



CURRICULUM VITAE

H. ALEX ROBERTS, P.E.

SENIOR TEST ENGINEER

alex@engininst.org

AREAS OF EXPERTISE

- Vehicle and Component Test Design and Testing
- Forensic Engineering
- ATV/UTV/ROV Analysis and Testing

PROFESSIONAL EDUCATION

B.S., Mechanical Engineering, University of Arkansas, Fayetteville, Arkansas, 2000

PROFESSIONAL EXPERIENCE

2005-Present	Senior Test Engineer, Ei Consultants, LLC., (formerly known as Renfroe Engineering and The Engineering Institute), Farmington, Arkansas
2001-2004	ANSI ATV Testing, ATV Suspension Tuning, Accident Reconstructionist and Vehicle Dynamics Analyst, Renfroe Engineering, Fayetteville, Arkansas
2000	Engineering Intern, Renfroe Engineering, Inc., Fayetteville, Arkansas

LICENSES & CERTIFICATES

Arkansas Professional Engineer #12978
Oklahoma Professional Engineer #26582

PUBLICATIONS

Renfroe, David A., A. Roberts, , R. Grzebieta, G. Rechnitzer, J. Simmons. "Reconciliation of ATV/UTV Handling Characteristics and the Operator." SAE International Congress and Exposition. 14AC-0245/2014-01-0095, SAE, 2014.

Semones, Paul T., D. A. Renfroe, H. A. Roberts, D. Y. Lee. "Mechanism for the Reduction of Lateral Friction Capabilities of a Delaminated Tire." ASME 2012 International Mechanical Engineering Congress and Exposition IMECE2012. Houston, Texas. November 9-15, 2012. IMECE2012-85412.

Roberts, H. Alex and M. Gilbert. "Side-by-Side Utility and Recreational Vehicles – A Safety Analysis." 22nd International Conference of Enhanced Safety of Vehicles (ESV). Washington, Summer 2011. Paper No. 11-0065.

Renfroe, David A., and H. A. Roberts. "An Analysis of the Mechanism Causing Loss of Control During a Tire Delamination." International Safety Conference on the Enhanced Safety of Vehicles. Stuttgart, Germany, June 2009. Paper No. 09-02-09-O.

Roberts, A. "Dynamic Analysis of Side-by-Side Utility and Recreational Vehicles." 21st International Safety Conference on the Enhanced Safety of Vehicles. Stuttgart, Germany, June 2009. Paper No.09-0260-O.

Herndon, Grant G., K. A. Allen, H. A. Roberts, D. R. Phillips, and S. Batzer. "Automotive Side Glazing Failure Due to Simulated Human Interaction." Engineering Failure Analysis Vol. 14. Issue 7 (December 2007): 1701-1710.



- Renfroe, David A., H. A. Roberts, and D. Beltran. "Effects of the Process of Rear Tire Delamination on Vehicle Stability." 20th International Safety Conference on the Enhanced Safety of Vehicles. Lyon, France, June 2007. Paper No. 07-0142.
- Renfroe, David A., P. Semones, and H. A. Roberts. "Quantitative Measure of Transient Oversteer of Road Vehicles." 20th International Safety Conference on the Enhanced Safety of Vehicles. Lyon, France, June 2007. Paper No. 07-0217.
- Roberts, Hugh A., M. Partain, S. A. Batzer, and D. A. Renfroe. "Failure Analysis of Seat-Belt Buckle Inertial Release."
- Engineering Failure Analysis Vol. 14. Issue 6 (2007): 1135-1143.
- International Conference on Engineering Failure Analysis (ICEFA-II). Toronto, Canada, September 12-15, 2006.
- Herndon, Grant G., K. A. Allen, H. A. Roberts, D. R. Phillips, and S. Batzer. "Automotive Side Glazing Failure Due to Simulated Human Interaction." Second International Conference on Engineering Failure Analysis, ICEFA-II. Toronto, Canada, September 12-15, 2006. (Written abstract in conference booklet, oral presentation by H. Alex Roberts.)
- Renfroe, David A., R. Clarke, C. Good, and H. A. Roberts. "The Evolution of the Positive Locking Mechanism in End Release Buckles." ASME International Mechanical Engineering Congress. Chicago, Illinois, November 5-10, 2006.
- Renfroe, David A., and H. A. Roberts. "Designing for Vehicle Stability During Rear Tire Tread Separation Events." ASME International Mechanical Engineering Congress. Chicago, Illinois, November 5-10, 2006.
- Renfroe, David A., H. A. Roberts, and M. Gilbert. "Vehicle Rollover Maximum Limits." International Journal of Vehicle Design Vol. 40. Nos. 1/2/3 (2006): 144-158.
- Renfroe, David A., and H. A. Roberts. "Second Order Metric for Rollover Propensity." Society of Automotive Engineering. 2006. Paper No. SAE 2006-01-0799.
- Roberts, H. Alex, M. R. Martin, and T. J. Canalicho. "An Experimental Examination of Seatbelt Webbing Loading Marks on Automobile Plastic D-Rings." ASME International Mechanical Engineering Congress. Anaheim, California, 2004. IMECE 2004-60797.
- Renfroe, David A., H. A. Roberts, M. Partain, S. B. Andrews, and J. F. Partain. "Effects of Suspension Tuning on Off-Road Vehicle Operating Speeds Over Wavy Terrain and Occupant Endurance." International Off-Highway Congress, CONEXPO-CON/AGG. Las Vegas, Nevada, March 19-23, 2003. Paper No. 2002-01-1444.
- Renfroe, David A., H. A. Roberts, S. Andrews, and J. Partain. "Dynamic Characteristics of End Release Seatbelt Buckles." 17th International Technical Conference on the Enhanced Safety of Vehicles. June 2001. Paper No. 97-S.

