



**COLLISION
AND INJURY
DYNAMICS**

149 Sheldon Street, El Segundo, CA 90245 • 310.414.0449 • www.ci-dynamics.com

WESLEY E. VANDIVER, ACTAR

wwandiver@ci-dynamics.com

Professional Competence

Senior Consultant specializing in vehicular collision analysis and reconstruction. Subspecialties include: certified instructor in event data recorders and vehicle system forensics.

Education and Certification

Vehicle Dynamics Certification

- Society of Automotive Engineers, SAE International; 2016

Accident Reconstruction Certification

- Society of Automotive Engineers, SAE International; 2015

Vehicle System Forensics & iVe Examiner Certification

- Berla Corporation; 2015

Crash Data Retrieval System Trainer Certification

- Collision Safety Institute; 2014, 2015, 2017, 2018

Crash Data Retrieval System Technician and Analyst Certifications

- Society of Automotive Engineers, SAE International; 2013
- Collision Safety Institute; 2008, 2012
- Vetronix Corporation; 2001, 2003

Traffic Accident Reconstructionist Accreditation

- Accreditation Commission for Traffic Accident Reconstruction; 2002, 2007, 2012, 2017

California Highway Patrol Departmental Instructor Certification

- California Highway Patrol Academy; 2000

Bachelor of Arts in Economics

- University of California at Irvine; 1988

Forensic Qualifications

Expert testimony in Superior and Municipal Courts in California, United States District Court, and the District Court of South Australia



Organizations

California Association of Accident Reconstruction Specialists
 Institute of Traffic Accident Investigators
 National Association of Professional Accident Reconstruction Specialists
 Society of Automotive Engineers

- Data Collection and Archiving Standards Committee
- Event Data Recorder Committee

Society of Accident Reconstructionists
 Society of Forensic Engineers and Scientists
 Southwestern Association of Technical Accident Investigators

- Board of Directors, Chairman

Event Data Recorder (EDR) Sub-Specialty

Mr. Vandiver was among the earliest in the industry to delve into the acquisition and analysis of data from automotive event data recorders ("black boxes"). Since starting with this new technology in 2000, he has continually participated in controlled crash testing to gather research on the availability of this data as well as its reliability, accuracy, and potential anomalies. Mr. Vandiver is an internationally recognized expert in this field, a frequently-requested lecturer on this topic, and a published author of peer-reviewed technical papers related to the testing and analysis of this data. In 2016, when the government of South Australia was prosecuting a case that involved EDR data, it summoned the assistance of Mr. Vandiver to assist in the collection of the data as well as his expert testimony in both a voir dire hearing (admissibility hearing) and criminal trial to secure a conviction in the case. Mr. Vandiver has lectured across the United States and internationally on various aspects of the collection and analysis of EDR data, including data from vehicle makes not commonly accessible with publicly available tools. He has been an invited speaker at the CDR Summit in Houston, Texas on five occasions – 2009, 2010, 2013, 2015, and 2016 – to share his research and findings with collision investigators and reconstructionists, engineers, and automotive industry professionals. In 2011, he was honored with an invitation to deliver a lecture on event data recorders to the National Academy of Sciences as part of its Distinctive Voices series. In 2016, he was invited to speak at the World Reconstruction Exposition (WREX 2016) on the topic of, "Can the Black Box be Wrong?", highlighting anomalies that can be found in this type of data and how to determine if they exist in a particular case. In 2018, he was invited to lecture at the European CDR Summit on the proper analysis of EDR data. Finally, Mr. Vandiver has had his research peer-reviewed and published by the Society of Automotive Engineers. His SAE Technical Papers in 2013 and 2015 opened the door to previously unvalidated data that were used in vehicular murder trials and are now available to, and cited by, other experts.

Vehicle System Forensics Sub-Specialty

As automobiles have become more like computers with wheels, Mr. Vandiver has been at the forefront of seeking out what information may be stored in vehicles and accessible to those who may be investigating an incident involving a particular vehicle. To that end, Mr. Vandiver obtained the iVE Examiner Certification from Berla Corporation, an industry leader in vehicle data technology. Mr. Vandiver has the ability to interrogate vehicle infotainment and telematics systems in search of valuable evidence including historical GPS data and communications information (e.g., telephone calls and text messages sent from a vehicle). Mr. Vandiver's reputation as an expert in this field led him to be contacted by the Federal Bureau of Investigation for assistance in a terrorist incident it was investigating and Mr. Vandiver served as the expert in charge of collecting data from the involved vehicle. Mr. Vandiver led the research into validating the accuracy of speed data recorded by Ford vehicles and was subsequently the lead author of the peer-reviewed technical paper documenting the results of that research, published by SAE International in 2018. Mr. Vandiver now serves as a training consultant for Berla Corporation.



Professional Experience

2016 – Present	Collision and Injury Dynamics, Inc. (Senior Accident Reconstructionist)
2017 – Present	Berla Corporation (Forensic Analyst / Training Consultant)
2006 – 2016	Office of the District Attorney, Bureau of Investigation (District Attorney Investigator / Collision Reconstructionist)
1989 – 2006	State of California, California Highway Patrol (CHP), Traffic Patrol and Accident Investigations, Multidisciplinary Accident Investigation Team (MAIT)

Teaching Experience

Northwestern University - Adjunct Faculty for courses in Collision Reconstruction; 2016-present

Berla Corporation - Forensic Analyst and Training Consultant in Vehicle System Forensics; 2017-present

University of North Florida - Adjunct Faculty in Event Data Recorder Analysis in Traffic Collision Reconstruction; 2012-present

Collision Safety Institute - CDR Technician Certification Course instructor; 2014-present

Riverside Community College - Adjunct Faculty for courses in Collision Reconstruction, Pedestrian and Bicycle Collision Reconstruction, Human Factors, Advanced Accident Investigation, Basic Motor Vehicle Mechanical Examinations, Forensic Analysis of Seat Belt Restraints; 2002-Present

State of California Commission on Peace Officer Standards and Training, POST Certified Instructor; 2000 – Present

Training

European Crash Data Retrieval Summit – Rüsselsheim, Germany

- Current and Proposed Autonomous Vehicle Event Recording Regulations; SAE Autonomous Vehicle EDR Recommended Practice; The Hydrogen Toyota Mirai; Electro Mobility and Data Read Out; Readings of Data that are not Released by the Manufacturer and German Requirements for Experts for The Reading of Electronic Data; Current Status of CDR and Outlook for the Following Year; Current News About the EU Regulation Including EDR; Future Requirements for Data from the Vehicle / Data Model According to AHEAD - Job Profile for Accident Reconstructionists According to VDI Guidelines; Unsupported Hyundai EDR Data in a Real World Crash; Proposal for a System of Insurance Fraud Detection in any Country; Methods of Insurance Fraud Detection; 2018

SAE World Congress - Detroit, MI

- 2018 Technical Sessions - Accident Reconstruction: An Analytical Review and Extension of Two Decades of Research Related to PC-Crash Simulation Software; Finite Element Analysis to Analyze the Properties of Pole Impacts; Development of a 12-Node Thermodynamic Simulation Model of a Disc Brake Assembly; Truck Brake Failure: Differences Between Failure Modes for Drum and Disc Brakes; Sensitivity Analysis of Simulated Postimpact Vehicle Motion Using Design of Experiments (DOE); Truck and Sport Utility Vehicle Front End Stiffness Corridors; Steering Shaft Separation with a Collision Involved Heavy Duty Steering Gear; Mid-Range Data Acquisition Units Using GPS and Accelerometers; Further Validation of Equations for Motorcycle Lean on a Curve; Eleven Instrumented Motorcycle Crash Tests and Development of Updated Motorcycle Impact-Speed



