

**OBJECTIVE:**

The application of professional experience with tutorial and academic preparation allowing for professional growth and recognition.

**PROFESSIONAL EXPERIENCE:**

- **Accredited Traffic Accident Reconstructionist**, ACTAR #1488, The Accreditation Commission for Traffic Accident Reconstruction, certificate issued April 23, 2004.

- **The Crash Lab, Inc., Hampton, New Hampshire, January 2011 – present**  
**(President 2014 – present)**

Accredited Traffic Accident Reconstructionist, providing services to insurance companies, law firms and governmental agencies that require motor vehicle accident reconstruction for use in civil and criminal litigation. Duties include, but are not limited to, field investigations, vehicle damage analysis, low velocity impact analysis, occupant kinematics, photography, velocity calculations, time and distance analysis, lamp filament examination, Forensic Scene Mapping, Crash Data Retrieval (CDR) downloads and data analysis report preparation, expert testimony, and seminar presentations. Certified Crash Data Retrieval (CDR) Technician and Analyst.

- **Maine Department of Public Safety, Maine State Police, 1986-2010**

**Sergeant, Senior Crash Reconstruction Specialist, Maine State Police Traffic Safety Unit:**

Monitored and managed the Maine Crash Reconstruction Services Program, Vehicle Post Crash Inspection Program, Crash Data Retrieval Program, and the Forensic Mapping Program. Reviewed and approved reconstruction reports for all members of the Maine Crash Reconstruction Unit. Organized and conducted annual training and certification testing for all members of the Maine Reconstruction program. Managed records for the Maine State Police Fleet Safety Board. System administrator for Maine's statewide electronic crash program. Developed and authored Request for Proposals for ongoing development of the Maine Crash Reporting System. Training Coordinator for the Maine Crash Reporting System. Principal instructor for the Maine Criminal Justice Academy Basic Law Enforcement Training Program and the Maine State Police Trooper School Crash investigation courses.

Areas of Expertise: Roadway Evidence identification and interpretation; Drag Factor determination (coefficient of Friction); Tire and Lamp examination; Vehicle Damage Analysis; Vehicle Dynamics; Vehicle Rollovers; Pedestrian and Bicycle Collision Dynamics; Speed Determination: Slide to Stop (skid), Yaw/Critical Curve Speed, Vault/Fall/Flip, Pedestrian, Conservation of Linear Momentum; Forensic Mapping and Scene Diagramming – Sokkia/Leica Total Station/MapScenes Evidence Recorder, and MapScenes CAD diagramming; and Bosch/Vetronix Crash Data Retrieval System – Event Data Recorder systems on Motor Vehicles.



- Recognized Expert to give testimony before States' Courts
- Preparation of Collision Reconstruction for Counsel in Civil and Criminal Litigation, ~ 50/50% Civil Plaintiff/Defendant case ratio
- State of Maine, Department of Public Safety, Licensed Private Investigator, current
- State of Maine, Department of Public Safety, Inspection Technician, current

**INSTRUCTOR:**

**Co-Instructor, UAV Manual Flight/Pix4D/Cloud Compare/Pix4D to Map360 Training**, The Crash Lab, Inc., Saco, Maine for local Maine Law Enforcement Officers, March 2-3, 2021. Topics included: Fundamentals of Manual Flight; Processing UAV Captured Images in Pix4D Software; Clean Up of the Point Cloud and Orthomosaic Using Pix4D and Cloud Compare; Importing Data into Leica Map360 Diagramming Software; Flying a Mock Scene; Use of the Pix4D Capture App; Flying "Orbits" to Create a 3D Point Cloud Model of a Vehicle; and Hands-on Processing of Imagery in Pix4D.

**Forensic Mapping Utilizing a Total Station Training**, October 22-24, 2012, 24 hours, Bloomsburg Police Department, Bloomsburg, Pennsylvania. Topics included: Learning to Apply Investigation Skills with Forensic Mapping Technology; Demonstrating Proficiency in Leveling Instrument; Describing Instrument Nomenclature; Understanding Total Station Keyboard/Setup; Determining Slope and Horizontal Distances; Determining Horizontal and Vertical Angles; Defining Evidence Coordinates with Eight Attributes; Determining Remote Elevations and Off-set Angles; Traversing; Resection; Applying Reference Measurement Protocol; and Defining General Operation of Data Collector.

**Accreditation Council for Traffic Accident Reconstruction Exam Preparatory Course**, September 24-25, 2012, 16 hours, Camp Keys Army National Guard Base, 194 Winthrop Street, Augusta, Maine. Topics included: Reviewing Reconstruction Techniques and Problem Solving Necessary for the Traffic Crash Reconstructionist; Scale Diagramming; and Measuring Approach and Departure Angles from Scale Diagramming.

**Accreditation Council for Traffic Accident Reconstruction Exam Preparatory Course**, June 14-15, 2012, 16 hours, Massachusetts State Police Barracks, Danvers, Massachusetts. Topics included: Reviewing Reconstruction Techniques and Problem Solving Necessary for the Traffic Crash Reconstructionist; Scale Diagramming; and Measuring Approach and Departure Angles from Scale Diagramming.

**Co-Instructor, *Advanced Reconstruction with CDR Data***, November 7-9, 2011, 24 hours, The Crash Lab, Inc., Alfred, Maine, for Maine and New Hampshire Law Enforcement Reconstructionists. Momentum Overview; Restitution & Closing Speed; Calculating  $\Delta v$  from Acceleration Data; Calculating Impulse  $\Delta v$  from x/y  $\Delta v$  Data; Calculating PDOF from x/y  $\Delta v$  Data; Discussed Adjusting x Axis  $\Delta v$  to Represent Impulse  $\Delta v$ ; Single Equation Approach to 360° Momentum Analysis; and Calculating Impact & Post Impact Velocities from CDR Data ( $\Delta v$  & pdof).

**Accreditation Council for Traffic Accident Reconstruction Exam Preparatory Course**, October 3, 2011, 8 hours, NAPARS joint conference, Hershey, Pennsylvania. Topics included: Reviewing Reconstruction Techniques and Problem Solving Necessary for the Traffic Crash Reconstructionist; Scale Diagramming; and Measuring Approach and Departure Angles from Scale Diagramming.

**Accreditation Council for Traffic Accident Reconstruction Exam Preparatory Course**, April 27-28, 2011, 16 hours, Stratham Police Department, Stratham, New Hampshire. Topics included: Reviewing Reconstruction Techniques and Problem Solving Necessary for the Traffic Crash Reconstructionist; Scale Diagramming; and Measuring Approach and Departure Angles from Scale Diagramming.

**Accreditation Council for Traffic Accident Reconstruction Exam Preparatory Course**, May 22, 2010, 10 hours, Rochester Police Department, Rochester, New Hampshire. Topics included: Reviewing Reconstruction Techniques and Problem Solving Necessary for the Traffic Crash Reconstructionist; Scale Diagramming; and Measuring Approach and Departure Angles from Scale Diagramming.

**Maine Reconstruction Unit In-Service “Reconstruction Update,”** April 12-23, 2010, 40 hours, Maine Criminal Justice Academy, Vassalboro, Maine. Topics included: Pole and Narrow Object Impacts; COLM; Critical Speed Review; and Spin Analysis.

**Crash Reconstruction Course**, May 3-7, 2010, 80 hours, Maine Criminal Justice Academy, Vassalboro, Maine. Topics included: Time/Distance Calculations; Angular Momentum and Impact Speed Calculations Using Momentum Equations; Behavior of Vehicles in a Collision Using Newton’s Three Laws of Motion; Discussions of Commercial Vehicle and Motorcycle Dynamics in Collisions; Determination of Direction of Travel, Initial Contact, and Position of Vehicles on the Roadway; and Derivation and Origin of the Commonly Used Speed Formulas.

**Maine Reconstruction Unit In-Service and Certification Testing**, December 2009, 16 hours, Central Maine Commerce Center, Augusta, Maine. Topics included: Calculating Brake Force in Commercial Vehicles; Calculating Delta-v in Crash Vehicles; and Calculating Speeds using the Mass-Ratio Technique.

**Accreditation Council for Traffic Accident Reconstruction Exam Preparatory Course**, October 5, 2009, 10 hours, Ocean City, Maryland. Topics included: Reviewing Reconstruction Techniques and Problem Solving Necessary for the Traffic Crash Reconstructionist; Scale Diagramming; and Measuring Approach and Departure Angles from Scale Diagramming.

***Maine Reconstruction Unit In-Service Training***, September 17, 2009, 8 hours, Bangor Police Department, Bangor, Maine. Topics included: Calculating Brake Forces on Commercial Motor Vehicles.

***Forensic Mapping Utilizing a Total Station Training***, September 13-18, 2009, 40 hours, Farmington Police Department, Farmington, Maine. Topics included: Learning to Apply Investigation Skills with Forensic Mapping Technology; Demonstrating Proficiency in Leveling Instrument; Describing Instrument Nomenclature; Understanding Total Station Keyboard/Setup; Determining Slope and Horizontal Distances; Determining Horizontal and Vertical Angles; Defining Evidence Coordinates with Eight Attributes; Determining Remote Elevations and Off-set Angles; Traversing, Applying Reference Measurement Protocol; and Defining General Operation of Data Collector.

***Maine Reconstruction Unit In-Service and Commercial Vehicle Skid Testing***, July 7-9, 2009, 24 hours, Brunswick Naval Air Station, Brunswick, Maine and Topsham Police Department, Topsham, Maine. Topics included: Approximately 16 Skid Tests were Performed using Four Configurations of Truck-Tractors/Semi-Trailers. All tests were recorded with Vericom 3000 and Stalker Radars. Approximately 50 acceleration tests were conducted for trucks and buses making left and right turns.

***Maine Reconstruction Unit In-Service and Certification Testing***, December 2008, 16 hours, Central Maine Commerce Center, Augusta, Maine. Topics included: Speed From Pole Impacts; Adjusting Drag Factors; Skid Testing Comparing ABS vs. Non-ABS Braking; and Critical Speed Yaw Testing.

