aperture
formerly american bio engineers

Brian K. Jones, MSBE, PE, ACTAR, CXLT

Accident Reconstruction/Biomechanical Specialist and Forensic Expert

EDUCATION

- Master of Science in Biomedical Engineering (Biomechanics and Human Factors Option)
  University of Nevada, Las Vegas, 2008

- Bachelor of Science in Mechanical Engineering
  North Carolina State University, 1994

LICENSES

- Professional Engineer-State of California, Mechanical
  License # 37117

- Professional Engineer-State of Nevada, Mechanical
  License # 14708

- FAA Part 107 Certified UAS Remote Pilot
  Certification # 4114983

ACCREDITATIONS

- Full Long-Term Accreditation as a Traffic Accident Reconstructionist
  with the Accreditation Commission for Traffic Accident Reconstruction (ACTAR)
  Registration No. 1207

CERTIFICATIONS

- Certified by Vetronix Corporation to download and analyze vehicle crash data
  utilizing the Crash Data Retrieval System

- Certified by the International Safety Academy as an XL tribometrist, proficient in wet
  & dry slip testing and the analysis of pedestrian slip/trip & fall incidents

- Certified by Vetronix/Bosch as a Crash Data Retrieval (CDR) Technician

- Certified by Vetronix/Bosch as a Crash Data Retrieval (CDR) Data Analyst and a CDR System
  Operator

- **PhotoModeler Version 6** training courses for Collision Reconstruction

- Certified by BERLA as a Vehicle Forensic Technician

- Certified by BERLA as a Vehicle System Forensic Examiner

EXPERIENCE

American Bio Engineers, LLC, 2010/Present

6351 Hinson St., #R
Las Vegas, NV 89118

2305 Historic Decatur Blvd., #100
San Diego, CA 92106

- Accident Reconstruction with areas of expertise in Vehicular Accidents, Vehicular Dynamics, Speed Analysis, Time/Motion Studies, Vehicle Maintenance, Biomechanics, Slip/Trip and Fall Incidents, Product Defects, and Design Strength Analysis.

  Types of cases reconstructed include: Auto v. Auto Collisions, Auto v. Heavy Truck/Trailer Collisions, Auto v. Truck Collisions, Auto v. Motorcycle Collisions, Auto v. Bicycle Collisions, Auto v. Pedestrian Collisions, Vehicle Rollovers, and SRS Air Bag Deployment.

Elliott & Jones, LLC, 1997/2010

3606 North Rancho Drive, Ste. 140
Las Vegas, NV 89130

- Accident Reconstruction with areas of expertise in Vehicular Accidents, Vehicular Dynamics, Speed Analysis, Time/Motion Studies, Vehicle Maintenance, Biomechanics, Slip/Trip and Fall Incidents, Product Defects, and Design Strength Analysis.

  Types of cases reconstructed include: Auto v. Auto Collisions, Auto v. Heavy Truck/Trailer Collisions, Auto v. Truck Collisions, Auto v. Motorcycle Collisions, Auto v. Pedestrian Collisions, Vehicle Rollovers, Brake System Failures, Engine Failures, Seat Belt Failure, and SRS Air Bag Deployment.

- Pedestrian Walkway and Safety Consultant for the *MGM-Mirage Corporation*

W.N. Morrison & Associates, 1996/1997

William N. Morrison, Pres.
633 South Fourth Street, Ste. 10
Las Vegas, NV 89101

- Accident Reconstruction with areas of expertise in Vehicular Accidents, Vehicular Dynamics, Speed Analysis, Time/Motion Studies, Vehicle Maintenance, Slip/Trip and Fall Incidents, Product Defects, and Design Strength Analysis.

  Types of cases reconstructed include: Auto v. Auto Collision, Auto v. Truck Collision, Auto v. Motorcycle Collision, Auto v. Pedestrian Collision, Vehicle Rollover, Time/Motion Studies, Brake System Failure, Engine Failure, Seat Belt Failure, and SRS Air Bag Deployment.

Accident Reconstruction Analysis Inc., 1994/1996
Dr. Charles Manning Jr., Pres.
5801 Lease Lane
Raleigh, NC 27613

- Accident Reconstruction with areas of expertise in Vehicular Accidents, Vehicular Dynamics, Speed Analysis, Time/Motion Studies, Vehicle Maintenance, Slip/Trip and Fall Incidents, Product Defects, Work Place Accidents, Material Failure Analysis, Micro-Hardness Testing, Seat Belt Testing, Vehicle Fires, and Structural Fires.

Regent Lighting Company, 1991/1992
2611 La Vista Drive
Burlington, NC 27253

- Laboratory Testing and Repair of Circuit Boards, Design Strength Analysis of Swing Arm Halogen Work Light, Supervision of Assembly Lines, and Quality Checks.

