



Exponent[®]
Engineering & Scientific Consulting

Brian J. Smyth

Manager | Vehicle Engineering
23445 North 19th Ave | Phoenix, AZ 85027
(623) 587-4134 tel | bsmyth@exponent.com

Professional Profile

Mr. Smyth is responsible for coordinating and conducting various testing activities including management of the office's Laboratory and Instrumentation capability where his extensive experience in designing and conducting complex and unique tests is used for litigation, commercial, and military clients. Mr. Smyth manages small teams of engineers and technicians in designing and developing hardware, including direct contributions to designs from initial concepts and specialty prototypes to preparing electronic models required for manufacture across a wide range of industries.

Direct project experience includes design and development of machines used for component or full-scale vehicle systems testing. He has worked with both hydraulic and pneumatic systems used for automating the test fixtures and developed software used to automate the machines and record test data. Mr. Smyth has developed mechanical systems used in support of ground-clearing GPR sensors for military clients and integrated the sensors on various vehicle platforms, as well as organized hardware builds and activities surrounding delivery of the components.

In the automotive arena, Mr. Smyth has supported clients with activities including full-scale crash testing, sled testing, inverted drop testing, roof crush testing, and hydraulic load testing of various components. He was instrumental in the development, machine design, and test conduct procedures for the Controlled Rollover Impact System (CRIS). He is familiar with several of the Federal Motor Vehicle Safety Standards (FMVSS) and has developed new test procedures and equipment used to evaluate vehicle crashworthiness. Mr. Smyth is experienced in all aspects of testing including test set-up, instrumentation, data analysis, camera coverage, and photometric analysis.

Prior to joining Exponent, Mr. Smyth worked at Motorsport Design where he designed and tested equipment used on Porsche racecars. In this position, Mr. Smyth used his design, machining, and fabrication skills for the development of braking, suspension, and engine systems. He managed the dynamometer testing of engine components manufactured on-site. He also supported the engine management and data acquisition systems that were onboard these vehicles.

Academic Credentials & Professional Honors

B.S., Aerospace Engineering, Arizona State University, 1992

Scholastic Excellence Award, Arizona State University, 1990

Professional Affiliations

Society of Automotive Engineers (member)

Patents

US Patent Number 8,147,163 B2; April 3, 2012, Tire Rapid Entanglement and Arresting Device

Publications

Validation of Sled Tests for Far-Side Occupant Kinematics Using MADYMO, 2010-04-12, SEA Journal Article 2010-01-1160

Compressive Neck Injury and its Relationship to Head Contact and Torso Motion during Vehicle Rollovers, 2009-04-20, SAE Journal Article 2009-01-0829

Restraint Load Marks in Sled Testing Conducted with the Hybrid III 3-Year-Old and 6-Year-Old Anthropomorphic Test Devices, 2008-04-14, 2008-01-1239

Inertial Neck Injuries in Children Involved in Frontal Collisions, 2007-04-16, SAE Technical Paper 2007-01-1170

Smyth BJ, Smith J. Developing a sled test from crash test data. 2007-01-0711, SAE 2007 World Congress, Detroit, MI, April 16-19, 2007.

Cooper ER, Moffatt EA, Curzon AM, Smyth BJ, Orłowski KF. Repeatable dynamic rollover test procedure with controlled rollover impact. 2001-01-0476, SAE 2001 World Congress, Detroit, MI, March 5-8, 2001.