# Dr. Jerry S. Ogden, PhD, PE

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## Forensic Engineering Expertise

**Transportation Group Manager, Senior Forensic Engineer**

Dr. Ogden has more than 35 years' experience in the analysis of various types of incidents. His work encompasses passenger vehicle and commercial vehicle dynamics, speed and timing determination, mapping, crash severity analysis, biodynamics and occupant kinematics, seatbelt and supplemental restraint systems, electronic crash date imaging, off road vehicles and equipment, motorcycles, bicycles, pedestrians, site distance, highway geometric design, highway work zone traffic control, traffic engineering and signalization, roadside safety analysis, unique loss events, and more.

**Product Design and Failure Analysis**

Dr. Ogden's work includes the analysis of failures involving passenger and commercial vehicle steering and braking systems, tow hitch and trailer assemblies, wheel failures, various product design evaluations, and more.

## Qualifications & Training

Professional engineering education training courses covering:

- Basic through advanced Collision Investigation and Analysis
- Motor Vehicle Dynamics
- Rollover Dynamics
- Planar Impact Dynamics
- Collision Simulation and Animation
- Motorcycle and Off-road Vehicle Analysis
- Pedestrian and Bicycle Analysis
- Crash Data Retrieval Supplemental Restraint System Download and Data Analysis
- Heavy Vehicle Event Data Recorder Download and Analysis
- Tire/Wheel Design and Failure
- Commercial Vehicle Collision Analysis
- Work Zone Traffic Control, Traffic Signalization, and Highway Design
- Impact Biomechanics and Kinematics

## Education

Doctor of Philosophy in Engineering and Applied Science
Dual Focus PhD in Civil and Mechanical Engineering
University of Colorado, Denver, CO
2015

Master of Science, Civil Engineering
Focus in Collision Analysis, Traffic Engineering, and Highway Design
University of Colorado, Denver, CO
1995

## Licenses & Certifications

Bachelor of Science, Chemistry (Analytical)
Eastern Oregon University (formerly Eastern Oregon State College) La Grande, OR
1988

PE - Professional Engineer
- Licensed by the State of Colorado – Number 32160
- Licensed by the State of Florida – Number 98834
- License by the State of Illinois – Number 062.073609
- Licensed by the State of Indiana – Number PE11600216
- Licensed by the State of Iowa – Number P23411
- Licensed by the State of Michigan - Number 6201310265
- Licensed by the State of Missouri – Number PE-2024019419
- Licensed by the State of Montana – PEL-PE-LIC-75456
- Licensed by the State of New Mexico – Number 29662
- Licensed by the State of New York – Number 107541-01
- Licensed by the State of Oklahoma – Number 34946
- Licensed by the State of South Dakota – Number 17028
- Licensed by the State of Tennessee – Number 130297
- Licensed by the State of Texas – Number 143763k
- Licensed by the State of Utah – Number 9603691-2202PE
- Licensed by the State of Vermont – Number 018.0135205
- Licensed by the State of Washington – Number 24008689
- Licensed by the State of Wisconsin – Number 50035 - 6
- Licensed by the State of Wyoming – Number PE15410

CE - Civil Engineer
- Licensed by the State of Arizona – Number 81184
- Licensed by the State of Hawaii – Number 15123
- Licensed by the State of Idaho – Number 9710
- Licensed by the State of Nebraska – Number E-15824
- Licensed by the State of Nevada – Number 024081
- Licensed by the State of North Carolina – Number 043940
- Licensed by the State of Oregon – Number 9603691-2202PE

Board Certified Diplomate in Forensic Engineering
- National Academy of Forensic Engineers, a Chartered Affinity Group of the National Society of Professional Engineers and a Charter Member of the council of Engineering and Scientific Specialty Boards. Board Certification Number 561F

Board Certified Diplomate in Forensic Engineering Sciences
- International Board of Forensic Engineering Sciences, accredited by the Forensic Specialties Accreditation Board (FSAB) as an independent board sponsored by the National Institute of Justice (NIJ), National Forensic Science and Technology Center (NFSTC), and American Academy of Forensic Sciences (AAFS). Board Certified Diplomate D-033

Fully Accredited Traffic Accident Reconstructionist
- Accreditation Commission for Traffic Accident Reconstruction (ACTAR), Registration Number 581 (inactive 2020)