***Maine Reconstruction Unit In-Service Training***, October 7-8, 2008, 16 hours, Bangor Police Department, Bangor, Maine. Topics included: Speed from Pole Impacts; Adjusting Drag Factors; Skid Testing Comparing ABS vs. Non-ABS Braking; and Critical Speed Yaw Testing.

***Maine Reconstruction Unit In-Service Training***, June 25-26, 2008, 16 hours, Brunswick Police Department and Brunswick Naval Air Station, Brunswick, Maine. Topics included: Speed from Pole Impacts; Adjusting Drag Factors; Skid Testing Comparing ABS vs. Non-ABS Braking; and Critical Speed Yaw Testing.

***Maine Reconstruction Unit In-Service and Certification Testing***, December 2-3, 2007, 16 hours, Central Maine Commerce Center, Augusta, Maine. Topics included: Determining Delta-v; Principal Direction of Force (PDOF); Time/Distance Calculations; Linear Momentum Calculations; and Slip Angle Verification in Critical Speed Calculations.

***At-Scene Traffic Homicide Crash Investigation***, October 2007, 80 hours, Maine Criminal Justice Academy, Vassalboro, Maine. Topics included: Physical Evidence from the Roadway; Physical Evidence from the Vehicle; The Human Element and Occupant Kinematics; Mathematical Principles and Equations; Skid Marks and Vehicle Speeds; Crash Scene Photography; Traffic Templates; Measuring and Scale Diagramming; Driver and Witness Interviews; and Information Analysis and Case Preparation.

***Maine Reconstruction Unit In-Service Training***, September 2007, 16 hours, Bangor Police Department, Bangor, Maine. Topics included: Determining Delta-v; Principal Direction of Force (PDOF); Time/Distance Calculations; Linear Momentum Calculations; Slip Angle Verification in Critical Speed Calculations; and Conducting Skid and Yaw Testing.

***Maine Forensic Mapping Total Station Training***, July 2007, 40 hours, Central Maine Commerce Center, Augusta, Maine. Topics included: Learning to Apply Investigation Skills with Forensic Mapping Technology; Demonstrating Proficiency in Leveling Instrument; Describing Instrument Nomenclature; Understanding Total Station Keyboard/Setup; Determining Slope and Horizontal Distances; Determining Horizontal and Vertical Angles; Defining Evidence Coordinates with Eight Attributes; Determining Remote Elevations and Off-set Angles; Traversing; Applying Reference Measurement Protocol; and Defining General Operation of Data Collector.

***Maine Reconstruction In-Service Training – Live Crash Testing***, June 7-8, 2007, 10 hours, Rotary Park, Biddeford, Maine. Eight crash tests were conducted ranging from low speeds to 35 mph impacts. Testing was used to determine accuracy of speed calculation techniques.

***Skid and Scuff Testing in Gravel***, March 17-18, 2007, 16 hours, Oxford Plains Speedway, Oxford, Maine. Conducted multiple skid and scuff testing on gravel with and without ABS braking and stability controls with Wade Bartlett of Mechanical Forensic Solutions, LLC and William Wright. Data collected contributed to SAE Paper No. 2010-01-0066, “Braking on Dry Pavement and Gravel With and Without ABS,” Bartlett & Wright.

***Maine Reconstruction Unit In-Service Training and Certification Testing***, December 3-4, 2006, 16 hours, Maine Criminal Justice Academy, Vassalboro, Maine. Topics included: Commercial Vehicle Tip-over Formulas; Adjusting Drag Factors; Momentum Techniques; and Report Writing.

***Maine Reconstruction Unit In-Service Training***, November 30, 2006, 8 hours, Maine Criminal Justice Academy, Vassalboro, Maine. Topics included: Commercial Vehicle Tip-Over Formulas; Adjusting Drag Factors; and Report Writing.

***Maine Reconstruction Unit In-Service Training***, September 19-20, 2006, 16 hours, Maine Criminal Justice Academy, Vassalboro, Maine. Topics included: Calculating Effective Drag Factors When a Vehicle is Skidding or Yawing Over Two Surfaces; and Report Writing,

***Multiple Surface Skid and Scuff Testing***, September 19, 2006, 8 hours, Waterville Airport, Waterville, Maine. Conducted approximately 16 skid and scuff tests while a vehicle is traveling on pavement and grass at the same time.

***Forensic Mapping In-Service Training***, August 16-17, 2006, 16 hours, Central Maine Commerce Center, Augusta, Maine. Topics included: Total Station Components; Setting Up and Leveling the Theodolite; Preparing the Data Collector for a New Job; and Transferring Data From the Data Collector to MapScenes CAD Software.

***Maine Reconstruction Unit In-Service Training and Certification Testing***, December 13-15, 2005, 24 hours, Maine Criminal Justice Academy, Vassalboro, Maine. Topics included: Report Writing; Drag Factor Adjustment; Time/Distance Analysis; Momentum Analysis; Use of Crash Data Retrieval Information; and Court Testimony.

***Maine Reconstruction Unit In-Service Training***, September 6-7, 2005, 16 hours, Bangor Police Department, Bangor, Maine. Topics included: Report Writing, Drag Factor Adjustment; Time/Distance Analysis; Momentum Analysis; Use of Crash Data Retrieval information; and Court Testimony.

***Maine Reconstruction Unit In-Service Training***, March 22, 2005, 8 hours, Maine Criminal Justice Academy, Vassalboro, Maine. Topics included: Report Writing; Drag Factor Adjustment; Time/Distance Analysis; Momentum Analysis; Use of Crash Data Retrieval Information; and Court Testimony.

***Maine Reconstruction Unit Training***, January 20, 2005, 8 hours, Maine State Police Traffic Division Gardiner, Maine. Topics included: Critical Speed Scuff Technique Verification; Trigonometric Functions and their Use; and Speed Loss from Rotation Techniques.

***Maine Reconstruction In-Service Training & Certification Testing***, November 8-9, 2004, 16 hours, Central Maine Commerce Center, Augusta, Maine. Topics included: Critical Speed Verification Techniques; The Use of Trigonometric Functions; Speed Loss from Rotation; Drag Factor Adjustments; Measuring PDOF; and Skid and Scuff Testing on Wet Surfaces.

***At-Scene Traffic Homicide Crash Investigation***, September 20 to October 1, 2004, 80 hours, Maine Criminal Justice Academy, Vassalboro, Maine. Topics included: Physical Evidence from the Roadway; Physical Evidence from the Vehicle; The Human Element and Occupant Kinematics; Mathematical Principles and Equations; Skid Marks and Vehicle Speeds; Crash Scene Photography; Traffic Templates; Measuring and Scale Diagramming; Driver and Witness Interviews; and Information Analysis and Case Preparation.

***Maine Reconstruction Unit In-Service Training and Certification Testing***, December 17, 2003, 8 hours, Maine Criminal Justice Academy, Vassalboro, Maine. Topics included: Speed Analysis Techniques; Momentum Calculations; Time/Distance Calculations; and A review of Newton's Laws of Motion.

***At-Scene Traffic Homicide Crash Investigation***, September 22 to October 3, 2003, 80 hours, Maine Criminal Justice Academy, Vassalboro, Maine. Topics included: Physical Evidence from the Roadway; Physical Evidence from the Vehicle; The Human Element and Occupant Kinematics; Mathematical Principles and Equations; Skid Marks and Vehicle Speeds; Crash Scene Photography; Traffic Templates; Measuring and Scale Diagramming; Driver and Witness Interviews; and Information Analysis and Case Preparation.

***Maine Reconstruction Unit In-Service Training***, May 29-30, 2003, 16 hours, Maine Criminal Justice Academy, Vassalboro, Maine. Topics included: Speed Caused by Narrow Object Crush; Using Tip-Over Formulas with Large Trucks; Adjusting Drag Factors for Vehicles Hauling Partial or Non-Braked Trailers; and Maintaining Photos in Reconstruction Cases.

***Maine Reconstruction Unit In-Service Training and Certification Testing***, December 6, 2002, 8 hours, Maine State Police Traffic Division, Gardiner, Maine. Topics included: Drag Sled Verification; CDR Technology; and the Use of Digital Photography.

***At-Scene Traffic Homicide Crash Investigation***, December 2-13, 2002, 80 hours, Maine Criminal Justice Academy, Vassalboro, Maine. Topics included: Physical Evidence from the Roadway; Physical Evidence from the Vehicle; The Human Element and Occupant Kinematics; Mathematical Principles and Equations; Skid Marks and Vehicle Speeds; Crash Scene Photography; Traffic Templates; Measuring and Scale Diagramming; Driver and Witness Interviews; and Information Analysis and Case Preparation.

***Maine Reconstruction Unit In-Service Training and Certification Testing***, November 13-14, 2002, 16 hours, Maine Criminal Justice Academy, Vassalboro, Maine. Topics included: Skid and Scuff Testing; Drag Sled Verification; CDR Technology; and The Use of Digital Photography.

***Vehicle Autopsy/Post-Crash Inspection In-Service Training***, February 19-20, 2002, 16 hours, Oxford Hills Comprehensive High School, South Paris, Maine. Topics included: Vehicle Suspension; Braking and Steering components; Process of Conducting Vehicle Post-Crash Inspections; and Hands-on Vehicle Inspections.

***Maine Reconstruction Unit In-Service Training***, November 9, 2001, 8 hours, Maine Criminal Justice Academy, Vassalboro, Maine. Topics included: Drag Factor Adjustment; Speed Analysis Techniques; and Skid Testing.

***Maine Reconstruction Unit In-Service Training***, October 29, 2001, 8 hours, Maine Criminal Justice Academy, Vassalboro, Maine. Topics included: Drag Factor Adjustment; Speed Analysis Techniques; and Skid Testing.

***Maine Reconstruction Unit In-Service Training and Certification Testing***, December 12, 2000, 8 hours, Maine State Police Traffic Division, Gardiner, Maine. Review of yearly instruction and administration of certification test.

***Maine Reconstruction Unit In-Service Training***, December 11, 2000, 8 hours, Scarborough Police Department, Scarborough, Maine. Topics included: Skid and Scuff Testing and Speed Analysis Techniques.

