PATRICK J. DOHERTY
Accredited Crash Reconstructionist
The Crash Lab, Inc.

Post Office Box 850
Hampton, N.H. 03843-0850
(603) 926-0624 - FAX: (603) 929-0744
e-mail: pat@thecrashlab.com
www.TheCrashLab.com

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

PROFESSIONAL EXPERIENCE:

- **Accredited Traffic Accident Reconstructionist**, ACTAR #1692, The Accreditation Commission for Traffic Accident Reconstruction, certificate issued March 17, 2007.

- **The Crash Lab, Inc., Hampton, New Hampshire, 06/2006 - present**
  Accredited Reconstructionist: Staff accredited traffic accident reconstructionist, providing services to insurance companies, law firms, and governmental agencies that require motor vehicle crash reconstruction for use in civil and criminal litigation. Duties include, but are not limited to, field investigations, vehicle damage analysis, lamp filament examination, event data recorder imaging with the Crash Data Retrieval (CDR) tool, pedestrian and vehicle conspicuity analysis, low-velocity impact analysis, report preparation, and court testimony.

- **Collision Forensics, LLC, Dover, New Hampshire, 6/2004 – 9/2006**
  Staff traffic accident reconstructionist, provided services to insurance companies, law firms, and governmental agencies that required motor vehicle crash reconstruction for use in civil and criminal litigation. Duties included, but were not limited to, field investigations, vehicle damage analysis, lamp filament examination, pedestrian and vehicle conspicuity analysis, low-velocity impact analysis, and report preparation.

- **Certified Driver Education Instructor:** Provide classroom and behind-the-wheel instruction to young adults preparing to apply for their Youth Operator license. Pedal Pushers Driving School, Amherst, New Hampshire.

- **Amherst Police Department, Amherst, New Hampshire, 1974-2003**
  Police Lieutenant – Operations Commander: Supervised the patrol function, tracked and managed the department's training calendar, responsible for the delivery of proactive community programs–Certified DARE (Drug Abuse Resistance Education) and GREAT (Gang Resistance Education and Training) instructor and safety related presentations–fleet maintenance, and commanded the department in the absence of the chief of police.

  Oversaw investigation of nearly all traffic collisions investigated by members of the Department. Lead investigator/reconstructionist of all serious and fatal traffic crashes.

  Supervised an informal traffic collision reconstruction team charged with the investigation of all serious traffic crashes. Personally investigated/reconstructed 26 fatal traffic crashes–three of which resulted in felony convictions and two other cases resulting in violation level convictions–and numerous serious collisions. Investigated hundreds of motor vehicle collisions and reviewed, in anticipation of crash report approval, hundreds more.

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Police Sergeant: Supervised an assigned shift of patrol officers and served as the patrol division's senior supervisor. Implemented and maintained an in-service training calendar for all employees. Served as the department's primary field training officer. Instituted a structured program of visitations to elementary and middle school classrooms with presentations covering all aspects of personal safety awareness. Courtroom prosecutor in the absence of the department's primary prosecutor. Lead investigator/reconstructionist of all serious and fatal traffic collisions.

- **Police Officer:** Certified full-time police officer. Provided services and was responsible for duties associated with law enforcement in a patrol function including, but not limited to, the investigation of incidents, crimes, and traffic collisions; enforcement of ordinances and laws; traffic direction and control; courtroom testimony and prosecution; and field training officer.

- **Special Police Officer:** Certified part-time police officer. Provided services and was responsible for duties consistent with that of a full-time law enforcement officer. Usually closely supervised by senior officers.

- **Summer Police Cadet:** Participated in all facets of law enforcement, as an observer, under the direct supervision of a police officer. Uniformed position with no enforcement authority.

- **Certified Alpine Ski Instructor:** Provide individual or group lessons to youth and adults based on the American Teaching System, Pat's Peak Ski Area, Henniker, New Hampshire.

- **Licensed Private Investigator**, State of Maine, Department of Public Safety, March 2011 to March 2019.

- **FAA Licensed Remote Pilot,** certificate received June 7, 2023.

TRAFFIC COLLISION INVESTIGATION INSTRUCTOR:

The Crash Lab, Inc & Maine Department of Public Safety
Low Velocity & Fraud Investigation
September 2010, Augusta, Maine
Presented 8 hour training session for Maine State, County and Local Accident Reconstructionists. Topics included Newton's Laws of Motion; Vehicle Dynamics; Occupant Kinematics; Damage Analysis; Low Velocity Parameters; Low Velocity Calculations; Vehicle Damage Photography Techniques; Multiple Case Studies; and Dynamic Low Velocity Car to Car Contact Events.

