



**H. Alex Roberts, P.E.**  
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## EXPERTISE

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

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## EDUCATION

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

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## PROFESSIONAL EXPERIENCE

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2016-Present	Director of Testing, Applied Dynamics Engineering Group (ADEG), Fayetteville, AR
2016-Present	Independent Engineering Consultant
2005-2016	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

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## PROFESSIONAL LICENSES

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Arkansas Professional Engineer #12978  
Oklahoma Professional Engineer #26582

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## PUBLICATIONS

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- Semones, Paul T., H. A. Roberts and D. A. Renfroe. "Vehicle Evaluation During Sustained Solid Axle Tramp, Part 1: New Testing Methods and Novel Approaches to Data Analysis." ASME 2015 International Mechanical Engineering Congress and Exposition. Houston, Texas. November 13-19, 2015. IMECE2015-51822.
- Semones, Paul T., H. A. Roberts and D. A. Renfroe. "Vehicle Evaluation During Sustained Solid Axle Tramp, Part 2: Application of Methodology to Shock Absorber Design Strategies." ASME 2015 International Mechanical Engineering Congress and Exposition. Houston, Texas. November 13-19, 2015. IMECE2015-51833.
- Renfroe, David A., A. Roberts, R. Grzebieta, G. Rechnitzer and J. Simmons. "Reconciliation of ATV/UTV Handling Characteristics and the Operator." SAE International Congress and Exposition, April 8, 2014. SAE 2014-01-0095.
- Semones, Paul T., David A. Renfroe, H. Alex Roberts and Don. Y. Lee. "Mechanism for the Reduction of Lateral Friction Capabilities of a Delaminated Tire." ASME 2012 International Mechanical Engineering Congress and Exposition. Houston, Texas. November 9-15, 2012. IMECE2012-85412.
- Roberts, H. Alex and M. Gilbert. "Side-by-Side Utility and Recreational Vehicles – A Safety Analysis." 22<sup>nd</sup> International Conference of Enhanced Safety of Vehicles (ESV). Washington. 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): Paper No. 1701-1710.
- Renfroe, David A., H. A. Roberts, and D. Beltran. "Effects of the Process of Rear Tire Delamination on Vehicle Stability." 20<sup>th</sup> 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." 20<sup>th</sup> 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): Paper No. 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): Paper No. 144-158.
- Renfroe, David A., and H. A. Roberts. "Second Order Metric for Rollover Propensity." Society of Automotive Engineering. 2006. SAE 2006-01-0799.
- Roberts, H. Alex, M. R. Martin, and T. J. Canalichio. "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. 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. 97-S.

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## PRESENTATIONS

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- 2014      Dynamic Test Development for Quadbikes and SSVs. Transportation Research Board 93<sup>rd</sup> Annual Meeting. ANB45 (1) Rollover Subcommittee Meeting.

- 2009 Presentation to the Recreational Off-Highway Vehicles Association (ROHVA): Yamaha Rhino testing and research.
- 2009 Dynamic Analysis of Side-By-Side Utility and Recreational Vehicles. Paper 09-260-O. 21<sup>st</sup> International Technical Conference on the Enhanced Safety of Vehicles. Stuttgart, Germany. June 2009.
- 2008 Presentation to the United States Consumer Product Safety Commission 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. 2<sup>nd</sup> 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.

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## PROFESSIONAL DEVELOPMENT

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- 2012-2014 Consultation with the University of New South Wales with regards to development of ATV/UTV testing standards for ATV/UTV safety ratings
- 2014 93<sup>rd</sup> Annual Meeting of the Transportation Research Board, Rollover Subcommittee (emphasis on ATV/UTV testing and analysis)
- 2012 Consumer Product Safety Commission ATV/UTV Safety Meeting
- 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