***At-Scene Traffic Homicide Crash Investigation***, November 27 to December 8, 2000, 80 hours, Maine Criminal Justice Academy, Vassalboro, Maine. Topics included: Physical Evidence from the Roadway; Physical Evidence from the Vehicle; The Human Element and Occupant Kinematics; Mathematical Principles and Equations; Skid Marks and Vehicle Speeds; Crash Scene Photography; Traffic Templates; Measuring and Scale Diagramming; Driver and Witness Interviews; and Information Analysis and Case Preparation.

***At-Scene Traffic Homicide Crash Investigation***, July 31 to August 11, 2000, 80 hours, Maine Criminal Justice Academy, Waterville, Maine. Topics included: Physical Evidence from the Roadway; Physical Evidence from the Vehicle; The Human Element and Occupant Kinematics; Mathematical Principles and Equations; Skid Marks and Vehicle Speeds; Crash Scene Photography; Traffic Templates; Measuring and Scale Diagramming; Driver and Witness Interviews; and Information Analysis and Case Preparation.

***Maine Reconstruction Unit In-Service Training***, March 3, 2000, 8 hours, Maine State Police Traffic Division, Gardiner, Maine. Topics included: Critical Speed Scuff Techniques on Two Surfaces; Pedestrian Crashes; Adjusting Drag Factors; and Vehicles in Yaw While ABS is Active.

***Maine Reconstruction Unit In-Service Training***, March 2, 2000, 8 hours, Bangor Police Department, Bangor, Maine. Topics included: Critical Speed Scuff Techniques on Two Surfaces; Pedestrian Crashes; Adjusting Drag Factors; and Vehicles in Yaw While ABS is Active.

***Maine Reconstruction Unit In-Service Training***, March 1, 2000, 8 hours, Scarborough Police Department, Scarborough, Maine. Topics included: Critical Speed Scuff Techniques on Two Surfaces; Pedestrian Crashes; Adjusting Drag Factors; and Vehicles in Yaw While ABS is Active.

***Maine Reconstruction Unit In-Service Training and Certification Testing***, October 1999, 16 hours, Maine Criminal Justice Academy, Waterville, Maine. Topics included: General Reconstruction Technique Review and Administering Certification Exam.



***Maine Forensic Mapping Unit In-Service Training***, September 22, 1998, 8 hours, Maine State Police Barracks, Gray, Maine. Topics included: Total Station Components; Setting up and Leveling the Theodolite; Preparing the Data Collector for a New Job; Downloading a Scene from the Data Collector to “MAP” Software; and Transferring a Scene from “MAP” Software to Autosketch.

***Maine Forensic Mapping Unit In-Service Training***, September 23, 1998, 8 hours, Maine Department of Transportation, Bangor, Maine. Topics included: Total Station Components; Setting up and Leveling the Theodolite; Preparing the Data Collector for a New Job; Downloading a Scene from the Data Collector to “MAP” Software; and Transferring a Scene from “MAP” Software to Autosketch.

***At-Scene Traffic Homicide Crash Investigation***, January, 1998, 80 hours at each location, Maine Department of Transportation, Gardiner, Maine and Maine State Police Barracks, Gray, Maine. Topics included: Physical Evidence from the Roadway; Physical Evidence from the Vehicle; The Human Element and Occupant Kinematics; Mathematical Principles and Equations; Skid Marks and Vehicle Speeds; Crash Scene Photography; Traffic Templates; Measuring and Scale Diagramming; Driver and Witness Interviews; and Information Analysis and Case Preparation.

***Basic Crash Investigation***, Biannual since 1989, 40 hours, Maine Criminal Justice Academy Waterville and Vassalboro, Maine. Basic Crash Investigation Techniques; Interview Techniques; Evidence at the Scene; Evidence from the Vehicle; Filling out Required Crash Report Forms; and Measuring and Diagramming Crash Scenes.

## **EDUCATION:**

**National Association of Traffic Accident Reconstructionists and Investigators (NATARI), National Association of Professional Accident Reconstruction Specialists (NAPARS), New York Statewide Traffic Accident Reconstruction Society, Inc. (NYSTARS) , Maryland Association of Traffic Accident Investigators (MATAI), and New Jersey Association of Accident Reconstructionists (NJAAR)**

***2024 Joint Virtual Conference (via Zoom)***

**October 1-3, 2024**

Attended eight two-hour virtual presentations. Topics included: Trailer Stability; Time and Distance; Video Analysis; Portable and Economical Scanning for Collision Reconstruction; Horrible Crash Reconstruction - Learning from Other’s Mistakes; The Traffic Signal as an EDR – Did it Record your Crash?; Tire Exams; and Commercial Vehicles.

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**National Association of Professional Accident Reconstruction Specialists (NAPARS)**

***2004 Symposium on EDR Research and Training***

**April 8-12, 2024, Oklahoma City, Oklahoma**

Attended a five day conference. Topics Included: CDR-Bosch - What's New?; Toyota GTS and Techstream; 2023 Toyota Safety Sense Applicability Chart; Lexus Safety Systems Listing; EDR Case Study; Accuracy of EDRs in late model vehicles; 2024 SAE EDR paper preview; EDR Analyst Equations; Need for Pre-Crash Acceleration Data in EDR for Vulnerable Road User (VRU) collisions; GM Vehicle Systems and their EDRs; GM ASCM-FCM Case Studies; CDR Backpowering/Repowering Update; Berla Vehicle System Forensics; Motorcyclist Airbag PPE; Motorcycle EDR Data Analysis and Update; New and Evolving HV EDRs; HV EDR Issues; Vehicle Speed Sensors and HV EDRs; Analysis of HV EDR Data; HV EDR Data Discussion using Paccar, Bendix, WABCO, Detroit Diesel, Eaton Transmission, ELD; and Diagnosing Mechanical Issues.

**National Association of Professional Accident Reconstruction Specialists (NAPARS)**

***Advanced Collision Reconstruction with CDR Applications – Greg Russell***

**March 18-22, 2024, Manchester, New Hampshire**

Attended a five-day conference. Topics included: Overview of Pre-Crash and Crash-Pulse Data; Calculating delta-V from Acceleration Data; Calculating Impulse delta-V from x/y delta-V Data; Calculating PDOF from x/y delta-V Data; Adjusting x Axis delta-V to Represent Impulse delta-V; Single Equation Approach to 360° Momentum Analysis; Calculating Impact & Post Impact Velocities from CDR Data (delta-V and PDOF); Reconciling Pre-Crash and Post-Crash CDR Data; and Analyzing CDR Data in the Context of Your Reconstruction.

**Recon-3D**

***User Group Meeting***

**February 20, 2024**

Attended a five-hour webinar. Topics included: Recon 3D Updates and Use of App; Using Recon 3D to Map Surveillance Camera Locations; Documenting Bullet Trajectories; Vehicle Scanning for Traffic Accident Reconstruction; and Challenges with Scanning Roadways.

**National Association of Professional Accident Reconstruction Specialists (NAPARS)**

***Determining Vehicle Speed from an Audio Recording***

***Alan Moore***

**February 16, 2024 – Via Zoom**

Attended a two-hour webinar. Topics included Basics of Extracting Frequency Information from Vehicle Noise; How Engine Frequency is Related to Vehicle Speed; How to Handle Torque Converter Slip; Advantages and Limitations of the Method; and How to Apply the Method in Practical Examples.

**National Association of Professional Accident Reconstruction Specialists (NAPARS)**

***Nighttime Crash Scene Investigation***

***Jeffrey W. Muttart, Ph.D., Driver Research Institute, LLC***

**January 4, 2024, Hampton, Connecticut – Via Zoom**

Attended a two-hour webinar. Topics included: Understanding Nighttime Visibility; The Role of Bias in Crash Investigation; Signal Detection Theory in Crash Investigations; The CAPLETS Approach, Hands-on Techniques for Scene Documentation; and Developing Best Practices.

**WREX 2023 (World Reconstruction Exposition)**

***Sponsored by 23 crash reconstruction associations from around the world***

**April 17-21, 2023**

Attended a five day event. Topics included: Keynote address by Wade Bartlett and Lou Peck; A Historical Perspective on Technology in Reconstruction; Collision Reconstruction is Evolving; Toyota Tech Stream Software VCH Research and Testing; GPS Data: Sources, Analysis, and Presentation; Commercial Motor Vehicle Collision Mitigation Systems; EDR Accuracy of Modern Vehicles; HVEDR Update; Working with GoPro and GPS Data; Automotive Test Equipment, DTCs and Pre-Crash Data; Accessing Toyota Event/Camera Data through Tech Stream Software; Facts Don't Sell Themselves: Persuading Your Audience with Visual Aids; The Importance of Tires in Accident Investigation; Introduction to Forensic Acquisition of Mobile Devices in Accident Reconstruction; Determining the 85<sup>th</sup> Percentile Speeds from Traffic Video; Methods for Establishing Motorcycle Impact Speeds; Simulated Look at Effects of Pedestrian Lateral Velocity; Learning the Proper Methodologies from the Mistakes of Others; Guardrail End Terminal Crash Reconstruction; Time v. Distance Analysis in Crash Reconstruction; Analysis of Sideswipes and Glancing Impacts; Accurate Measurements by Combining Images or Video with Laser Scans; Next Generation GM EDRs; ATV Collision Investigations; Retroreflective Material Analysis; Bicycle/E-Bike Performance; Use of Mobile Lidar in Collision Reconstruction; Forensic Video Analysis; Photometry for Forensic Investigators; ADAS and Advanced Safety Systems in Passenger Vehicles; Injury Biomechanics in Accident Reconstruction; Injury Reconstruction with Biofidelic Dummy; Mobile Device/Infotainment System/Chip Swap Forensics; Comparison of Vehicle Drag Factors on Various Surfaces; OEM Representation; Semi-Trailer Underrides-Turning Tragedy into Advocacy; Distracted Driving Investigations; Frozen Speedometer Reliability; and One full Day of Crash Testing and Review.