HONORS AND AWARDS

- Vice President of Society of Automotive Engineers (NCSU Chapter), 1993
- North Carolina State University Dean's List, 1989
- Member of the National Scholars Honor Society

PUBLICATIONS

Randles B., Jones B., Welcher J., Szabo T., Elliott D., and MacAdams C., "The Accuracy of Photogrammetry vs. Hands-on Measurement Techniques used in Accident Reconstruction", SAE Technical Paper, 2010-01-0065, 2010.

Jones B., Calabro M., Brink J., and Swinford S., "Accuracy of the Momentum Energy Restitution Method for Offset Inline Rear-End Impacts", SAE Technical Paper, 2017-01-1425, 2017.

Furbish, C., Welcher, J., Brink, J., Swinford, S., Jones, B., and Anderson, R., "Occupant Kinematics and Loading in Low Speed Lateral Impacts", SAE Technical Paper, 2019-01-1027, 2019. *Voted as one of the best papers for WCX$_{TM}$ World Congress Experience; selected to appear in *Advances and Current Practices in Mobility: SAE International Conference Proceedings*.

Brink, J., Swinford, S., Furbish, C., Jones, B., Welcher, J., & Anderson, R., "Methods for Quantifying the Impact Severity of Low-Speed Side Impacts at Varying Angles", SAE Technical Paper, 2020-01-0641, 2020.

Swinford, S., Jones, B., Brink, J., Furbish, C., Welcher, J., & Anderson, R. (2021). "Study of the Measurement of Generation 2 Toyota Event Data Recorders in Low-Speed Side Impacts," *SAE Technical Paper,* 2021-01-0904.

Jorgensen, M., Swinford, S., and Jones, B., "Validation of Vehicle Speed Analysis Utilizing the iNPUT-ACE Camera Match Overlay Tool," SAE Technical Paper 2021-01-0877, 2021, doi:10.4271/2021-01-0877.

LECTURES PRESENTED

- Presented an informational lecture on the retrieval and utilization of crash data stored in General Motors vehicles' sensing and diagnostic modules (SDM) to the Southern Nevada Claims Association (SNCA), Fall 2001.

- Presented an informational lecture on 3D forensic animations via Human Vehicle Environment (HVE) and 3D Studio Max in addition to fundamental concepts of accident reconstruction to the Clark County Bar Association, Spring 2003.

- Presented a CLE lecture on the human factors and biomechanics of slip, trip, and falls in conjunction with the "*Premises Liability in Nevada*" seminar for Lorman Education Services on August 17, 2006.

- Presented an informational lecture on the necessary ingredients of accident reconstruction and biomechanics to CSAA, October 2006.

- Presented a CLE lecture on principles of accident reconstruction and biomechanics to the Clark County Bar Association, September 2007.

- Presented a CLE lecture entitled "*Personal Injury Update: The Skinny on Accident Reconstruction and Biomechanics*" to the Clark County Bar Association, February 19, 2009.

- Presented a CLE lecture entitled "*Personal Injury Update: The Skinny on Accident Reconstruction and Biomechanics*" to the law office of Selman Breitman, LLP, April 8, 2010.

- Presented SAE 2010-01-0065 technical paper entitled "*The Accuracy of Photogrammetry vs. Hands-on Measurement Techniques used in Accident Reconstruction,"* at the SAE World Congress in Detroit, Michigan 2010.

- Presented a CLE lecture entitled "*Slip, Trip, and Falls*" to the Richard Harris Law Firm, September 29, 2011.

- Presented a CLE lecture entitled "*Accident Reconstruction and Biomechanics in Nevada*" to the Southern Nevada Claims Association, November 9, 2011.

- Presented a CLE lecture entitled "*Accident Reconstruction and Biomechanics in Nevada*" to the law office of Ray Lego & Associates, January 13, 2012.

- Presented a CLE lecture entitled "*Accident Reconstruction and Biomechanics in Nevada*" to the Southern Nevada Claims Association, December 2, 2014.

- Presented an informational lecture entitled "New Technology in Motor Vehicle Accident Reconstruction & Biomechanical Engineering" to Progressive, May 13, 2015.

- Presented an informational lecture entitled "New Technology in Motor Vehicle Accident Reconstruction & Biomechanical Engineering" to Progressive, September 25, 2015.

EXPERT TESTIMONY

- Qualified as an expert for motor vehicle accident reconstruction and biomechanics in the Superior Court of the State of California for the County of Ventura.

- Qualified as an expert for motor vehicle accident investigation and reconstruction in the Superior Court of the State of California for the County of Los Angeles.

- Qualified as an expert for motor vehicle accident reconstruction and biomechanics in the Superior Court of the State of California for the County of San Diego.

