



Curriculum Vitae

**Rachel E. Keller, P.E.**



**Professional Profile**

Ms. Keller is a Professional Engineer and senior consultant with experience, education, and training in the fields of mechanical engineering and forensic engineering. With bachelor's and master's degrees in mechanical engineering, a Commercial Driver's License (CDL), and years of experience in the investigation and analysis of vehicle safety issues, her practice is focused on providing consulting services to legal, insurance, governmental, and corporate clients throughout the southeastern United States.

Specific areas of expertise include passenger vehicle collision reconstruction; commercial vehicle crash investigation and analysis; pedestrian, bicycle, motorcycle, and alternative vehicle incidents; vehicle dynamics modeling; 3-D imaging and animation technology; driver performance and avoidance capabilities; product failures; and vehicle system components. Her ongoing training, education, and certifications maintain her knowledge of the latest developments in the field, qualifying her to render opinions in insurance claims, criminal proceedings, and civil litigation. Ms. Keller has testified as an expert witness at deposition and trial levels.

**Licensure and Professional Certification**

Professional Engineer, State of Florida, #71452

Accident Reconstruction Certification Program  
*Society of Automotive Engineers*

Bendix Air Brake Specialist

Certified Crash Data Retrieval (CDR) Technician and Analyst  
*Bosch / Vetronix*

Accredited Accident Reconstructionist  
*Accreditation Commission for Traffic Accident Reconstruction (ACTAR) #2378*

Council of Engineering and Scientific Specialty Boards through NAFE  
*Board Certified Diplomate in Forensic Engineering*

**Professional Affiliations**

Florida Engineering Society (FES), Member

American Society of Mechanical Engineers (ASME), Member

National Academy of Forensic Engineers (NAFE), Member #873-M

National Society of Professional Engineers (NSPE), Member

Society of Automotive Engineers (SAE), Member

**Contact Information**

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Tampa, FL 33613

**Education**

Florida State University  
*Tallahassee, Florida*  
Master of Science in Mechanical Engineering

Virginia Tech University  
*Blacksburg, Virginia*  
Bachelor of Science in Mechanical Engineering

**Work Experience**

Focus Forensics, LLC  
Managing Engineer: 2014-Present

Armstrong Forensic Engineers  
Senior Consultant: 2010-2014

Quest Engineering & Failure Analysis, Inc.  
Project Engineer: 2006-2010

Florida State University  
Graduate Teaching Assistant: 2006  
Research Assistant: 2004-2005

Celanese Acetate  
Engineering Co-op: 2002-2003



## Professional Development

### Axiom Forensic

- Motorcycle Collision Reconstruction, 2018

### Bendix

- Bendix Air Brake Systems Training, 2008

### Collision Safety Institute / ARC

- Vetronix Crash Data Retrieval (CDR) Certified Analyst Course, 2008
- CDR Download Applied Field Training, 2008
- Annual Crash Conference and Full Scale Crash Testing, 2012
- Annual Crash Conference and Full Scale Crash Testing, 2017

### Engineering Dynamics Corporation

- HVE Software Training, 2008

### FARO

- FARO Reality for Crash Reconstruction, 2016

### Florida Institute for Consulting Engineering

- Highway Lighting, Roadway Expo, 2009

### Institute of Police Technology and Management (IPTM)

- Methodology and Techniques of Crash Data Retrieval, 2007

### Leica Geosystems HDS

- Leica Geosystems Basic Training Course, 2009

### Lightpoint Scientific, LLC

- Advanced Photogrammetry for Collision Reconstruction, 2017

### McNeel

- 3D Modeling using Rhinoceros, 2010

### Motorcycle Safety Foundation (MSF)

- Motorcycle RiderCourse, 2003

### National Academy of Forensic Engineers (NAFE)

- General Topics in Forensic Engineering, 2016

### National Society of Professional Engineers

- Engineers as Skilled Communicators, 2010

## Northwestern University Center for Public Safety

- Traffic Accident Reconstruction I, 2007
- Traffic Accident Reconstruction 2, 2007
- Heavy Vehicle Crash Reconstruction, 2008
- Advanced Crash Reconstruction Utilizing Human Factors, 2014