**Recon-3D**

***User Group Meeting***

**March 21, 2023**

Attended a four-hour webinar. Topics included: Recon-3D Update; Recon-3D at Crime and Crash Scenes; Recon-3D for use in Bullet Trajectory Documentation; Accuracy and Comparisons to the RTC360; Bloodstain Pattern Documentation & Area of Origin Analysis with Recon-3D; Use of Targets; Comparison of Recon-3D with Faro Scanner; Accuracy and Repeatability of Mobile Phone Lidar Capture; Scanning Techniques for Tractor Trailer Scanning; Remote Viewing with A-Power Mirror; and Comparison of Recon-3D to Terrestrial Laser Scanner Data.

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**National Association of Professional Accident Reconstruction Specialists (NAPARS)**

***State of EDR in US – EDR Update – Andrew Rich, Rich Consulting, LLC***

**Certificate of Completion received February 25, 2023**

Attended a two-hour online webinar. Topics included: Active Safety Control Module (ASCM); Toyota Vehicle Control History (VCH) Module that includes Photographs; Front Camera Module (FCM); Repowering (backpower) Modules; CDR 900 Imaging Protocols; EDR Accuracy; EDR Module and Relationship to Vehicle Center of Mass; and EDR Imaging Protocols – Order of Operations.

**Crash Safety Solutions, LLC – Driver Research Institute**

***2022 IDRR Training – Jeffrey Muttart, Ph.D and Swaroop Dinakar***

**November 28-30, 2022, Windsor Locks, Connecticut (via Zoom)**

Attended a three-day virtual conference providing hands on, step by step case studies and application of IDRR spreadsheets to specific crash scenarios. Included preview of the new online IDRR Response interface.

**National Association of Professional Accident Reconstruction Specialists (NAPARS)**

***Vehicle Spin Analysis – George Meinschein***

**Certificate of Completion received November 18, 2022**

Attended a two-hour webinar.

**National Association of Professional Accident Reconstruction Specialists (NAPARS)**

***Conservation of Linear Momentum – Greg Russell***

**Certificate of Completion received October 28, 2022**

Attended a two-hour webinar.

**National Association of Professional Accident Reconstruction Specialists (NAPARS)**

***Traffic Crash Investigation and Reconstruction Services***

**Certificate of Completion received October 21, 2022**

Attended a two-hour webinar covering research related to crash reconstruction and research sources.

**Ai2-3D Forensics**

***Zero to Hero in CloudCompare***

**March 22-23, 2022 (via Zoom)**

Attended two four-hour virtual presentations. Topics included Step by Step Navigation of Software and Adjustment Settings; Importing, Exporting, Editing, and Converting Point Cloud Files in CloudCompare; Utilizing Subsampling, Ambient Occlusion, DB Tree, Scalar Fields, Measurements and Point Picking, and Segmentation Tools as well as the ELipser App; Registering, Merging, and Deleting Scans in CloudCompare; and Animation of 3D Models.

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**Society of Automotive Engineers (SAE) International**  
***Accident Reconstruction Digital Summit***  
**March 29-30, 2022 (via Zoom)**

Attended two four-hour virtual presentations. Topics included Using EDR Delta V to Get Speed at Impact in Offset Collisions: Translating Delta V at EDR to Center of Mass; Scooter and other Micromobility Vehicle Testing; Human Factors; Effectively Using Calculations and Investigative and Experimental Data in Accident Reconstruction; Critical Analysis of Prototype Autonomous Vehicle Crash Rates: Six Scientific Studies; Micro-Mobility and Accident Reconstruction; Using Drones to Reconstruct Accident Scenes; A Crash Course on Heavy Vehicle Accident Reconstruction; What Data and Evidence First Responders should Collect and Consider in the First 48 hours; New Vehicle Design – ADAS/AV – as related to Crash Safety; Biomechanics as Related to Occupant Protection; Neuroradiology 101 and Nothingburgers: How Non-Radiologists Can Evaluate for Legitimate vs. Frivolous Claims Based on Imaging; Avoiding Hindsight Bias when Evaluating Motorcycle Crashes at Intersections; and Unsettled Legal Issues Facing Data in Autonomous, Connected, Electric, and Shared Vehicles.

**Crash Safety Solutions, LLC**  
***2022 Interactive Driver Response Research (I.DRR) User Forum***  
**March 13-15, 2022, San Diego, California (via Zoom)**

Attended a three-day virtual conference. Topics included Overview of New Spreadsheets in I.DRR 2022; Discussion of New and Updated Research; Review of New Spreadsheets with Step by Step Case Studies on the Application of I.DRR to Specific Crash Scenarios.

**National Association of Professional Accident Reconstruction Specialists (NAPARS)**  
***Tire Forensics Class – T.J. Tennent***  
**March 24-26, 2021, Chattanooga, Tennessee**

Attended a three-day conference. Topics included Why Tires are Important, Tire Performance Requirements, Tire Construction Basics, Vehicle Door Placard, UTQG (Uniform Tire Quality Grading), Load Index, Tire Deflection, Proper Tire Maintenance, Tire Repairs, Air Pressure Effects on Tires, Tire Application Guidelines, P-Metric vs. Euro-Metric vs. Light Truck, Truck/Bus Radial (TBR) Basics, Materials, Components, Repairs, Tire/Rim Load Capacity vs. GAWR, and Failure Analysis (hands on).

**iINPUT-ACE**  
***Certified Examiner Course (IAEC)***  
**February 23 & 24, 2021**

Attended two four-hour virtual presentations building upon Intro to iINPUT-ACE and Case Management. Workflows and Technical Considerations topics included Adjusting Frame Rates, Understanding compression and incorporating filters, Developing the ability to resize and deinterlace video, Understanding how to properly use enhancement techniques on video evidence, and Compiling demonstrative reports using embedded sub clips, marked images, and descriptions for sharing information with investigators and prosecutors and when testifying.

**iNPUT-ACE**

***Operator Certification Course (IAOC)***

**February 16 & 17, 2021**

Attended two four-hour virtual presentations. Topics included Introduction to the latest techniques and methodologies used to accurately interrogate and process digital media evidence, Learning the process to recover valuable evidence from video using iNPUT-ACE, and Using case management processes and advanced techniques and methodologies to interrogate and process digital multimedia evidence.

**Texas Association of Accident Reconstruction Specialists**

***2020 Virtual Fall Conference – Human Factors and Nighttime Visibility***

**October 21-23, 2020**

Attended three five-hour virtual presentations. Day 1 topics included Introduction, Color and Light, Retro (General Function, Measurement of Material, DOT-C2 Type Tape, Roadway Striping, Signs, Wet/Dry), and Vehicle Conditions (Headlights/Lights, Retro, Windshield). Day 2 topics included Photographs and Videos (Calibration Methods), Lighting Simulations (Mapping Headlights), Object Detection (Contrast, Pattern, and Glare), and Roadway Lighting. Day 3 topics included Autonomous Vehicles/Machine Vision and Case Examples.

**National Association of Professional Accident Reconstruction Specialists (NAPARS) Maryland Association of Traffic Accident Investigators (MATAI), National Association of Traffic Accident Reconstructionists and Investigators (NATARI), New Jersey Association of Accident Reconstructionists (NJAAR), New York Statewide Traffic Accident Reconstruction Society, Inc. (NYSTARS)**

***2020 Joint Virtual Conference (via Zoom)***

**October 5-13, 2020**

Attended seven two-hour virtual presentations. Topics included Motorcycle Leaning, Turning and Swerving, Investigating and Reconstructing Rollover Crashes, Using GoPro for Skid Testing and GoPro/VBox Sport Data Import, Perception Response Times for Various Crash Types, Chip Level Data Recovery, Tires – Failure Analysis, Tire Design, Engineering, Manufacturing, and Testing, and Using Freightliner New Cascadia ECM data in Accident Reconstruction.

**RICHARD A. McALISTER**  
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**National Association of Professional Accident Reconstruction Specialists (NAPARS)**  
**and New Jersey Association of Accident Reconstructionists (NJAAR)**  
**2019 Joint Conference – Human Factors and Distracted Driving**  
**October 8-10, 2019, Atlantic City, New Jersey**

Attended a three-day conference. Topics included Event Data Recorder (EDR) Update, Distracted Driving Investigation - Technology & Innovative Methods for Distracted Driving Crash Investigations, Investigation of Emergency Vehicle Crashes, Crash Risk Associated with Driver Distraction and Drowsiness: The Latest Findings from Naturalistic Driving Studies, Investigating Human Fatigue Factors in Transportation Events, Sleep Need, Sleep Disorders, Medical Conditions, and Circadian Rhythms, Electronic Logging Devices (ELD) for Commercial Motor Vehicles, Occupant Kinematics, and Reducing Road Fatalities with Artificial Intelligence.

**Accident Analysis & Reconstruction Inc.**  
***Using UAVs and Pix4D in Collision Investigation***  
**February 17-21, 2019, Sherman, Texas**

General Part 107 Regulations and Requirements; Overview of the Most Current Commercially Available UAVs; Flying Scenes Using Pix4D Capture Application and Manually Flying Scenes; Understanding the Differences/Advantages and Disadvantages of Grid, Double Grid, Polygon, Circle, and Free Flight Missions in the Pix4D Capture Application; Using the Pix4D Program to Create Point Clouds and Orthomosaic Images; Understanding the Types of Photographs to Produce an Accurate Point Cloud; Combining Multiple Projects; Creating and Using Manual Tie Points; Exporting Point Clouds in Usable Formats; Creating Diagrams Using the Polyline Tool, Exported as a 3D DXF file; and Merging Photographs in Adobe Lightroom and Photoshop.

**New York Statewide Traffic Accident Reconstruction Society, Inc. (NYSTARS)**  
**Annual Joint Conference**

***Pedestrian Collisions***  
**October 17-19, 2018, Lake George, New York**  
History & Reconstruction of Ped Crashes; Distracted Pedestrians; Pedestrian Perception/Reaction; Pedestrian Human Factors; Validity & Efficacy of Wearable Eye-Tracking Devices while Driving; Pedestrian Injury Patterns; Courtroom Presentations/Case Review; Review of Staged Pedestrian Crash Testing; and Crash Testing Using Adult & Child Dummies of Different Weights at Various Speeds.