The Crash Lab, Inc.
At-Scene Collision Investigation: An Introduction
May 2010, Mont Vernon, New Hampshire
Presented 6 hour training session for Souhegan Valley police officers. Topics included Scene Management; At-Scene Documentation; Investigation Skills Development; and Practical Application.

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EDUCATION:

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.

Recon-3D
New Version (V 1.4(33)) Webinar – Eugene Liscio
June 23, 2023

Attended a 90 minute webinar. Topics included: Overview of the New Version – Discover latest enhancements, User interface improvements, and Added functionalities; Introduction to the Reprocessing Feature – How it works, its benefits, and its role in the scanning process; and Potential future enhancements.

WREX 2023 (World Reconstruction Exposition)
Sponsored by 23 crash reconstruction associations from around the world
April 17-21, 2023, Orlando, Florida

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 85th 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;

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Comparison of Vehicle Drag Factors on Various Surfaces; OEM Representation; Semi-Trailer Underrides-Turning Tragedy into Advocacy; Distracted Driving Investigations; Frozen Speedometer Reliability; One full Day of Crash Testing; and Crash Test Review. Participant in Driver Eye Tracking Study, Indoor Shutter Study, and Retroreflective Video Study.

National Association of Professional Accident Reconstruction Specialists (NAPARS)
Human Factors – Dr. Susan Lantz, Lantz Biomechanics
April 4, 2023 (via Zoom)

Attended a two-hour online webinar.

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.

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)
Traffic Crash Investigation and Reconstruction Services
Certificate of Completion received October 21, 2022

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

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New York Statewide Traffic Accident Reconstruction Society, Inc. (NYSTARS) and
New York State Department of Environmental Conservation Police
2022 Spring Seminar – ATV, UTV, and Snowmobile Dynamics;
Familiarization Course and Application to Collision Investigation
June 15, 2022, Dutchess County Sheriff's Law Enforcement Center, Poughkeepsie, New York

Attended a one-day event. Topics included; Differences Between ATVs and UTVs; Handling Dynamics of ATVs, UTVs, and Snowmobiles; Adherence to Manufacturer Safety Guidelines; Off-road and On-road Dynamics and How Machines Differ; Understand the Term "Rider-active"; NY Laws and Regulations; Observation of ATV and UTV Operation in Outdoor Setting Under Various Performance Conditions.

Ai2-3D Forensics, Eugene Liscio, P. Eng
ReCon-3D Training Course; iPhone LIDAR for Forensics
June 2022 (via Zoom)

Attended a four-hour virtual training seminar, via Zoom; Successfully completed subsequent assignments; Topics Included; LIDAR Technology; Photogrammetry; Structured Light Scanners; iPhone LIDAR Sensor; Recon-3D Workflow and Scan Settings; File Structure; Scanning Considerations, Sensor, Object Properties, Environment, Capture Methods (SOEC); Working with a Monopod/Pole; Applications; CloudCompare – Editing and Measurements; Assignments.

Northwestern University, Center for Public Safety
Injury Biomechanics – Analysis with Application to Traffic Crash Reconstruction
May 9-11, 2022, Schaumburg Police Department, Schaumburg, Illinois

Successfully completed a three-day course offering an in-depth examination of injury biomechanics for investigators, reconstructionists, and other professionals involved in vehicle crash investigation. Topics included History of Injury Trauma - Biomechanics; Automotive Safety Systems - Seatbelts and Airbags; Head, Neck, and Lumbar Injury Biomechanics - Mechanism of Injury, Methods, Analyses, and Tolerances; Upper and Lower Extremity Biomechanics; and Vehicle-vs-Vehicle and Vehicle-vs-Pedestrian Impacts.

National Association of Professional Accident Reconstruction Specialists (NAPARS)
3-Day Advanced Tire Forensics Class – T.J. Tennent
April 6-8, 2020, Chattanooga, Tennessee

Attended a three-day conference. Topics included How to Determine the Root Cause of a Tire Disablement; How to Determine What Order Things Went Wrong; How to Use and Apply Tire Rim and Annual Yearbook, Who Makes it and Where, Passenger and Light Truck Tire Conditions Manual, and Radial Tire Conditions Analysis Guide to your Case; What to Look for and Document at the Accident Scene; and What Tire-Related Information to Include in Your Report.