Certified Traffic Control Supervisor
- American Traffic Safety Services Association (ATSSA), Certification 21716

MultiRotor Service Drone G4
- Aerial Surveying Robot Basic Operator Certification, April 2016

## Employment History

Transportation Group Manager, Senior Forensic Engineer
Nederveld, Inc.
August 2020 - Present
Responsible for the investigation, analysis and reconstruction of all facets of motor vehicle collisions, occupant safety, non-vehicular incidents, highway design features and vehicle/machine component failures. Determine factors relating to collision or failure causation, occupant protection, driver actions, and highway design and traffic control contributions. Conduct research, complete engineering calculations and analysis, prepare expert records, develop conclusions, and provide forensic engineering testimony relative to results, findings, and conclusions. Supervision and develop technical training of engineers and technicians assigned to Forensic Services Division, and the Rocky Mountain Service Center.

Forensic Engineer and President
OEC Forensics (A division of Ogden Engineering & Consulting, LLC), Lakewood, CO
2000 - July 2020 (OEC acquired by Nederveld, Inc. July 31, 2020)
Responsible for the investigation, analysis and reconstruction of motor vehicle collisions, occupant safety, highway design features and vehicle/machine component failures. Determine factors relating to collision or failure causation, occupant protection, driver actions, and highway design and traffic control contributions. Conduct research, complete engineering calculations and analysis, prepare expert records, develop conclusions, and provide forensic engineering testimony relative to results, findings, and conclusions. Supervision and training of engineers and technicians.

Principal Engineer and President
Ogden Engineering & Consulting, LLC
2000 - 2020
Provide quality assurance/control (QA\QC) services to public and private entities, highway design and consulting engineering firms for highway plans, specifications and estimates (PS&E). Provide UAS (unmanned aerial systems) documentation and mapping services of construction related activities and progress.

Special Topic Presentations
National Academy of Forensic Engineers
2010 - Present
Semi-annual special seminar series in Advanced Accident Reconstruction and Forensic Engineering Tools and Techniques. Develop instructional materials and present at semi-annual special seminar sessions.

Adjunct Faculty Member, Continuing Education Program
The George Washington University, Washington, D.C.
1998 - 2007
Develop and teach engineering professional development courses in Accident Investigation for Engineers (Course 2158DC), Accident Reconstruction for Engineers (Course 2137DC), and Low Velocity Accident Investigation and Reconstruction for Engineers (Course 2159DC).

Forensic Engineer
Thomas L. Alcorn, PE & Associates
1991 - 2000
Responsible for investigating and reconstructing motor vehicle collisions to determine factors contributing to collision causation. Conduct research, complete engineering calculations and analysis, prepare expert records, develop conclusions and provide forensic engineering testimony relative to results, findings and conclusions.

Commissioned Regular Army Officer and Enlisted Non-Commissioned Officer
United States Army, Armored Calvary Corps.
1982 - 1991
Command combat personnel and equipment. Develop operational\training plans. Supervise and coordinate heavy engineering equipment designed to maintain overland mobility and crew/combat vehicle survivability on the battlefield. Granted Top Secret security clearance during Regular Army Enlisted service as a Signal Intelligence Specialist, and Regular Army Commissioned Officer active-duty military service as an Armored Cavalry Officer. Terminal Enlisted rank of Sergeant/E5, terminal Officer rank of Captain/O3 (Army Ready Reserve until 1995).

Line Duty Accident Investigation Officer, Safety Officer, Maintenance Officer, Driver Training Officer, Hazardous Cargo Inspection Officer, and Nuclear/ Biological/Chemical Officer (1988 - 1991).

Officer Command and Staff duties while assigned to a heavy tank battalion of the 3rd Armored Division in the Federal Republic of German. Combat service in Saudi Arabia and Iraq during Operation Desert Shield and Operation Desert Storm (Persian Gulf War 1991), as a commissioned officer assigned to the 1st Brigade, 3rd Armored Division, 7th Corps, US Army (1988 - 1991).