**International Association of Accident Reconstruction Specialists (IAARS) & Crash Safety Solutions, LLC**  
***Human Factors in Traffic Crashes – Jeffrey Muttart, Ph.D***  
**June 25-29, 2018, East Hampton, Connecticut**

Rules of Thumb-How to Apply PRT; Expectancy (Actionable Information) Saliency; IDRR Overview, Training, Research; Closing Speed Crashes; Closing Distance; Lane Change Prep; Closing Speed; Consumer Reports Auto Test Center Tour and Methodology for Testing; Path Intrusion Case Studies; Exercises: Reaction Time, Eye Tracking, Closing Speed; and Night Recognition and Documenting a Scene.

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**National Association of Professional Accident Reconstruction Specialists (NAPARS), Maryland Association of Traffic Accident Investigators (MATAI), National Association of Traffic Accident Reconstructionists and Investigators (NATARI), New Jersey Association of Accident Reconstructionists (NJAAR), New York Statewide Traffic Accident Reconstruction Society, Inc. (NYSTARS)**

***2017 Joint Conference on Motor Vehicle Collision Reconstruction***

**August 9-11, 2017, Glassboro, New Jersey**

New Mapping Technology for Crash Scenes in Law Enforcement; Delta-v and Principal Direction of Force for Crash Investigations; The use of Monte Carlo for Crush Analysis; Video Analysis in Crash Investigation; The use of Drones in Crash Investigations; Updates in Crash Data Retrieval Technology; Unusual Crash Investigation Methods; Thinking Outside the Box; and Field Crash Testing.

**Crash Safety Solutions, LLC**

***Human Factors in Traffic Crashes – Jeffrey Muttart, Ph.D***

**July 10-14, 2017, Durham, New Hampshire**

History and Foundation of Reaction Time Research; Understanding Driver Response Terms and Definitions; Weather Influences and Driver Response; Evaluating a Response during Nighttime Driving; Nighttime Response Scenarios and Documenting Nighttime Crashes; Headlight Beam Analysis; Evaluating Path Intrusion Crashes; Acceleration Rates of Drivers; Gap Acceptance; Driver Search Patterns; Driver Response to Lead Vehicles, Traffic Signals, and Decision Making; and Tutorial on the Interactive Driver Response Research (I.DRR) Software.

**WREX2016 (World Reconstruction Exposition)**

***Sponsored by 21 crash associations from around the world***

**May 2-6, 2016, Orlando, Florida**

Attended a five-day event. Topics included keynote address by Don Karol, NTSB – Highway Crash Investigation; Learning from Tragedy; Driver Response Depends Upon Information Content; Update on the Newest Research by Jeffrey Muttart, Ph.D; Human Factors; the Anatomical Blind Spot – Why We Don't See Conflicting Traffic When We Look; Using Limited Vehicle Data to Estimate Time/Distance/Speed Relationships for Accelerating Cars and Motorcycles; Heavy Vehicle Inspection and Reconstruction; Commercial Vehicle Air Brake Systems; Digital Forensics & Heavy Vehicle Post-Crash Inspections; One full day of High Speed Crash Testing; Collision Biomechanics & Injury Assessment; The Effects of Carry Distance, Take-Off Angles, Friction Values, and Horizontal Speed Loss Upon First Ground Contact in Pedestrian (Cyclist) Crashes; Forensic Investigation into Injury & Death; Listening to Injuries – What They Can Tell Us About Accident Reconstruction; The Use of Speedometer Evidence in Collision Reconstruction; Motorcycle Collision Reconstruction; The Use of Video Analysis in Collision Reconstruction; One full day of Interactive Field Testing; Sensing and Diagnostic Module Survivability; and Crash Testing Review.



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***2015 Combined Conference on Motor Vehicle Collision Reconstruction***

**October, 2015, Ocean City, Maryland**

Attended two days of a three day conference. Topics included “*Sometimes the Obvious isn’t so Obvious.*” – Motorcycle Crash Investigation – Mechanical Defects; Field Crash Testing; Field Crash Hand Measurement Techniques; Attorney Work Product Disclosure and Court Discovery; and Crash Data Retrieval (CDR) Update.

**New York Statewide Traffic Accident Reconstruction Society, Inc. (NYSTARS)**

***Modern Vehicle Infotainment and Telematics Data: Darin Hutchison***

**February 4, 2015, Yorktown Heights, New York**

Data Recorded in New Vehicle Entertainment and Telematics Systems that is Stored and Retrievable, Including Vehicle Location, Seatbelt Use/Status, Door Open/Closed, Cell Phone Use (Including Phone Call Initiation, Receipt, Duration, Connecting Party’s Phone Number, and Text Messages), Average Speed, Radio Use and Entertainment Center Use.

**New York Statewide Traffic Accident Reconstruction Society, Inc. (NYSTARS)**

***Forensic Video Analysis: Grant Fredericks***

**October, 2014, Albany, New York**

Image Interpretation; Digital Video Examination; Recovery and Processing; Photographic Video Comparison; Image Enhancement; Motion Analysis; Speed Estimation; Height Comparison; Reverse Projection; Object Measurement; Color Correction; Forensic Video Synchronization; and Current Case Law.

**National Association of Professional Accident Reconstruction Specialists (NAPARS), Maryland Association of Traffic Accident Investigators (MATAI), National Association of Traffic Accident Reconstructionists and Investigators (NATARI), New Jersey Association of Accident Reconstructionists (NJAAR), New York Statewide Traffic Accident Reconstruction Society, Inc. (NYSTARS), Annual Joint Conference**

***Crush Damage Energy***

**September 9-12, 2014, Portland, Maine**

Crush Damage and Energy; Researching and Using Stiffness Values; Combining Crush Energy with a COLM Analysis; Use of Unmanned Aerial Vehicles (UAV) for Crash Scene Mapping; Evaluating Eyewitness Memory; Mobile Forensics – Recovery of Evidence from Mobile Device; Digital Forensics of Vehicle Infotainment Systems and Heavy Truck Electronic Control Modules (ECM); Crash Testing and Results Review.

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**Clearly Visible Presentations, LLC**

***Motor Vehicle Headlamp Performance and Mapping***

**September 9, 2014, Portland, Maine**

Attended a one-day (day and evening) seminar. Topics included Physical Properties of Light; Sensitivity of the Human Eye to Light; Basic Principles of Photometry; SAE Standard J1383 Headlamp Performance; and Practical Exercise During Evening Reviewing Headlight Mapping Techniques.

**Crash Data Specialists, LLC**

***CDR System Operator, Analysis and Applications Update Class***

**May 20-22, 2014, Elmsford, New York**

Updates to the CDR System Operator's (Technician) class for all recent covered vehicles – including but not limited to BMW/Mini, Mazda, Mercedes, Volvo/Infiniti, Nissan/Infiniti, Suzuki, Honda/Acura, Toyota, Chrysler/Maserati/Fiat/Lancia, Ford, GM CDR supported vehicles. Kia/Hyundai EDR tools and Subaru EDR tools.

**National Association of Professional Accident Reconstruction Specialists (NAPARS), Maryland Association of Traffic Accident Investigators (MATAI), National Association of Traffic Accident Reconstructionists and Investigators (NATARI), New Jersey Association of Accident Reconstructionists (NJAAR), New York Statewide Traffic Accident Reconstruction Society, Inc. (NYSTARS), Annual Joint Conference**

***Basic and Advanced Concepts Using Conservation of Linear Momentum***

**October 9 -12, 2013, Atlantic City, New Jersey**

Accident Reconstruction for Cases Involving Injury; The Engineering of Human Injury Reconstruction; Basics of Momentum; DUI Drugs and Alcohol; Crash Avoidance Technology by Mercedes; Tire Composition; Coefficient of Friction Tires/Surfaces; and Advanced Momentum Concepts.

**Rich Consulting, LLC**

***Using Microsoft Excel for Traffic Crash Reconstruction***

**August, 2013, Brunswick, Maine**

Introduction to Excel; Writing Formulas in Excel; Statistics Primer for Excel; Introduction to Uncertainty and Sensitivity; Basic Spreadsheets; Graphing with Excel; Finite Differences Spreadsheet; Monte Carlo Spreadsheet; Crash3 Spreadsheet; Stiffness Calculator Spreadsheet; If( ) Function; Option Buttons/Groups; User-defined Functions; Dialog Boxes; and Solving Simultaneous Equations with Excel.

**Fleet Pro Seminars**

***Air Brake ABS***

**June 26, 2013, Augusta, Maine**

Identifications of the Different ABS Manufacturers; How ABS Systems Work; Mounting and Wiring the ABS System; How to Troubleshoot the Different Components of each ABS System; Maintenance of the ABS System; How Do Vehicle Maintenance Procedures affect the ABS System; How to Do a Brake Job on a Vehicle with an ABS System; What Happens When There is a Failure of the ABS System; Electrical Requirements of ABS; When to Replace a Component; and Replacing an Axle with ABS Components.

**Fleet Pro Seminars**

***Air Brake Foundation***

**May 8, 2013, Augusta, Maine**

Air Brake Foundation Nomenclature; Brake Chamber to the Wheel End Components; How to Achieve Proper Brake Balance & Torque; How to Achieve Proper Balance and Torque; Proper Brake Adjustment Procedures; and Automatic Slack Adjuster Installation & Troubleshooting.

**Collision Forensics Solutions, LLC-West**

***Forensic Laser Scanning with Leica C10 Basic Course; Processing Scan Data with Leica Cyclone Basic Course; MapScenes Point Cloud 2010***

**February 25-March 1, 2013, Hampton, New Hampshire**

Components; Targets, Scanner Setup; Target Setup; Scanning; Basic Scanning Work Flow-Free Station; Create New Project; Set Scan Parameters; Image Settings-Internal Camera; Set Scan Mode; Downloading Scan Data from C10; Cyclone File Management; User Preferences; Workflow for Cyclone; Importing C10 Data into Cyclone; Tru-Space; Model Space; Cloud to Cloud Registration; Using Constraints Wizard; Registration Using Targets; Cropping the Point Cloud; Unifying the Point Cloud; Removing Traffic Noise from Scans; and Exporting Data from Cyclone.

