

Micky C. Marine
Manager

Professional Profile

Mr. Micky C. Marine is a Manager in Exponent's Vehicle Engineering practice and is based in Exponent's Test and Engineering Center in Phoenix, Arizona. Mr. Marine has extensive experience in the investigation and reconstruction of automotive accidents involving passenger cars, light trucks, motorcycles, off-highway vehicles, and heavy trucks. This experience includes the collection of vehicle and scene field data and the use of analytical methods and computer simulation tools. He has conducted hundreds of full-scale automotive crash tests, sled tests, and vehicle performance tests for the purpose of accident reconstruction, crashworthiness, fuel system, occupant kinematics, and occupant protection analyses. He is experienced in analyzing crash and sled test results through the use of instrument data, high-speed film/video analysis, and examination of resulting forensic evidence. He is further experienced in custom test fixture design, instrumentation, and data analyses for component-level testing of automotive safety devices including seat belts, airbags, retractors, buckles, and pretensioners. Mr. Marine participated as a task manager in an SAE Cooperative Project that resulted in the development of Recommended Practices for heavy truck restraint system testing. He has published peer-reviewed technical papers on the subjects of accident reconstruction, crash test data analysis, and restraint system performance.

Mr. Marine is familiar with, and has tested to, several of the Federal Motor Vehicle Safety Standards (FMVSS) and has conducted numerous aircraft seat sled tests for both developmental and Federal Aviation Administration (FAA) compliance purposes.

Academic Credentials and Professional Honors

M.S., Mechanical Engineering, University of Arizona, 1991
B.S., Aerospace Engineering, University of Arizona (*magna cum laude*), 1989

Tau Beta Pi National Engineering Honor Society
Phi Kappa Phi Honor Society
Golden Key Honor Society

Continuing Education

- Northwestern University Center for Public Safety, *Traffic Crash Reconstruction*, 2011
- Collision Safety Institute, *Crash Data Retrieval Data Analyst Course*, 2011
- Collision Safety Institute, *Crash Data Retrieval Technician I Course*, 2011
- Collision Safety Institute, *Crash Data Retrieval Technician II Course*, 2011
- Engineering Dynamics Corporation, *HVE Forum*, 2010

- MacInnis Engineering, *PC-Crash & PC-Rect Training Workshop*, 2003
- Society of Automotive Engineers, *Automobile Vehicle Dynamics*, 1998
- General Motors Service Technology Group, *Supplemental Inflatable Restraint Systems*, 1997
- Society of Automotive Engineers, *Fundamentals of Sensor Design for Automotive Air Bag Systems*, 1996

Publications

Marine MC. On the concept of inter-vehicle friction and its application in automobile accident reconstruction. Society of Automotive Engineers, Paper No. 2007-01-0744, April 2007.

Cooper ER, Curzon AM, Marine MC, Wirth JL, Van Arsdell WW. Dynamic response of end-release buckles to floor anchor impulses. Society of Automotive Engineers, Paper No. 2006-01-0915, April 2006.

Marine MC, Wirth JL, Peters BW, Thomas TM. Override/underride crush energy: Results from vertically offset barrier impacts. Society of Automotive Engineers, Paper No. 2005-01-1202, April 2005.

Thomas TM, Marine MC, Wirth JL, BW Peters. Emergency-locking retractor performance in rollover accidents. American Society of Mechanical Engineers, Paper No. IMECE2002-34101, November 2002.

Marine MC, Wirth JL, Thomas TM. Crush energy considerations in override/underride impacts. Society of Automotive Engineers, Paper No. 2002-01-0556, March 2002.

Wirth JL, Marine MC, Thomas TM. An analysis of a staged two-vehicle impact. Society of Automotive Engineers, Paper No. 2000-01-0464, March 2000.

Marine MC, Wirth JL, Thomas TM. Characteristics of on-road rollovers. Society of Automotive Engineers, Paper No. 1999-01-0122, March 1999.

Marine MC, Wirth JL, Thomas TM. Analysis of concrete median barrier impacts. Society of Automotive Engineers, Paper No. 1999-01-1313, March 1999.

Marine MC, Werner SM. Delta-V analysis from crash test data for vehicles with post-impact yaw motion. Society of Automotive Engineers, Paper No. 980219, February 1998.

Behrens T, Marine MC, Larson R, Werner SM. Heavy truck crashworthiness—Phase III. Society of Automotive Engineers, Cooperative Research Project, Report No. CRP-013, April 1997. (This project resulted in the development of the SAE Recommended Practices J4218, J4219, J2420, J2421, J2422, J2423, J2424, J2425, and J2426).

Marine MC. Time-optimal and energy-optimal path planning algorithms for two coordinated robotic manipulators. Master's Report, University of Arizona, December 1991.

Ramohalli KNR, Marine MC. Autonomous space processor for orbital debris – Progress Report 1991. Proceedings, NASA-Universities Space Research Association Annual Summer Conference, Cocoa Beach, FL, June 1991.

Ramohalli KNR, Marine MC. Experiments on model composite propellants. Proceedings, Joint Propulsion Conference, Orlando, FL, July 1990.

Ramohalli KNR, Marine MC. Autonomous space processor for orbital debris – Progress Report 1990. Proceedings, NASA-Universities Space Research Association Annual Summer Conference, Cleveland, OH, June 1990.

Ramohalli KNR, Marine MC. Autonomous space processor for orbital debris – Progress Report 1989. Proceedings, NASA-Universities Space Research Association Annual Summer Conference, Huntsville, AL June 1989.

Prior Experience

Vice President, Driven Engineering, Inc., 2006–2009

Managing Engineer, Thomas Engineering, Inc., 1997–2006

Senior Engineer, Failure Analysis Associates, Inc., 1991–1997

Research Assistant, Aerospace and Mechanical Engineering Department, University of Arizona, 1989–1991

Engineer, Jet Propulsion Laboratory, Summer 1990

Engineering Intern, Failure Analysis Associates, Inc., Summer 1988

Professional Affiliations

- Society of Automotive Engineers—SAE
 - *Impact and Rollover Test Procedure Standards Committee*
- American Society of Mechanical Engineers—ASME
- Association for the Advancement of Automotive Medicine—AAAM
- Southwest Association of Technical Accident Investigators—SATAI