Equations; Introduction to Traffic Signal Data Loggers and their Application to Accident Reconstruction; Using Multiple Photographs and USGS LiDAR to Improve Photogrammetric Accuracy; Comparing the Accuracy of Image Based Scanning Techniques to Laser Scanners; Accuracy Assessment of Three-Dimensional Vehicle Edge Features Generated with Aid of Photogrammetric Epipolar Lines; Videogrammetry in Vehicle Crash Reconstruction with a Moving Video Camera; Driver Response Time to Midblock Crossing Pedestrians; Driver Response Time to Left-Turning Vehicles at Traffic Signal Controlled Intersections; Correlation of "Non-Zero" Speedometer Readings with EDR Data; The Effect of Target Features on Toyota's Autonomous Emergency Braking System; An Analysis of EDR Data in Kawasaki Ninja ZX-6R and ZX-10R Motorcycles Equipped with ABS (KIBS) and Traction Control (KTRC); Accident Reconstruction with Data Recorded by Electronic Control Units in Vehicles with a Pre-crash Safety System; The Accuracy of Toyota Vehicle Control History Data During Autonomous Emergency Braking; 2018

- 2015 Technical Sessions - Occupant Protection: Rear Impacts, Rollovers, and Side Impacts: Steering Maneuver with Furrow-Tripped Rollovers of a Pickup and Passenger Car; Further Development of a Method to Reproduce Highly Dynamic Force Distance Based Intrusions of Vehicle Side Structure Components; Lightweight Seat Design and Crash Simulations, Rollover Testing of a Sport Utility Vehicle (SUV) with an Inertial Measurement Unit (IMU); Occupant Kinematics and Injury Response in Steer Maneuver-Induced Furrow Tripped Rollover Testing; 2015
- 2015 Technical Sessions - Event Data Recorders: EDR Pulse Component Vector Analysis; Extracting Event Data from Memory Chips within a Detroit Diesel DDEC V; Survivability of Event Data Recorder Data in Exposure to High Temperature, Submersion, and Static Crush; Analysis of Event Data Recorder Survivability in Crashes with Fire, Immersion, and High Delta-V; Injury Estimation in Frontal Collisions for Automobiles Equipped with Event Data Recorders (EDRs); Using NFPA Compliant Fire Apparatus Vehicle Data Recorders for Collision Investigation - Weldon Type 6444; 2015

Berla Corporation

- Berla iVe European User's Summit; 2018
- Berla iVe Train-the-Trainer - Vehicle System Forensics; 2018
- Berla iVe Australian User's Summit; 2017
- Vehicle System Forensics and iVe Examiner Certification; 2015

Collision Safety Institute, Bosch Corporation, Vetronix Corporation

- Crash Data Retrieval System
 - o Train-the-Trainer Certification Course; 2014, 2015, 2017; 2018
 - o Data Analyst Recertification Course; 2012
 - o Technician II Recertification; 2012
 - o Technician I Recertification; 2012
 - o Analyst Certification Course; 2008
 - o Technician Certification Course; 2008
 - o Update Course; 2005
 - o Operator's Certification; 2001, 2003

American Academy of Forensic Sciences – 2018 Annual Scientific Meeting

- Steering Failure in a Triple Fatality Crash; A Forensic Engineering Review of the TAIL Phenomenon (Looming) and a Cautionary Application to Crashes; Limit Performance and Controllability Testing of Vehicles Towing Utility Trailers; Tow Hitch Failure; Who's Driving?; An Overview of Physical Evidence to Assist With Driver Identification in Vehicle Collisions; Determination of Driver Identity: Effective Scientific Investigation, Comparison and Contrast of Forensic Evidence, and Its Spoliation in Various Cases; Using Injury Patterns, Forensic Science, and Impact Biomechanics to Identify the Driver in a Fatal Vehicle Crash; Using Injury Patterns, Forensic Science, and Impact Biomechanics to Identify the Driver in a Multi-Occupant, Double-



Fatality Vehicle Crash; The Use of Forensic Evidence, Vehicle Crashworthiness, and Human Factors Testing to Prove Driver Identity; 2018

Event Data Recorder and Crash Data Retrieval Summits

- Bosch CDR Update; Vehicle Infotainment Systems; On-Star Data; EDR Throttle Input; Power Loss and "Reported" Vehicle Speeds; Subaru EDR Evidence; Tesla EDR Tool Release; Tesla Autopilot, Self-Driving; Vehicles & Driver Assistance Features; Detroit Diesel Engine ECM Overview and Updates; Legal Challenges Regarding EDR Data; EDRs and Motorcycles; An Overview of the Bendix Wingman System and Bendix Data Recorder; Case Studies in Bosch CDR Tool Retrieved Data; 2018
- CDR Past, Present, and Future; Autonomous Vehicles; Discovering and Analyzing Digital Data Acquired from Motor Vehicle Systems and Connected Mobile Devices; Subaru & Mitsubishi EDR Data; Forensic Data from Heavy Vehicle Networks; An Overview and Update of the Volvo and Mack ECM EDRs; Caterpillar ECM EDRs; Toyota Gen3 Pre-Crash Brake Data; Pre-Crash Data Recorded by the ACM; Asynchronous Data Concepts in EDR Data; Cummins ECM and EDR Capabilities; Atypical Airbag Deployment Cases; Hyundai and Kia EDR Data; Forensic Methods for Dealing With Damaged ECM / ECU Components; CDR Data Case Studies for Late Model GM, Toyota, BMW, and Ford Vehicles; Mercedes-Benz Crash Data; Heavy Vehicle Crash Reconstruction Incorporating EDR ECM Data; 2017
- CDR Past, Present and Future; Fiat Chrysler Automobiles Update; Data Privacy and New Laws; Guide to Unsupported Ford Vehicles; Digital Security; Vehicle System Forensics and Crash Data; Working on Damaged Modules; Successful Reprogramming of Modules and the Addition of Unrelated Data for Imaging; Car vs. Motorcycle Case Study; Application of Crash Data From Non-Supported Ford Vehicles; CDR Version History and Changes; Back Powering Vehicles for Newly Added Systems; How Vehicle Systems Work Together; Hyundai/Kia Update; Insurance and Fleet Management; 2016
- CDR Past, Present and Future; New Vehicle Technologies Affecting CDR Imaging; Clearing an ACM; GM Ignition Switch Failures and Associated CDR Data; Toyota Event Recording Prioritization; CDR Case Law; Controlled Crash Testing; GM CDR Update; Non-Supported Nissan and Infiniti Vehicle Crash Data via Nissan Consult System; Nuances of Crash Reconstruction Using Non-Deployment Data; Data Mining the NHTSA NASS CDR Database; Online Technologies and Resources; 2015
- SAE EDR Committee and NHTSA Part 563; GM & Chrysler Updates; CDR Validity Questioned in Officer-Involved Collision; Assessing and Accessing the DLC-OFD II Port; Integrating CDR Data in an Analysis; Toyota Braking Data; EDR Data in European Vehicles Sold in North America; Hyundai & Kia EDR Data and Analysis; EDR Data Legal Update; Validating CDR Data Through Crash Testing; IIHS Narrow Overlap Crash Testing Data Discrepancies; 2014
- CDR: Past, Present and Future; SAE EDR Committee and NHTSA Part 563 Update; Clipped Data Analysis in a Collision Reconstruction; General Motors, Chrysler and Toyota Data Updates; Data Limitations; Advanced Re-Powering Techniques; Crash Sensing and Deployment Algorithm Design; Confirmation of CDR Veracity for Difficult GM Analysis Cases; Comparison of CDR Tool Data to a Crash Reconstruction - Common Errors; Crash Data from Motorcycles, Analysis of Low Delta-V Impacts and the Relationship to CDR Data; Examination of Data from Cleared Airbag Control Modules; Analysis of Toyota Crash Data Recording - Thresholds, Overwriting Process and Underreporting Delta-V; 2013
- Manufacturer Updates, SAE EDR Committee and NHTSA Regulations, Toyota EDR Technology, Raw Data in ECUs Direct EEPROM Data Retrievals, Monte Carlo Analysis with EDR Data, Transplanting EDR Memory Chips, Ford PCM and RDS Challenges, Crash Analysis with Multiple EDR Reports, Case Law Review, EDR Admissibility, Back-Powering Technique for EDR Downloads, Ford PCM Data Interpretation; 2012
- Crash Data Collection for GM Airbag Electronic Control Units; Case Studies Including Toyota EDR Data; Evaluation of Torque Data Recorded by a Ford PCM; Chrysler Non-Deployment Data - How to Identify it and What Does it Tell You; CDR Data Momentum Solutions - Thinking Inside the