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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.

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.

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.

Northwestern University Center for Public Safety (NUCPS)
National Association of Professional Accident Reconstruction Specialists (NAPARS)
Heavy Vehicle Forensic Mechanical Inspection for Collision Investigators
November 8-12, 2021, Chattanooga, Tennessee

Satisfactorily completed a five-day course of instruction. Topics included Safety Considerations including OSHA Lock Out-Tag Out; Heavy Vehicle Nomenclature; Brakes-Air (S-cam, Wedge, and Disc), Hydraulic, and Electric; Heavy Truck ABS and ATC Systems; Suspension and Wheel End Components; Tires; Transmission Gear Position and Rear Axle Ratios; Connecting Devices (Trailering); Plumbing into and Restoring the Air System; Calculating Brake Force; and Proper Forensic Investigation Methods.

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National Association of Professional Accident Reconstruction Specialists (NAPARS)
and Maryland Association of Traffic Accident Investigators (MATAI)
2021 Annual Joint Conference – Back to Basics
October 6-8, 2021, Ocean City, Maryland

Attended a two-day conference. Topics included Introduction to Perception-Response Time: One Number Doesn't Fit All-Common Mistakes Experts Make; Scene Documentation; Notes on Energy Methods for Crash Reconstruction; Conservation of Linear Momentum; Tire Forensics; Critical Speed Yaw; Theory & Special Situations; Toyota Techstream Vehicle Inquiry; Toyota Safety Sense Systems Data; Crash Data Retrieval (CDR) Update; and Crash Data Review.

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.

Remotepilot101.com
Part 107 Self-Paced Training Course
Certificate Received July 6, 2020

Successfully completed course of instruction in preparation for the FAAUAG Knowledge Test. Topics included: Rules and Regulations; Airspace; UAS Weather & Weather Sources; UAS Loading & Performance; Crew Resource Management; Airport/Field Operations; Radio Communications; Emergency Procedures; and Preflight and Maintenance.

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.

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Accident Analysis & Reconstruction, Inc.
Advanced Collision Reconstruction with CDR Applications – C. Greg Russell
November 12-16, 2018, Lewiston, Maine

Attended a five-day seminar. Topics included Learning How to Work with the CDR Data, particularly How to Properly use the Delta-v Data to Determine Impact and Post-Impact Velocities in Various Types of Collision Scenarios; Overview of Pre-Crash Data Sources and Recorded Crash Pulse Data; Calculating Delta-v from Acceleration Data; Calculating Impulse Delta-v from x/y Data; Calculating PDOF from x/y 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.

New York Statewide Traffic Accident Reconstruction Society, Inc. (NYSTARS)
Annual Joint Conference
Investigating Pedestrian Collisions
October 17-19, 2018, Lake George, New York

Attended a three-day seminar. Topics included Pedestrian/Cyclist Crashes: A Perspective of How Crash Investigators Analyze these Crashes Today; Distracted Driving Investigations; Proper Application of Perception-Response Times; Pedestrian Walking and Running Speeds; Review of Eye Tracking Software: Adjusting Nighttime Visibility Distance for Driver Expectancy; Medical Perspective: Pedestrian Injury Patterns; Collisions Involving Pedestrians; Courtroom Presentation/Case Review; Review of Staged Pedestrian Crash Testing; and Crash Testing Using Adult & Child Dummies of Different Weights at Various Speeds. Also a Participant in Nighttime Visibility Driver Response Research.

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) and Ohio Traffic Accident Reconstruction Association (OTARA)
Using UAVs and Pix4D in Collision Investigation – C. Greg Russell and Brad Muir
June 11-14, 2018, Columbus, Ohio

General Part 107 Regulations and Requirements; Overview of Most Current Commercially Available UAVs; Flying Scenes Using the 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; Merging Photographs in Adobe Lightroom and Photoshop; and Creating Diagrams Using the Polyline Tool, Exported as a 3D DXF file.

