



Human Factors Engineering

**PROFESSIONAL EXPERIENCE**

2012 to present **Forensic Human Factors, LLC**  
*Owner*

We provide technical investigations, analysis, reports, and testimony toward the resolution of commercial and personal injury litigation involving human factors and ergonomics, workplace safety, machine guarding, slips, trips, falls, lighting and visibility, foreseeable human behavior, driver attention and distraction, and the adequacy of product warnings and instructions.

2010 to 2012 **Robson Forensic, Inc.**  
*Associate*

- Provided expert witness services for civil litigation, including investigations, reports, and testimony at depositions and trials.
- Consulted with commercial agents in human factors and ergonomics

2006 to 2011 **West Virginia University**, Morgantown, WV  
*Assistant Professor*

- Investigated physiological effects associated with common working tasks
- Studied cognitive demands associated with cell phone use and driving
- Program Director – NIOSH grant in Occupational Safety/Health Engineering.
- Taught Industrial Engineering and Safety Management courses.

2002 to 2004 **United States Postal Service (USPS)**, Merrifield, VA  
*Ergonomics Consultant – contract work*

- Used digital human modeling methods to investigate manual handling tasks.
- Performed statistical analyses and developed linear regression models for prediction of injury rates.
- Consulted in development of corporate ergonomics training programs.

1999 to 2002 **Design Systems, Inc.**, Farmington Hills, MI  
*Ergonomics and Simulation Consultant*

- Designed and conducted experiments using 3D motion capture and digital human modeling for ergonomic analyses of whole-body movements.
- Developed simulation models of automotive assembly plant conveyor systems.

**PROFESSIONAL CREDENTIALS**

Professional Engineer: West Virginia, Kentucky, Florida, Ohio  
Certified Professional Ergonomist (Human Factors)  
OSHA Instructor – “General Industry” and “Construction”



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**EDUCATION**

Ph.D., Industrial & Operations Engineering (Human Factor/Ergonomics, Biomechanics), University of Michigan, Ann Arbor, MI, 2006

M.S., Industrial Engineering (Human Factor/Ergonomics, Manufacturing), University of Tennessee, Knoxville, TN, 2000

B.S., Industrial Engineering, University of Tennessee, Knoxville, TN, 1998.

**PROFESSIONAL AFFILIATIONS**

National Council of Examiners for Engineering and Surveying  
Board of Certification in Professional Ergonomics  
Human Factors and Ergonomics Society  
American Society of Safety Engineers  
American Society of Biomechanics  
Society of Automotive Engineers  
Society for Neuroscience

**INSTRUCTION**

**Courses Taught**

IENG 660 Human Factors Systems Design  
IENG 564 Industrial Ergonomics  
SAFM 502 Controlling Environmental and Personnel Hazards  
SAFM 528 Economic Aspects of Safety  
Lectures in Safety Compliance, Safety and Health Training, and others  
Invited instructor for Ergonomics Short Course – OSHA 2250

**Graduate Student Research**

Han.....Modeling of block lifting tasks on biomechanical stresses to masons  
Heath.....Effects of cell phone experience and type on driving performance  
Malik.....Proposed hazard communication for communities affected by oil/gas pipeline industry  
Nave.....Effects of perceived trust in automation in high-stress decision making  
Sudhoff.....Cognitive distractions associated with cell phone use while driving  
Wolbert.....Intrusion effects on whole body lifting and fatigue

**PUBLICATIONS**

Rider K, Chaffin D, Martin B. (2007) "Development of Active Human Response Model to Ride Motion," *SAE Transactions – Journal of Passenger Cars, V115-7*: 1131-1137.

Rider K. (2006) "Effects of ride motion perturbation on the speed and accuracy of in-vehicle pointing tasks," PhD Dissertation, University of Michigan.



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Rider K. (2006) "Development of active human response model to ride motion", SAE Digital Human Modeling Conference and Exposition, Lyon, France.

Rider K, Martin B. (2005) "Effects of ride motion on the speed and accuracy of in-vehicle pointing tasks," 49th Annual Meeting of the Human Factors and Ergonomics Society, Orlando, FL.

McDowell K, Rider K, Truong N, Paul V. (2005) "Effects of Ride Motion on Reaction Times for Reaching Tasks," *SAE Transactions: Journal of Commercial Vehicles (SP-1962)*. SAE International, Warrendale, PA.

Rider K, Chaffin D, Nebel K, Mikol K. (2004) "Modeling In-Vehicle Reaches Perturbed by Ride Motion," *SAE Transactions: Journal of Aerospace 113(1)*: 193-198.