- Qualified as an expert for pedestrian safety, biomechanics, and human factors in the Superior Court of the State of California for the County of Orange.

- Qualified as an expert for motor vehicle accident investigation/reconstruction, pedestrian safety, biomechanics, and human factors in the Eighth Judicial District Court for the State of Nevada for the County of Clark.

- Qualified as an expert for accident investigation and reconstruction in the Clark County Justice Courts.

- Qualified as an expert for motor vehicle accident investigation/reconstruction, pedestrian safety, biomechanics, and human factors in the Second Judicial District Court of the State of Nevada for the County of Washoe.

ASSOCIATIONS

- Member of the Society of Automotive Engineers
  - SAE Technical Paper Peer Reviewer
- Southwestern Association of Technical Accident Investigators
- National Association of Professional Accident Reconstruction Specialists
- Accident Reconstruction Communications Network (ARC) (approximately 15 years)
- Participating member of the American Society of Testing and Materials (ASTM)
  - Committee F13 – Pedestrian/Walkway Safety and Footwear
  - Subcommittee F13.10 – Traction
  - Subcommittee F13.40 – Research
  - Subcommittee F13.50 – Walkway Surfaces Practices
- American Society of Safety Engineers
- National Fire Protection Association (NFPA)
- Member of the California Association of Accident Reconstruction Specialists

SPECIALIZED TRAINING SEMINARS ATTENDED

- "Crash Data Retrieval System" presented by *Vetronix Corporation* (Santa Barbara, CA, 2001)

- "Biomechanics of Slips and Falls" presented by *ASTM F13* (Pasadena, CA, 2003)

- "ARC-CSI Crash Conference" presented by *ARC-CSI* (Las Vegas, NV, 2004)
  - EDR Data in Criminal Prosecution
  - Crash Data Retrieval System
  - Crush Measuring Protocol
  - Commercial Vehicle Event Data Recorders
  - Crash Testing – A Historical Perspective
  - Seat Belt Analysis
  - A Comparison of Crush Stiffness Characteristics from Partial-Overlap and Full-Overlap Frontal Crash Tests
  - A Method for Determining Crush Stiffness Coefficients from Partial-Overlap Frontal Crash Tests
  - Field Measurements
  - Momentum and CDR Output
  - HVE

- "Occupant Kinematics and Injury Mechanisms During Motor Vehicle Collisions" presented by *University California, Riverside* (Davis, CA 2004)

- "ARC-CSI Crash Conference" presented by *ARC-CSI* (Las Vegas, NV, 2005)
  - Damage and Energy: How it Works/Why it Works
  - Pedestrian Crash Reconstruction Methodologies
  - Investigating Multi-Vehicle Pile-ups/Airbrakes
  - Influence of Fog (and poor visibility) on Driver Response
  - Case Studies of Reconstruction of Non-Conforming Pedestrian Impacts
  - Commercial Vehicle EDR
  - Skills Update: Using Crash Test Data
  - When Do Airbags Deploy: Deployment Decision Making
  - Child Safety Seat Issues in Crash Reconstruction
  - Pedestrian Crash Injuries
  - "Independent Witness" System Data Collection Capabilities
  - Crash Data Retrieval System: Developments and Future Trends

- "Forensic Analysis of Medical Records in Injury Biomechanics and Accident Reconstruction" presented by *Society of Automotive Engineers* (Troy, MI, 2005)

- Member of task force appointed to revise standard ASTM 1694-96 "*Standard Guide for Composing Walkway Surface Investigation, Evaluation, and Incident Report Forms for Slips, Stumbles, Trips, and Falls*"

- "ARC-CSI Crash Conference" presented by *ARC-CSI* (Las Vegas, NV, 2006)
  - Motorcycle Accident Investigations
  - Simulation 101: How It Actually Works
  - Lower Extremity Injuries
  - Vehicle Dynamics at Curb Strike
  - PDOF
  - A Look at Deceleration Rates for Modern Vehicles
  - Collision Speed Analysis of Angular Collisions Involving Secondary Impacts
  - CDR Legal Issues: Criminal
  - Using Pictometry in Collision Scene Diagramming
  - Untripped Rollovers
  - Getting into Print as an Accident Reconstruction Author
  - Identification of Unusual Tire Marks