The Society of Accident Reconstruction
Technical Reconstruction of Heavy Truck Crashes
April 2-4, 2018, Denver, Colorado

Air Brake Systems and Post-Crash CMV Documentation; Use of V-Crash to Simulate Heavy Truck Crashes; Heavy Truck Brake Force and Load Reconstruction; Use of EXCEL in Reconstructing CMV Crashes; Dynamic Rollover Threshold; Conspicuity Issues in CMV Crash Reconstruction; Use of Synercon Smart Sensor Simulators; and Use of EDR Data in Reconstructing CMV Crashes.

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.

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Rich Consulting, LLC
Excel for Traffic Crash Reconstruction
May 3-5, 2017, Sudbury, Massachusetts

Satisfactorily completed a three day course of instruction. Topics included Using Microsoft Excel for Traffic Crash Reconstruction; Introduction to Excel; Writing Formulas in Excel; Statistics Primer for Excel; Using Excel for Spin Analysis; Using Excel for Stiffness Coefficients and Damage Analysis; Introduction to Uncertainty and Sensitivity; Sensitivity Analysis; Performing Monte Carlo Analysis with Excel; Performing Finite Difference Analysis with Excel; Graphing; Programming User-Defined Reconstruction Functions and Add-ins; Solving Momentum Equations Using Solver; Programming Dialog Boxes; Conditional Formatting and Conditional Formula Execution; Using Excel to Solve Woods' Pole Impact Algorithm; and Option Buttons.

Clearly Visible Presentations, LLC
Optics, Lighting, Visibility, and Digital Photography for the Forensic Investigator
September 19-23, 2016, Indianapolis, Indiana

Attended a five day event. Topics included the Physics of Light; Photometry (Principles and Units); Basic Optics: Transmission, Absorption & Reflection; 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; Headlamp Mapping Techniques; Photography Principles and Techniques; Documenting a Scene at Night; Low-Light Photography; and Forensic Photography Review.

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; Estimating Motorcycle Speed from Deformation; 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; Remote Controlled Vehicle Crash Testing Applied to Advanced Reconstruction of Rollover Accidents; Heavy Vehicle Crash Reconstruction; Forensic Investigation into Injury & Death; Listening to Injuries – What They Can Tell Us About Accident Reconstruction; One full day of Interactive Field Testing; Participant in Pedestrian Velocity Testing; Participant in Human Factors Research – Visual Acuity, Contrast Sensitivity, Depth Perception; Cell Phone Study, Closing Speed Study, and Perception-Reaction Time Experiment; Low Speed Impacts and Hidden Vehicle Damage Assessment; Low Speed Impact Testing (4) to include disassembly of involved vehicle area after each test; and Crash Testing Review.

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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)
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.

Collision Safety Institute & Massachusetts State Police CARS
(Collision Analysis and Reconstruction Section)
Crash Data Retrieval (CDR) Technician Level 2 Course
June 1, 2015, Concord, New Hampshire

Satisfactorily completed a one-day course of instruction. Technicians were 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. Practical booster and adapter applications and "back-powering" of in-vehicle systems to enable preferred DLC data imaging approach. Technicians were 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.

New York Statewide Traffic Accident Reconstruction Society, Inc. (NYSTARS)
Auto Autopsy: Forensic Examination and Analysis of Post Loss Automobiles
May 28, 2015, Yorktown Heights, New York

Attended a one day seminar. Topics included Investigation of Allegations of System Malfunctions as Collision Causal Factors; Methods of Inspection, Diagnostic Testing, and Dynamic Testing of Vehicle Systems; Electronic Data Recorder Access Issues; Collision Damage Analysis-Vehicle Response to Impact Forces; Damage Pattern Analysis; Dimensional Analysis; Relative Severity; and Tools and Methods Utilized.

National Institute for Driver Behavior (NIDB), Cheshire, Connecticut
In partnership with St. Cloud State University, St. Cloud, Minnesota
Experiencing Ten Habits for Zero Crashes
April 2015 – July 2015

Satisfactorily completed an on-line course of instruction for licensed driver education classroom teachers and in-car driving instructors. Subject matter centered upon a new experiential learning model for driver education that places emphasis on providing drivers with an opportunity to acquire attitudes that value space-management behavior. With the correct attitude housing the desire to eliminate crashes, mental skills can cultivate space-management behavior into habit to control the critical seconds.

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New York Statewide Traffic Accident Reconstruction Society, Inc. (NYSTARS)
Forensic Video Analysis: **Grant Fredericks**
October 2014, Albany, New York

Attended a one day seminar. Topics included 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

Attended four day conference. Topics included 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); and Crash Testing and Results Review.

