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Engineering & Scientific Consulting

Cleve Bare, P.E.

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Professional Profile

Mr. Bare specializes in the analysis and reconstruction of motor vehicle crashes involving passenger cars, light and heavy trucks, and sport utility vehicles. He has over 30 years of experience in the reconstruction of complex accident situations including high-speed collisions, pole/guard rail impacts, and post-collision fuel-fed fires. In the process of his analysis, he has conducted numerous physical demonstrations including high and low-speed full-scale crash tests, vehicle component and restraint system testing, and handling demonstrations.

Mr. Bare has particular expertise in the investigation of vehicle rollover crashes including assessments of vehicle handling, tire/component failure, rollover dynamics, and rollover stability. He has an in-depth background in the analysis of computer programs and simulations used for vehicle dynamics, rollover simulation, and the reconstruction of crashes.

Mr. Bare is experienced in the evaluation and use of event data recorder (EDR) data found in airbag control modules (ACM) and heavy truck electronic control modules (ECM). He has extensive background in the testing and evaluation of the accuracy and timing of the data recorded by EDRs. Other research activities of Mr. Bare include evaluations of vehicle and occupant response during heavy truck sideswipe collisions, roof crush during rollover crashes, energy dissipation during high-speed collisions, and the assessment of the energy associated with utility pole fracture.

Academic Credentials & Professional Honors

M.S., Mechanical and Aerospace Engineering, University of Missouri, Columbia, 1990

B.S., Mechanical Engineering, University of Missouri, Columbia, 1988

Pi Tau Sigma

2010 SAE Arch T. Colwell Merit Award for outstanding paper (2010-01-0515)

Prior Experience

Consultant/Engineer, M. P. Holcomb Engineering Corporation, 1995-2005

Engineer, Biodynamic Research Corporation, 1991-1994

Research Assistant, University of Missouri, 1988-1990

Professional Affiliations

Association for the Advancement of Automotive Medicine

National Society of Professional Engineers

Society of Automotive Engineers

Patents

United States Patent No. US8,147,163 B2: Tire Rapid Entanglement and Arresting Device, April 3, 2012 (with B. Smyth, J. Pye).

Publications

Crosby C, Skiera J, Bare C, Como S, McDowell E, Passenger vehicle response and damage characteristics of front and rear structures during low- to moderate-speed impacts. SAE 2019-01-0415, SAE International, 2019.

Skiera J, Crosby C, Bare C, Paradiso M, Campbell G, Passenger vehicle dynamic response and characterization of side structure during low- to moderate-speed side impacts, SAE 2019-01-0420, SAE International, 2019.

Larson R, Croteau J, Bare C, Zolock J, Peterson D, Skiera J, Kerrigan J, Clauser M. Steering maneuver with furrow-tripped rollover of a pickup and passenger car. SAE 2015-01-1477, SAE International, 2015.

Bare C, Peterson D, Marine M, Welsh K. Energy dissipation in high speed frontal collisions. SAE 2013-01-0770, SAE International, 2013.

Bare C, Everest B, Floyd D, Nunan D. Analysis of pre-crash data transferred over the serial data bus and utilized by the SDM-DS Module. SAE 2011-01-0809, SAE International, April 2011.

Fittanto D, Bare C, Smith J, Mkandawire C. Passenger vehicle response to low-speed impacts involving a tractor-semitrailer. SAE 2011-01-0291, SAE International, 2011.

Allen Rodowicz K, Dupont K, Smedley J, Raasch C, Mkandawire C, Fittanto D, Bare C, Smith J. Passenger vehicle occupant response to low-speed impacts with a tractor-semitrailer. SAE 2011-01-1125, SAE International, 2011.

Croteau J, Frank B, Peterson D, Bare C, Kyanka G. Timber utility pole fracture mechanics due to non-deformable and deformable moving barrier impacts. SAE 2011-01-0288, SAE International, 2011.

Heckman G, Kim R, Khan F, Bare C, Yamaguchi G. Auditory localization of backup alarms: the effects of alarm mounting location. SAE 2011-01-0086, SAE International, 2011.

Croteau J, Zolock J, Larson R, Bare C, Peterson D, Parker D. Dynamic response of vehicle roof structure and ATD neck loading during dolly rollover tests. SAE 2010-01-0515, SAE International, 2010.

Pierce J, Carhart M, Bare C, Blakeslee A, Heald J. Retention characteristics of production laminated side windows. SAE 2007-01-0376, SAE International, 2007.

Moore T, Gloeckner C, Steffey D, Le-Resnick H, Bare C, Corrigan CF. Implications of vehicle roll direction on occupant ejection and injury risk. Association for the Advancement of Automotive Medicine, 50th Annual Scientific Conference, Chicago, IL, October 15-18, 2006.

Howard RP, Bomar J, Bare C. Vehicle restitution response in low velocity collisions. SAE #931842, SAE

International, 1993.

Nalecz AG, Bare C. Development and analysis of intermediate tripped vehicle rollover model (ITRS). NHTSA - U.S. DOT Final Report #HS 807 614, 1989.

Nalecz AG, Bindemann AC, Bare C. Sensitivity analysis of vehicle tripped rollover model. NHTSA - U.S. DOT Final Report #HS 807 300, July 1988.

Presentations Bare C. Analysis of pre-crash data transferred over the serial data bus and utilized by the SDM-DS module. SAE 2011 Highway Vehicle Event Data Recorder Symposium, June, 2011.

Additional Education & Training

Accessing and Interpreting Heavy Vehicle Event Data Recorders, 2022

Advanced Crash Reconstruction Utilizing Human Factors, 2015

Accessing and Interpreting Heavy Vehicle Event Data Recorders, 2014

Collision Data Retrieval - Analysis and Applications Update, 2012

SAE 2011 Event Data Recorder Symposium, 2011

PhotoModeler Collision Investigation, 2008

Collision Data Retrieval - Technician and Data Analyst Certification, 2008

Bendix Brake Training School, 2008

Highway Vehicle Event Data Recorder Symposium, 2007

Collision Data Retrieval - Technician and Data Analyst Certification, 2006

Automotive Glazing Materials, 2005

Methodology and Techniques of Crash Data Retrieval, 2005

Rollover Safety, 2004

Tire and Wheel Safety Issues, 2002

The Tire as a Vehicle Component, 2002

Passenger Vehicle Rollover TOPTEC: Causes, Prevention and Injury Prevalence, 2002

Accident Reconstruction TOPTEC: Special Topics, 2001

Heavy Vehicle Rollover TOPTEC, Prevention, Analysis and Reconstruction, 2000

Commercial Vehicle Rollover Workshop, 2000

Fundamentals of Sensor Design for Automotive Air Bag Systems, 1999

Commercial Vehicle Collision Reconstruction - Joint Annual Conference, 1999

Passenger Car Rollover TOPTEC: Cause and Prevention, 1999

High Performance Driving Course, Bondurant School of High Performance Driving, 1998

Vehicle Rollovers TOPTEC: An Update of Current Issues, 1993

Overview of Automotive Vehicle Dynamics Before & After A Collision, 1992

BH2VK Crash Testing Project, 1992

Traffic Accident Reconstruction, Northwestern University Traffic Institute, 1991