

**Joseph Cuadrado, P.E.**  
**Engineer**

**Professional Profile**

Mr. Joseph Cuadrado is an Engineer in Exponent's Vehicle Engineering practice. He is experienced and has received specialized training in the areas of accident reconstruction and crash simulations, and supports a variety of full-scale vehicle tests performed at Exponent's Test and Engineering Center.

Mr. Cuadrado's education, training, and experience include technical accident investigation and reconstruction, vehicle dynamics, computer-aided-drafting (CAD) software, 3-D vehicle dynamics and collision simulation programs, as well as MADYMO and finite element modeling. His support has extended to the Technology Development practice Tire Rapid Entanglement and Arresting Device (TREAD) program. Mr. Cuadrado extensively contributed to the design, testing, and manufacturing of the non-lethal vehicle stopping device.

Prior to joining Exponent, Mr. Cuadrado attended The George Washington University, where his field of study was in transportation safety. His studies included vehicle crashworthiness, occupant safety, Federal Motor Vehicle Safety Standards (FMVSS), injury analysis, and crash test analysis. During this time, his research focused on the development of a Hybrid-III anthropomorphic test device (ATD) finite element model. Secondary research efforts included an analysis of the pedestrian crash data study (PCDS) to develop pedestrian impact risk curves.

For his Master's thesis, Mr. Cuadrado developed a methodology to duplicate the kinematics of a far-side occupant in a sled test. His research utilized a statistical analysis of the National Automotive Sampling System/Crashworthiness Data System (NASS/CDS), finite element modeling, and MADYMO modeling. The results of his research prove the feasibility of using sled tests as a means of testing far-side occupants for a wide range of crash environments, including cases with high yaw rates.

**Academic Credentials and Professional Honors**

M.S., Civil and Environmental Engineering (Transportation Safety emphasis), The George Washington University, 2008

B.S., Mechanical Engineering, Louisiana State University, 2006

Tau Beta Pi Engineering Honor Society

**Licenses and Certifications**

Registered Professional Mechanical Engineer, Arizona, #52964

Traffic Accident Reconstruction, Northwestern University Center for Public Safety, 2008

## **Publications**

Cuadrado J, Kuzel M, Crosby C, Ward N. A survey of driver side view mirror blindzone settings. XXIIIrd Annual International Occupational Ergonomics and Safety Conference, Tempe, AZ, 2010.

Cuadrado J, Smyth B, Smith J, Digges K. Validation of sled tests for far-side occupant kinematics using MADYMO. SAE 2010-01-1160.

Heller M, Kuzel M, Kwasniak A, Cuadrado J. Individuals' abilities and behaviors and current technologies in intersection crosswalks. ITE Journal, December 2008.

Cuadrado J, Dahdah S, Motevalli V. Analysis of the 1994–1998 pedestrian crash data study conducted by the National Automotive Sampling System (NASS). Transportation Research Board, 2008.

## **Presentations**

Cuadrado J. Recommended data collection coding variables for determination of “look-but-failed-to-see” accidents. 2010 Traffic Records Forum, July 27, 2010.

Cuadrado J. A survey of driver side view mirror blindzone settings. XXIIIrd Annual International Occupational Ergonomics and Safety Conference, June 11, 2010.

Cuadrado J. Validation of sled tests for far-side occupant kinematics using MADYMO. SAE Congress, April 15, 2010.

Cuadrado J. Inattentive blindness and change blindness: What are they and how do they apply in analyzing a case? National Association of Legal Investigators MidWinter Conference, 2010.

Cuadrado J, Dahdah S, Motevalli V. Analysis of the 1994–1998 pedestrian crash data study conducted by the National Automotive Sampling System (NASS), Transportation Research Board, 2008.

Cuadrado J, Nagabushano V, Digges K, Kan CD. Far-side corner impacts in vehicles—Analysis and development of sled test procedure. International Crashworthiness Conference, Kyoto, Japan, 2008.

## **Professional Affiliations**

- Society of Automotive Engineers
- Southwestern Association of Technical Accident Investigators—SATAI
- International Society for Occupational Ergonomics and Safety—ISOE