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.

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

Attended four day conference. Topics included 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.

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Collision Forensics Solutions, LLC-West
Forensic Laser Scanning with Leica C10 Basic Course
February 25-26, 2013, Hampton, New Hampshire

Successfully completed two day course. Topics included 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; and Downloading Scan Data from C10.

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

Attended three day conference. Topics included 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.

The Crash Lab, Inc.
Advanced Reconstruction with CDR Data
November 7-9, 2011, Alfred, Maine

Attended three day conference. Topics included Momentum Overview; Restitution & Closing Speed; Calculating Δv from Acceleration Data; Calculating Impulse Δv from x/y Δv Data; Calculating PDOF from x/y Δv Data; Discussed Adjusting x Axis Δv to Represent Impulse Δv; Single Equation Approach to 360°Momentum Analysis; and Calculating Impact & Post Impact Velocities from CDR Data (Δv & pdof).

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
Pedestrian and Bicycle Reconstruction
October, 2011, Harrisburg, Pennsylvania

Attended one day conference. Topics included 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.

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New York Statewide Traffic Accident Reconstruction Society, Inc. (NYSTARS)
Traffic Collision Reconstruction Refresher
Northwestern University Center for Public Safety-Michael DiTallo
March 2011, Albany, New York

Attended two day seminar. Topics included Vehicle Behavior in Collisions; Vehicle Dynamics/Mechanics Overview; After Impact Drag Factors; Momentum, Delta-v, and PDOF; and Energy and Speed from Damage.

The Crash Lab, Inc. & Collision Safety Institute Bosch Preferred Course
Crash Data Retrieval (CDR) System Technician Course
February, 2011, Hampton, New Hampshire

Successfully completed one day course. 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.

Vericom Computers, Inc.
Vericom Computer Familiarization for Traffic Crash Investigation
May, 2010, Windham, New Hampshire

Attended 16 hour seminar. Topics included Skid Friction Testing; Coefficient of Friction; Braking Systems; Acceleration; Gradient and Super-Elevation; Courtroom Presentation; Profile Software Training; Analyzing the Deceleration Curve; Lateral Acceleration; Measuring Brake Pedal Pressure; Measuring Brake System Air Pressure; Measuring Reaction Time; Introduction of OBDII (On-Board Diagnostics Interface) to Vericom; Measuring Low Speed Impacts with an Accelerometer; and Application of Multi-Axis Accelerometer.

University of North Florida, Institute of Police Technology and Management (IPTM)
Special Problems in Traffic Crash Reconstruction
April 2010, Orlando, Florida

Attended a four and one-half day conference. Topics included Commercial Vehicle Drive Train Analysis; Advanced Pedestrian/Bicycle Crash Investigation; Case Preparation and Courtroom Presentation; Digital Photography for Traffic Crash Reconstruction; Planning and Bullet Proofing your Reconstruction; and Staged Crashes Focusing upon Validation of Common Velocities at the Centroid of the Crush. Successfully completed an eight hour mini-course during the conference – **Occupant Kinematics** – Topics included Occupant/Vehicle Interaction; Investigative Protocols; Interior Vehicle Inspection; Importance of Understanding Medical Terms; Stages of Crash Injury; Energy Management; Airbag Operation and Performance; Crash Pulse; and Low-Speed Crash Testing. Successfully completed an eight hour mini-course during the conference – **Instrumentation and Testing for Crash Reconstruction** – Topics included Analysis of Raw Data Collected During Staged Low-Speed Car Crashes; Data Acquisition; Event Data Recorder; Accelerometer; Delta-v; Crash Pulse; Prepared Excel Document; and Photographic Documentation.

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Clearly Visible Presentations, LLC
Forensic Photography 1.
November, 2009, Indianapolis, Indiana

Successfully completed three day course. Topics included Lens Optics; Camera Principles; Shutter Speed; Aperture; Sensor Speed (ASA/ISO); Lens Focal Lengths; Digital Image File Structure; Depth of Field; Image Motion Compensation; Shadows; Night Work; Digital Camera Terminology; Menu Structure; Download/Edit Photographs; How Light Interacts with the Scene; How to Select Viewpoint; When and When Not to Use Flash; and Long Time Exposures.