**National Association of Professional Accident Reconstruction Specialists (NAPARS), Maryland Association of Traffic Accident Investigators (MATAI), National Association of Traffic Accident Reconstructionists and Investigators (NATARI), New Jersey Association of Accident Reconstructionists (NJAAR), New York Statewide Traffic Accident Reconstruction Society, Inc. (NYSTARS), Annual Joint Conference**

***Investigating Motorcycle Collisions***

**October 17-19, 2012, Fishkill, New York**

Motorcycle Nomenclature; At-Scene Evidence; Motorcycle Evidence; Motorcycle v. Vehicle Crash Tests Conducted by The Tulsa Consortium; Rider and Passenger Case Study; Review of IPTM Motorcycle Crash Tests; Acceleration/Stopping of 4 Wheel ATVs; Vehicle Operation v. Motorcycle Operation Human Factors Studies; Rotational Mechanics; and Analysis of The Tulsa Consortium Motorcycle Testing.

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**Accident Analysis & Reconstruction, Inc.**

***Crush Energy Analysis in Collision Reconstruction***

**June 18-22, 2012, West Goshen, Pennsylvania**

Conservation of Momentum and Conservation of Energy; History of Crush; CDC Codes; Delta-v – Change in Velocity and Restitution; Averaging Crush Measurements; Stiffness Coefficients; Crush Measurement Protocol; Centroid of Damage; Principal Direction of Force; Calculating Change of Velocity from Crush; Calculating Crush Force; NHTSA Administration Database and Web Site; Alternative Method of Measuring Crush Using Excel and a CAD Program; Law of Sines and Cosines; Working With Delta-v – 360 degree Collision Example; Working With Delta-v – In-line Collision Example; Balancing Forces to Calculate Delta-v From Crush; and Crush Project.

**Clearly Visible Presentations, LLC**

***Optics Lighting and Visibility for the Forensic Investigator***

**May 21-25, 2012, Somersworth, New Hampshire**

The Physics of Light; Photometry (Principles and Units); Basic Optics: Reflection, Transmission, & Absorption; The Human Vision System; Light Sources (Including Sun/Moon) and Influences; Atmospheric/Weather Influences; The Object (Reflectance, Color, Motion, Context, etc.); Retro-Reflective Materials; Principles and Optics of Headlights; Photography & Videography; Documenting a Scene at Night; Low-Light Photography; and Forensic Photography Review.

**Clearly Visible Presentations, LLC**

***Digital Photography for the Forensic Investigator***

**May 7-9, 2012, St. Paul, Minnesota**

History of Photography; Camera Basics; Basics of Photography; Capturing Scene/Evidence; Macro Photography; Low Light Photography; Using Artificial Light to Illuminate the Scene; Long Exposures Using Existing Light; and Learning How to Problem Solve and Troubleshoot Photographs in the Field.

**The Institute of Police Technology and Management (IPTM)**

***Inspection and Investigation of Commercial Vehicle Crashes***

**April 6-9, 2012, Scottsdale, Arizona**

Unique characteristics of commercial motor vehicles and the special dynamics at play when one is involved in a collision; detailed information of the nomenclature and operation of commercial motor vehicles, and post-crash inspections. Topics included: Tractor Trailer Nomenclature; Brake Systems: Configuration and Operation; Wheels, Rims, and Tires; Steering, Suspension, and Frames; Trailer Coupling Devices – Fifth Wheels; Log Books; Center of Mass Determinations; Skid Mark Measurement and Speed Analysis; Jackknifing; Hydroplaning; Rollover; Vehicle Dynamics in Braking; and Weight Shifting.

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**The ARC Network & Collision Safety Institute**

***CDR User's Conference***

**January, 2012, Houston, Texas**

CDR: Past, Present and Future; SAE EDR Committee and NHTSA Part 563 Update; GM OE Update; Chrysler OE Update; Toyota Update and Comparison of Toyota ROT and CDR Data; A Comparison of Raw Data in ECUs Versus Data Found, or Not Found, in CDR Reports and Considerations of Possible Challenges to Investigator Integrity; Practical Methods to Accomplish Direct EEPROM Retrievals and Assessment of Information Patterns in that Data; Using Monte Carlo Method with Crash Event Data; Chip Swapping: Risk v Reward; The Ford PCM Restraint Deployment Signal: Expectations Versus Reality; CDR Data From More Than One Car? Fitting it Together; Is a Search Warrant Required? Case Law Review; Frye/Daubert and the Admission of Expert Testimony; CDR Admission and Expert Preparation; RCM and PCM Data Together; and Re-powering 101.

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**Annual Joint Conference**

***Pedestrian and Bicycle Reconstruction***

**October 5-7, 2011, Harrisburg, Pennsylvania**

The Anatomy and Analysis of a Typical Pedestrian or Bicycle Crash Event; Pedestrian Collision Testing Conducted by The Tulsa Consortium; Pedestrian and Cyclist Impacts – A Look at Injuries; 360-Momentum a Single Equation Approach; Overall Throw Distance Formulas on Low Friction Surfaces; and Analysis of Collision Test Results as it Relates to Pedestrian and Bicycle Collisions.

**Crash Data Specialists, LLC**

***Crash Data Retrieval (CDR) Analysis and Applications Course***

**June 13-17, 2011, Stratham, New Hampshire**

CDR: Terms and Conventions Found in Relation to CDR/EDR Field; Airbag Deployment Decision-Making Basics; Crash Sensing and Critical Timelines; Crash Pulse Recording Methodologies Currently Used; Delta-v Recording Variations; Pre-crash Data Sources; Chrysler Supported Vehicle Reports and Recorded Data from First Coverage up to the Most Recent Supported Vehicles; Ford Supported Vehicle Reports Including ACM and PCM (Power Train Control Modules) Data Elements from Beginning of Ford CDR Coverage up to the Latest ACM, which now Contain Pre-Crash Data; Ford PCM Data Timing Relating Impact to "Time 0" and Restraint Deployment Signal (RDS) Reception; General Motors CDR Reports by Generation Including ROS (Rollover Sensor) Data, Engineering Translation Reports, Including the Latest Model Year 2010/2011 ACM Data and Variants; Accuracy and Reliability as Displayed Through Results of Controlled Testing from Various Sources; and Case studies and In-class Assignments to tie CDR Report Analysis to Crash Investigation.

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**Accident Analysis & Reconstruction, Inc. – Crash Data Specialists, LLC**

***Advanced Reconstruction with CDR Data***

**March 28 to April 1, 2011, Millersville, Maryland**

Overview of Pre Crash Data Sources and Recorded Crash Pulse Data; Calculating  $\Delta v$  from Acceleration Data; Calculating Impulse  $\Delta v$  from x/y  $\Delta v$  Data; Calculating PDOF from x/y  $\Delta v$  Data; Adjusting x Axis  $\Delta v$  to Represent Impulse  $\Delta v$ ; Single Equation Approach to 360° Momentum Analysis; Calculating Impact & Post Impact Velocities from CDR Data ( $\Delta v$  & pdof); Reconciling Pre Crash and Post Crash CDR Data; and Analyzing CDR Data in Context of Your Reconstruction.

**Accident Analysis & Reconstruction, Inc.**

***Excel For Collision Reconstruction***

**February 7-11, 2011, Reading, Pennsylvania**

Excel Basics; Basic Functions and Writing Equations; Working with Ranges; Date and Time Functions; Trigonometry Functions; Conditional Formatting; Logical Functions; Charts and Graphs; Goal Seeker and Solver; Database Operations; Writing Macros and Custom Functions; and Developing Equations for each Specific Crash.

**The Crash Lab, Inc. & Collision Safety Institute Bosch Preferred Course**

***Crash Data Retrieval (CDR) System Technician Course***

**February, 2011, Hampton, New Hampshire**

Technicians are provided the basics of using the CDR System to image supported vehicles' Airbag Control Modules (ACM) with hands-on experience imaging the data via a Data Link Connector (DLC). When the DLC is not available, then direct-to-module imaging and "back-powering" the vehicle to enable DLC imaging. Technicians are provided the basics to secure the CDR file and the appropriate evidence to support the CDR file. The Technician Course is a prerequisite to the CDR Analyst Course, which involves interpreting the file data.

**The ARC Network & Collision Safety Institute**

***CDR User's Conference***

**January, 2011, Houston, Texas**

CDR: Past, Present and Future; Evaluation of Torque Data Recorded by a Ford PCM; CDR: Insurance and Legal Issues; Three (03) Low Speed Crash Tests; CDR Data Momentum Solutions: Thinking Inside the Triangle; Case Studies including Toyota EDR Data; GPS Navigation Units Provide Recorded Data for Use in Accident Reconstruction; Preserving Heavy Truck ECM Files; Applying Heavy Vehicle EDR Data in the Real World; Crash Data Collection Guide for GM Airbag Electronic Control Units; CSV Pro 2011 Class; Chrysler Non-deployment Data: How to Identify it and What Does it Tell You; Crash Testing Data Review.

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***Trailer Underride Collision Reconstruction***

**October, 2010, Ocean City, Maryland**

Commercial Vehicle Conspicuity Systems; Sudden Acceleration Incidents; Low Light Forensic Photography; 4 Dynamic Test Crashes; Investigating Commercial Vehicle Conspicuity and Lighting; Human Factors in Nighttime Cases; Effectiveness of Vehicle Headlight Systems; Pictometry and New Applications for Imagery in Crash Reconstruction; Equation for Determining Underride Impact Speed; Introduction to Heavy Truck Rollover; EBS, dV, KEES, 1<sup>st</sup> Law of Thermodynamics; and Crash Test Review.

**Pennsylvania State Police**

***Collision Reconstruction Seminar***

**September 28-30, 2010, State College, Pennsylvania**

Live Crash Testing and Evaluation; Nighttime Pedestrian Crash Case Study; Current issues in EDR; Tire Dynamics; Elderly Drivers; Bullet Proofing your Reconstruction; Current Issues in Pedestrian Reconstruction; Sensitivity Analysis; and Dark Distance Study Data and Analysis.

