



Résumé of
DANA E. THORNTON, B.S.M.E.
Senior Forensic Engineer

Kineticcorp™

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EXPERIENCE: **Accident Reconstructionist** - Kineticcorp, LLC, Denver, Colorado, August 2009 to Present.
Engineering Intern - Accident Reconstruction: Kineticcorp, LLC, 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 the Chair of the Colorado Chapter of the Society of Automotive Engineers (SAE).

Mr. Thornton is an accredited Traffic Accident Reconstructionist through the Accreditation Commission for Traffic Accident Reconstruction (ACTAR #2754).

Mr. Thornton has successfully completed the Accident Reconstruction Certificate Program through the Society of Automotive Engineers.

FORENSIC ENGINEERING: Throughout his education and his employment with Kineticcorp, 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. A large portion of these reconstructions focused on product liability, specifically rollover crashes that were preceded by tire disablements. Other product liability work involves the reconstruction of crashes in claims of occupant protection, fuel-fed fires, and other crashworthiness claims including component specific issues such as seat back yielding/failure.
- Mr. Thornton has added premises liability and negligence cases to his portfolio. Many of these negligence cases incorporate his training in Human Factors, covering topics such as nighttime visibility and perception response time.
- Mr. Thornton has investigated and reconstructed worksite fatalities including oil pipeline construction and swing stage 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 is a Tire Industry Association (TIA) certified Instructor.
- 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 continues his education and training by regularly attending courses offered by the Society of Automotive Engineers (SAE), Northwestern University Center for Public Safety and others. Some of these courses have included: Applying Automotive EDR Data to Traffic Crash Reconstruction (SAE), Advanced Crash Reconstruction Utilizing Human Factors Research (Northwestern), Vehicle Dynamics for Passenger Cars and Light Trucks (SAE), and Accessing and Interpreting Heavy Vehicle Event Data Recorders (SAE).
- Mr. Thornton has provided Continuing Legal Education by presenting on topics such as: *MAX Impact – Bringing 3D Modelling Software Out of the Office and Into the Courtroom*, presented at the American Bar Association’s 2017 Emerging Issues in Motor Vehicle Product Liability Litigation and *How Immersive Animations and Virtual Reality are used to Present Complex Concepts to Juries*, presented at Bowman and Brooke (Los Angeles, 2018). Other presentations have included *Tips and Technologies for Attorneys Litigating Motorcycle Accident Cases* and *Understanding Electronic Data* which explores the application of data obtained from event data recorders (EDR) to accident reconstruction. Mr. Thornton has a passion for teaching and is available to provide a CLE presentation on any of the topics involved in Accident Reconstruction.

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:

- Tire Industry Association, *Automotive Tire Instructor Training*, Denver, Colorado December 3-6, 2020.
- Society of Automotive Engineers, Accident Reconstruction Certificate Program: *Photogrammetry and Analysis of Digital Media*, Troy, Michigan, June 26-28, 2019.
- Continuing Legal Education, Presented by **Dana E. Thornton** and Nathan Rose. *Tips and Technologies for Attorneys Litigating Motorcycle Accident Cases*, Carpenter, Zuckerman & Rowley, Beverly Hills, CA. February 27, 2019
- Continuing Legal Education, Presented by **Dana E. Thornton**. *Understanding Electronic Data*, Macdonald & Cody, Irvine, CA. February 26, 2019
- Continuing Legal Education, Presented by **Dana E. Thornton**. *Understanding Electronic Data*, Daley & Heft, Irvine, CA. April 23, 2019
- Society of Automotive Engineers, Accident Reconstruction Certificate Program: *Applying Automotive EDR Data to Traffic Crash Reconstruction*, Troy, Michigan, November 28-30, 2018.
- Continuing Legal Education, Presented by **Dana E. Thornton** and Stephen J. Fenton: *How Immersive Animations and Virtual Reality are used to Present Complex Concepts to Juries*. Bowman and Brooke, Los Angeles, CA. September 20, 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.
- Continuing Legal Education, Presented by **Dana E. Thornton**: *MAX Impact – Bringing 3D Modelling Software Out of the Office and Into the Courtroom*. The 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.