## Professional Affiliations

Fellow: National Academy of Forensic Engineers; Board of Directors 2013-2018, Accident Analysis Committee Chair
Member: International Board of Forensic Engineering Sciences
Member: National Society of Professional Engineers, Professional Engineers of Colorado
Member: Institute of Transportation Engineers and ITE Expert Witness Council
Member: Society of Automotive Engineers
Member: American Society of Civil Engineers
Member: American Society of Mechanical Engineers
Member: National Association of Professional Accident Reconstruction Specialists

## Publications

- Ogden J., Martonovich, M., Ingalls Z., Ogden C., Incident Scene Documentation and Time Management using the FARO Focus$^S$ 350 Versus Conventional Measurement Techniques, White Paper for FARO Technologies, Inc., 2018.

- Ogden J., Martonovich M., Forensic Engineering Analysis of Commercial Vehicle Air Brake System Performance, defended January 2018, The Journal of the National Academy of Forensic Engineers, Volume 35, No. 2, December 2018.

- Ogden J., Martonovich M., Engle C., Applications of the G-DaTAΔV™ System of Equations When Determining Total Velocity Change Resulting from Motor Vehicle Collisions, IMECE2016-65013, 2016 American Society of Mechanical Engineers Congress and Exposition, ©ASME 2016.
- Ogden J., Martonovich M., Forensic Engineering Tools and Analysis of Heavy Vehicle Event Data Recorders (HVEDR), defended June 2016, The Journal of the National Academy of Forensic Engineers, Volume 33, Number 2, December 2016.
- Ogden J., Engle C., Rules and Regulations for Commercial Drone Usage, InterACTION, The National Academy of Forensic Engineers, Vol. 27, No. 1, Spring/Summer 2016.
- Ogden J., Forensic Engineering Applications of the G-DaTAΔ*V™* System of Equations to Real-World Collisions, defended July 2015, The Journal of the National Academy of Forensic Engineers, Volume 32, No. 2, December 2015.
- Ogden J., Generalized Deformation and Total Velocity Change Analysis with Missing Vehicle Stiffness Coefficients; G-DaTAΔV™, defended January 2015, The Journal of the National Academy of Forensic Engineers, Volume 32, No. 1, June 2015.
- Ogden J., Forensic Engineering Traffic Impact and Signalization Analysis, defended July 2013, The Journal of the National Academy of Forensic Engineers, Volume 29, No. 2, December 2012 Edition, published April 2015.
- Ogden J., Kloberdanz K., Forensic Analysis of Motorcycle Impacts Using Rotational Mechanics and Fork/Vehicle Deformation, defended July 2012, The Journal of the National Academy of Forensic Engineers, Volume 29, No. 1, June 2012 Edition, published November 2014.
- Ogden J., GIS for Forensic Engineering, InterACTION, The National Academy of Forensic Engineers, Vol. 23, No. 2, Fall/Winter 2012.
- Ogden J., Martonovich M., Weimer Z., Kloberdanz K., Information Analysis for the Collision Analyst, Collision Magazine, Volume 7, Issue 1, Spring 2012.
- Ogden J., Martonovich M., Current Issues Affecting Passenger and Commercial Vehicle Event Data Recorders, InterACTION, The National Academy of Forensic Engineers, Vol. 22, No. 2, Fall/Winter 2011.
- Ogden J., Weimer Z., Kloberdanz K., Martonovich M., Event Data Recorders and Evidence Spoliation: Avoiding Exposure, Colorado Claims, October 2011, Volume 9, Number 3.
- Ogden J., Forensic Engineering Analysis of a Bicycle Pickup Truck Accident, defended July 2009, The Journal of the National Academy of Forensic Engineers, Vol. 27, No. 1, June 2010.
- Ogden J., Forensic Engineering Analysis of Multiple Vehicle Impact Sequences, defended July 2008, The Journal of the National Academy of Forensic Engineers, Volume 25, No. 2, December 2008.
- Ogden J., Kloberdanz K., Introducing a Cost Effective, Real-Time Video Visualization for Depicting Accident Events, Colorado Claims, 4th Quarter 2006, Volume 4, Number 3.
- Ogden J., Forensic Engineering Analysis of Damage and Restitution in Low Velocity Impacts, defended July 1999, The Journal of the National Academy of Forensic Engineers, Volume 16, No. 2, December 1999.

