

Hendrik B. Helleman		
<u>Phone</u>	<i>Restraint Systems</i>	<u>Fax</u>
248-328-0231	<i>Specialist</i>	248-328-0231
3221 Quick Rd., Holly, MI 48442		
email: Helleman@hork.com		web: http://www.hork.com

1. CAREER FOCUS

Over 20 Years Industry Experience – Occupant and Vehicle Safety Engineering	
Airbag Systems Analysis & Design	Side Impact Sensing Strategies
Frontal, Side-Impact, and Roll-Over Restraints Design & Analysis	Occupant Position & Classification Sensor Development
Deployment Risk Analysis & Injury Risk Mitigation	Vehicle Crash & Occupant Kinematics, and Injury Risk Analysis

EDUCATIONAL BACKGROUND:

- Aerospace Engineering (BSc), Haarlem Polytechnic College, 6/85
- Computer Science, Delft University, 6/92

PROFESSIONAL CONTRIBUTIONS:

- 4 Issued Vehicle Occupant Safety Technology Patents;
- Member of the SAE Pedestrian Dummy Task Group;
- Over 30 Technical Reports, Papers, Lectures, and Presentations.

2. PROFESSIONAL EXPERIENCE

2008 – 2011 Consultant, Vehicle and Occupant Crash Safety, MI

- Advanced Airbag Rule: Specifications, Chronology, and Implementation Research;
- Airbag Deployment Algorithm Evaluation;
- Crash Sensor Systems Capabilities Evaluation;
- Accident Statistics Research;
- Injury Biomechanics Research;
- Assessment of Occupant Classification Systems Capabilities;
- Restraints System Requirements Specification for Frontal and Side Impact;
- Analysis of Electric Vehicle Battery Containment Structures;

2000 – 2008 Takata Electronics, MI - Manager, Restraint Systems Research

In this function directly involved in the research and development of Frontal, Side-Impact, and Roll-Over Occupant Restraint Systems, including:

- Advanced Airbag Systems – Design and Assessment;
- Inflation Injury Risk Assessment to Out-of-Position Occupants (Low Risk Deployment);
- Ejection Mitigation and Gap Closure Timing studies for Roll-Over accidents;
- Active and Passive Tailored Response Restraint Systems;
- Patent Research and Intellectual Property Development;
- Participation in the Global Human Body Modeling Effort;
- Side Impact Sensing Strategies, Side Curtain Design; Adaptive Side-Impact Restraints;
- Pre-crash Strategies, Active / Passive Safety Systems Integration.

1998 – 2000 Consultant, Vehicle Occupant Safety and Restraint Systems, MI

- Vehicle Occupant Classification Sensor Systems Development;
- Proof of Concept Assessment of a Highly Aspirated Airbag Inflator;
- Simulation Analysis of Injury Risk from Airbag Tether Failure;
- Assessment of the Injury Potential of different Passenger Airbag Door Designs;
- Simulation Analysis of Head Injury Mitigation Potential of Side Airbags;
- Assessment and counter check of Seat Belt and Roll-Over Analysis.

1995 – 1998 Breed Technologies, FL

- **Manager Restraint Systems Engineering (1997/98)**
- **Restraint Systems Development Lead Engineer (1995/97)**

The scope of work included the following:

- De-Powered and Advanced Frontal Airbag Systems Research;
- Side Impact Injury Risk Assessment and Mitigation;
- Total Restraint Systems Analysis;
- Lower Limb Injury Mitigation Research;
- Restraint Systems Integration for several vehicle platforms.

1985 – 1994 TNO (Dutch organization for applied scientific research), Netherlands

- **Software and Crash Dummy Database Development Engineer (1989/95)**
- **Materials Research Engineer (1985/89))**
 - Provided Training for Occupant Simulation Analysis to Customers, world wide;
 - Contributed Finite Element Airbag Analysis code to the TNO-MADYMO Crash-Victim Simulation software suite;
 - Developed Numerical Databases of Crash Dummies for Simulation Analysis;
 - Conducted Materials Research into fiber composites, plastics, and rubbers for applications in automobiles, aircraft, satellites, and orthopedic devices.

3. PROFESSIONAL CITATIONS

ISSUED & PENDING PATENTS

US 7,905,516 *Airbag Module with Integrated Gas Generation.*
 US 6,529,809 *Method of developing a system for identifying an object in a vehicle.*
 US 5,924,723 *Side Safety Barrier Device.*
 US 5,695,242 *Seat Cushion Restraint System.*

PUBLISHED REPORTS, CONTRIBUTIONS AND LECTURES

ESV 07-0368 *Adaptive Side Impact Restraints using Intrusion Based Sensing.*
 SAE J2782 *Surface Vehicle Recommended Practice: Performance Specifications for a 50th Percentile Male Pedestrian Research Dummy.*
 DN 10/04 *Simulation Saves Time – featured article Design News Magazine.*
 UNC 11/99 *Airbags as they relate to Accident Reconstruction, Crashworthiness & Biomechanics - lecture.*
 SAE 960503 *Seat and Airbag Design to Mitigate frontal crash lower limb injuries.*
 ESV 91S9023 *The MADYMO Finite Element Airbag Model.*

DEPOSITION

Fahey v. Ford Randolph Co., IL; court# 00-L-759; 13-Nov-2000;
 Donohue, Brown, Mathewson & Smyth (Atny. for Defense)
 Newsom v. Cardoza Fulton Co., Ga; court# 2007-EV-002252A; 24-Mar-2010;
 Wiggins, Norris, Coffey LLC. (Atny. for Plaintiff)

CUSTOMER EXPERIENCE : BMW, Chrysler, Fiat, Ford, GM, Honda, Hyundai, Jaguar, Lotus, Mazda, Tesla Motors, Toyota, Volvo.

CAE SOFTWARE EXPERIENCE : ATB, MADYMO, LS-Dyna, Dytran, Pam-Safe.

-/-