Triangle; Preserving Heavy Truck ECM Files; Applying Heavy Vehicle EDR Data in the Real World; GPS Navigation Unit Data for use in Accident Reconstruction; CDR - Insurance and Legal Issues; 2011

- Manufacturer Updates, Algorithm Runtime in PCMs, Defect Investigation Regarding SDMs, Delta-V Calculations and Integration, Restraint Systems, PCM Data and RDS, Wet or Frozen ACMS, EEPROM Data Retrieval; 2010
- GM, Ford and Chrysler Updates; GM Rollover Sensor Data Analysis; Evaluating PCM Braking Data; SDM Timing Analysis; EDR Braking Accuracy; Signal Processing; Reprogrammed ACMS; 2009

Bosch Corporation - Bosch Crash Data Retrieval Tool Summit for Stakeholders

- Bosch Corporation and the CDR tool; CDR updates; 49 CFR Part 563.12 Discussion; CDR Tool Development; CDR Tool in Japan; Toyota EDRs; EDRs in China; BMW EDRs; European EDRs; Gap Analysis, CDR and Other Tools; Transport Canada Special Projects; CDR Tool Data Limitations; 2017
- CDR Development and Updates, Data Collection and Survivability, Data Anomalies, Data Applications, CDR Training and Education, Legal and Regulation Updates; 2015

Illinois Association of Traffic Accident Investigators - Traffic Accident Reconstruction Conference

- Aerial Photogrammetry in Crash Reconstruction; Post-crash Mechanical Examinations; Past, Present, and Future of Headlamps; Traffic Signal Programming and Adaptive Signal Control; Data Gathering for Animations; Analysis of Delta-V; Occupant Kinematics; Modern Motorcycle Technology and Techniques; Crash Data Review; 2017

Society of Forensic Engineers and Scientists

- Forensics Seminars; March 2017, February 2016, May 2016, July 2016, and March 2017

PC Brake, Inc.

- Motor Vehicle Accident Reconstruction and Cause Analysis; 2016

Southwestern Association of Technical Accident Investigators

- Pedestrian Crash Reconstruction; Analysis and Interpretation of Traffic Signal Evidence; Low-Speed Collision Analysis; Momentum, Energy, and Restitution Method for Low-Speed Accident Reconstruction; Crash Test Data Review; 2018
- Tire Forensics; Forensic Mapping Using UAVs; DVR Evidence, Documentation, Analysis, and Presentation; 2017
- Bicycle Collision Analysis, Nighttime Collision Analysis, Drug Impaired Driving; 2016
- Energy Dissipation in High Speed Frontal Collisions; Identifying Misuse and Failures in Child Safety Seats; 3D Laser Scanning and its Uses in Crash Reconstruction; Update on HVEDRs; Conservation of Energy, Speed from Damage, Delta-V, and Force Balance; 2016
- Collision Evidence Interpretation, Conservation of Linear Momentum, CRASH3 - Researching Stiffness Values, Motorcycle Collisions; 2015
- Human Factors of Acceleration, Compliance Crash Testing, 3D Laser Scanning, Crash Test Data Review; 2015
- Applied Physics in Collision Reconstruction, Rotational Mechanics, Reconstruction of Rollover Collisions, General Motors Ignition Switch Investigations, Controlled Crash Testing (pedestrians, motorcycles and vehicle-vs-vehicle); 2014
- Reconstructing Nighttime Automobile-vs-Pedestrian Collisions, Headlamp Performance in Automobile-vs-Pedestrian Collisions, Interviewing Drivers & Witnesses; 2014
- Controlled Crash Testing (Collinear Momentum and Airborne), Conservation of Momentum and Simultaneous Energy Solutions, Tire Forensics, Fundamentals of Video Analysis to Determine Velocity, Video Analysis Reconstruction Case Study; 2013
- Toyota EDR Testing and Data Accuracy, Barrier and Sled Testing of Toyota EDRs, Use of GPS Data in Collision Reconstruction, Operation of Traffic Enforcement Cameras, Use of Surveillance



