

McHenry Consultants, Inc.

PO Box 1716

Cary, North Carolina 27512

(919)-468-9266

Resume of Brian G. McHenry

Professional Experience

1980 to date. Vice President, Staff Scientist, McHenry Consultants, Inc., Cary, North Carolina.

Technical duties: Investigation and reconstruction of over 900 motor vehicle accidents including applications of the SMAC, CRASH, HVOSM and CVS/ATB computer programs; Research applications, including development and refinement of the SMAC, CRASH, HVOSM and CVS/ATB computer programs and the design and implementation of auxiliary pre-processing and post-processing routines; analysis of contributing factors in motor vehicle accidents; preparation of graphic displays including computerized animations for illustrating reconstruction results and engineering principles in motor vehicle accidents; accident scene and vehicle documentation and measurements; photography including processing and printing; documentation of technical data related to motor vehicle and highway specifications, design features and corresponding test results; state of the art literature reviews.

1979 to 1980. Engineering Technician, Research Engineers, Inc., Research Triangle Park, North Carolina. Technical duties: Operation of SMAC, CRASH and HVOSM computer programs in the reconstruction of motor vehicle collisions; analysis of contributing factors in motor vehicle collisions including vehicle defect analysis; preparation of graphics to illustrate reconstruction results and engineering principles in motor vehicle collisions; photography, including processing and printing of black-and-white and color film; search for and documentation of technical data related to motor vehicle and highway specifications, design features and corresponding test results.

Publications

- [1] **"National Crash Severity Study - Quality Control - Task V: Analysis to Refine Spinout Aspects of CRASH"**, Contract DOT-HS-6-01442, January 1981 (with R. R. McHenry)
- [2] **"Effectiveness of Design Criteria for Geometric Elements - Follow-up HVOSM Studies of Highway Curb Impacts"**, Report FHWA-11-9575, November 1981 (with R. R. McHenry; J.C. Glennon; T. R. Neuman).
- [3] **"HVOSM Studies of Cross-Slope Breaks on Highway Curves"**, Contract DOT-FH-11-9575, PB33 191619; May 1982 (with J.C. Glennon, T.R. Neuman and R. R. McHenry).
- [4] **"HVOSM Studies of Highway Cross Slope Design"**, Contract DOT-FH-11-9575, PB86 114840; Oct 1983 (with J.C. Glennon, T.R. Neuman)
- [5] **"Prediction of the Sensitivity of Vehicle Dynamics to Highway Curve Geometrics by Using Computer Simulation"**, January 1983, Transportation Research Board Record 923, (with J.C. Glennon; T.R. Neuman).
- [6] **"Comparison of Simulation Programs - Task E Progress Report"**, Contract DOT-FH-11-9575; April 1983
- [7] **"HVOSM Studies of Highway Centerline Crowns"**, Contract DOT-FH-11-9575' October 1983 (with J.C. Glennon, T.R. Neuman).
- [8] **"A Revised Damage Analysis Procedure for the CRASH Computer Program"**, SAE paper No. 861894, Presented at the 30th STAPP Car Conference, October 1986; also published in 1986 SAE Transaction, Vol. 95, Journal of Passenger Cars; also published in SAE book Reconstruction of Motor Vehicle Accidents: A Technical Compendium; SAE publication PT-34.(with R.R. McHenry)
- [9] **"Safe Geometric Design for Minicars"**, March 1987; Contract # FHWA/RD-87/047; PB89-185037; Highway Safety Research Center, University of North Carolina, Chapel Hill, N.C. (with F.M. Council, D.W. Reinfurt, R. N. Knoblauch, J.R. Stewart)
- [10] **"Simulation Models of Vehicle Dynamics"**, presented November 1987, National Conference on Future Improvements to and Supplemental Guidance for AASHTO Policy on Geometric Design of Highways and Streets; Published April 1992, Transportation Research Board Circular "Beyond the Green Book".
- [11] **"SMAC-87"**, SAE Technical Paper No. 880227, Presented at the International Congress and Exposition, Detroit, Michigan, March 1988; also published in 1988 SAE Transactions, Vol 97; Journal of Passenger Cars; (with R. R. McHenry).
- [12] **"HVOSM-87"**, SAE Technical Paper No. 880228, Presented at the International Congress and Exposition, Detroit, Michigan, March 1988 (with R. R. McHenry).
- [13] **"Effects of Restitution in the Application of Crush Coefficients"**, SAE Paper No. 970960, 1997; also published in SAE book Crash Reconstruction Research: 20 Years of Progress (1988-2007), PT-138, also published in 1997 SAE Transactions, Vol 106; Journal of Passenger Cars; (with R. R.. McHenry).
- [14] **"SMAC-97 - Refinement of the Collision Algorithm"**, SAE Paper No. 970947, 1997;also published in 1997 SAE Transactions, Vol 106; Journal of Passenger Cars; (with R. R. McHenry).
- [15] **"CRASH-97 - Refinement of the Trajectory Solution Procedure"**, SAE Paper No. 970949, 1997;also published in 1997 SAE Transactions, Vol 106; Journal of Passenger Cars; (with R. R. McHenry).
- [16] **"RICSAC-97 - A Reevaluation of the Reference Set of Full Scale Crash Tests"**, SAE Paper No. 970961, 1997; also published in 1997 SAE Transactions, Vol 106; Journal of Passenger Cars; (with R. R. McHenry).
- [17] **McHenry Accident Reconstruction**, 1998-2003, McHenry Software, Inc. (with R. R. McHenry).
- [18] **"The Algorithms of CRASH"**, Southeast Accident Reconstruction Society Annual Conference, Cocoa Beach, FL.
(<http://www.mchenrysoftware.com/SECCC%20Presentation.pdf>)

Publications (cont.)

