



Résumé of  
**NEAL CARTER, M.S., P.E.**

**Kineticorp™**

Denver:  
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ncarter@kineticorp.com

**EXPERIENCE:** Engineer: Accident Reconstruction, Kineticorp, LLC, Denver, Colorado, August 2007 to Present  
Engineer III, Seals Design Group, ATK Launch Systems, Magna, Utah, July 2004 to August 2007

**REGISTRATIONS:** Mr. Carter is a registered Professional Engineer in the State of Colorado, and is an accredited Traffic Accident Reconstructionist through the Accreditation Commission for Traffic Accident Reconstruction (ACTAR).

**EDUCATION:** **M.S., Mechanical Engineering**, University of Utah, Salt Lake City, Utah, 2007  
**B.S., Engineering**, Mechanical Specialty, Colorado School of Mines, Golden, Colorado, 2004

**FORENSIC ENGINEERING:** At Kineticorp, Mr. Carter investigates and reconstructs vehicular accidents. He analyzes evidence, performs calculations using principles of physics, and uses computer simulation to analyze vehicle motion. Mr. Carter has investigated and reconstructed accidents involving passenger vehicles, commercial vehicles, all-terrain vehicles, electronic convenience vehicles, trains, motorcycles, bicycles, and pedestrians. His experience includes the following:

- Mr. Carter has extensive experience analyzing physical evidence related to vehicular crashes as well as modeling, analyzing, and reconstructing crashes with physics-based computer simulation, planar impact mechanics and damage analysis methods. He has an in-depth knowledge of the physical models used by the following crash analysis software packages: PC-CRASH, HVE, CRASH, SMAC, EDVSM and SIMON.
- Mr. Carter is a certified Bosch Crash Data Retrieval (CDR) System® technician. He is experienced in retrieving crash related data from airbag control modules, powertrain control modules, and rollover sensors from passenger cars and light trucks.
- Mr. Carter has reconstructed crashes involving roadside safety barriers such as cable barriers, concrete barriers, and guardrails. He has modeled the interaction between vehicles and roadside barriers through the use of BARRIER VII simulation software.
- Mr. Carter has conducted testing involving vehicle dynamics, visibility, passenger vehicle braking, and motorcycle braking. Mr. Carter has authored publications based on his testing that have been published by the Society of Automotive Engineers (SAE), and are pending publication in *Collision: The International Compendium for Crash Research*.

**DESIGN ENGINEERING:** Prior to joining Kineticorp in 2007, Mr. Carter was a Design Engineer in the Seals Design Group at ATK Launch Systems. While at ATK, Mr. Carter designed sealing systems for the *Ares I* first stage propulsion system, including metal housings, elastomeric sealing elements, glass cloth phenolic and carbon cloth phenolic liners. He designed and performed physical properties, chemical properties, and ablation resistance tests to qualify a low-temperature seal material on large scale solid rocket motors. Mr. Carter provided support for various component teams including nozzle, hardware refurbishment, and non-destructive testing. He evaluated motor performance through disassembly and inspection of seals and seal components after test firing and flight activities and resolved anomalies before presenting flight safety rationale to NASA engineering. Finally, Mr. Carter led cause and corrective action teams to eliminate or reduce observed discrepancies and he performed finite element analyses on elastomeric material to determine deformation, internal stresses, and sealing capabilities.

**PROFISSIONAL AFFILIATIONS:** Society of Automotive Engineers (SAE), National Association of Professional Accident Reconstruction Specialists (NAPARS)

**Neal Carter, M.S., P.E.**  
Engineer: Accident Reconstruction

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#### **Publications:**

- Rose, Nathan A., Neale, William T.C., **Carter, Neal R.**, “Using Data from a DriveCam Video Event Recorder to Reconstruct a Hard Braking Event.” forthcoming from *Collision: The International Compendium for Crash Research*
- **Carter, Neal R.**, Beauchamp, Gray, Rose, Nathan A., “Comparison of Calculated Speeds for a Yawing and Braking Vehicle to Full-Scale Vehicle Tests,” Paper Number 2012-01-0620, Society of Automotive Engineers, 2012.