- Video for Collision Analysis, Reliability of Post-Collision Speedometer Readings, Forensic Analysis of Seat Belts, Balancing Forces in Collision; 2013
- Commercial Motor Vehicle Air Brake Systems, Commercial Motor Vehicle Collision Investigations, Controlled Crash Testing, Crash Test Data Analysis; 2012
 - Sudden Acceleration Incidents - A Mechanical Perspective, Data Acquisition Systems and Principles of Dynamic Data Collection, Traffic Engineering, Bicycle Collision Reconstruction and Cyclist Standard of Care Issues; 2012
 - Mechanics of One Dimensional and Planar Collisions, Controlled Crash Testing; 2011
 - Medical Examiner Investigations, Rollover Collision Reconstruction, Photogrammetry in Collision Reconstruction, Low-Speed Collision Analysis; 2011
 - Vehicle Off-Tracking, Monte Carlo Statistical Analysis, Advanced Digital Photography, Using GPS in Heavy Trucks; 2010
 - Controlled Crash Testing, Safety Systems in Mass Production Vehicles, Pedestrian Safety and the 2009 MUTCD, EDR Data from Non-CDR Supported OEM's; 2010
 - Commercial Truck Electronic Data Interpretations; Glazing Material Loading and Performance in Rollover Collisions; Stability Related Accident Analysis with Motorcycles, Trikes, and UTV's; Radial Tire Tread-Belt Separations; 2010
 - The Effect of Aftermarket Components on the Event Data Recorder, Event Data Recorder Use and Misuse, Vehicle Stiffness Data Research and Calculations, the Role of a Collision Reconstruction Expert in Criminal and Civil Litigation; 2009
 - Rollover Collision Crash Testing, MADYMO (Mathematical Dynamic Models) in Collision Reconstruction, Biomechanical Analysis of Rollover Crashes, Examination of Seatbelts from Rollover Collisions; 2009
 - Motorcycle Braking, Motorcycle Crash Analysis, Assessing Crash Avoidance, Motorcyclists' Perception-Response Times, Motorcycle Rider Response Evaluations; 2009
 - Airborne Events, Critical Speed Yaw, Rotational Mechanics and Narrow Object Impacts; 2008
 - Controlled Crash Testing of Vehicles Equipped with Event Data Recorders; 2008
 - Momentum Applications, Post-Impact Trajectory Analysis, Recent Developments in Event Data Recorder Technology, Rollover Collision Analysis; 2007
 - Applicability of Crush Analysis Formulas, Balancing Forces to Calculate Delta-V from Crush, Crash Test Data Review Including Event Data Recorder Analysis; 2005
 - Automobile vs. Bicycle/Bicyclist Crash Testing, Bicycle Collision Investigation & Reconstruction, Automobile versus Pedestrian Collision Investigation; 2005
 - Commercial Motor Vehicle Event Data Recorders, Federal Rules & Regulations and Post-Collision Mechanical Inspections; 2004
 - Lighting and Visibility Issues in Collision Reconstruction, Nighttime Visibility and Retroreflectivity of Roadway Signs; 2003
 - Collision Analysis Using Conservation of Linear Momentum and Energy Applications; 2004
 - Rollover Collision Dynamics, Vehicular Response to Tire Failures, Crash Data Retrieval Accuracy, Commercial Vehicle Rollover Collision Analysis, Manual on Uniform Traffic Control Devices; 2003
 - Vehicle Examination for Mechanical Defects, Work Zones - Set Up and Operation; 2002
 - Human Factors/Ergonomics, Commercial Vehicle Braking Systems, Velocity Calculations from Translational Yaw; 2002
 - Crush Stiffness Coefficients, Accuracy of CDR Data, Supplemental Restraint Technology, CDR Data Retrieval, Brake System Failures; 2001
 - The Investigation of Automobile Collisions with Utility Poles and Trees, Vehicle Crush/Energy Applications, Tire and Wheel Related Reconstruction, Conservation of Linear Momentum; 2001
 - Conservation of Linear Momentum, Energy-Based Speed Calculations ("Crush"), and Calculating Commercial Vehicle Braking Efficiency; 1999
 - Occupant Kinematics, Injury Patterns, and Lamp Examinations; 1998



ARC-CSI Crash Test Conferences

- Controlled and Instrumented Crash Testing; Reconstruction of Incidents Recorded With Body-Worn Cameras; Gap Acceptance - How Far Away Must an Approaching Vehicle be Before a Driver Will Pull Out?; NTSB Highway Crash Investigations; Reconstruction of Low-Speed Inline Collisions; Deploying Drones for Collision Reconstruction; Collision Scene Mapping with UAS Technology; Quantitative Study of Passenger Vehicle Braking Performance During Emergency Application, Overheating of Heavy-Duty Truck Brakes: Discs Versus Drums; Pedestrian Walking Speeds; Pedestrian Crash Reconstruction Methodologies; Crash Test Data Review; 2017
- Pedestrian Crash Research Team; Instrumented Crash Testing Involving Automobiles vs. Pedestrian Dummies; 2017
- Controlled and Instrumented Crash Testing; Motorcycle Collision Reconstruction Techniques; Crash Scene Photography; IIHS Small Overlap Crash Test Analysis; NASS Crash Data; Minimum Speed Calculations; Airbag Deployment Decisions; Lateral Acceleration Through Curves; Wheel Impacts in Rollover Scenarios; Crash Reconstruction Case Studies; Safely Working with Hybrid Vehicles; 2015
- Controlled and Instrumented Crash Testing; Unmanned Aircraft Systems in Public Safety; Drone Use for Scene Inspections; Vehicle Systems Which May Impact Crash Analysis; Collision Trauma Biomechanics; Evaluating Motorcycle Evasive Maneuvers, Real-Time 3D Simulation Software; Tire Mechanics & Tire Failure Analysis; Vehicle System Digital Forensics; Reconstructing Crashes When Critical Scene Data are Missing; Vehicle Velocity Extraction from Witness Video Using Visual Statement EdgeFx, Crash Test Data Review; 2015
- Controlled and Instrumented Crash Testing; Analyzing Low Delta-V Crashes, Commercial Vehicle Event Data Recorders, Human Fatigue as a Risk Factor to Driver Performance, Conspicuity and Visibility Issues and Testing, Motorcycle Sliding Friction, Using GPS/GIS System for Scene Documentation, Vehicle History Data Applications to Crash Reconstruction, Wheel Slip and The Effect on Reported Vehicle Speed, The Consequence of Inadequate Vehicle Repairs on Structural Integrity, Modern Methodologies in Accident Reconstruction; 2014
- Controlled and Instrumented Crash Testing; Damage Energy, CRASH3, Simultaneous Momentum & Energy Solutions, Closing Velocity; Accident Reconstruction Using Crash3 And LS-Dyna; Braking Systems for Passenger Cars and Light Trucks; Reliability of Crash-Triggered Video and Data Recorders; The Investigation of Transit System Events, Aras 360 Technology; Differentiating Potentially Causal Pre-Crash Component Damage from Crash Damage; Dynamic Modeling of Motor Vehicle Collision Response Using the SDOF Approach; Forensic Photography; Motorcycle Crash Reconstruction and Technology; Determining Vehicle Orientation and Ground Contact for Rollover Collisions; Engineering Dynamics Reconstruction Techniques for Complex Crashes; 2013
- Controlled and Instrumented Crash Testing; Energy, Momentum and Closing Velocity Relationships; Tread Separation Accidents Involving Axle Tramp; GM Hybrid and Electric Vehicle Technology and its Relationship to EDR Data; Forensic Seat Belt Analysis; Using Commercial Vehicle ECM Diagnostic Data in Crash Reconstruction; The Application of MADYMO to the Modeling of Real World Accidents; Low Speed Collision Reconstruction; Low Speed Collision Biomechanics; Drug Recognition Training; Establishing Safe and Realistic Speed Limits; Measuring Yaw Marks from Digital Maps; Highway Design - Safety Appurtenances; Crash Test Data; 2012
- Controlled and Instrumented Crash Testing; EDR Downloads & Search Warrants; Human Factors Related to Cell Phone Use and Texting; Compatibility of Push Bumpers and Airbags; Computer Applications in Highway Safety; Applications for GPS Data in Collision Reconstruction; Occupant Dynamics Simulations Using MADYMO; Intersection Collisions; Relationships Between Momentum, PDOF and Delta-V; Auto-Pedestrian Collision Analysis; CrashZone Updates; iWitness Applications; 2011
- Controlled and Instrumented Crash Testing; PDOF and Angle Development over Time; GM OnStar Automatic Crash Response; Accelerometers and Other Devices Used for Reconstructionist Testing; Motorcycle Accident Reconstruction; HVE-CSI; Low-Speed Collision Analysis Using the Equations of Motion in Collision Reconstruction; Commercial Motor Vehicle Forensic Inspection for



The Reconstructionist; Commercial Motor Vehicle Acceleration Studies; Determining Speed Or Acceleration From Video Frames; Impact Speed And Post-Collision Speedometer Readings; GPS, The Overlooked EDR; Conspicuity Sheeting And Retroreflective Tape; 2010