- "ARC-CSI Crash Conference" presented by *ARC-CSI* (Las Vegas, NV, 2007)
  - Hit and Run – Closing the Loop
  - Validating the SmartDrive Crash Data Unit
  - Snowmobile Accident Reconstruction
  - Seat Belt Effectiveness and Injury Correlation
  - Mechanism of Airbag Injury
  - Accident Reconstruction at Traffic Signal Intersections
  - European Accident Reconstruction and Crash Testing Techniques
  - Human Factors Beyond Perception/Reaction Time & Witness Reliability
  - Nighttime Pedestrian Collision Reconstruction Factors
  - Crash Test Analysis Workshop A: Momentum
  - Crash Test Analysis Workshop B: Complex Analyses
  - Vehicle Speed Sensor Calibration and its Potential Effect on Pre-Crash Vehicle Speed Data as Recorded by an Event Data Recorder
  - Reprogrammed PCMs and Crash Analysis
  - Angular Velocity Analysis of SUV Collisions Using PC Crash
  - The Effects of Sample Rates and Averaging Methods on Acceleration Based Skid Testing
  - Review of Low Speed Crash Tests & the Effect of Restitution
  - Event Data Recorder Over-ride Devices in Commercial Motor Vehicles

- "Vetronix/Bosch Crash Data Retrieval (CDR) Technician Course" presented by *CSI* (North Las Vegas, NV, 2007)

- "Vetronix/Bosch Crash Data Retrieval (CDR) Data Analyst Course" presented by *CSI* (North Las Vegas, NV, 2007)

- "ARC-CSI Crash Conference" presented by *ARC-CSI* (Las Vegas, NV, 2008)
  - New Vehicle Technologies and Their Relationship to Proper Crash Reconstruction Techniques
  - Momentum and Energy: A Code 3 Case Study

- Judkins Law and Its Applications to Human Factors of Collision Avoidance and Witness Recall
- Crash Test Analysis Workshop: Motorcycle Crash Analysis
- Engine Idle Acceleration
- Airborne Analysis and Rotational Mechanics
- Current Trends in Pedestrian Crash Analysis
- Crash Test Analysis Workshop: Pedestrian Crash Analysis
- Close-range Photogrammetry as a Routine AR Tool
- Video Applications in Crash Reconstruction
- Reconstruction of PIT Crashes
- Crash Test Analysis Workshop: Rollovers

- "SATAI Conference" (Laughlin, NV, 2009)
  - Motorcycle Braking
  - Motorcycle Crush Analysis
  - The Primary Purpose of a Crash Reconstruction…Is the Crush Avoidable?
  - Demonstration of Motorcyclist PRT
  - Rider Response Evaluation: Results and Preliminary Conclusions
  - Overview of Motorcycle Safety

- "ARC-CSI Crash Conference" presented by *ARC-CSI* (Las Vegas, NV, 2009)
  - Commercial Vehicle Dynamics Factors in Collision Reconstruction
  - Air Brake Fundamentals & Advanced Technology plus Air Brake Performance
  - Death Investigations & Their Psychological Effect on Police Officers and Reconstructionists
  - A Common Sense Approach to Explaining Real World Acceleration Values
  - Braking Efficiency of Motorcycles
  - CSF with SUV's in Double Steer Maneuvers
  - Workshop: Practical Applications of Accelerometer Data for Accident Reconstructionists
  - Estimation of Vehicle Speed and Trajectory Based on Video from a Vehicle Mounted Camera
  - Evaluating a Nighttime Response
  - Optics, Lighting and Visibility for the Forensic Investigator
  - Human Factors Testing

- "ARC-CSI Crash Conference" presented by *ARC-CSI* (Las Vegas, NV, 2010)
  - PDOF and Angle Development Over Time
  - GM OnStar: Automatic Crash Response
  - Accelerometers and other devices used for skid and other testing for the Reconstructionist
  - Beyond the drag sled
  - Motorcycle Accident Reconstruction
  - HVE-CSI Break-out
  - Low Speed Crash Analysis

- Using Motion Equations in Accident Reconstruction
- Commercial Motor Vehicle Forensic Inspection for the Reconstructionist
- Delta V, Now What?
- Finding Speed or Acceleration from Video Frames
- iWitness Break-out
- Impact Speed and Post-Collision Speedometer Readings
- GPS: The Overlooked EDR?
- Conspicuity Sheeting, Retro Reflective Tape Wear

- "Injuries, Anatomy, Biomechanics & Federal Regulation Seminar" presented by SAE International (Troy, MI, 2010)
  - Next Generation Restraint Systems
  - Abbreviated Injury Scale (AIS); Injury Severity Score (ISS); Trauma Score; Harm; Injury Priority Rating (IPR); Functional Capacity Index (FCI)
  - Diagnostic Images of Injuries – Plain Film X-rays, CT, MRI
  - The Role of Alcohol
  - Anatomy, Injuries and Tolerance Parameters (By Body Region)
  - Test Devices: Basic Differences and Measuring Capabilities for Front and Side Impact Tests
  - FMVSS 201, 214 and NCAP and LINCAP – Current & Proposed Injury Criteria and their Biomechanical Basis
  - Federal Rulemaking Process and NHTSA – Legal Authorizations and Restrictions
  - Assessing Pre-existing Conditions and Previous Injury
  - Older Drivers – Special Needs