- [19] "Occupant Kinematics in Forensics: Evaluating the Appropriateness and Applicability of an ATB Application", Presented 2002 ATB Users' Conference, Patuxent River, MD (<http://www.mchenrysoftware.com/McHenry.pdf>)
- [20] "SMAC2003 – The Automatic Iteration of SMAC", SAE Paper No. 2003-01-0486, presented at 2003 SAE International Congress, Detroit, MI, March 2003 (with R.R. McHenry).
- [21] "Head Injury Criterion and the ATB", Presented at the 2004 ATB Users' Conference, September, 2004, Salt Lake City, UT (<http://www.mchenrysoftware.com/HIC%20and%20the%20ATB.pdf>)
- [22] "Evaluating Computer Modeling, Simulation & Animation", Presented at 21st IATAI Conference, Bloomington, IL, Sept 2007 (http://www.mchenrysoftware.com/McHenry_IATAI_2007_Presentation.pdf)
- [23] "A Short History of Nearly Everything! (...about McHenry and Computers in Highway Safety)", *Collision Magazine*, Volume 6, Issue 2 - Fall 2011
- [24] "CRASH Damage Analysis", Raymond R. & Brian G. McHenry, McHenry Software, 2014 NAPARS Conference, Portland, Maine, Sept 2014
- [25] "The Proper Use of Simulation Technology for Collision and Rollover Reconstructions", Brian G. McHenry, McHenry Software, May 2015, 2015 IPTM Special Problems
- [26] "A Review of the Development and Validation of Simulation Tech for Accident Reconstruction", Brian G. McHenry, McHenry Software, Dec 2015, *Collision Magazine*, Volume 10, issue 2
- [27] "Investigation of EDR Data From a High Speed Crash with 3D Simulation", Brian G. McHenry, McHenry Software, May 2022, *Collision Magazine*, Volume 16, issue 1

Awards

- **2003: Excellence in Oral Presentation**, SAE International, for presentation entitled "*SMAC2003: The Automatic Iteration of SMAC*" at the SAE World Congress, March 2003

Seminars, Presentations, Special Projects

- **Jan 2017**, Hired by Jaguar UK to create a spiral jump stunt for the 2018 Jaguar E-Pace Rollover Rollout Stunt July 2017
- **May 2015**: Keynote Speaker on "*The Proper Use of Simulation Technology for Collision and Rollover Reconstructions and Highway Safety*", 2015 Institute of Police Technology & Management (IPTM) Special Problems, Clearwater Beach, FL
- **Sept 2014**: Speaker on "*Crash Damage and Energy*", National Association of Professional Accident Reconstruction Specialists (NAPARS) Conference, Portland, Maine
- **May 2011**: Speaker at the 2011 ARC-CSI conference, "*A Short History of Nearly Everything! (...about McHenry and Computers in Highway Safety)*", May 2011, Las Vegas
- **October 2008**: Instructor at 3 day *McHenry Accident Reconstruction Seminar 2008*, Raleigh, NC
- **Sept 2007**: "*Evaluating Computer Modeling, Simulation & Animation*" Presentation at the 21st IATAI Conference
- **March 2007**: "*Forensic Engineering*" presentation at ASME Eastern NC Section meeting
- **Sept 2004**: Presented Paper "*Head Injury Criterion and the ATB*", at the 2004 ATB Users' Conference, Salt Lake City, UT
- **April 2003**: Instructor at 3 day *McHenry Software Training 2003*, Raleigh, NC
- **May 2002**: Instructor at 3 day *McHenry Software Training 2002*, Raleigh, NC
- **April 2002**: Presented paper "*Occupant Kinematics in Forensics: Evaluating the Appropriateness and Applicability of an ATB Application*" at the 2002 ATB Users' Conference, Patuxent River, MD
- **August 2001**: Presented paper "*The Algorithms of CRASH*" at the Southeast Accident Reconstruction Society Annual Conference in Cocoa Beach, FL.
- **November 2000**: Instructor at 3 day *McHenry Accident Reconstruction Seminar 2000*, Los Angeles, CA
- **December 1999**: Speaker on "*SMAC Computer Program*", at Society of Automotive Engineers (SAE) TOPTEC "Accident Reconstruction - State of the Art", Costa Mesa, CA.
- **March 2000, May 1999**: Served on Federal Highway Expert Panel for "*Effects of Highway Design on Rollover*", Highway Safety Research Center, Chapel Hill, NC, , Federal Highway Contract DTFH61-98-C-00057
- **March 1999**: Instructor for a 5 day Accident Reconstruction Seminar, Road Accident Research Unit (RARU), The University of Adelaide, Adelaide, Australia
- **October 1998**: Instructor at 3 day *McHenry Accident Reconstruction Seminar, 1998*, Raleigh, NC
- **May 1998**: Hired by CBS News to reconstruct the Princess Di accident for the television program "**48 Hours**". Presented results and answered questions in interview broadcast on June 11, 1998 and August 31, 1998.
- **Various 1998-2000**: Consultant to National Traffic Safety Board (NTSB) for special projects including the simulation of school bus/tractor trailer collisions.
- **May 1994**: Instructor for a 5 day Accident Reconstruction Seminar, Road Accident Research Unit (RARU), The University of Adelaide, Adelaide, Australia

Education

- North Carolina State University, Raleigh, North Carolina, part-time 1980-83; Engineering, Computer Science
- University of Buffalo, Buffalo, New York, 1975 to 1978, Engineering, Computer Science, Photography, Graphic Arts, Accounting
- University of Michigan. Ann Arbor, Michigan, 1974 to 1975, Engineering Physics