- Controlled and Instrumented Crash Testing; New Vehicle Technologies; Momentum and Energy Case Study; Human Factors in Collision Avoidance and Witness Recall; Motorcycle Crash Analysis; Engine Idle Acceleration; Airborne Collision Analysis; Rotational Mechanics; Pedestrian Crash Analysis; Photogrammetry; Video Applications in Collision Reconstruction; Reconstruction of Collisions Involving the Pursuit Intervention Technique; Reconstruction of Rollover Collisions; 2008
- Controlled and Instrumented Crash Testing; Driver Response in Low Visibility and Fog; "Independent Witness" Data Collection; Airbag Deployment Decision Making; Commercial Vehicle Event Data Recorders; Using Crash Test Data; Commercial Vehicle Braking Systems; Vehicle Damage and Energy Analysis; Child Safety Seat Issues in Collision Reconstruction; Pedestrian Collision Reconstruction Methodologies; Pedestrian Collision Injuries; Crash Data Retrieval System Update; 2005
- Controlled and Instrumented Crash Testing; Crush Measurement Protocol; Evaluating and Using Crash Test Data; Commercial Vehicle EDRs; Seat Belt Analysis; Crash Data Retrieval System Update; Field Measurements; Collision Reconstruction Simulations; 2004

World Reconstruction Exposition (WREX 2016)

- Instrumented Crash Testing, Interactive Field Testing; Driver Response and Information Content; Using Limited Vehicle Data to Estimate Time/Distance/Speed Relationships for Cars and Motorcycles; Speedometers and Collision Reconstruction; Motorcycle Collision Reconstruction; Digital Forensics and Post-Crash Inspections for Heavy Vehicles; Pedestrian Collision Reconstruction; Commercial Vehicle Air Brakes; Rollover Collision Analysis; Heavy Vehicle Speed Analysis; Motorcycle Speed Estimation Methods; Highway Crash Investigation; GPS Research; 2016

California Association of Accident Reconstruction Specialists

- Damage Energy Methods; 2016
- Vision, Perception, and Attention / Pedestrian Accident Reconstruction Methods; 2015
- Collision Reconstruction Case Studies and Methodologies; 2011
- Motor Vehicle Mechanical Inspections; 2011
- Fraud Symposium, Automobile Insurance Fraud Investigations; 2010
- Pedestrian Collision Analysis, Bicycle Collision Analysis, Searle Analysis in Collision Reconstruction, Controlled Motorcycle Crash Testing Results; 2009
- Anti-lock Braking System Technology; 2006
- Motorcycle Collision Investigation and Reconstruction; 2004
- Conservation of Linear Momentum Applications in Collision Reconstruction; 2004
- Post-Collision Passenger Vehicle Inspections; 2004
- Vehicle Lamp Analysis; 2004
- Reconstruction of Traffic Collisions Involving Automobiles vs. Bicycles, Motorcycles and Other Two-Wheeled In-Line Devices - Investigative Techniques, Testing and Biomechanics; 2003
- Coefficient of Friction Determination, Methodology and Special Problems; 2003
- Collision Scene and Physical Evidence Diagramming; 2003
- Tire Mechanics and Inspection in Collision Reconstruction (TRG Tech Tire Consulting); 2003
- Commercial Vehicle Collision Reconstruction & Controlled Testing, "Truck'n with CA2RS"; 2002
- Collision Fires in Accident Reconstruction; 2002
- Injury Mechanisms During Motor Vehicle Collisions; 2002
- Human Factors in Collisions; 2001



Society of Automotive Engineers, SAE International

- The Tire as a Vehicle Component; 2016
- Tire and Wheel Safety Issues; 2016
- Injuries, Anatomy, Biomechanics & Federal Regulation; 2016
- Acquiring and Analyzing Data from Sensors and In-Vehicle Networks; 2016
- Advanced Vehicle Dynamics for Passenger Cars and Light Trucks; 2016
- Fundamentals of Heavy Truck Dynamics; 2015
- Hydraulic Brake Systems for Passenger Cars and Light Trucks; 2015
- Reconstruction and Analysis of Rollover Crashes of Light Vehicles; 2015
- Vehicle Dynamics for Passenger Cars and Light Trucks; 2015
- Vehicle Crash Reconstruction Methods; 2014
- Fundamentals of Brake Control Systems: ABS, TCS, and ESC; 2014
- Accessing and Interpreting Heavy Vehicle Event Data Recorders; 2014
- Application of Automotive EDR Data to Traffic Crash Reconstruction; 2013

University of North Florida

- Human Factors in Traffic Crash Reconstruction; 2016
- Pedestrian and Bicycle Accident Investigation; 1999
- Traffic Accident Reconstruction; 1999

Northwestern University

- Traffic Crash Reconstruction III; 2015
- Advanced Crash Reconstruction Utilizing Human Factors Research; 2015

Southern California Fraud Investigators' Association

- Insurance Fraud Investigation Conference; 2015
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California District Attorneys Association

- Fraud Symposium, Automobile Insurance Fraud Investigations; 2011, 2012, 2013, 2015, 2018
- California Office of Traffic Safety - Vehicular Homicide Investigations and Prosecutions; 2007, 2009, 2010

TRGtech

- Forensic Tire Examination; 2014
- Tire Mechanics and Inspection; 2014

Wolf Technical Services

- Optics, Lighting, Visibility and Nighttime Photography for the Forensic Investigator; 2014

KEVA Engineering

- Event Data Recorders in Heavy Vehicles; 2014

Engineering Dynamics Corporation

- Accident Reconstruction and Simulation; 2014

MEA Forensics

- Expert Topics in PC-Crash Simulations; 2011
- Essentials of PC-Crash Simulations; 2011

Toyota Motor Corporation

- Event Data Recorder Technology in Toyota Vehicles; 2011



San Diego County Collision Investigators' Association (SDCCIA)

- Dr. Mark Gomez - University of California at San Diego, Biomechanics and Injury Analysis in Automobile versus Pedestrian Collisions; 2010
- Dr. Peter Orner - Internal Medicine & Biomechanics of Injury, Biomechanics of Collision Injuries and Injuries from Vehicle Restraint Systems; 2010
- Bob Kovach - Motorcycle Collision Reconstruction II; 2009
- Bob Kovach - Motorcycle Collision Reconstruction I; 2008
- James Domenoe - Motor Vehicle Lamp Examinations; 2005
- Shelton & Associates - Conservation of Linear Momentum Applications; 2005
- Dr. Mark Gomez, Traffic Collision Biomechanics and Reconstruction Methodology; 2004
- Dr. Mark Gomez and David Casteel - Human Factors in Traffic Collisions; 2004
- Tom Ciapponi, PE - Tire Forensics; 2004
- Paul Gels - Motorcycle Inspections, Collision Investigation, and Reconstruction; 2003

Accident Dynamics Research Center - Jeffrey Muttart

- Human Factors in Traffic Crash Reconstruction; 2009

EOS Systems and DCM Technical Services, Inc.