New York Statewide Traffic Accident Reconstruction Society, Inc. (NYSTARS)
***Expert Witness* - Professor John Kwasnoski**
February 2009, Yorktown Heights, New York

Attended a one day seminar. Topics included Being an Effective Expert Witness; Factual Presentation; Present a Complete Picture of What Occurred; Eyewitness Perspective; Anticipating Defenses; Unexpected Defenses; Human Factor Issues; and Event Data Recorder (EDR) Issues.

New York Statewide Traffic Accident Reconstruction Society, Inc. (NYSTARS)
Mortal Sins of Reconstruction
June, 2008, Latham, New York

Attended a one day seminar. Topics included the Purpose of Collision Reconstruction; the Use of Assumptions; Being a Credible Witness; and the Application of Drag Coefficients Obtained via Accelerometer Outputs to ABS Related Sideslip.

Collision Forensic Solutions, LLC
Forensic Scene Investigators; MapScenes Evidence Recorder 4.0
December, 2007, Hampton, New Hampshire

Successfully completed a 40 hour course of instruction. Topics included 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, Re-section; and the Measuring of Vehicle Crush.

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New York Statewide Traffic Accident Reconstruction Society, Inc. (NYSTARS)
Annual Joint Conference-Investigating Eccentric Collisions
October, 2007, Binghamton, New York

Attended a three day conference. Topics included four (04) Dynamic Crash Tests; Occupant Kinematics in Rotational Collisions; Investigating Collisions at Signalized Intersections; Injury Patterns and Mechanics of Injury; Crash Data Retrieval Update; and Crash Test Data Review and Analysis.

Institute of Police Technology and Management (IPTM)
Traffic Crash Reconstruction Update
September, 2007, Albany, New York

Successfully completed a 40 hour course of instruction. Topics included Vectors, Dynamics and Newton's Laws of Motion; Skid Analysis and Skid Testing; Correcting Drag Factors and Spin Analysis; Pole and Narrow Object Impacts, Time-Distance Analysis and Projects; Concepts in Momentum and Conservation of Linear Momentum, In-Line Collision Analysis Using Conservation of Linear Momentum, Two-Dimensional Collision Analysis Using Conservation of Linear Momentum, Using Simultaneous Equations to Solve In-Line Collisions, Critical Speed Yaw Analysis; Uniform Projectile Motion and Airborne Speed Analysis; and Fundamentals of Rollover Crash Investigation.

Mechanical Forensics Engineering Services, LLC
The Maine State Police & The Maine Bureau of Highway Safety
Advanced Motorcycle Crash Reconstruction
June, 2007, Augusta, Maine

Successfully completed a 40 hour course of instruction. Topics included Motorcycle Nomenclature; Motorcycle Types; VIN Decoding; Hurt Report; Hurt Findings; Motorcycle Technology 1980s and Today; Friction and Statistics; Skidding Friction; Motorcycles Sliding on Their Side; Motorcycle Slide to Stop Tests, IPTM Data; Summary of Motorcycle Friction Tests; Steering and Braking; Motorcycle Speed Estimates; Dynamic Instabilities; High-side Dynamics; Investigations-Interviews and Inspections; Motorcycle and Recreational Vehicle Safety; Motorcycle Post-Accident Inspection Techniques; Energy Considerations; Crush Energy; Airborne/Vaults; Rider Trajectories; Throw Distance; Vault Distance and Speed; Conservation of Linear Momentum and Vector Diagrams; and Drag Sleds and Vehicle Skidding.

The ARC Network & Collision Safety Institute
2007 ARC-CSI Crash Conference
June, 2007, Las Vegas, Nevada

Attended a four day conference. Topics included four (04) Dynamic Crash Tests; Hit and Run Evidence; Smart Drive System Crash Data; Investigating Snowmobile Crashes; Seat Belts; Mechanism of Air Bag Injuries; Traffic Reconstruction at Traffic Signal Intersections; European Reconstruction Techniques; Human Factors beyond PRT; Investigating Nighttime Pedestrian Collisions; Reprogrammed PCMs and Crash Analysis; Angular Velocity Analysis of SUV Collisions Using PC Crash; The Effects of Sample Rates and Averaging Methods on Accelerometer Based Skid Tests in Accident Reconstruction; Review of Low Speed Crash Tests and the Effect of Restitution; and Crash Test Data Review and Analysis.

