MARK U. MEISSNER
CURRICULUM VITAE

POSITION

Research and Consulting Engineer specializing in transportation accident analysis and reconstruction. Detailed analysis of data collected in the field following a collision to evaluate crash conditions, including photogrammetric representations, simulations and overall accident reconstruction. Additional research activities encompass advancements in the science of accident reconstruction as well as collision performance and evaluations of various vehicle components.

EXPERIENCE

Research and Consulting Engineer with **Collision Research and Analysis, Inc**. from June 2008 to present.

Has participated in the analysis and reconstruction of automobile collisions, including the computer simulation and reconstruction of vehicle dynamics and occupant and pedestrian kinematics. Additional activities include documentation and analysis of accident scenes, vehicles and the various subcomponents of vehicles, including the application of detailed computer animations for use in component analysis and crash reconstructions.

Graduate Research Assistant at the **Center for Applied Biomechanics**, School of Engineering, University of Virginia from 2002 to 2007.

Research and analysis of pedestrian impacts utilizing MADYMO 3D simulations with geometrically detailed and validated vehicle models for comparison against experimental tests of human model subcomponents and advanced pedestrian injury criteria, including comparative evaluations of pedestrian kinematics and injury prediction for adults and children upon impact with passenger vehicles.

Computational studies of the kinematic and injury responses of pedestrians with variable stances during collisions with vehicles to develop a procedure for the initialization of optimization software for use with design of experiment (DOE) analysis for crash reconstruction of pedestrian accidents.

Consulted in pedestrian impact studies in conjunction with Crash Injury Research and Engineering Network **(**CIREN) at the INOVA Fairfax Hospital Trauma Center, County of Fairfax, Virginia.

Design and analysis of a full scale impact system for the evaluation of vehicle to pedestrian collisions for use with high speed film and accelerometer data.

Comparison of the head injury risk and its causation between vehicle-pedestrian and road-pedestrian impacts.

EDUCATION

Masters of Science - Mechanical and Aerospace Engineering, 2007
University of Virginia - School of Engineering & Applied Science

Post Undergraduate Studies - Mechanical Engineering, Spring 2002
Columbia University - School of Engineering & Applied Science

Bachelor of Science - Mechanical Engineering, 2001
University of Vermont - College of Engineering and Mathematical Sciences

PROFESSIONAL AFFILIATIONS

Member of Society of Automotive Engineers (SAE) - 1998 to present
Member of Association for the Advancement of Automotive Medicine (AAAM) - 2002 to present

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PUBLICATIONS & JOURNAL ARTICLES

Ito, O, Okamoto, M, Takahashi, Y, Mori, F, Meissner, MU, Untaroiu, CD, Crandall, JR. (2007) Validation of a human FE model for child pedestrian. Paper 20075374, JSAE Annual Congress (in Japanese).

Ito O., Okamoto M., Takahashi Y., Mori F., Meissner M., Untaroiu C., and Crandall J. (2008). Validation of a human FE lower limb model for a child pedestrian against accident data, JSAE Transaction, 39(1):21-26.

Ito, O, Okamoto, M, Takahashi, Y, Mori, F, Meissner, MU, Untaroiu, CD, Crandall, JR. (2007) Validation of a human FE lower limb model for a child pedestrian against accident data. IRCOBI Conference on the Biomechanics of Impact.

Longhitano, D, Burke, C, Bean, J, Watts, D, Fakhry, S, Meissner, MU, Ivarsson, BJ, Sherwood, CP, Crandall, JR, Takahashi, Y, Kadotani, Y, Hitchcock, R, Kinoshita, Y. (2005) Application of the CIREN Methodology to the Study of Pedestrian Crash Injuries. Paper 05-0404, Proceedings of the 19th International Technical Conference on the Enhanced Safety of Vehicles.

Kam CY, Kerrigan, JR, Meissner, MU, Drinkwater, C, Murphy, DB, Bolton, JR, Arregui, C, Kendall, R, Ivarsson, BJ, Crandall, JR, Deng, B, Wang, J, Kerkeling, C, Hahn, W. (2005) Design of a full-scale impact system for analysis of vehicle pedestrian collisions. SAE Transactions: Journal of Passenger Cars-Mechanical Systems, 114(6): 2268-2282. Based on SAE Paper 2005-01-1875.

Kendall, R, Meissner, MU, Crandall, JR. (2006) The Causes of Head Injury in Vehicle-Pedestrian Impacts: Comparing the Relative Danger of Vehicle and Road Surface. Paper 2006-01-0462, Society of Automotive Engineers.

Meissner, MU, van Rooij, L, Bhalla, K, Crandall, JR, Longhitano, D, Takahashi, Y, Dokko, Y, Kikuchi, Y. (2004) A Multi-Body Computational Study of the Kinematic and Injury Response of a Pedestrian with Variable Stance upon Impact with a Vehicle. Paper 2004-01-1607, Society of Automotive Engineers.

Meissner, MU (2007) Crash Reconstruction of Vehicle-to-Pedestrian Crash Events Using Optimization Software. MS Thesis, University of Virginia, Charlottesville, Virginia

Untaroiu, CD, Meissner, MU, Crandall, JR, Takahashi, Y, Okamoto, M, Ito, O. (2009) Crash Reconstruction of Pedestrian Accidents using Optimization Techniques. International Journal of Impact Engineering, International Journal of Impact Engineering 36 pp210–219

van Rooij, L, Meissner, MU, Bhalla, K, Crandall, JR, Longhitano, D, Takahashi, Y, Dokko, Y, Kikuchi, Y. (2004) A comparative evaluation of pedestrian kinematics and injury prediction for adults and children upon impact with a passenger car. Paper 2004-01-1606, Society of Automotive Engineers.

van Rooij, L, Bhalla, K, Meissner, MU, Ivarsson, BJ, Crandall, JR, Longhitano, D, Takahashi, Y, Kikuchi, Y. (2003) Pedestrian Crash Reconstruction using Multi-body Modeling with Geometrically Detailed Validated, Vehicle Models and Advanced Pedestrian Injury Criteria. Paper 468, Proceedings of the 18th International Technical Conference on the Enhanced Safety of Vehicles.

van Rooij, L, Meissner, MU, Bhalla, K, Crandall, JR. (2003) The Evaluation of the Kinematics of the MADYMO Human Pedestrian Model Against Experimental Tests and the Influence of a More Biofidelic Knee Joint. TNO MADYMO 5th Users' Meeting of the Americas.