- "SATAI Conference" (San Diego, CA, 2010)
  - Monte Carlo Analysis Methods Applied to Crash Reconstruction
  - Vehicle Off-Tracking Applied to Vehicle Crash Reconstruction
  - Advanced Digital Photography for Accident Reconstruction/Using Garmin GPS in Heavy Trucks

- "ARC-CSI Crash Conference" presented by ARC-CSI (Las Vegas, NV, 2011)
  - Do you need a Search Warrant for CDR Data?
  - What happens when a novice driver, backs a car while on the cell phone and enters the path of a motorcyclist?
  - "The Compatibility of "Push Bumpers" and Airbags"
  - A Short History of Nearly Everything (…about computers in Highway Safety)
  - "Applications of GPS Data in Collision Reconstruction"
  - Breakout Session: Occupant Dynamics Simulations in Support of Litigation using MADYMO
  - Intersection Collision: A Detailed Reconstruction from Cradle to Grave
  - The Relationships of Momentum, PDOF and Delta-V
  - Key Aspects of Highway and Roadway Design and Safety Appurtenances
  - Auto Pedestrian Collision Analysis: Applications of formulas vs. real world testing data
  - An introduction to the new CrashZone version 9 drawing program features

- "Side Impact Occupant Safety and CAE" presented by *Society of Automotive Engineers* (Troy, MI, 2012)

- "ARC-CSI Crash Conference" presented by *ARC-CSI* (Las Vegas, NV, 2012)
  - Case Studies and Reconstruction Essentials for Tread Separation Accidents Involving Axle Tramp
  - An Overview of GM Hybrid and Electric Vehicle Technology and Its Relationship to EDR Data
  - Seat Belt Analysis
  - Using ECM Diagnostic Data in Crash Reconstruction
  - The Application of MADYMO to the Modeling of Real World Accidents
  - Low Speed Collisions; Reconstruction Applications
  - Low Speed Collisions; Biomechanical Analysis
  - Drug Recognition Training
  - Establishing Safe and Realistic Speed Limits
  - Measuring Yaw Marks from Digital Maps
  - Highway Design – Appurtenances
  - ARAS 360 – Advanced Animation Made Easy

- "ARC-CSI Crash Conference" presented by *ARC-CSI* (Las Vegas, NV, 2013)
  - Damage, Energy and Computer Simulations
  - Accident Reconstruction Using CRASH3 and LS-Dyna
  - Braking Systems for Passenger Cars and Light Trucks
  - Reliability of Crash Triggered Video and Data Recorders for Accident Reconstruction
  - The Investigation of Transit System Events
  - ARAS360: Combining Momentum Technology and SMAC Technology
  - Differentiating Potentially Casual Pre-Crash Component Damage from Crash Damage
  - Further Developments Regarding the Dynamic Modeling of Motor Vehicle Collision Response using the SDOF Approach
  - Advances in Forensic Photography for Crash Investigations
  - Motorcycle Crash Case Study and Evolving Motorcycle Technologies
  - Determination of Vehicle Orientation at Ground Contact for Rollover Accidents
  - PDOF, DOPF: What is it? How important is it?
  - EDC: Reconstruction Techniques for Complex Crashes

- Training courses for Reconstructing a Nighttime Car vs Pedestrian Crash/Interviewing Witnesses and Drivers/Headlight Performance in Pedestrian Strikes presented by Southwestern Association of Technical Accident Investigators (Laughlin, NV, 2014)

- Training courses for Optics, Lighting, Visibility and Digital Photography for the Forensic Investigator presented by Clearly Visible Presentations, LLC (Laughlin, NV, 2014)

- "ARC-CSI Crash Conference" presented by *ARC-CSI* (Las Vegas, NV, 2014)
  - Reconstruction Techniques for Analyzing Low Delta-V Crashes
  - HVEDR: New Engines, New Software, New Coverage
  - Human Fatigue & 1 Big Risk to Driver Performance
  - Modern Methodologies in Accident Reconstruction
  - Motorcycle Sliding Friction
  - Quick Clearance of Serious Fatal Collisions Using GPS/GIS Technology
  - Vehicle History Data Applications to Crash Reconstruction
  - Conspicuity & Visibility: Issues & Testing
  - Wheel Slip & Its Effect on Reported Vehicle Speed
  - Impact of Inadequate Repairs on Vehicle Structural Integrity

- "42nd International Workshop on Human Subjects for Biomechanical Research" presented by *National Highway Traffic Safety Administration* (San Diego, CA 2014)

- "58th Stapp Car Crash Conference" presented by *SAE* (San Diego, CA 2014)

