



GARY R. ROGERS, M.S.M.E., P.E.
PRINCIPAL, MANAGER OF NORTH CAROLINA OPERATIONS

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Mr. Gary Rogers is a Principal for Engineering Systems Inc. (ESI), as well as the Manager of the North Carolina operations. Mr. Rogers has broad experience in design, test and analysis, safety and manufacturing. He has directed and conducted projects in the automotive, watercraft, aerospace and communications industries. At General Motors, he served as Vehicle Safety Integration Engineer in the Vehicle Systems Synthesis and Analysis group. Mr. Rogers performed finite element analyses for vehicle structural integrity, NVH, durability, crashworthiness and occupant protection. As a Vehicle Safety Integration Engineer, he was responsible for all vehicle crashworthiness and occupant protection analysis and testing for the minivan family as well as compliance to NHTSA and in-house standards. He has managed an analysis group responsible for predicting structural and crash performance of commercial aircraft seating for compliance with FAA and Federal regulations. Mr. Rogers also directed the R&D group responsible for simulating fiber optic cabling processes, as well as developing next generation fiber optic processes and equipment. His background also includes extensive experience in automatic transmission design for passenger car and heavy-truck applications. He also holds a B.S. degree in agriculture and has significant experience in agricultural equipment and farm processes.

Areas of Specialization

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| Machinery Design & industrial processes | Vehicle & heavy truck accident reconstruction |
| Vehicle dynamics, computer simulation | Finite Element Analysis (FEA) |
| Vehicle body structure design, crashworthiness & occupant protection issues | Automotive & commercial aerospace seat design for crashworthiness & durability |
| Manlift & crane accident investigations | Recreational vehicle accident investigations |
| Structural fatigue & durability | Farm premises investigations |
| Automotive transmissions | Fiber optic cable loss investigations |
| Agricultural, off road & mining equipment | Hydraulics, fluid systems & plumbing systems |

Education

University of Michigan, Dearborn, M.S., Mechanical Engineering
North Carolina State University, Raleigh, B.S., Mechanical Engineering
Michigan State University, East Lansing, B.S., Animal Science

Licensed Professional Engineer (P.E.)

State of Michigan License No. 6201051198
State of Illinois License No. 062-058102
State of North Carolina License No. 030601
State of Ohio License No. E-69916
State of South Carolina License No. 27255
State of Virginia License No. 0402047596

Other Licenses and Registrations

National Council of Examiners for Engineering and Surveying (NCEES) (No. 25804)

May 2017



Professional Affiliations/Honors

Professional Affiliations:

Society of Automotive Engineers (SAE)
American Society of Mechanical Engineers (ASME)
American Society of Agricultural and Biological Engineers (ASABE)
American National Standards Institute (ANSI)

Honors:

Lean Engineering Award, General Motors Corp., Vehicle Systems Synthesis & Analysis Group. "MVSS210 Rear Seat Belt Attachment Design Synthesis for MS2000, First Hardware Test Meets Requirements" (November 1995).

Lean Engineering Award, General Motors Corp., Vehicle Systems Synthesis & Analysis Group. "CMVSS210.1 Child Seat Tether Anchorage Attachment Design Synthesis for GMX170, First Hardware Test Meets Requirements" (April 1996).

Lean Engineering Award, General Motors Corp., Vehicle Systems Synthesis & Analysis Group. "Door Slam Durability for GMX170, First Hardware Test Meets Requirements" (July 1996).

Lean Engineering Award, General Motors Corp., Vehicle Systems Synthesis & Analysis Group. "Door Slam Durability for MS2000, First Hardware Test Meets Requirements" (July 1996).

Recognition Award, General Motors Corp., Vehicle Systems Synthesis & Analysis Group, "For Creating An Engineering Solution For Crashworthiness Improvements For The 1997 U-Van In The Limited Time Allowed" (November 1996).

Patents

Multi-Axis Fiber Optic Cable Ribbon Design, U.S. Patent No.: 6,879,761
Inventor: Gary R. Rogers, April 12, 2005.