- PhotoModeler and Photogrammetry Applications to Collision Reconstruction; 2008

Joe Jaing, Forensic Scientist and Jennifer Contini, Deputy District Attorney

- DNA Analysis in Traffic Investigations; 2008

Lorie Velarde, Crime Analyst

- Geographic Profiling of Hit-and-Run Offenders; 2008

Operation Lifesaver

- Grade Crossing Collision Investigation; 2005

Rudy Degger and Associates

- Conservation of Linear Momentum and Energy Applications for Collision Reconstruction; 2003

San Diego County District Attorney's Office

- Vehicular Homicide Investigations; 2003

California Highway Patrol, California Highway Patrol Academy

- Translational Yaw Drag Factor Determination and Controlled Testing, MAT Module III Advanced Training; 2002
- Grade Crossing Collision Investigation (CHP); 2000
- Collision Scene Documentation with the Cyra Technologies Cyrax Laser Scanner; 1999
- Traffic Accident Reconstruction II; 1998
- Traffic Accident Reconstruction I; 1998
- Advanced Accident Investigation; 1997
- Techniques of Accident Investigation; 1995
- State Traffic Officer Cadet Basic Accident Investigation Course; 1989

Vericom Computers, Inc.

- Vericom VC3000 Use and Controlled Testing Procedures; 2002

California Criminalistics Institute, California Department of Justice

- Forensic Headlamp Examinations; 2002



Riverside County Sheriff's Department and Riverside Community College

- Reconstruction of Automobile Collisions Involving Pedestrians or Bicycles; 2002
- Advanced Traffic Accident Reconstruction, Speed Determination from Crush Analysis; 2001
- Traffic Collision Lamp Analysis; 2000

DeChant Consulting Services

- Collision Scene Photogrammetry with PhotoModeler Pro; 2001

Leica Corporation and Haselbach Surveying Instruments

- Collision Scene Mapping with the Leica TCRA-1105 Total Station Positioning System; 2001
- Collision Scene Diagramming with a Leica TCR-1105 Total Station Positioning System; 1999

University of California, Riverside

- Traffic Collision Reconstruction; 2000
- Human Factors in Accident Reconstruction; 2000

Michelin Tire Corporation

- Tire Damage Analysis Course, 2000

Autodesk, Inc. and California Highway Patrol Academy

- AutoCAD R14 Computer Aided Drafting, Level II; 2000
- AutoCAD R14 Computer Aided Drafting, Level I; 2000

Goodyear Tire & Rubber Company

- Motor Vehicle Tire and Retread Damage Analysis; 1999

California Highway Patrol - MAIT

- Basic Motor Vehicle Mechanical Examinations; 1999
- Collision Scene Diagramming with AutoCAD Release 14; 1999
- Traffic Collision Scene Diagramming Using the Leica TC-1610 Total Station Survey System; 1998
- AutoCAD Release 14 Collision Scene Diagramming; 1998
- Interpretation of Skidmarks and Other Physical Evidence at Traffic Accident Scenes; 1991
- Traffic Accident Scene Diagramming and Station Line Documentation; 1989
- Field Training Including On-Scene Accident Investigation; 1989

Texas A&M University

- Texas Engineering Extension Service - Supplemental Restraint Systems; 2000
- Collision Trauma Biomechanics; 1999
- Vehicle Damage & Energy Relationships in Collision Reconstruction ("Crush"); 1999
- Advanced Collision Reconstruction; 1999
- Applied Physics for Collision Reconstruction; 1998
- Advanced Commercial Vehicle Inspection and Collision Reconstruction; 1998

Accident Reconstruction Technology, Philip Sack

- Vehicle Tire Analysis; 1998



Distance and Online Education

Society of Automotive Engineers, SAE International

- Smart Passive Sensors – Overcoming Automotive Sensor Challenges Using Breakthrough Technology; 2016
- Smart NVH Solutions for Next Generation Brake Design; 2016
- The Internet of Cars: Safety and Security Engineering, Design Verification in System of Systems Context, Assurance Across Product Lifetime; 2016
- A Comprehensive Approach to Tribological Challenges; 2015
- Safety Strategy: Small Overlap IIHS Crashworthiness and Countermeasures; 2015

Biographical Sketch

For nearly 28 years, Wesley Vandiver investigated and reconstructed collisions for the State of California and the Orange County District Attorney's Office. As a member of the California Highway Patrol's Multidisciplinary Accident Investigation Team and then the sole reconstructionist for the OCDA's Vehicular Homicide Unit, Mr. Vandiver has developed a rare set of skills from years of responding to and managing major collision scenes coupled with a lengthy tenure as an after-the-fact expert who has been responsible for the review of collision investigations and subsequent expert analysis and testimony at trial. Mr. Vandiver has testified as an expert on more than 100 occasions in venues including California Superior Courts, United States District Court and the District Court of South Australia.

Mr. Vandiver has multiple certifications in the fields of collision reconstruction, vehicle dynamics, event data recorders and vehicle system forensics, including those from the Accreditation Commission for Traffic Accident Reconstruction, SAE International, the Collision Safety Institute, and Berla Corporation.

Mr. Vandiver's analyses rely on his extensive education in the field of collision reconstruction, vehicle dynamics, event data recorders, and human factors. He has completed programs from Northwestern University, Texas A&M University, the University of North Florida, the University of California at Riverside, SAE International, and Engineering Dynamics Corporation.

Mr. Vandiver is an adjunct faculty member at Northwestern University, The University of North Florida, and Riverside Community College, where he teaches courses in collision reconstruction and event data recorders. He is also a training consultant for Berla Corporation where he instructs certification courses in vehicle system forensics. He has taught courses in the United States and abroad. In 2017, he was selected by Northwestern University and the United Nations to teach a four week course in Traffic Crash Reconstruction to traffic investigators in the country of Kuwait. He is also a certified Crash Data Retrieval System trainer. Mr. Vandiver lectures throughout California and the United States to traffic investigators, reconstructionists, automotive engineers, and attorneys regarding collision reconstruction, vehicular homicide investigations and event data recorders (EDRs). He has twice been invited to give presentations to Bosch Corporation and automotive manufacturers on real-world analysis of EDR data. Organizations for which he has provided training or training material include: the Insurance Institute for Highway Safety; California Highway Patrol; California District Attorneys Association; California Office of Traffic Safety; Grossmont College; Riverside Community College; San Diego County District Attorney's Office; San Bernardino County District Attorney's Office; Orange County District Attorney's Office Los Angeles County District Attorney's Office; Ventura County District Attorney's Office; National Insurance Crime Bureau; San Diego Defense Lawyers, and GEICO Insurance Company.

Mr. Vandiver has done original research in the testing and analysis of EDR data and infotainment/telematics data from various vehicles and has had two peer-reviewed technical papers published by SAE International in addition to other industry articles published by the California District Attorneys Association and Collision - the International Compendium for Crash Research.