PRESENTATIONS

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| 2014 | Dynamic Test Development for Quadbikes and SSVs. <u>Transportation Research Board 93rd Annual Meeting</u> . ANB45 (1) Rollover Subcommittee Meeting. |
| 2009 | Presentation to the <u>Recreational Off-Highway Vehicles Association (ROHVA)</u> : Yamaha Rhino testing and research. |
| 2009 | Dynamic Analysis of Side-By-Side Utility and Recreational Vehicles. Paper 09-260-O. <u>21st International Technical Conference on the Enhanced Safety of Vehicles</u> . Stuttgart, Germany. June 2009. |
| 2008 | Presentation to the <u>United States Consumer Product Safety Commission</u> regarding Yamaha Rhino testing and research. |



- 2007 Effects of the Process of Rear Tire Delamination on Vehicle Stability. Paper Number 07-0142. Enhanced Safety of Vehicles (ESV) Conference, Lyon, France. 2007.
- 2006 The Evolution of the Positive Locking Mechanism in End Release Buckles and Designing for Vehicle Stability during Rear Tire Tread Separation Events. American Society of Mechanical Engineers International Mechanical Engineers Conference and Expo. Chicago, Illinois.
- 2006 Second Order Metric for Rollover Propensity, SAE 2006-01-0799. Society of Automotive Engineers World Congress, Detroit, MI.
- 2006 Automotive Side Glazing Failure due to Simulated Human Interaction. 2nd International Conference on Engineering Failure Analysis, Toronto, Canada.
- 2004 An Experimental Examination of Seatbelt Webbing Loading Marks on Automobile Plastic D-Rings. American Society of Mechanical Engineers International Mechanical Engineers Conference and Expo, Anaheim, CA.
- 2002 Effects of Suspension Tuning on Off-Road Vehicle Operating Speeds over Wavy Terrain and Occupant Endurance. SAE Off-Highway Conference. Las Vegas, Nevada.

PROFESSIONAL DEVELOPMENT

- 2009 Pressure and Acceleration Seminar presented by PCB Piezotronics: Successful Measurement of Dynamic Force
- 2007 Automotive Testing Exposition. Novi, Michigan
- 2006 SAE Applied Vehicle Dynamics Professional Development Program: BMW Performance Driving School. Greer, South Carolina. Classroom learning coupled with student driven vehicle dynamics demonstrations.
- 2005 Automotive Testing Exposition. Novi, Michigan
- 2002 SAE's Excellence in Oral Presentation Certificate: Effects of Suspension Tuning on Off-Road Vehicle Operating Speeds over Wavy Terrain and Occupant Endurance. SAE Off-Highway Conference. Las Vegas, Nevada.
- 2002 SAE: Passenger Vehicle Rollover TOPTEC: Causes, Prevention, and Injury Prevalence
- 2002 Masters level Introductory Vehicle Dynamics ME 336, University of Illinois at Urbana-Champaign
- 2001 Collision Odyssey sponsored by the California Association of Accident Reconstruction Specialists. Concord, California. 20 hours course of instruction in collision investigation and reconstruction.
- 2001 SAE International Conference. Detroit, Michigan
- 2000 SAE Student Mini Baja Vehicle Team: Power-train design and assembly sub-team
- 1999 SAE Student Mini Baja Vehicle Team – Suspension design and analysis