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CURRICULUM VITAE

SUMMARY

Accomplished Automotive Safety Engineer and recognized technical expert in Occupant Performance Risk Assessment. Professional experience in automotive design, physical testing, occupant injury risk assessment, Federal Motor Vehicle Safety Specifications (FMVSS), field performance evaluation, computer analysis, and injury biomechanics.

EDUCATION

Ph.D. Mechanical Engineering Design Division, Stanford University

MSME Stanford University

BSME General Motors Institute (Kettering University, Flint MI)

PROFESSIONAL EXPERIENCE

- Jan. 2010 - present **Accident Reconstruction & Biomechanics, Inc.**
Los Angeles, San Francisco, Arroyo Grande, and Davis, CA
Senior Engineer
Reconstruction and biomechanical analysis of accidents.
- Jan. 2010 - present **Crashteam California Coast**
Partner for all areas of California
- 1977 – 2008 **General Motors Technical Center**, Warren MI,
- Global Vehicle Development and Integration (2004-2008)
- Safety Integration (1987-2004)
- North America Car Group (1977-1987)

AUTOMOTIVE SAFETY INTEGRATION

Frontal Impact Risk Assessment

- Conducted occupant injury risk assessment on vehicle designs. Applied results from these analyses to develop components/systems that minimize risk of injury.
- Developed corporate-wide “Design Best Practices” that define guidelines to minimize risk of injury to occupants during frontal impact.
- Applied knowledge of hip and leg injury mechanisms to develop design criteria to mitigate injury of lower extremities during frontal impact.
- Established link between knee contact characteristics and the occupant’s head trajectory. Developed design guidelines to minimize risk of head injury during frontal impact.

Vehicle and Component Physical Testing

- Highly experienced with designing, configuring, and running physical tests on mechanical/automotive components, sub-systems and complete vehicles (1977-2008).
- Thorough understanding of the limitations of test data, the interpretation of results and applicability towards the test objective.
- Substantial experience with camera coverage, film analysis, force transducers, accelerometers, string potentiometers, contact detectors and post test examination.
- Utilized test results to verify math models, confirm performance hypotheses, support predictions, apply results to vehicle design, and extrapolate test results when appropriate.
- Designed unique test configurations in conjunction with non-standard test conditions to enable additional understandings of potential injury mechanisms.

Field Performance Evaluation

- Worked with public domain databases such as “FARS” (Fatal Accident Reporting System) and NHTSA’s NCAP (National Highway and Transportation Systems Administration New Car Assessment Program) to evaluate field performance of selected vehicle designs.
- Familiar with the Crash Injury Research Engineering Network (CIREN) organization and its associated database. CIREN looks at the total impact of automotive occupant injury. This includes a detailed analysis of the injury causing mechanisms, treatments, impact on quality of life, and long-term costs of severe injuries.
- Completed Risk of Injury assessments of vehicle parameters based on available, however imperfect, field and test data.
- Able to assess changes in risk when external factors have been altered (i.e. expansion of FMVSS208, increases in obesity, and changing demographics).

Federal Regulation and Safety Standards

- Detailed knowledge of FMVSS208 safety regulation with solid knowledge of other safety regulations.
- Experienced with the process of new law development and the regulatory process.
- Acquainted with NHTSA's Bioengineering Department and NCAP group.
- Knowledgeable about side, rear and roll-over test conditions

Computer Simulations

- Extensive computer modeling experience using both lumped parameter modeling (such as Madymo) and finite element modeling, including Dyna3d.
- Capable of developing models, running analysis, and post-processing the results.
- Capable of evaluating the applicability and quality of computer simulations.

Occupant Performance Committee Member

- Member of several Occupant Performance Related Committees and Work groups from 1987-2008.
- Member of the Occupant Performance Assessment Committee (2000-2004) which establishes Occupant Injury Assessment Reference Value (IARV) Criteria for GM products. These criteria are supported and used by the GM Safety Council.

Anthropometric Test Device (ATD) Expert

- 21 years experience with "crash dummies" (ATDs), their capabilities and unique features.
- Worked extensively with 5% female, 50% male, 95% male, and 6- and 10-year-old child sized ATDs to understand and facilitate their applicability in the automotive design process.
- Pioneered testing the newly released 10-year-old ATD, including a "Panic Braking" condition and "Head near airbag" deployment condition.
- Applied knowledge of ATD performance to establish links between test results, literature and field performance and the design of automotive interiors.

Advanced Vehicle Development Occupant Performance Design Consultant

- Resident Occupant Performance expert 1996-2004 in Advanced Vehicle Development. Consultation given to designers, safety engineers and management on future GM vehicles.
- Presentations given to Design Staff supporting occupant performance issues when controversial designs were proposed.
- Provided relevant and essential information to management when design trade-offs were evaluated.

Restraint System Influence on Child-sized ATDs

- Experience in both physical testing and computer simulations of restraint systems and their influences on the 6- and 10-year-old sized ATDs.
- Evaluated “Out of Position” (OOP) seating conditions, panic breaking, various seat belt configurations, influence of seat design, front and rear seat placement, and airbag parameters on the 6- and 10-year-old sized ATDs.
- Developed corporate “Best Practice” on the Passenger side airbag module placement to mitigate influence of airbag deployment on children (especially those in OOP conditions).

RELATED SKILLS AND EXPERIENCE

Comprehensive understanding of the automotive industry

- Involved with the design of the entire vehicle.
- Experience and comprehension of the trade-off decision-making process when developing the vehicle content and performance requirements.
- Professional contacts throughout the automotive industry and research community including NHTSA, UMTRI, and CIREN.

Global Interactions

- Worked with GM’s Global Partners during joint engineering projects.
- Provided input and consultation to GM’s global partners in Mexico, Brazil, Australia, Germany, Sweden, Korea and China.
- Exposure to foreign regulations.

Information Technology

- Extensive knowledge of computers and Information technology due to nature of executing computer simulations of crash events.
- Proficient in both Unix and DOS (Windows) environments.

HONORS

- Chairman of ASME Bioengineering section, Winter Conference, 1994.
- Invited Speaker, Charles University, Prague, Czech Republic, 1993.
- Research Assistant, Stanford University, 1986.
- GM Fellow at Stanford University, 1984, 1986-1987.

EXTERNAL PUBLICATIONS

Blenman PR: "NASTRAN Beam Element Preprocessing", GMI, Flint MI, 1982 (Fifth year thesis for BSME degree).

Carter DR, Blenman PR, Beaupre GS: Mechanical Stress and Vascular Influences on Fracture Healing. Transactions, 33rd Meeting of the Orthopaedic Research Society 12:99, 1987.

Carter DR, Blenman PR, Beaupre GS: Correlations between mechanical stress history and tissue differentiation in initial fracture healing. Journal of Orthopaedic Research 6:736-748, 1988.

Blenman PR, Carter DR, Beaupre GS: Fracture healing patterns calculated from stress analyses of bone loading histories. Transactions 35th Meeting of the Orthopaedic Research Society 14:469,1989.

Blenman, PR, Carter DR, Beaupre GS: Role of mechanical loading in the progressive ossification of a fracture callus. Journal of Orthopaedic Research, 7(3):398-407. 1989.

Fyhrie PB: "Finite Element Analyses of Fracture Healing in Long Bones" Ph.D. Dissertation, Mechanical Engineering, Stanford University, Sept. 1990.

Fyhrie PB, Martin, AJ: 10 year-old Hybrid III ATD Positions in Panic Brake Conditions. SAE 2004-01-0848.

GM Confidential Reports not available.

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