Reports & Publications

Value of Vehicle System Forensics in Accident Reconstruction, Berla Corporation, April 2018

iVe Testing and Validation, Berla Corporation, April 2018

Accuracy of Speed Data Acquired from Ford Sync Generation 2 and Generation 3 Modules Utilizing the Berla iVe System, Society of Automotive Engineers, SAE International, Technical Paper No. 2018-01-1442; 2018

Vehicle System Forensics and Determining Who Was Driving at the Time of a Crash, American Academy of Forensic Sciences, Engineering Sciences Section, 2018 Annual Scientific Meeting, Technical Paper D16; 2018

Collision Reconstruction in Vehicular Homicide Cases, Including EDRs and Vehicle System Forensics, Homicide College Manual, Los Angeles County District Attorney's Office; 2016

Event Data Recorders in Collision Analysis for Prosecution / The Development of Event Data Recorders, California District Attorneys Association Prosecutor's Brief, Volume 37, No. 3; 2015

Analysis of Crash Data from a 2012 Kia Soul Event Data Recorder, SAE Technical Paper, Society of Automotive Engineers, SAE International, Technical Paper No. 2015-01-1445; 2015

Validation and Use of EDR Data from a Non-CDR Supported Vehicle in a Criminal Prosecution Case, Collision: The International Compendium for Crash Research; 2013

Accuracy of Pre-Crash Speed Recorded in 2009 Mitsubishi Lancer Event Data Recorders, SAE Technical Paper, Society of Automotive Engineers, SAE International, Technical Paper No. 2013-01-1263; 2013

Traffic Collision Reconstruction Manual, Riverside Community College; 2008

Pedestrian and Bicycle Collision Reconstruction Manual, Riverside Community College; 2002

Authored training materials relating to various aspects of collision investigation and reconstruction for use in training seminars for the Insurance Institute for Highway Safety, California Highway Patrol, California District Attorneys Association, California Office of Traffic Safety, Grossmont College, Riverside Community College, San Diego County District Attorney's Office, San Bernardino County District Attorney's Office, Orange County District Attorney's Office, Los Angeles County District Attorney's Office, Ventura County District Attorney's Office, National Insurance Crime Bureau, and Bosch Corporation.

Professional Lectures, Presentations & Conference Proceedings

The Use of Event Data Recorders and Vehicle System Forensics in Automobile Fraud Investigations, presented to the California District Attorneys Association, October 16, 2018

Applying Vehicle System Forensics to Collision Reconstruction, presented to the Canadian Association of Technical Accident Investigators and Reconstructionists, August 23, 2018

Analysis and Presentation of CDR Evidence, presented to the European Crash Data Retrieval Summit, June 15, 2018

Berla iVe Data Acquisition and Analysis, presented to the European Crash Data Retrieval Summit, June 15, 2018



Vehicle Forensics: The Validation of Ford Sync Speed Data, presented to Berla Corporation (webinar), June 7, 2018

Vehicle Infotainment and Telematics Systems, and the Validation of Speed Data from Ford Sync Modules, presented to the High Technology Crime Investigation Association - Minnesota Chapter, April 18, 2018

Accuracy of Speed Data Acquired from Ford Sync Generation 2 and Generation 3 Modules Utilizing the Berla iVe System, presented to the SAE World Congress (WCX18), April 11, 2018

Accident Reconstruction and the Validation of SG2 and SG3 Infotainment and Telematics Data, presented to the Berla iVe European User's Summit on March 15-16, 2018

Vehicle System Forensics and Determining Who Was Driving at the Time of a Crash, presented to American Academy of Forensic Sciences, Engineering Sciences Section on February 22, 2018

Vehicle System Forensics for Accident Reconstructionists, presented to Berla Corporation on February 7, 2018

Event Data Recorders and Vehicle System Forensics, presented to the San Diego Defense Lawyers, November 14, 2017

Analysis and Testing of Data from Ford Sync Generation 3 Modules, presented to the Berla iVe Australian User's Summit, October 17, 2017

Vehicle System Forensics for Collision Reconstruction, presented to the Illinois Association of Traffic Accident Investigators on October 4, 2017

Pedestrian Crash Research Team Analysis and Findings, presented to ARC-CSI Crash Test Conference, on September 21, 2017

Collision Reconstruction, Event Data Recorders, and Vehicle System Forensics for Law Enforcement and Prosecutors, presented to the California District Attorneys Association in Anaheim, California on May 31, 2017

Vehicular Homicide and Collision Reconstruction, presented to the Los Angeles County District Attorney's Office Homicide College in Los Angeles, California on May 11, 2017.

Collision Reconstruction, EDRs, and Vehicle System Forensics, presented to GEICO Corporation Region 4 Special Investigations Unit Conference in Poway, California on May 3, 2017.

Another EDR Perspective and Its Application - Tesla EDR Analysis, presented to Bosch Corporation and CDR Stakeholders on March 13, 2017

Event Data Recorders and Vehicle System Forensics in Automobile Insurance Fraud Investigations, presented to the California District Attorneys Association Fraud Symposium in Orange County, California on September 27, 2016.

Collision Reconstruction, EDR Data Analysis and Vehicle System Forensics, presented to the Los Angeles County District Attorney's Office Homicide College in Los Angeles, California on August 4, 2016.

Event Data Recorder Anomalies and Limitations: Can the "Black Box" Be Wrong?, presented to the Society of Forensic Engineers and Scientists in Hood River, Oregon on July 15, 2016.



Collision Reconstruction Utilizing Information from Automobile Event Data Recorders, presented to the Society of Forensic Engineers and Scientists in Emeryville, California on May 28, 2016.

Collision Reconstruction, Event Data Recorders, and Vehicle System Forensics for Prosecutors, presented to the California District Attorneys Association in Anaheim, California on May 26, 2016.

Collision Reconstruction in Vehicular Homicide Cases, Including EDR Data Analysis and Vehicle System Forensics, presented to the Los Angeles County District Attorney's Office Homicide College in Los Angeles, California on May 12, 2016.

Event Data Recorder Anomalies and Limitations: Can EDRs Be Wrong?, presented to the World Reconstruction Exposition 2016 (WREX 2016) in Orlando, Florida on May 2, 2016 and May 4, 2016.

Event Data Recorders and Vehicle System Forensics, presented to the GEICO Region 4 Special Investigations Unit Conference in Poway, California on April 21, 2016.

Event Data Recorders (EDRs), video production included in the Traffic Safety Series for the Orange County District Attorney's Office in cooperation with the California Office of Traffic Safety in Santa Ana, California on April 13, 2016.

Validation of Mitsubishi EDR Data for Use in a Vehicular Murder Trial, presented to the Society of Forensic Engineers and Scientists in Yosemite, California on February 27, 2016.

Collision Reconstruction in Vehicular Homicide Cases, Including EDR Data Analysis and Vehicle System Forensics, presented to the Los Angeles County District Attorney's Office Homicide College in Los Angeles, California on February 18, 2016.

Testing and Analysis of Unsupported Kia EDR Data / Hyundai & Kia "Spoofing": A Cautious Approach, presented to the Crash Data Retrieval User's Summit 2016 in Houston, Texas on January 27, 2016.

"Black Box" Technology and Vehicle System Forensics, presented to the Southern California Fraud Investigators' Association in Palm Springs, California on November 5, 2015.

Event Data Recorders and Vehicle System Forensics, presented to the California District Attorneys Association Fraud Symposium in Anaheim, California on October 28, 2015.

When Cars Talk: Event Data Recorders ("Vehicle Black Boxes") and Digital Vehicle Forensics, presented to the Orange County District Attorney's Office (MCLE training) in Santa Ana, California on August 28, 2015.

Collision Investigation and Reconstruction Fundamentals for Vehicular Homicide Investigations, presented to the California Highway Patrol (Santa Ana Area Managers and Supervisors); Newport Beach, California on July 28, 2015.

"Black Box" Technology in Automobiles and Digital Vehicle Forensics, presented to the International Association of Special Investigation Units; Ontario, California on June 17, 2015.

Analysis of Crash Data from a 2012 Kia Soul Event Data Recorder, presented to the Society of Automotive Engineers, SAE International in Detroit, Michigan on April 24, 2015.

Collision Reconstruction in Vehicular Homicide Cases, presented to the Community Service Programs, Inc.; Anaheim, California on April 14, 2015.