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New York Statewide Traffic Accident Reconstruction Society, Inc. (NYSTARS)
Investigating Bicycle Collisions
April, 2007, Yorktown, New York

Attended a one day seminar. Topics included Bicycle Nomenclature; Scene Documentation; Examination of Bicycle; Rules of Operation; and Velocities. Participated in bicycle acceleration and deceleration testing.

SRR Traffic Safety Consulting
Recon Refresher: Conservation of Linear Momentum
January, 2007, Natick, Massachusetts

Attended a two day course of instruction. Topics included Review of the Basic Concepts of Linear Momentum; Determining Approach and Departure Angles; Determining Post-Impact Speeds; and Sensitivity Analysis.

SRR Traffic Safety Consulting, Easthampton, Massachusetts
ACTAR (Accreditation Commission for Traffic Accident Reconstruction)
Exam Preparatory Course
December, 2006, Natick, Massachusetts

Attended a four day course in preparation for the Accreditation Commission for Traffic Accident Reconstruction (ACTAR) examination. Topics included review of content learned from Basic Crash Investigation through Crash Reconstruction in addition to specialized topic review.

Texas Association of Accident Reconstruction Specialists
F3T2 Conference (Factors, Formulae, Forensics, Technology, Training)
September, 2006, Houston, Texas

Attended a three and one-half day conference. Topics included Perception-Reaction Research; Simulations in Crash Reconstruction; Applicability of Crash Analysis, Engineering Analysis of Vehicular Accidents; Human Error-But Which Human and Whose Error; Commercial Vehicle Event Data Recorder; Night Time Visibility; Highway Sight Distances; Jimmy Dean 1955 Highway Crash Reconstruction; Experimental Program to Study Frictional Drag Coefficients; Applications and Limitations of Critical Speed Formula; Dynamic Tractor Trailer Deceleration Testing Using Various Parameters; and Crash Testing and Perception-Reaction Research followed by Presentation of Results.

University of North Florida, Institute of Police Technology and Management (IPTM)
Applied Physics for the Traffic Crash Investigator
May, 2006, Jacksonville, Florida

Successfully completed a 40 hour course of instruction. Topics included Vectors, Newton's Laws of Motion and Concepts of Weight and Friction; Work, Energy, and Power; Rectilinear Motion; Torque; Rotational Mechanics; Conservation of Linear Momentum; Conservation of Linear Momentum Vector Analysis; Crash Dynamics and Occupant Kinematics; Uniform Circular Motion; Uniform Projectile Motion; and Tire Forces.

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New York State Traffic Accident Reconstruction Society, Inc. (NYSTARS)
Spring Conference
March, 2006, Ossining, New York

Attended a one day conference. Topics included Friction on Contaminated Roads; Critical Speed Yaw Analysis and Calculations; Tire Marks and Electronic Stability Program (ESP); and Different Analyses of the Same Collision.

Vetronix Crash Data Retrieval (CDR) System
Crash Data Retrieval Technician Course
March, 2006, Somersworth, New Hampshire

Attended a one day course of instruction. Topics included Obtaining Crash Data; Securing the Appropriate Evidence of a Download; and Effectively Supporting a CDR Collision Analyst.

SRR Traffic Safety Consulting
Recon Refresher: Time/Distance and Avoidance
November, 2005, Natick, Massachusetts

Attended a two day course of instruction. Topics included review and application of Time/Distance Equations and Avoidance Equations necessary for the reconstruction of a collision.

New York Statewide Traffic Accident Reconstruction Society, Inc. (NYSTARS)
Fraudulent Accident Investigation
November, 2005, Latham, New York

Attended a one day course of instruction. Topics included Anatomy of a Caused Accident Ring; Fraudulent Claim Schemes; Fraud Indicators; Physical Damage Fraud; Current Trends in Medical Fraud and Abuse; and How to Kill Off an Organized Crime Controlled Insurance Fraud Enterprise.

National Association of Traffic Accident Reconstructionists and Investigators (NATARI)
2005 Combined Annual Conference for Traffic Accident Investigation
October, 2005, Wilmington, Delaware

Attended a three day conference. Topics included Manual on Uniform Traffic Control Devices; Asphalt Pavement Design; Determining Proper Use of Child Restraints; Curve Collisions; Nighttime Photography; Recommended Procedures for Safety Performance Evaluation of Highway Features; Pavement Drainage Issues; Highway-Railroad Crossings; Highway Sight Distance; Friction; Highway Perception of the Intoxicated Driver; and Design Immunity.

