Arizona, September 8, 1994.

Introduction to Suspension Analysis, Society of Automotive Engineers, Inc., Traverse City, Michigan, May 12, 1993.

Automobile Vehicle Dynamics, Society of Automotive Engineers, Inc., Detroit, Michigan, March 1 - 3, 1993.

Vehicle Rollovers TOPTEC: An Update of Current Issues, Society of Automotive Engineers, Inc., Scottsdale, Arizona, September 21 - 23, 1992.

Accidental Injury: Biomechanics and Prevention, Society of Automotive Engineers, Inc., San Diego, California, November 16, 1991.

Accident Reconstruction Photogrammetry Workshop, Accident Investigation Practices Committee of the Society of Automotive Engineers, Inc., Dearborn, Michigan, September 20 - 21, 1990.

Potential Failure Mode & Effect Analysis in Design & Development, Society of Automotive Engineers, Inc., Anaheim, California, October 4, 1988.

Biomechanics of Impact Trauma, Association for the Advancement of Automotive Medicine, Santa Monica, California, January 18 - 19, 1988.

Product Liability and the Engineer, Society of Automotive Engineers, Inc., Dearborn, Michigan, October 22 - 23, 1987.

Biomechanics and Human Tolerance, Society of Automotive Engineers, Inc., Southfield, Michigan, September 22, 1987.

Injury Scaling: Uses and Techniques, Association for the Advancement of Automotive Medicine, Chicago, Illinois, June 29 - 30, 1987.

Analytical Reconstruction of Automobile Crashes Using a 3-D Simulator, Society of Automotive Engineers, Inc., Continuing Education Program, Detroit, Michigan, February 28 - 29, 1987.

Introduction to Story Boarding, The Creative Thinking Center, Inc., Hudson, Ohio, February 5 - 6, 1987.

MicroComputer Interfacing for Data Acquisition, Control and Automation, Rensselaer Polytechnical Institute, New York, August 20 - 23, 1985.