Real-World Applications of the Bosch CDR System, presented to the Bosch Corporation & Crash Data Retrieval Stakeholders in Santa Barbara, California on March 16, 2015.

Use of Event Data Recorders in Vehicular Investigations, presented to the National Insurance Crime Bureau and Member Insurance Companies in Glendora, California on February 11, 2015.

Collision Reconstruction - Momentum Applications, presented to the Huntington Beach Unified School District, Fountain Valley High School Physics Students in Fountain Valley, California on December 15, 2014.

Analysis of Data from Event Data Recorders in Vehicular Investigations, presented to the National Insurance Crime Bureau and Western States Auto Theft Investigators Association in Los Angeles, California on November 25, 2014.

Collision Reconstruction & Event Data Recorders, presented to the San Diego County District Attorney's Office in San Diego, California on October 13, 2014.

EDR Data in Vehicular Homicide Cases, presented to the California District Attorneys Association in Sacramento, California on June 18, 2014.

EDR Data for Prosecutors, presented to the San Bernardino County District Attorney's Office in San Bernardino, California on February 12, 2014.

EDR Anomalies and Limitations - Can the EDR Be Wrong?, presented to the Crash Data Retrieval User's Summit 2014 in Houston, Texas on January 29, 2014.

EDRs in Automobile Fraud Investigations, presented to the California District Attorneys Association in Santa Rosa, California on November 6, 2013.

Improving Vehicular Homicide Investigations, presented to the California Highway Patrol, Santa Ana Area Supervisors and Managers in Newport Beach, California on April 3, 2013.

Improving Vehicular Homicide Investigations, presented to the California Highway Patrol, Orange County Area Management in Santa Ana, California on April 3, 2013.

Validation of EDR Data for a Non-CDR Supported Vehicle, presented to the Crash Data Retrieval User's Summit 2013 in Houston, Texas on January 21, 2013.

Collision Reconstruction - Momentum Applications, presented to the Huntington Beach Unified School District, Fountain Valley High School Physics Students in Fountain Valley, California on January 10, 2013.

EDRs in Automobile Fraud Investigations, presented to the California District Attorneys Association in Pasadena, California on December 5, 2012.

Collision Reconstruction Issues - Lessons to be Learned, presented to the Orange County Sheriff's Department - Major Accident Reconstruction Team in Laguna Hills, California on August 7, 2012.

Event Data Recorders in Collision Reconstruction, presented to the California District Attorneys Association/ California Office of Traffic Safety in Santa Barbara, California on May 8, 2012 and May 9, 2012.



Vehicular Homicide Investigations and Event Data Recorders, presented to the Orange County District Attorney's Office, Bureau of Investigation - Advanced Officer Training in Orange, California on March 20, 2012, April 17, 2012, May 8, 2012, and May 30, 2012.

Vehicular Homicide Investigations, presented to the California Highway Patrol - Capistrano Area, in San Juan Capistrano, California on February 16, 2012 and March 15, 2012.

Vehicular Homicide Investigations, presented to the California Highway Patrol - Westminster Area, in Huntington Beach, California on February 8, 2012 and February 22, 2012.

EDRs in Automobile Fraud Investigations, presented to the California District Attorneys Association in San Luis Obispo, California on November 2, 2011.

Event Data Recorders in Collision Reconstruction, presented to the California District Attorneys Association/ California Office of Traffic Safety in Sacramento, California on May 24, 2011.

Event Data Recorders in Collision Reconstruction, presented to the National Academy of Sciences - Distinctive Voices Lecture Series at the University of California, Irvine on May 11, 2011.

EDRs in Automobile Fraud Investigations, presented to the California District Attorneys Association in Anaheim, California on November 17, 2010.

EDR Data from Non-CDR OEM's, presented to the Southwestern Association of Technical Accident Investigators (SATAI) in Glendale, Arizona on July 17, 2010.

EDRs in Vehicular Homicide Investigations, presented to the California District Attorneys Association/ California Office of Traffic Safety in Anaheim, California on May 19, 2010 and May 20, 2010.

Major Case Considerations in Vehicular Homicides, presented to the California District Attorneys Association/ California Office of Traffic Safety in Anaheim, California on May 20, 2010.

EDR Data from Non-CDR OEM's, presented to the Crash Data Retrieval User's Summit 2010 in Houston, Texas on January 26, 2010.

Collision Reconstruction Using EDR Data, presented to the Ventura County District Attorney's Office in Ventura, California on October 12, 2009.

Vehicular Homicide Investigations, presented to the California Association of Accident Reconstruction Specialists in Anaheim, California on October 2, 2009.

Collision Investigation and Reconstruction, presented to the Orange County Traffic Officers Association in Santa Ana, California on August 5, 2009.

Collision Reconstruction Using EDR Data, presented to the California District Attorneys Association/California Office of Traffic Safety in San Diego, California on June 4, 2009.

Vehicular Homicide Investigations, presented to the Golden West College SIBC Academy in Huntington Beach, California on February 24, 2009.

Collision Reconstruction Using Proprietary Toyota EDR Data, presented to the Crash Data Retrieval User's Summit 2009 in Houston, Texas on January 26, 2009.



Vehicular Homicide Investigations, presented to the California Highway Patrol - Capistrano Area, in San Juan Capistrano, California on December 2, 2008 and December 10, 2008.

Traffic Collision Investigation, presented to the Golden West College Specialized Investigators Basic Course, in Huntington Beach, California on September 3, 2008.

Traffic Collision Investigations, presented to Grossmont College Criminal Justice Majors, in El Cajon, California on April 17, 2006.

Energy Applications in Collision Investigation and reconstruction, presented to the San Diego County Collision Investigators' Association (SDCCIA) in El Cajon, California on February 24, 2006.

Anti-lock Braking System Technology and Deceleration Testing Results, presented to the California Association of Accident Reconstruction Specialists (CA2RS) in Vallejo, California on January 18, 2006 and in Garden Grove, California on February 15, 2006.

Collision Investigation Refresher Course, presented to the California Highway Patrol El Centro Area in El Centro, California on January 11, 2006.

Traffic Collision Investigation and Reconstruction, presented to the Grossmont College Criminal Justice Department in El Cajon, California on March 14, 2005.

Seat Belt Restraint System Analysis, presented to the California Association of Accident Reconstruction Specialists (CA2RS) in Long Beach, California on April 25, 2004 and May 19, 2004.

Event Data Recorders and Data Analysis, presented to the San Bernardino County Collision Fraud Investigators Association in San Bernardino, California on September 22, 2003.

Controlled Skid Testing Techniques and Drag Factor Determination, presented to the California Association of Accident Reconstruction Specialists (CA2RS) in Anaheim, California on August 13, 2003.

Collision Investigation & Reconstruction Including EDR Data, presented to the San Diego County District Attorney's Office in San Diego, California on October 14, 2002 and February 12, 2003.

Collision Reconstruction Overview, presented to the San Diego County District Attorney's Office in San Diego, California on February 12, 2002.

Collision Scene Diagramming and Documentation, presented to the California Highway Patrol, San Juan Capistrano Area in San Juan Capistrano, California on January 17, 2001 and January 31, 2001.

Interview and Interrogation Techniques for Collision Investigations - presented to the California Highway Patrol, Border Division MAIT Investigators in Indio, California on February 24, 1999.

Effective October 2018

