

**Harry Pearce, P.E.**  
**Senior Engineer**

**Professional Profile**

Mr. Harry Pearce is a Senior Engineer in Exponent's Vehicle Engineering practice. Mr. Pearce specializes in analyzing the safety of automobiles. He can explain the complex vehicle development process based on his 9 years at General Motors as a Lead Structural Engineer, and explain how that process utilizes real world collision data to develop the load cases to which vehicles are designed and validated. Mr. Pearce is experienced with creating peer vehicle lists and comparing their design and performance to that of a specific subject vehicle and the applicable Federal Motor Vehicle Safety Standards (FMVSS) and voluntary testing protocols. Design comparisons include structural topology overlays, interior occupant space analyses, overall plan and side view overlays, and safety technology insertion histories at the peer, model year, and multiple year levels. Mr. Pearce has created a database to show technology insertion at these multiple levels. Performance comparisons analyze testing results of the subject vehicle and those of its peers. Comparisons of deformation plots, deformation photos, and Anthropometric Test Device (ATD) injury levels can show how the subject vehicle compares to its peers, FMVSS standards, and Injury Assessment Reference Values (IARV). These comparisons permit conclusions relative to the subject vehicle's overall safety.

Mr. Pearce is also a trained accident reconstructionist, having conducted site inspections, vehicle inspections, momentum and energy analyses, and computer simulations. He is experienced in: the acquisition of all types and ages of automotive parts; photography and HD video acquisition, editing, and presentation; material testing; and component testing.

Prior to joining Exponent, Mr. Pearce held several lead design engineer positions at General Motors. Most recently, Mr. Pearce was the Upper Structure Lead Design Engineer for the Buick Enclave, Chevrolet Traverse, and GMC Acadia midsize crossovers. He was also chairman of the product development teams responsible for all aspects of the vehicle development process. Mr. Pearce was responsible for the release of math models for analytical validation and the construction of prototype vehicles for physical validation. Mr. Pearce has worked in assembly plants and is experienced with the manufacturing process from part stamping to final vehicle assembly. Mr. Pearce has extensive knowledge of the vehicle development process from initial design concept to production. He is well-versed in the engineering of the body to meet the multitude of vehicle requirements including roof crush, crashworthiness, durability, and metal forming. He is knowledgeable in materials selection, including the use of high strength steels and weld placement.

**Academic Credentials and Professional Honors**

M.S., Mechanical Engineering, Northwestern University, 1999

B.S., Mechanical Engineering, Rose-Hulman Institute of Technology (*summa cum laude*), 1997

Traffic Accident Reconstruction, Northwestern University Center for Public Safety, 2009

Cabell Fellowship, Northwestern University; Heminway Gold Medal (Valedictorian),  
Presidential Scholarship, Rose-Hulman Institute of Technology

### **Licenses and Certification**

Licensed Professional Engineer, Michigan, #6201057044

### **Publications**

Lange R, Pearce H, Jacuzzi E. Installation patterns for emerging injury mitigation technologies. 22<sup>nd</sup> International Technical Conference on the Enhanced Safety of Vehicles (ESV), Paper 11-0088, 2011.

Lange R, Jacuzzi E, Soderborg N, Pearce H. Injury mitigation technology applications and the relationships to vehicle mass, price, and fuel economy. 22<sup>nd</sup> International Technical Conference on the Enhanced Safety of Vehicles (ESV), Paper 11-0114, 2011.

Lange R, Soderborg N, Pearce H, Balavich K, Huang S. Side impact airbag efficacy, injury mitigation performance in vehicle models with and without side impact air bags and inflatable head protection. 22<sup>nd</sup> International Technical Conference on the Enhanced Safety of Vehicles (ESV), Paper 11-0115, 2011.

Lange R, Iyer M, Pearce H, Jacuzzi E, Croteau J. Rollover injury science and rollover crash typology. 22<sup>nd</sup> International Technical Conference on the Enhanced Safety of Vehicles (ESV), Paper 11-0116, 2011.

Balavich K, Soderborg N, Lange R, Pearce H. Deployment characteristics of seat mounted side impact airbags. 22<sup>nd</sup> International Technical Conference on the Enhanced Safety of Vehicles (ESV), Paper 11-0358, 2011.

Pearce H, Parker D. Lug nut trace analysis to determine velocity ratio. 2011 Society of Automotive Engineers (SAE) World Congress, SAE 2011-01-0282.

Pearce H. The design and construction of an intelligent power assist jib crane. Masters Thesis, Northwestern University, August 1999.

### **Professional Affiliations**

- Society of Automotive Engineers (peer reviewer)