Exponent®
Engineering & Scientific Consulting

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Professional Profile

James Williamson has over 30 years of experience as a vehicle safety engineer, automotive product development leader, and expert witness. He specializes in vehicle engineering and assessing complex vehicle crash conditions, leveraging his comprehensive knowledge of all aspects of safety — passive, active, driver behavior, and autonomous — to determine what caused an incident and its outcomes.

Prior to joining Exponent, Mr. Williamson held a leading role at General Motors (GM), where he directed vehicle program safety performance integration and was responsible for safety expertise, research, and decision-making. At Exponent, he focuses on product litigation, arbitration, class action, and insurance cases related to product development processes, recalls, and designs, domestically and internationally. Additionally, he supports major automakers in new safety technology development projects, providing feedback and oversight across all stages of the development and validation process.

Mr. Williamson's expertise includes occupant protection and restraint systems (airbags, seat belts, etc.), systems engineering, structural crashworthiness analysis, vehicle sensing, interior engineering, Advanced Driver Assistance Systems (ADAS), data analytics and data science, AI and ML vehicle applications, driver behavior and distraction, product lifecycle management (PLM), large and complex product development program management, and joint venture assessments.

Global Product Development Leadership

Mr. Williamson has extensive experience leading large teams across multiple disciplines within vehicle safety and interior engineering. For more than four years, he directed a team of over 120 professionals responsible for all GM's vehicle safety performance in North America. In addition, he held oversight responsibilities for major global regions — including China, Korea, South America, Australia, and Europe — where he reviewed and approved the safety performance of every General Motors vehicle. Under his leadership, teams achieved multiple 5 Star awards and top safety consumer metric ratings across all regions worldwide. He has also successfully managed complex compliance matters and addressed significant performance challenges while maintaining the highest Workplace of Choice scores within the safety organization. Mr. Williamson's qualifications for this role were further strengthened by his prior experience leading numerous vehicle programs as a Safety Performance Integration Team Leader.

Vehicle Safety Performance

Mr. Williamson was responsible for leading GM's Global Safety Center, providing overall guidance and direction to the company's top corporate vehicle safety experts overseeing safety performance, technology, strategy, and research. He also served as leader of GM's Global Safety Council, the principal decision-making body for vehicle safety policies, technical strategies, most-likely scenario planning, consumer metric objectives, vehicle technical requirements, new product safety strategies, final safety

reports, and the review of other critical corporate safety matters. Mr. Williamson was well qualified for this position, drawing on his extensive experience in multiple areas of vehicle safety developed throughout his early career including:

- Occupant protection
- Seat belts
- Airbags
- Steering columns
- Instrument panels
- Computer-aided engineering simulation
- Vehicle and system and component testing
- Body structures
- Chassis components
- Composite materials
- Sensing systems
- Fuel system protection
- High voltage battery and system/component protection
- Post-crash electrical integrity
- Safety data recording
- Head-impact protection
- Ejection mitigation

Mr. Williamson has shared his expertise through numerous presentations to the National Highway Traffic Safety Administration (NHTSA), the Insurance Institute for Highway Safety (IIHS), Euro NCAP, and China NCAP organizations, providing valuable input to support future rulemaking, strategy development, and technical specifications. He also served as General Motors' Safety Technical Leadership Committee leader for the United States Council for Automotive Research (USCAR). As a direct result of his leadership and collaboration with Ford and Stellantis, safety research funding increased tenfold.

Vehicle Safety Data Analytics

Mr. Williamson led GM's Vehicle Safety Data Analytics department, a team of more than 40 data scientists and analysts responsible for leveraging advanced AI techniques — including machine learning (ML), ontologies, and deep learning — to identify potential emerging safety issues. Under his leadership, GM developed an in house analytics tool capable of efficiently searching billions of safety data records to detect potential concerns across all data sources. This capability now enables GM to independently identify potential safety outliers much more rapidly than through conventional reporting methods.

Vehicle Interior Engineering

Additionally, Mr. Williamson has a decade of experience within GM's Interior Engineering department, having served in a variety of leadership roles. While reporting directly to the head of Interior Engineering, he held the position of Global Strategic Operations Manager, responsible for innovation planning. In addition, he oversaw Global Interior Quality Management, leading GM to achieve the #1 ranking in J.D. Power Initial Quality for Interiors.
Prior to this, Mr. Williamson served as the Architectural Vehicle Systems Engineer for the Chevrolet Silverado and GMC Sierra/Denali pickup trucks, as well as the Chevrolet Tahoe/Suburban, GMC Yukon/Denali, and Cadillac Escalade SUVs. He led a team of more than 30 interior design release

engineers in developing award winning truck interiors through close collaboration with the GM Design Center. He also held multiple additional leadership roles within interior teams supporting both vehicle programs and commodity areas.