## Pantropic Power

- CAT Electronic Technician "ET" Operation, 2007

## Quest Engineering and Failure Analysis, Inc.

- Motor Vehicle Accident Reconstruction, Crash Analysis and Crash Testing, 2006
- Commercial Motor Vehicle Electronic Data Retrieval, 2007
- Air Brake Seminar, 2008
- Practical Vehicle Dynamics and Tire Mark Interpretation, 2008
- Crash Analysis and Crash Testing, 2009

## Society of Automotive Engineers

- SAE Applied Vehicle Dynamics, 2008
- Applying Automotive EDR Data to Traffic Crash Reconstruction, 2013
- Accessing and Interpreting Heavy Vehicle Event Data Recorders, 2015
- Introduction to Highly Automated Vehicles, 2018
- Vehicle Crash Reconstruction: Principles and Technology, 2019
- Accident Reconstruction, The Autonomous Vehicle and ADAS, 2020
- Fundamentals of Vehicle Dynamics, 2021
- Fundamentals of Automotive All-Wheel Drive Systems, 2021

## Virtual Crash

- Collision Simulation and Reconstruction, 2021

## World Reconstruction Exposition (WREX)

- Crash Conference and Full Scale Crash Testing, 2016



## Seminar and Course Presentations

- “Maintenance of Traffic and Roadway Design Analysis”, World Reconstruction Exposition, 2016
- “Forensic Engineering Technology Solution for Highway Work Zone Temporary Traffic Control Investigations”, National Academy of Forensic Engineers, 2016
- “Forensic Engineering Analysis of Video-Captured Pedestrian Collision”  
National Academy of Forensic Engineers, 2016
- “The Mechanics of the Collision”  
National Business Institute (NBI), 2012
- “Event Data Recorders”  
“Human Factors in Vehicle Accident Reconstruction”  
GEICO, 2011
- “Advanced Interstate Trucking Litigation”  
North Carolina Advocates for Justice (NCAJ), 2011
- “Applied Scanning Techniques”  
Armstrong Forensic Engineers, Inc., 2011
- “Commercial Motor Vehicle Electronic Data Retrieval Seminar and Demonstrations”  
Quest Engineering & Failure Analysis, Inc., 2010
- “Class A CDL License”  
Quest Engineering & Failure Analysis, Inc., 2009
- “The Basics of Accident Reconstruction”  
Inns of Court, 2009
- “Accident Reconstruction and Seat Belt Analysis”  
Quest Engineering & Failure Analysis, Inc., 2008
- “Applied Vehicle Dynamics and Tire Mark Analysis for Passenger Cars and Commercial Motor Vehicles”  
Quest Engineering & Failure Analysis, Inc., 2008

## Technical Reports and Publications

- Melcher, D., Keller, R., "Forensic Engineering Technology Solutions for Highway Work Zone Temporary Traffic Control Investigations." National Academy of Forensic Engineers, 2016
- Montalbano, P., Melcher, D., Keller, R., Rush, T., Przybyla, J., "Testing Methodology to Evaluate Reliability of a "Frozen" Speedometer Reading in Motorcycle/ Scooter Impacts with Pre-Impact Braking." SAE Technical Paper 2016-01-1482, 2016
- Melcher, D., Rush, T., Przybyla, J., Keller, R., Montalbano, P., "Photogrammetric Reconstruction Methodology and Engineering Validation for Video-Captured Pedestrian Collisions", Proceedings of the 24th Annual Congress of the European Association for Accident Research and Analysis (EVU), 2015
- Przybyla J., Jupe J., Rush T., Keller R., "Glass Debris Field Longevity for Rollover Accident Reconstruction." SAE Technical Paper 2015-01-1427, 2015
- “Bicycle Tire Friction Coefficient Variance in Wet and Dry Conditions Across Multiple Surface Pavement Types” *European Association for Accident Research and Analysis*, 22<sup>nd</sup> Annual Congress, Florence, Italy, 2013
- “Applications of GPS Data in Collision Reconstruction” *Collision Magazine*, 2011
- “Applications of GPS Data in Collision Reconstruction” *Proceedings of the 10<sup>th</sup> ITAI International Conference on Collision Investigation, Interpretation and Reconstruction*, 2011