- "SATAI Conference" presented by the *Southwestern Association of Technical Accident Investigators (SATAI)* (Las Vegas, NV, March 2015)
  - Practical Evidence Interpretation Revisited & COLM, Vectors & Kinematics
  - CRASH3 – Researching Stiffness Value
  - Motorcycle Collisions

- "SATAI Conference" (Las Vegas, NV, 2016)
  - Energy Dissipation in High Speed Frontal Collisions
  - Child Seats - Identifying Misuse and Failures
  - FARO 3D Laser Scanning and its Uses in Crash Reconstruction (including a case study)
  - Update on HVEDR - Paccar and Hino Engines
  - Review of Conservation of Energy, Speed from Damage, Delta-V, and Force Balance

- "ARC-CSI Crash Conference" presented by *ARC-CSI* (Las Vegas, NV, 2016)
  - Comparison of IIHS driver and passenger-side small overlap crash tests
  - Photography for Crash Reconstruction
  - Comparative Crash Analysis Using NHTSA NASS Crash Data and Other Sources
  - Safely Working Around Hybrids, Electric Vehicles and Newer Safety Systems
  - Motorcycle reconstruction techniques tied to testing
  - Scene and Vehicle Data Analysis to Evaluate Pre-crash Brake Application
  - Evaluation of Wheel Impact in a Rollover Collision Through Simulation and Comparison to a Crash Test
  - Crash Reconstruction Case Studies
  - Lateral Acceleration Through a Curve, Real World Measurements of Normal Drivers at the Expected higher End
  - When do Airbags Deploy?
  - 30?

- "SATAI Conference" (Mesa, AZ, 2016)
  - Motorcycle and Bicycle Reconstruction, Railroad Track Hazards and Helmet Examination
  - Night Time Accident Documentation and Reconstruction
  - Toxicology and Impaired Driving

- "61ST Annual Scientific Conference" presented by *AAAM* (Las Vegas, NV, 2017)
  - Three-Dimensional Brain Deformation Under Dynamic Head Rotation and Preliminary Assessment of Brain FE Models
  - Estimation of Fiber Angels in Intercostal Muscle from Cadaveric Thoraces
  - Parametric Cervical Spine Model for Rear-End Impact Simulations
  - Evaluating Rib Fracture Risk Using a Probabilistic Approach in Finite Element Frontal Crash Reconstruction
  - Efficacy of Seatbelt Routing Schemes on Newer Booster Child Seats in Simulated Frontal Motor Vehicle Crashes
  - Comparison of WorldSID to PMHS Shoulder-to-Belt Interaction in Far-Side Impact Configurations
  - Vehicle Safety for Wheelchair Users: The Role of Anthropometry
  - Validation of an ICD-9-Cm map to AIS 2005 update 2008
  - The Spanish ICU Trauma Registry (RETRAUCI) and its Role Defining the Trauma Patterns
  - The Relationship Between Emergency Medical Service Response Time and Prehospital Death Following Motor Vehicle Crashes: Rural-Urban Disparities and Implications for Trauma System Performance Improvement
  - Injury and Response Characteristics of the 5TH Percentile Female Lower Extremity Under Axial Loading
  - Detailed Finite Element Model of a 50TH Percentile Male for Simulating Pedestrian Accidents
  - Response of the Knee Joint to Translational and Bending Loads
  - Effectiveness of Lowering the Blood Alcohol Concentration (BAC) Limit for Driving from .10 to .08 in the United States
  - Burden of Road Traffic Injuries Related to Delays in Implementing Safety Belt Laws in Low- and Lower-Middle-Income Countries
  - The Effectiveness of Child Restraint and Seat-Belt Legislation in Reducing Child Injuries: the Case of Serbia
  - An Insight of WHO Accident Database by Cluster Analysis with Self Organizing Map (SOM)
  - Novel Method of Estimating AROC Using an Injury Risk Curve for Biomechanical Injury Metric Selection
  - Evaluation of a Combination of Community Initiatives to Reduce Driving While Intoxicated and Other Alcohol-Related Harm
  - The Extent of Backover Collisions Internationally