Rider K, Chaffin D, Foulke J, Nebel K. (2004) "Analysis and Redesign of Battery Handling using Jack™ and HUMOSIM motions," *SAE Transactions: Journal of Materials and Manufacturing 113(5)*: 824-828.

Dickerson C, Rider K, Chaffin D. (2004) "Merging Biomechanical Models of the Shoulder with Digital Human Modeling," 2004-01-2166. SAE International, Warrendale, PA.

Rider K, Park W, Chaffin D, Reed M. (2003) "Redesigning Workstation Utilizing Motion Modification Algorithm," 2003-01-2195. SAE International, Warrendale, PA.

Rider K, Chaffin D, Nebel K, Mikol K, Reed M. (2003) "A pilot study of the effects of vertical ride motion on reach kinematics," *SAE Transactions: Journal of Passenger Cars – Mechanical Systems 112(6)*: 719-725.

**PRESENTATIONS**

Rider K. (2016). "Human Factors In Trucking: Fatigue, Conspicuity Or Distraction," National Interstate Trucking Conference, St. Augustine, FL.

Rider K. (2015). "Human factors and shifting comparative fault," National Interstate Trucking Conference, St. Louis, MO.

Rider K. (2013). "Driver distraction and other misunderstood human factors in MVAs" Florida Justice Association, *Masters of Justice Seminar*.

Rider K. (2012). "Current Trends on Driver Distraction: Is texting really dangerous?" Florida Justice Association, *Annual Convention*.

Rider K. (2012). "Forensic Human Factors," WV Association for Justice, *Annual Convention*.

Rider K. (2011). "Forensic Human Factors," Columbus Bar Association.

Rider K. (2011). "Forensic aspects of human factors," Pittsburgh Paralegal Association.



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Rider K, Shipp E. (2010). "How to find, use, and win with a forensic expert" (w/ Erin Shipp). Legal Assistants/Paralegals of West Virginia.

Rider K. (2009) "Ergonomics and MSDs in the workplace", OSHA 2250 Short Course, Morgantown, WV.

Rider K. (2008) "Inattention blindness caused by processing conflict within the visual cortex", 38th Annual Meeting of the Society for Neuroscience, Washington, D.C.

Sudhoff M, Rider K. (2007) "Conflict of visual imagery generated during cell phone use while driving" 37th Annual Meeting of the Society for Neuroscience, San Diego, CA.

Rider K, Martin B. (2006) "Ride motion effects on the accuracy of rapid pointing tasks," 1st American Conference on Human Vibration, Morgantown, West Virginia.

Rider K, Martin B. (2005) "Feedback control of in-vehicle pointing tasks perturbed by ride motion," 35th Annual Meeting of the Society for Neuroscience, Washington, D.C.

Rider K. (2005) "Preview Control Model of Reaching Tasks Under Ride Motion," 15th Semi-annual HUMOSIM Partners' Meeting, Ann Arbor, Michigan.

Rider K. (2004) "Evaluating human in-vehicle reach performance when perturbed by ride motion," 13th Semi-annual HUMOSIM Partners' Meeting, Ann Arbor, Michigan.

Rider K, Chaffin DB. (2003) "Use of digital human modeling to evaluate vehicle maintenance," 12th Semi-annual HUMOSIM Partners' Meeting, Ann Arbor, Michigan.

Rider K, Chaffin DB. (2003) "Vehicle ride motion effects on reach performance," 12th Semi-annual HUMOSIM Partners' Meeting, Ann Arbor, Michigan.

## **PAST RESEARCH SUPPORT**

### **Agency: National Institute for Occupational Safety and Health**

#### *Advanced Biomechanical and Cardiopulmonary Assessment Suit (ABACAS) Program*

Investigate the necessary cardiopulmonary and physiological requirements of a self-contained data acquisition suit, by which desired metrics (i.e. biomechanical, physiological) can be unobtrusively obtained and recorded for subsequent processing and analysis. Role: Co-Investigator. Funded: \$427,439

### **National Institute for Occupational Safety and Health - NIOSH Training Program Grant**

Graduate student training program with emphasis on occupational safety and health engineering, where trainees learn essential knowledge and skills across a broad range of occupational safety topics, and use engineering, scientific, and analytical methods to identify occupational hazards, to understand failure modes and effects, to engineer out such hazards, to implement administrative controls, and to use experimental, simulation and engineering models to develop, test and evaluate designs. Role: Program Director. Funded: \$1,500,000 (KR: \$250,000).