- Ogden J., Sprague D., Forensic Methods for Investigating and Documenting Minor Damage Motor Vehicle Impacts, Institute of Transportation Engineers, 1998 Compendium of Technical Papers, ITE District VI 68th Annual Meeting, 1998.
- Ogden J., Sprague D., Accident Reconstruction Methods for Determining the Severity Levels of Minor Damage Impacts, Institute of Transportation Engineers, 1998 Compendium of Technical Papers, ITE District VI 68th Annual Meeting, 1998.
- Ogden J., Sprague D., Motor Vehicle Damage Force Balancing Methods for Accident Reconstruction, Institute of Transportation Engineers, 1998 Compendium of Technical Papers, ITE District VI 68th Annual Meeting, 1998.
- Ogden J., Alcorn T., Scott J., Acceleration Levels and Occupant Kinematics Associated with Vehicle-to-Curb Impacts, Accident Reconstruction Journal, Volume 7, Number 3, May/June 1995.

## Books, Chapters, Instructional Materials and Scholarly Texts

- Ogden J., Martonovich M., Electronic Data Recorders (EDR'S, ECU'S, Black Boxes, Encyclopedia of Forensic Sciences, Third Edition, Volume 2, Pages 249-264, Elsevier 2023.
- Ogden J., Applications of the G-DaTA$\Delta$V™ System of Equations to Various Types of Motor Vehicle Collisions, National Academy of Forensic Engineers, Special Seminar on Collision Analysis, Denver, Colorado, July 28, 2019.
- Ogden J., Highway Work Zone Traffic Control…The Often-Forgotten Construction Activity, Wyoming Section of the American Society of Civil Engineers, in conjunction with the Wyoming Engineering Society 99th Annual Convention, February 2019.
- Ogden J., Generalized Deformation and Total Velocity Change Analysis System of Equations (G-DaTA $V$™), an Engineering & Applied Science Doctor of Philosophy dissertation, University of Colorado Denver, ProQuest No. 3739580, Published by ProQuest LLC (2015), ©2015 Jerry Scott Ogden.
- Traffic Engineering Handbook 7th Edition, Chapter 15: Work Zone Maintenance of Traffic and Construction Staging, technical reviewer for publication, Draft Text June 6, 2014, Institute of Transportation Engineers, 2016.
- Ogden J., Practical Planning and Execution Procedures for Effective Forensic HDS Scanning, SPAR International 2014, Forensic and 3D for Legal/Court Division, Colorado Springs, Colorado, April 15, 2014.
- Ogden J., Weimer Z., Forensic Engineering Methods for the Analytical Analysis of Low Speed Impacts with Mathematical Appendix, National Academy of Forensic Engineers Education Committee Special Seminar, Advanced Topics in Accident Reconstruction, Minneapolis, Minnesota, July 2013.
- Ogden J., Conflict of Interest, Affidavits, Motions in Limine & Other Legal Filings, National Academy of Forensic Engineers Education Committee Special Seminar, Forensic Engineering Tools and Techniques Series, Miami, Florida, January 2012.
- Ogden J., Forensic Analysis of Photographic Evidence, National Academy of Forensic Engineers Education Committee Special Seminar, Advanced Topics in Accident Reconstruction, Las Vegas, Nevada, July 2011.
- Ogden J., Martonovich M., Forensic Engineering & Collision Analysis: Tools, Techniques and Applications in Criminal Justice, Warren Technical Institute, lecture for Criminal Justice, October 2011.
- Ogden J., Subpoenas, Depositions and Discovery Requests of the Forensic Engineer, National Academy of Forensic Engineers Education Committee Special

Seminar, Forensic Engineering Tools and Techniques Series, Tucson, Arizona, January 2011.

- Ogden J., Forensic Engineering Principles of Motorcycle Accident Analysis, and Motorcycle Impact Speed Analysis Mathematics Appendix and Applied Problems, National Academy of Forensic Engineers Education Committee Special Seminar, Advanced Topics in Accident Reconstruction, Orlando, Florida, July 2010.
- Ogden J., Accident Reconstruction, training manual for the Accident Reconstruction for Engineers (Course 2137DC), The George Washington University Continuing Engineering Education Program, K Street Center for Professional Education, Washington, DC., 1998.
- Ogden J., Methods of Investigating and Reconstructing Minor Damage, Low-Velocity Motor Vehicle Accidents, a Master of Science thesis, University of Colorado Denver, Denver, Colorado, defended October 13, 1995.