**Institute of Police Technology and Management (IPTM)**

***Advanced Pedestrian/Bicycle Crash Investigation***

**June 8-12, 2009, Central Maine Commerce Center, Augusta, Maine**

Pedestrian/Cyclist Collision Dynamics; Projectile Motion; Fall and Slide; Injury Analysis; Appel and Searle; PEDBIKE 2000 software; Pedestrian/Cyclist Formulas; Human Factors; Bicyclist/Cyclist Crashes; and Field Crashes.

**MapScenes Systems**

***Advanced MapScenes 3D and Capture Animation Training Course***

**September 29-October 3, 2008, MicroSurvey Headquarters, West Bank, British Columbia**

Understanding How Coordinate Systems Work; Using Two and Three Dimensional Coordinates; Defining User Coordinates; Drawing in Three Dimensions; Editing in Three Dimensions; Three Dimensional Modeling; Capture Commands; Animation Basics; and Creating Animations.

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**Institute of Police Technology and Management (IPTM)**

***Traffic Crash Reconstruction Update***

**April 28-May 2, 2008, Central Maine Commerce Center, Augusta, Maine**

Geometry, Trigonometry and Selected Mathematical Topics; Dynamics and Newton's Laws of Motion; Skid Analysis and Testing; Critical Speed Yaw Analysis; Time-Distance Analysis; Concepts in Rotational Mechanics; Pole and Narrow Object Impacts; Conservation of Linear Momentum; Fundamentals of Rollover Crash Reconstruction; Uniform Projectile Motion; and Airborne Speed Analysis.

**Collision Safety Institute**

***Vetronix /Bosch Crash Data Retrieval Technician and Analyst Course***

**February 25-29, 2008, Fredericton, New Brunswick, Canada**

Crash Pulse Data Recording Strategies; Delta-v Reporting Strategies; Integral Calculus Applications for Recorded Crash Pulse Data; Airbag Control Module Basics (Components and Functionality); Airbag Deployment Decision Making Basics; CDR System Software Function (Hexadecimal Data to Plain Language and CDR Report Format Basics); and Commonalities, Nuances, Data from Testing to Illustrate Reliability from Chrysler, Ford, and General Motors Airbag Control Modules.

**Collision Forensic Solutions, LLC**

***Forensic Scene Investigators; MapScenes Evidence Recorder 4.0***

**December, 2007, The Crash Lab, Inc., Hampton, New Hampshire**

Forensic Mapping Introduction; CAD Concepts; Legal Issues; Setting Up a Total Station; Introduction to the Evidence Recorder; Measuring Basic Scenes with the Evidence Recorder; Downloading a Scene to MapScenes; Downloading Data to a New Scene; Automated Line Work Features of the Evidence Recorder; Measuring Scenes with Automated Line Work with the Evidence Recorder; Advanced Features of the Evidence Recorder; Measuring Scenes with Advanced Features of the Evidence Recorder; Collecting Baseline Offset and Draw a Room Data with the Evidence Recorder; Manual Collection of Baseline Offset and Draw a Room Data; Downloading the Scene with Baseline Offset Measurements; Vertical Scene Mapping with the Evidence Recorder; Measuring a Scene using Vertical Scene Mapping Features; Moving the Total Station; Measuring a Scene Requiring a Station Change with the Evidence Recorder; Re-Occupying Using the Re-Section Feature; Measuring a Scene Requiring a Station Change Using the Re-Section; Measuring a Scene Requiring Station Changes, Lines, Descriptions, Remote Elevations, VSM, Resection; and the Measuring of Vehicle Crush.

**National Institute for Safety Research/Federal Motor Carrier Safety Administration (FMSCA)**

***Crash Data Collection for Commercial Motor Vehicles***

**August 7, 2007, Central Maine Commerce Center, Augusta, Maine**

Defining an FMSCA Reportable Crash; Motor Carrier Identification and Commercial Driver Licenses; Gross Vehicle Weight Rating (GVWR); Vehicle Configuration and Cargo Body Type; Hazardous Materials Crash Events; and Harmful Events/Sequence of Events.



**RICHARD A. McALISTER**  
**Accredited Crash Reconstructionist**  
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**Post Office Box 850**  
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**(603) 926-0624 - FAX: (603) 929-0744**  
**e-mail: rick@thecrashlab.com**  
**www.TheCrashLab.com**

**Mechanical Forensics Engineering Services, LLC**

***Advanced Motorcycle Reconstruction Course***

**June 25-29, 2007, Central Maine Commerce Center, Augusta, Maine**

Motorcycle Types and Components; Conclusions of the Hurt Report; Friction and Statistics; Motorcycles Sliding on their Sides; Motorcycle Skid Test Data; Steering and Braking; Motorcycle Speed Estimates; Motorcycle Dynamic Instabilities; Motorcycle Highsides, Motorcycle Inspections; Crush Energy Equations; Airborne and Vaults; and Searle Rider Trajectories.

**Maine State Police Traffic Division**

***Maine Certified Inspection Mechanic License Renewal***

**July 2007, Augusta, Maine**

**Command Institute for Law Enforcement Executives**

***FBI Law Enforcement Executive Development Association***

**June 26-30, 2006, Marriot Conference Center, Portland, Maine**

Principles of Command and Leadership for Law Enforcement Executives.

**Maine State Police & National Association of Professional Accident Reconstruction Specialists, Inc., (NAPARS)**

***Commercial Vehicles; Nomenclature-Braking-Rollovers-Dynamics-ECMs-Dynamic Testing***  
**May, 2006, Augusta, Maine**

Mechanical Nomenclature; Hands-on Workings and Identification of Nomenclature; Commercial Vehicle Brakes; What to Look for & What to Obtain; Rollovers; The Mechanics of Basic Roll Stability; Dynamic Considerations in Rollover of Heavy Vehicles; Rollover and Electronic Stability Enhancements; Terminology; Basic Mechanics of Pneumatic Tires; Simplified Handling Analysis; Maintenance and its Relationship to Braking Performance; Downhill Braking and Energy Considerations; Brake Force Balance and Why it's so Important, even with ABS; ATC and ECS-What it is and How it Works; Tractor and Trailer Brake System Compatibility; NHTSA and FMCSA Regulations; Modifying Brake Systems and What Could go Wrong; New Developments in Brake Inspection & Diagnostic Equipment; ECMs; Test Skidding; and Student Driving of Heavy Commercial Articulated Vehicles.

**Collision Safety Institute**

***Vetronix Crash Data Retrieval System Technician and Analyst Course***

**January 23-26, 2006**

**Massachusetts State Police Training Academy, New Braintree, Massachusetts**

Coverage through CDR System Version 2.8; Crash Pulse Data Recording Strategies; Delta-v Reporting Strategies; Integral Calculus Applications for Recorded Crash Pulse Data; Airbag Control Module Basics (Components and Functionality); Airbag Deployment Decision Making Basics; CDR System Software Function (Hexadecimal Data to Plain Language and CDR Report Format Basics); and Commonalities, Nuances, and Data from Testing to Illustrate Reliability from Ford and General Motors Airbag Control Modules.



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**MicroSurvey Software Inc./Sokkia Co. Ltd.**

*MapScenes Systems Technical Training for Instructors*

**July, 2005, Olathe, Kansas**

Instructor and Lesson Plan Development in the use of MapScenes CAD software. Advanced Techniques in MapScenes CAD.

**Jackson Hole Scientific Investigators and Traffic Safety Group**

*Damage and Energy Methods in Traffic Crash Reconstruction*

**June 20-24, 2005, Biddeford Police Department, Biddeford, Maine**

Energy Concepts and Analysis; Determining Appropriate Post-impact Drag Factors; Understanding Equivalent Barrier Speed (EBS) and Delta-v; Conservation of Linear Momentum and Delta-v Vectors; Introduction to Hooke's Law; Collision Analysis Using Damage Momentum; Understanding and Determining Stiffness Coefficients; Damage Collision Analysis; Using Simultaneous Equations to Solve In-Line Collisions; Crush Measurement Protocol; and Pole Impacts and Fracture Energy.

**Maine Criminal Justice Academy**

*Advanced Instructional Design*

**May 31-June 1, 2005, Maine Criminal Justice Academy, Vassalboro, Maine**

Advanced Techniques in Instructional Goals and Lesson Plan Development and Classroom Instruction Techniques. Institute of Police Technology and Management (IPTM).

**Institute of Police Technology and Management (IPTM)**

*Applied Physics for Traffic Crash Investigation*

**August 23-27, 2004, Fredericton, New Brunswick**

Vectors; Newton's Laws of Motion; Work Energy and Power; Rectilinear Motion; Torque; Rotational Mechanics; Conservation of Linear Momentum (COLM); COLM Vector Analysis; Crash Dynamics-Vehicles; Crash Dynamics-Occupants; Uniform Circular Motion; Uniform Projectile Motion; and Tire Forces.

**Institute of Police Technology and Management (IPTM)**

*CDR Toolkit User Certification*

**October 2-4, 2002, Massachusetts State Police Training Academy, New Braintree, Massachusetts**

CDR System Components; What kind and how is Data Recorded; Methods and Tools for Recovering the Data; Near Deployment Events; What Gets Recorded; and Practical Download Exercises.

**Vericom Computers, Inc. & Maine State Police**

*Vericom VC3000 Performance Testing Computer*

**June, 2002, Vassalboro, Maine**

Braking Test Computer; Data Acquisition System; and On Board Dynamometer.

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**MCJ & Associates**

***MapScenes Certification Training***

**April 29-May 3, 2002, Maine Criminal Justice Academy, Vassalboro, Maine**

Forensic Scene Investigation using MicroSurvey's MapScenes CAD Software Program.

**Federal Emergency Management Agency/Emergency Management Institute**

***Basic (IS-195) and Intermediate (G-195) Incident Command System***

**March 20 & 22, 2002**

Introduction to the Incident Command System for Law Enforcement. Introduced the Incident Command System (ICS) and provided the foundation for higher level ICS training. This course described the history, features, principles, and organizational structure of ICS. It also explained the relationship between ICS and the National Incident Management System (NIMS). This course used the same objectives and content as other ICS courses with law enforcement examples and exercises.

