



Résumé of
DANA E. THORNTON, B.S.M.E.

Kineticorp™

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EXPERIENCE: **Accident Reconstructionist** - Kineticorp, LLC, Denver, Colorado, August 2009 to Present.
 Engineering Intern - Accident Reconstruction: Kineticorp, LLC, Denver, Colorado.
 Engineering Intern - Wind Energy Consultation: Advanced Energy Systems, Denver, Colorado.

EDUCATION: **Bachelor of Science, Mechanical Engineering - With Special Honors**, University of Colorado at Denver, 2009. Mr. Thornton is currently pursuing a Master's degree in Mechanical Engineering at the University of Colorado at Denver.

Metropolitan State University, Denver Colorado, 2004-2006. Recommended for and joined the Metropolitan State Honors Program in 2004.

AWARDS: **Outstanding Academic Achievement**, Department of Mechanical Engineering, University of Colorado at Denver, 2009.
 Outstanding Graduating Senior, Department of Mechanical Engineering, University of Colorado at Denver, 2009.

REGISTRATION: Mr. Thornton is accredited as a Traffic Accident Reconstructionist by the Accreditation Commission for Traffic Accident Reconstruction (ACTAR #2754).

FORENSIC ENGINEERING: Throughout his education and his employment with Kineticorp, Mr. Thornton has gained experience in the following areas related to accident reconstruction:

- Mr. Thornton has investigated and reconstructed accidents involving bicycles, motorcycles, passenger cars, buses and commercial vehicles including articulated truck and trailer combinations. Many of these accidents involved roadside barriers, varying terrain features and post-collision fires. He has also reconstructed many single vehicle, loss-of-control accidents including rollover accidents.
- Mr. Thornton has conducted testing and analysis of motorcycle dynamics, motorcycle acoustics and passenger vehicle dynamics relating to tire tread separation. This testing involved instrumentation of vehicles with the VBOX Data Acquisition System, steering wheel torque and positions sensors and accelerometers as well as analysis of the collected data.
- Mr. Thornton is a Bosch Crash Data Retrieval (CDR) System® level 2 technician.
- Mr. Thornton implements the knowledge obtained during his graduate coursework in Impact Mechanics. This area of study focuses on rigid body collisions as well as Planar Impact Mechanics with an emphasis on vehicular collisions.
- Mr. Thornton currently employs the knowledge obtained during his undergraduate coursework in Physics to the reconstruction of vehicle accidents. This coursework included the fundamentals of Newtonian Mechanics, conservation of momentum and energy, and impact mechanics.
- Mr. Thornton has successfully completed graduate coursework in Buckling and Stability Analysis with an emphasis on vehicle stability. Additionally, Mr. Thornton has successfully completed graduate coursework in Advanced Dynamics, Methods of Engineering Analysis and Numerical Methods which focus on the development and stability of analytical solutions to engineering problems, as well as a specific focus on the programming of numerical schemes to solve such problems.
- Mr. Thornton has continued to further his education in accident reconstruction by participating in advanced accident reconstruction and human factors coursework being offer by the Society of Automotive Engineers (SAE), Northwestern University and others.

RESEARCH TOPICS: Mr. Thornton has conducted research to quantify the driver steering inputs required to maintain a vehicle in its lane during a tire tread separation event. On this topic Mr. Thornton has co-authored a publication which was accepted into the Society of Automotive Engineers International Journal of Passenger Cars. As stated by SAE, “*Only those outstanding and archival technical papers which either advance the state of the art or insightfully piece together prior research in ways which increase automotive understanding are selected for inclusion in this journal.*” Mr. Thornton has also conducted field testing and analysis to determine: the acoustic profile of various motorcycles, the drag and lateral force associated with asymmetric brake application and the friction properties of tread-separated passenger vehicle tires. Mr. Thornton is currently conducting research to determine the magnitude and duration of crash impulses based on available physical evidence.

PROFESSIONAL AFFILIATIONS: Society of Automotive Engineers (SAE), Tau Beta Pi – The Engineering Honor Society

TECHNICAL CONFERENCES, TRAINING AND SEMINARS:

- Society of Automotive Engineers, Accident Reconstruction Certificate Program: *Applying Automotive EDR Data to Traffic Crash Reconstruction*, Troy, Michigan, November 28-30, 2018.
- Colorado Motor Carriers Association: *Air Brake Certification Seminar*. Instructor: Lonnie Schneider. Denver, Colorado, August 4, 2018.
- Northwestern University Center for Public Safety: *Advanced Crash Reconstruction Utilizing Human Factors Research*. Instructor: Jeffrey Muttart, Ph.D. Evanston, Illinois, May 14-18, 2018.
- Society of Automotive Engineers, Accident Reconstruction Certificate Program: *Vehicle Dynamics for Passenger Cars and Light Trucks*, Troy, Michigan, August 7-9, 2017.
- Presenter: *MAX Impact – Bringing 3D Modelling Software Out of the Office and Into the Courtroom*. American Bar Association’s 2017 Emerging Issues in Motor Vehicle Product Liability Litigation. Phoenix, AZ, April 2017.
- Colorado Accident Reconstruction Training Standards (CARTS): *Commuter Rail Accident Investigation Class*, Denver, CO, October 19, 2016.
- Society of Automotive Engineers, Accident Reconstruction Certificate Program: *Accessing and Interpreting Heavy Vehicle Event Data Recorders*, Charlotte, North Carolina, May 17-20, 2016.
- Society of Automotive Engineers, Accident Reconstruction Certificate Program: *Vehicle Crash Reconstruction Methods*, Troy, Michigan, June 22-24, 2015.
- Society of Automotive Engineers, Accident Reconstruction Certificate Program: *Reconstruction & Analysis of Light Vehicle Rollover Crashes*, Detroit, Michigan, April 24, 2015.
- Society of Automotive Engineers World Congress, Detroit, Michigan, April 2015.
- *Bosch Crash Data Retrieval (CDR) System® Technician Level 2*, Course Presented by William Bortles, Greenwood Village, CO, March 8, 2011.
- *Bosch Crash Data Retrieval (CDR) System® Technician Level 1*, Course Presented by William Bortles, Greenwood Village, CO, March 8, 2011.
- *Expert Topics in PC-Crash Workshop*, Orlando, FL, April 7-8, 2011.
- *Essentials of PC-Crash Workshop*, Orlando, FL, April 6, 2011.

Publications:

1. Beauchamp, G., **Thornton, D.**, Bortles, W., and Rose, N., "Tire Mark Striations: Sensitivity and Uncertainty Analysis," *SAE Int. J. Trans. Safety*4(1):121-127, 2016, doi:10.4271/2016-01-1468.
2. Beauchamp, G., Koch, D. and **Thornton, D. E.**, "A Comparison of 25 High Speed Tire Disablements Involving Full and Partial Tread Separations," *SAE Int. J. Trans. Safety* 1(2):2013, doi:10.4271/2013-01-0776.