- Using Medico-Legal Data to Investigate Fatal Older Road User Crash Circumstances and Risk Factors
- Association of Cell Phone Bans with Fatal Crashes Among Young Drivers
- Numerical Investigation of Driver Lower Extremity Injuries in Finite Element Frontal Crash Reconstruction
- A Preliminary Study of Human Model Head and Neck Response to Frontal Loading in Non-Traditional Occupant Seating Configurations
- Influence of Morphological Variations on Cervical Spine Segmental Responses from Inertial Loading
- Failed Rib Region Prediction in a Human Body Model During Crash Events with Pre-Crash Braking
- Initial Analysis of Archived Non-Human Primate Frontal and Rear Impact Data from the Biodynamics Data Resource
- Occupant Kinematics of the Hybrid III, THOR-M, and Post-Mortem Human Surrogates Under Various Restraint Conditions in Full-Scale Frontal Sled Tests
- Kinematics and Dynamic Responses of Young and Elderly Occupants in Low-Speed Frontal Tests
- Injury Risk Functions Based on Population-Based Finite Element Model Responses: Application to Femurs Under Dynamic Three-Point Bending
- Trunk Muscle Recruitment Patterns in Simulated Pre-Crash Events
- Comparison of Three-Point Belt Fit Between Humans and ATDs in Rear Seats
- Does Obesity Affect the Position of Seat Belt Loading in Occupants Involved in Real-World Motor Vehicle Collisions?
- Active Muscle Response Contributes to Increased Injury Risk of Lower Extremity in Occupant-Knee Airbag Interaction
- Using Naturalistic Driving Data to Better Understand the Driving Exposure and Patterns of Older Drivers
- Analysis of Near Crashes Among Novice Teen, Young Adult, and Experienced Adult Drivers Using the SHRP2 Naturalistic Driving Study
- Evaluating Drugged Driving: Effects of Pain and Anxiety Medications
- Driving Style Indicator Using UDRIVE NDS Data
- An Evaluation of the Real-World Safety Effect of a Lane-Change Driver Support System and Characteristics of Lane-Change Crashes Based on Insurance Claims Data
- Comparison of Outlier Heartbeats Identification and Spectral Transformation Strategies for Deriving Heart Rate Variability Indices for Drivers in Different Stages of Sleepiness
- Advanced Driver Assistance Systems for Teen Drivers: Teen and Parent Impressions, Perceived Need, and Intervention Preferences
- Frontal and Oblique Crash Tests of HIII6y Child ATD Using real-World, Observed Child Passenger Postures
- Kinematics and Shoulder Belt Engagement of Children on Belt-Positioning Boosters During Evasive Steering Maneuvers
- The Influence of Child Restraint Lower Attachment Method on Protection Offered by Forward Facing Child Restraint Systems in Oblique Loading Conditions
- Top Tether Effectiveness During Side Impacts

- Effectiveness of Booster Child Restraint Systems in Nearside Motor Vehicle Crashes with and without Side Curtain Airbags
- Trends in Child Passenger Safety Practices in Indiana from 2009-2015
- Injury Analysis of Patients According to Impact Patterns Involved in Pedestrian Traffic Crashes
- Oblique Impact Response of Elastomeric Damper Matrix Helmets
- Differences in the Protective Capabilities of Bicycle Helmets in Real-World and Standard-Specified Impact Scenarios
- Observation of Cyclist Exposure to Car Doors and Latent Impact Speed: A Case Study in Melbourne, Australia
- The Effects of Collision Type and Crash Extent on the Occupant's Abdominal Injury in Motor Vehicle Accidents
- AIS Scores in Spine and Spinal Cord Trauma: Epidemiological Considerations
- Functional Outcomes of Thoracic Injuries in Pediatric and Adult Occupants
- Quality of Head Injury Coding from Autopsy Reports with AIS © 2005 Update 2008
- Improvement of Injury Severity Prediction (ISP) of AACN During On-Site Triage Using Vehicle Deformation Pattern for Car to Car (C2C) Side Impacts

- "Digital Forensics of Heavy Vehicle Event Data Recorders" presented by *Synercon Technologies* (Farmington Hills, MI, 2018)

- "Pix4D User Workshop" presented by *Pix4D SA* (San Diego, CA, 2018)
  - Theory and Science of Photogrammetry
  - Aerial Mapping RGB Image Acquisition: Best Practices
  - Georeferencing, Project Accuracy, Ground Control: Best Practices
  - Processing RGB Imagery with: Ground Control Points
  - Review of the Quality Report
  - Classifying Point Clouds
  - Editing of: Densified Point Cloud; Orthomosaic
  - Volume Calculations
  - Contours and Outputs

- Training course for iNPUT-ACE Video Evidence Workflow/Forensic Video Workflow presented
  by iNPUT-ACE (Citrus Heights, CA, 2019)

- "Vehicle System Forensics" instructed by *BERLA* (Chino, CA, 2020)

- "SATAI Conference" presented by *Southwest Association of Technical Accident Investigators (SATAI)* (Glendale, AZ, 2020)
  - Electric Scooters
  - E-Scooter vs. Car Crash Test
  - CDR System Operators / Analysis & Applications Course Series – The CDR 900 Interface and Toyota TechStream / PCS & VCH Data
  - iNPUT-ACE Traffic Seminar