**Institute of Police Technology and Management (IPTM)**

***Traffic Crash Reconstruction Course***

**October 29-November 9, 2001, Maine Criminal Justice Academy, Vassalboro, Maine**

Derivation and Origin of the Commonly Used Speed Formulas; Speed of Vehicles at Impact Using Conservation of Linear Momentum; Behavior of Vehicles in a Collision Using Newton's Three Laws of Motion; Discussions of Commercial Vehicle and Motorcycle Dynamics in Collisions; and Determination of Direction of Travel, Initial Contact and Position of Vehicles on the Roadway.

**Institute of Police Technology and Management (IPTM)**

***Pedestrian/Bicycle Crash Investigation Course***

**August 20-24, 2001, Fredericton, New Brunswick**

Pedestrian Crash Problems; Pedestrian Impact Dynamics; Types of Data: Objective, Subjective and Performance; Collection of Data; Pedestrian Conspicuity; Reaction Time/Human Factors; Reconstruction Techniques; Bicycle Collision Analysis; and Hit and Run Investigation Techniques.

**Institute of Police Technology and Management (IPTM)**

***Advanced Crash Investigation Course***

**April 16-27, 2001, Maine Criminal Justice Academy, Vassalboro, Maine**

Speed estimates from Kinetic Energy; Skid Marks, Scuffmarks and Airborne Situations; Vehicle Dynamics and Motion; Time, Distance, and Motion Equations; Conservation of Momentum Equations; Center of Mass Calculation; Vehicle Lamp Examination; Tire Damage Evaluation; and Vector Sum Analysis.

**NCO Academy**

***New England State Police Administrators' Conference***

**October 16-27, 2000, 195th Regiment (RTI) - Center Strafford, New Hampshire**

Principals of Leadership and Incident Command Systems.

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**Impact International Reconstruction Conference on Traffic Collision Analysis and Reconstruction**  
**May 23-25, 2000, Saint John Campus of the New Brunswick Community College,**  
**St. John New Brunswick**

Motorcycle Reconstruction; Commercial Vehicle Under Ride Crash Investigation; and Electronic Drag Factor Devices.

**Maine State Police**

***Vehicle Autopsy Program***

**February 21-24, 2000, Oxford Hills Comprehensive High School, South Paris, Maine**

Vehicle Braking, Steering and Suspension Systems; Suspension Types; Effects of Improper Alignment; Suspension Failures; Steering Failures; Aftermarket Products; Brake Failures; and Determining if Failure Contributed to Crash or Crash Contributed to Failure.

**Royal Canadian Mounted Police**

***Advanced Collision Diagramming Course***

**March 20-24, 2000**

**Royal Canadian Mounted Police “J” division Headquarters, Fredericton, New Brunswick**  
Scale Diagramming using Autosketch 2.1 CAD Software.

**Impact 1999 International Reconstruction Conference**

**September 1999, St. John, New Brunswick**

Pedestrian Reconstruction Techniques; CDR Technology; and The Use of Photomodeler to Document Crash Scenes.

**Royal Canadian Mounted Police**

***Uniform Projectile Motion Seminar***

**October 1998, Woodstock, New Brunswick**

Calculating Speed from Fall and Vaults.

**Maine State Police - Peter Kotowski**

***Commercial Vehicle Braking Dynamics Course and Testing***

**October 1997, Maine State Police Crime Lab, Augusta, Maine**

Components of Commercial Vehicle Brake Systems; Principles of Air Braked Systems; Calculating Braking Force on Commercial Motor Vehicles; Determining Weights at Each Axle by Mathematically Positioning the Load Weight; and Live Commercial Vehicle Skid Testing.

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**MJC & Associates**

***Forensic Mapping Techniques***

**December 15-19, 1997, Maine State Police Traffic Division, Gardiner, Maine**

Crash and Crime Scene Investigation using a Sokkia Electronic Theodolite, Data Collector and MAP Software; Measuring Protocol; Measuring Precise Locations of Evidence Points on Horizontal and Vertical Planes; Moving the RP Point to Several Locations; Documenting Vehicle Crush Patterns; and Creating Scale Diagrams in CAD Software.

**Michelin Tire Company**

***Michelin Tire Dynamics Course***

**June 20, 1997, Massachusetts State Police Training Academy, New Braintree, Massachusetts**

How to Read a Tire; Tire Nomenclature; Manufacturing Process and Construction of a Tire; Radial and Bias Ply Tires; Types of Rims; Truck Tires; Passenger Car Tires; How to Inspect a Wheel; Common Damages; Tire Failures; and Damage Analysis.

**Maine State Police Traffic Division**

***Certified Maine Vehicle Inspection License***

**July 1996, Augusta, Maine**

Review and Testing for the Maine Motor Vehicle Inspection Standards.

**Emergency Vehicle Operations Instructor Course**

***New England State Police Administrators' Conference***

**May 1996, Massachusetts State Police Training Academy/Fort Devens Air Force Base**

**Royal Canadian Mounted Police**

***Autosketch for Windows Training***

**September 1995, Cross Building, Augusta, Maine**

Fundamentals of Diagramming using Autosketch 2.1; Creating Evidence Points using Hand Measurements; Importing dwg files; Creating Symbols; and Creating a Finished Scale Diagram.

**MJC & Associates**

***Forensic Mapping System Training***

**June 1995, Maine State Police Traffic Division, Gardiner, Maine**

Setup and use of Sokkia Set 5 Total Station; Shooting Evidence Points using the Sokkia Total Station and a Sokkia SDR 33 Data Collector; Downloading Raw Data from the SDR 33 to MAP Software; Transferring a dwg file from MAP Software to Autosketch CAD Software; and Creating a Scale Diagram from Evidence Points in Autosketch.

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**Central Maine Community College**

***Vehicle Autopsy/Post Crash Inspection Course***

**1994, Central Maine Community College, Auburn, Maine**

Vehicle Braking, Steering and Suspension Systems; Suspension Types; Effects of Improper Alignment; Suspension Failures; Steering Failures; Aftermarket Products; Brake Failures; and Determining if Failure Contributed to Crash or Crash Contributed to Failure.

**Maine Criminal Justice Academy**

***Maine Reconstruction Unit In-Service Training***

**May 27, 1993, Waterville, Maine**

General Review of Reconstruction Techniques and Live Skid Testing.

**Maine Criminal Justice Academy**

***Maine Reconstruction Unit In-Service Training***

**October 1990, Waterville, Maine**

General Review of Reconstruction Techniques.

**Massachusetts State Police**

***Traffic Crash Reconstruction Course***

**November 6-17, 1989, Maine Criminal Justice Academy, Waterville, Maine**

Derivation and Origin of the Commonly Used Speed Formulas; Speed of Vehicles at Impact using Conservation of Linear Momentum; Behavior of Vehicles in a Collision using Newton's Three Laws of Motion; Discussions of Commercial Vehicle and Motorcycle Dynamics in Collisions; and Determination of Direction of Travel, Initial Contact and Position of Vehicles on the Roadway.

**Massachusetts State Police**

***Advanced Traffic Crash Reconstruction Course***

**October 23-27, 1989, Maine Criminal Justice Academy, Waterville, Maine**

Speed Estimates from Kinetic Energy; Skidmarks, Scuffmarks and Airborne Situations; Vehicle Dynamics and Motion; Time, Distance, and Motion Equations; Conservation of Momentum Equations; Center of Mass Calculation; Vehicle Lamp Examination; Tire Damage Evaluation; and Vector Sum Analysis.

**Maine Criminal Justice Academy**

***Methods of Instruction Course***

**January 9-13, 1989, Waterville, Maine**

Writing Instructional Objectives; Choosing and Preparing Visual Aids; Creating an Original Lesson Plan; Teaching the Adult Learner; Preparing Tests; and Using the Academy's Media Resource Center. Participants are required to make several presentations ranging from 2 to 30 minutes in duration. Students will develop a full lesson plan as a prerequisite to completing the course.

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**Institute of Police Technology and Management (IPTM)**

*At-Scene Traffic Investigation Course*

**August 24-September 4, 1987, Maine Criminal Justice Academy, Waterville, Maine**

Physical Evidence from the Roadway; Physical Evidence from the Vehicle; The Human Element and Occupant Kinematics; Mathematical Principles and Equations; Skid Marks and Vehicle Speeds; Crash Scene Photography; Traffic Templates; Measuring and Scale Diagramming; Driver and Witness Interviews; and Information Analysis and Case Preparation.

**Maine Criminal Justice Academy**

*39<sup>th</sup> Maine State Police Academy*

**January 6 to May 9, 1986, Waterville, Maine**

**Unity College**

*Bachelor of Science, Environmental Science*

**August 1979 - May 1984**

**Oxford High School**

*Diploma*

**June 1979**

**PUBLICATIONS:**

**“The Trailer Hitch Failure and the EDR File, A Case Study,” Accident Reconstruction Journal, January/February 2020.**

**ACHIEVEMENTS:**

**Award for Excellence in Traffic Crash Reporting Systems**

Traffic Safety Analysis Systems & Services, Inc. (TSASS) Best Practice Award for Electronic Crash Data Systems. 27<sup>th</sup> International Forum on Traffic Records & Highway Information Systems, July 28, 2001 - August 3, 2001 New Orleans, Louisiana. Team member developing and training with Maine’s first statewide Electronic Crash Reporting System.

**Governor’s Teamwork Award**

Presented by Angus King, Governor, State of Maine, September 16, 1999, Augusta, Maine, in recognition for a successful team effort improving services for the citizens of Maine with the Maine Crash Reporting System (MCRS).

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**Governor's Teamwork Award**

Presented by Angus King, Governor, State of Maine, September 18, 1997, Augusta, Maine, in recognition for a successful team effort improving services for the citizens of Maine by developing a Commercial Vehicle Accident Response Planning Team.

**Special Award of Commendation**

Presented by Alfred Skolfield, Colonel of the Maine State Police, May 10, 1996, Augusta, Maine, for Outstanding Contribution and Grateful Appreciation from the Maine State Police and the Citizens of Maine.

**ASSOCIATIONS/MEMBERSHIPS:**

Canadian Association of Road Safety Professionals (**CARSP**)

National Association of Professional Accident Reconstructionists, Inc. (**NAPARS**) **Elected Official**

New York Statewide Traffic Accident Reconstruction Society, Inc. (**NYSTARS**)