Mr. Williamson possesses extensive knowledge of vehicle product development, gained through hands on experience working closely with program management, manufacturing, purchasing, finance, and marketing to deliver successful vehicles.

Product Development Processes

Given his extensive vehicle product development background, Mr. Williamson was selected to lead a $75 million Project Lifecycle Management (PLM) initiative within GM's Global Engineering and Systems organization. This transformational project delivered significant business benefits through the integration of program management, engineering, change management, and cost management work streams. Through this effort, Mr. Williamson gained comprehensive experience across all facets of the product development process.

Academic Credentials & Professional Honors

M.S., Aeronautics and Astronautics, Massachusetts Institute of Technology (MIT), 1991

B.S., Aerospace Engineering, Georgia Institute of Technology, 1989

1999 & 2000 NAO Design & Engineering Award of Excellence

1997 NAO Design & Engineering Special Achievement Award

Prior Experience

Here is a summary list of Mr. Williamson's prior work history prior to joining Exponent:

• Senior Manager, General Motors Global Safety Center, 2021-2023

• Senior Manager, General Motors Vehicle Safety Data Analytics, 2018-2021

• Senior Manager, General Motors Vehicle Safety Performance Integration, 2014-2018

• Program Manager & Engineering Module Leader, General Motors Global Engineering Operations, 2012-2014

• Global Strategic Operations Manager & Global Interior Quality Manager, General Motors Interior Engineering, 2010-2012

• Additional Roles in General Motors North American Interior Engineering, 2002-2010:

• Architectural Vehicle Systems Engineer – Full Size Truck & SUV Platform

o Engineering Group Manager – Truck & Crossover Garnish & Overhead Systems

o Global Functional Leader – Head Impact Performance Integration

o Architectural Vehicles Systems Engineer – Small/Midsize Trucks & Global Midsize Cars

o Engineering Group Manager – Instrument Panels & Floor Consoles

o Vehicle Systems Engineer – Midsize SUVs

o Vehicle Systems Engineer – Midsize Cars

o Engineering Group Manager – Minivans

o Lead Seat Belt Design Release Engineer – Large/Luxury/Performance Vehicles

• Safety Vehicle Performance Integration Team Lead – Large Luxury Car Programs & Full Size Van Program, General Motors North American Operations Safety Integration, 1999-2002

• Safety Vehicle Integration Engineer – Midsize & Large Car Architectures, General Motors North American Operations Portfolio Development Center, 1996-1999

• Lead CAE Safety Occupant Restraints Engineer – General Motors Mid/Lux Car Group VSAS/CPE Computer Aided Engineering, 1991-1996

• Structural Research Engineer, McDonnell Douglas Corporation, 1989-1991

Professional Affiliations

Georgia Institute of Technology Woodruff School of Mechanical Engineering Advisory Board, 2021-Current

Safety Technical Leadership Committee, United States Council for Automotive Research (USCAR) – 2021-2023

Patents

US Patent 6, 869,132: Cross-Car Beam Systems, March 2005 (JT Wang, G Jones)

US Patent 8,056,427: Adjustable Face Tool For Positioning A Free Motion Headform, November 2011 (JT Wang, M. O'Neal, P. Gareau, J. Williamson, A. Millerman)

Publications

Mertz, H.J., Williamson, J.E., & VanderLugt, D.A. Effect of limiting shoulder belt load with air bag restraint. 1995.

Lagace, P.A., Williamson, J.E. Contribution of the core and facesheet to the impact damage resistance of composite sandwich panels. 1993.

Williamson, J.E. Response mechanisms in the impact of graphite/epoxy honeycomb sandwich panels. 1991.

Project Experience

Vehicle Development:

- Arbitration - EV Startup and Established EV Producer Overseas
- Litigation – Vehicle Body Damage and Repair

- Proactive – Restored/Reimagined Vehicles & FMVSS

Recall:

- Arbitration – Foreign Automaker and Safety System Supplier
- Class Action – OEM Vehicle Sensing System Performance
- Insurance – Vehicle Supplier Assembly Issue

Vehicle Safety Product Litigation:

- High-Speed Complex Crashes (Crashworthiness, Occupant Protection, Sensing Systems, Fuel/Electrical)
- Far Side Impacts
- Airbag Non-Deployment
- Active Safety Systems
- Airbag Inflators (Takata, ARC, Other), Counterfeit Airbags

Vehicle Safety Proactive:

- Autonomous Safety Cases
- Crashworthiness & Occupant Protection Design