Positions Held

Engineering Systems Inc., Charlotte, North Carolina

Principal, Manager of the North Carolina Operations, 2010 to present

Packer Engineering, Inc., Charlotte, North Carolina

Vice President, Engineering Mechanics, 2002-2010

Alcatel Telecommunications, Inc., Claremont, North Carolina

Group Leader - Process Modeling Group, 2000-2002

B/E Aerospace, Inc., Winston-Salem, North Carolina

Manager - CAE/Simulation, Synthesis and Analysis, 1997-2000

General Motors Corporation, Warren, Michigan

Vehicle Safety Integration Engineer, 1990-1997

Rockwell International, Troy, Michigan

Project Engineer, 1988-1990

General Motors Corporation, Ypsilanti, Michigan

Project Engineer, 1985-1988

North Carolina Dairy Herd Improvement Association, Raleigh, North Carolina

Computer Programmer & Lab Technician, 1982-1985



Jay Landis Farms, Homer, Michigan
Dairy Farm Manager, 1981-1982

Specialized Training

Motor Vehicle Accident Reconstruction, SAE (11/8/2002)
PC-Crash Advance Training (4/24/2003)
PC-Rect Training (4/22/2003)
Heavy Vehicle Accident Reconstruction, Northwestern University (5/9/2003)
The Role of the Rear Seat in Crash Safety, SAE (3/12/2004)
Traffic Accident Reconstruction II Course, Northwestern University (2004)
HVE Accident Reconstruction Software Training (2005)
HVE Accident Reconstruction Software Advanced Training Forum (2006)
Product Liability and the Engineer, SAE (2006)
Occupant and Vehicle Kinematics in Rollovers, SAE (2006)
HVE Accident Reconstruction Software Advanced Training Forum (2008)
SAE Vehicle Dynamics for Passenger Cars and Light Trucks e-Seminar (2010)
SAE Introduction to Heavy Truck Tire, Steering, and Suspension Dynamics (2012)
HVE Accident Reconstruction Software Advanced Training Forum (2014)
CSI-Collision Safety Institute, Crash Data Retrieval Specialist – Technician Level 1 (2014)
HVE Accident Reconstruction Software Advanced Training Forum (2016)

Publications/Presentations

Publications

"Bedsworth, K., Butler, R., **Rogers, G.**, Breen, K., and Fischer, W., "Commercial Vehicle Skid Distance Testing and Analysis," SAE International 2013-01-0771, (2013).
"Integrating CAE into the B/E-SPG Design Process - A Modified 4-Phase EWIPP Approach," Internal Process Standard Publication (1998).
"Input Mobility Analysis Procedure and Techniques Developed To-date. Observed Analysis Limitations and Recommended Future Activities," General Motors, Vehicle Systems Synthesis and Analysis Group, Internal Analysis Procedure Publication (1996).
"Sheet Molding Compound (SMC) Design Considerations for Door Structures," General Motors, Vehicle Systems Synthesis and Analysis Group, Technical Review Publication and Presentation (1995).
"Front and Rear Chassis Interface Input Mobility Simulation Techniques as Developed for the GMX170 SLA Vehicle," General Motors, Vehicle Systems Synthesis and Analysis Group, Internal Analysis Procedure Publication (1994).

Presentations

"Offset Barrier Strategies," Presentation of Analysis and Barrier Test Results to Chairman, NAO- Live, General Motors Desert Proving Grounds (1997).



"FEA Evaluation of the Frontal Danner (VDS)/Thatcham Performance of the 1997 Opel Sintra Minivan," Presentation, General Motors North American Operations CAE Conference (1997).

"Engineering Ethics and the Professional Engineer," Guest Lecturer, University of North Carolina- Charlotte, William States Lee College of Engineering, ENGR 3295, (2009).

"Engineering Consulting as a Career," Guest Lecturer, University of North Carolina-Charlotte, William States Lee College of Engineering, Engineering Multi-disciplinary Professional Development Class (2011).

"Accident Reconstruction & Injury Analysis," Guest Lecturer, Chartis Insurance, Atlanta, GA, (2012).

"Automotive Failure Analysis: How they Crash, How they Break," Continuing Education Technical Presentation for attorneys and insurance professionals, ESI-Ann Arbor, MI Open House Event, Co- lecturer with James Sprague, Ph.D., P.E., (2012).

Strategic Task Groups and Committees

Durability Integration Team for U-Van Vehicle Family, Organizer, Developer & Leader, General Motors Corporation (1995).

Discussion Panel Member, General Motors NAO Noise and Vibration Conference, (1996).
ANSI Z245 Standards committee member (2014).

Member of SAE Data Collection and Archiving Standards Committee (2017).