

# *McHenry Consultants, Inc.*

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Resume of  
**Brian G. McHenry**

## **Professional Experience**

**1994 to date.** President, McHenry Software, Inc., Cary, North Carolina. Technical duties: Development, marketing, training of accident reconstruction computer programs and tools.

**1980 to date.** Vice President, Research Associate, 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.

## **List of Seminars Where Invited Speaker or Instructor:**

- **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 at the 2014 National Association of Professional Accident Reconstruction Specialists (NAPARS) conference, **"Crush Damage and Energy"**, Portland, Maine
- **May 2011:** Speaker at the 2011 ARC-CSI conference, **"A Short History of Nearly Everything! (...about McHenry and Computers in Highway Safety)"**, 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 Illinois Association of technical Accident Investigators (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

## Awards

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

## 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. **"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).
5. **"Comparison of Simulation Programs - Task E Progress Report"**, Contract DOT-FH-11-9575; April 1983
6. **"HVOSM Studies of Highway Centerline Crowns"**, Contract DOT-FH-11-9575' October 1983 (with J.C. Glennon, T.R. Neuman).
7. **"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 Reconstruction of Motor Vehicle Accidents: A Technical Compendium; SAE publication PT-34. (with R.R. McHenry)
8. **"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)
9. **"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".
10. **"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).
11. **"HVOSM-87"**, SAE Technical Paper No. 880228, Presented at the International Congress and Exposition, Detroit, Michigan, March 1988 (with R. R. McHenry).
12. **"Effects of Restitution in the Application of Crush Coefficients"**, SAE Paper No. 970960, 1997; also published in 1997 SAE Transactions, Vol 106; Journal of Passenger Cars; (with R. R. McHenry).
13. **"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).
14. **"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).
15. **"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).
16. **McHenry Accident Reconstruction**, 1998 & 2000, McHenry Software, Inc. (with R. R. McHenry).
17. **"The Algorithms of CRASH"**, Southeast Accident Reconstruction Society Annual Conference, Cocoa Beach, FL.
18. **"Occupant Kinematics in Forensics: Evaluating the Appropriateness and Applicability of an ATB Application"**, Presented 2002 ATB Users' Conference, Patuxent River, MD
19. **"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).
20. **"Head Injury Criterion and the ATB"**, Presented at the 2004 ATB Users' Conference, September, 2004, Salt Lake City, UT
21. **"Evaluating Computer Modeling, Simulation & Animation"**, Presented at 21st IATAI Conference, Bloomington, IL, Sept 2007
22. **"A Short History of Nearly Everything! (...about McHenry and Computers in Highway Safety)"**, Collision Magazine, Volume 6, Issue 2 - Fall 2011, Presented at 2011 ARCCSI Conference, Las Vegas, NV
23. **"CRASH Damage Analysis"**, 2014 NAPARS Conference, Portland, Maine, Sept 2014, (w /Raymond McHenry)
24. **"The Proper Use of Simulation Technology for Collision and Rollover Reconstructions and Highway Safety"**, May 2015, 2015 IPTM Special Problems
25. **"A Review of the Development and Validation of Simulation Technology for Vehicular Accident Reconstruction"**, Collision Magazine, Volume 10, Issue 2 - Fall 2015

## 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