- "48th NHTSA Workshop – Human Subjects for Biomechanical Research" (virtual conference, 2020)
  - Comparison of Hybrid III and THOR in Recline Frontal Sled Tests without a Knee Bolster
  - A Novel Methodology to Examine Occupant Motion During the AEB Pulses Present in the Modern Fleet
  - Evaluation of Thoracic Injury Risk for the Hybrid III and THOR-M 50th Percentile Male ATDs in the Rear Seat during NCAP Severity Sled Tests with Comparisons to the Front Seat
  - Evaluation of Submarining for the Hybrid III and THOR-50M in the Rear Seat during Frontal Crash Sled Tests
  - THOR-AV Biofidelity Evaluation
  - Proposed Lumbar Lij Injury Assessment Reference Value
  - Compressive Material Properties of Human Rib Trabecular Bone
  - Assessment for a Perfusion Method for Detecting Soft Tissue Injuries in a Cadaveric Model
  - THOR-05F Matched-Pair Tests in a Generic Automotive Environment
  - Updates on THOR-05F and THOR-AV-05F Dummy FE Model Development
  - Integration and Validation of a Deformable Spine into a Simplified Human Body Model
  - A Parametric Active Human Model for Simulating Occupant Responses in Abrupt Vehicle Maneuvers
  - Applicability of Neck Injury Criteria Critical Intercepts for Human Body Finite Element Models
  - Deep Learning Model for Predicting Head Kinematics
  - Lumbar Spine and Pelvis Injury and Response on Oblique-facing Aircraft Seat – A Preliminary Computational Study
  - Deep Learning Head Model for Entire Brain Deformation Calculation in Real-time for Concussions
  - The Effect of Active Head Restraints (AHRs) on Head Kinematics in Rear Impact Sled Tests
  - Injury Comparison Between 5th Percentile Female and 50th Percentile Male Simplified GHBMC Models in Various Frontal Impact Scenarios

- "Walking Working Surfaces Regulatory Review" (virtual conference, 2021)
  - Walking working surfaces regulations & standards
  - Differences of horizontal & vertical surfaces
  - Fall protection systems & falling object protection criteria & practices
  - Regulations & standards for step bolts, manhole steps, stairways, dock boards & guard rail systems

RESEARCH

- May 2011 Performed and participated in hitch-to-wheel impacts with an instrumented human occupant with a Chevrolet Suburban into a Toyota Celica in Las Vegas, NV.

- Nov 2011 Performed and participated in vehicle-to-vehicle offset rear-end impacts with instrumented human occupants with a Chrysler LeBaron, Kia Sephia, Plymouth Sundance, and Ford F-150 in Las Vegas, NV.

- Sept 2015 Performed and participated in rear-end bumper-to-hitch and bumper-to-receiver impacts with an instrumented human occupant and Hybrid III dummy with two Focus ZX3's into a Toyota Sequoia in Mesa, AZ.

- Sept 2015 Performed and participated in instrumented Focus and Ram 1500 to pedestrian dummy, Crown Victoria to Focus side-swipe, and Ram 1500 head-on to a Prelude impacts with an instrumented human and Hybrid III dummy in Glendale, AZ.

- Jan 2016 Performed and participated in instrumented Scion xB to Transit Connect rear-end impacts with DriveCams equipped in Las Vegas, NV.

- Sept 2016 Performed static airbag deployments in 2013 and 2014 Ford Explorers with an instrumented Hybrid III ATD at Nevada Highway Patrol to evaluate effects of passenger side mounted computer/tablet assembly in Las Vegas, NV.

- Oct 2016 Performed and participated in instrumented remote driven Celica into an angled head-on with a Ranger, and Massive Moving Barrier to Oldsmobile 98 and Expedition with child safety seat restrained 3 year old dummies in Glendale, AZ.

- Oct 2016 Performed and participated in instrumented steering wheel and brake force, vehicle pitch, and bumper height change tests during hard braking using a Celica in Mesa, AZ.

- Oct 2016 Performed and participated in instrumented license plate-to-bumper car-to-car rear-end impacts with a human subject using Civics and a Celica in Mesa, AZ.

- Mar 2018 Performed and participated in instrumented oblique lateral minor impacts involving human female subjects and instrumented Hybrid III ATDs at angles of 45°, 60°, and 90° using 2005 to 2007 Toyota Camrys and Corollas in Las Vegas, NV.

- Jun 2018 Performed and participated in instrumented car-to-car rear-end impacts with human subject using 2005 to 2007 Toyota Camrys and Corollas in Las Vegas, NV.

- Jan 2019 Performed and participated in instrumented remote driven broad-side rollover collision between a Tahoe and Grand Marquis, a multiple vehicle rear-end impact with a Town car, motorcycle and Prius, and yaw testing with a Suburban in Glendale, AZ.

- Jan 2019 Performed and participated in rear-end impacts between an Impala and Grand Marquis with instrumented volunteers in Glendale, AZ.