#### **Funded Research:**

- “Using Data from a DriveCam Video Event Recorder to Reconstruct a Hard Braking Event,” funded, in part, by DriveCam - The Driver Science Company, 2011-12.

#### **Technical Conferences, Training and Seminars:**

- Society of Automotive Engineers World Congress, SAE, Detroit, MI, April 25-26, 2012.
- “Signal Timing and Operations,” University of California, Berkeley, Institute of Transportation Studies, Sacramento, CA, February 1-2, 2012
- Motorcycle Safety Foundation® Basic *RiderCourse*<sup>SM</sup>, Aurora, CO, September 10-11, 2011
- Expert Topics in PC-Crash Workshop, Orlando, FL, April 7-8, 2011
- Essentials of PC-Crash Workshop, Orlando, FL, April 6, 2011
- Bosch Crash Data Retrieval (CDR) System® Level 2 Technician Course, Kineticcorp, LLC, Greenwood Village, CO, March 8, 2011
- Bosch Crash Data Retrieval (CDR) System® Level 1 Technician Course, Kineticcorp, LLC, Greenwood Village, CO, March 8, 2011
- “Design of Experiments for Engineers,” Society of Automotive Engineers, Troy, Michigan, August 5-6, 2010
- 2009 VAMPIRE User Day, Chicago, Illinois, October 8, 2009
- “CVSA Out of Service Seminar,” Colorado Motor Carriers Association, Denver, Colorado, August 27, 2009
- ME5238 – Impact Mechanics, University of Colorado at Denver, Summer 2009
- VAMPIRE Railway Vehicle Dynamics Simulation Software Training, 1-Week Course Presented by Rail Sciences, Inc., July 6-10, 2009
- “VBOX Product Training”, VBOX USA, Denver, Colorado, April 21st, 2008
- “Tire Mechanics & Modeling,” Course Presented by Dr. Patrick Fitzhorn, Director of the Race Vehicle Dynamics Laboratory at Colorado State University, March 20, 2008
- 2006 NASA Seal/Secondary Air Flow System Workshop, Cleveland, Ohio

#### **Technical Presentations:**

- “Comparison of Calculated Speeds for a Yawing and Braking Vehicle to Full-Scale Vehicle Tests,” SAE Technical Paper Presentation, 2012 Society of Automotive Engineers World Congress, Detroit, Michigan, April 25, 2012.
- “Development, Evaluation, and Qualification of Low-Temperature Seal Materials for RSRM Use”, 2006 NASA Seal/Secondary Air Flow System Workshop, Cleveland, Ohio

### **Vehicle Dynamics and Accident Reconstruction Testing:**

- Vehicle dynamics testing of DriveCam equipped vehicles, Aurora, CO, November, 2011, March, 2012
- Power and velocity testing of an electronic convenience vehicle (ECV), Greenwood Village, CO, October, 2011
- Yaw testing of a vehicle with a detreaded tire, Denver, CO, June 24, 2011
- CDR supported vehicle car-to-pedestrian crash testing, Longmont, CO, April 20, 2011
- Nighttime lighting and visibility testing , Aurora, Colorado, January 21, 2010
- On-site vehicle deceleration testing, Welcome, Maryland, December 29, 2009
- Nighttime lighting and visibility testing, Milbrae, California, May 4, 2008
- Nighttime lighting and visibility testing, Las Vegas, Nevada, March 26, 2008
- Motorcycle deceleration testing, Bandimere Speedway, Morrison, Colorado, October, 24, 2007
- Motorcycle deceleration testing, Hesperia, California, October 4, 2007
- Motorcycle deceleration testing, Denver, Colorado, September 18, 2007