Institute of Police Technology and Management (IPTM)
Traffic Crash Reconstruction Update
August, 2005, Jacksonville, Florida

Successfully completed a 40 hour course of instruction. Topics included Newton's Laws of Motion; Skid Analysis and Skid Testing; Correcting Drag Factors and Spin Analysis; Time-Distance Analysis; Energy Methods and Simple Rotational Mechanics; Pole and Narrow Object Impacts; Review of Conservation of Linear Momentum; Collision Analysis Using Conservation of Linear Momentum and Energy Methods; Critical Speed Yaw Analysis; Uniform Projectile Motion and Airborne Speed Analysis; and Fundamentals of Rollover Crash Investigation.

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South Carolina Association of Reconstruction Specialists (SCARS)
2005 Southeastern Collision Reconstruction Conference
July, 2005, Charleston, South Carolina

Attended a five day conference. Topics included Crash Testing (examination of Event Data Recorder (EDR) Crash Data with Specific Characteristics; Investigating Pedestrian Collisions; Strategies for Evaluating Human Factors in Night-time Collisions (including research study participation and data review); Critical Vehicle Systems and Future Trends in Automotive Systems; Inspecting Altered Suspension Systems; and Energy Methods for Pole and Narrow Object Impacts.

Jackson Hole Scientific Investigations and Traffic Safety Group
Damage Analysis and Energy Methods in Traffic Crash Reconstruction
June, 2005, Biddeford, Maine

Successfully completed a 40 hour course of instruction. Topics included Energy Concepts and Analysis; Determining Appropriate Post-Impact Drag Factors; Understanding Equivalent Barrier Speeds and Delta-v; Conservation of Linear Momentum and Delta-v Vectors; Introduction to Crush and Hooke's Law; Collision Analysis Using Damage Momentum; Understanding and Determining Stiffness Coefficients; Damage (Crush) Collision Analysis; Using Simultaneous Equations to Solve In-Line Collisions; Crush Measuring Protocol and Measuring Techniques; and Pole Impacts and Fracture Energy.

New York Statewide Traffic Accident Reconstruction Society, Inc. (NYSTARS)
Driver Response in Various Environments
March, 2005, Yorktown Heights, New York

Attended a two day seminar. Topics included Perception/Reaction Basics; Driver Decision Making; Driver Response Time Research; Estimating Driver Response at Night; Documenting Lighting; and Response to Traffic Signals.

Maryland Association of Traffic Accident Investigators
2004 Combined Conference on Motor Vehicle Collision Reconstruction
October, 2004, Ocean City, Maryland

Attended a three day conference. Topics included Criminal Litigation in Accident Reconstruction; Field Crash Testing; DNA in Accident Reconstruction; Excel and Spreadsheets for Accident Reconstruction; Electronic Crash Data Recorders; Internet Resources for Accident Reconstruction; and NHTSA Early Warning Reporting Regulations.

University of North Florida, Institute of Police Technology and Management (IPTM)
Pedestrian/Bicycle Crash Investigation
June, 2001, Concord, New Hampshire

Successfully completed a 40 hour course of instruction. Topics included Pedestrian Injury Analysis; Investigation and Reconstruction of the Pedestrian Crash Scene; Pedestrian Velocity Studies; Hit and Run Investigations; Human Factors and Night Visibility; Bicycle Crash Investigation and Reconstruction; Vehicle Damage Analysis; and Practical Application of Material/Formulas Through Field-Testing and Projects.

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New Hampshire Attorney General's Office
Jay McDuffie DWI Motor Vehicle Homicide Seminar
November, 1996, Manchester, New Hampshire

Attended a three day seminar. Topics included Team Approach to Crash Investigation and Reconstruction; Evidence Collection; Vehicle Inspection; Toxicology; Witness Preparation; Victim's Issues, Occupant Kinematics; Forensic Pathology; and Media Relations.

New Hampshire Attorney General's Office
Jay McDuffie DWI Motor Vehicle Homicide Seminar
November, 1995, Manchester, New Hampshire

Attended a three day seminar. Topics included Team Approach to Crash Investigation and Reconstruction; Legal Issues; Evidence Collection; Physical Evidence Examination; Vehicle Inspections; Testifying as an Expert; Implied Consent; Toxicology; and Autopsy and the Culpable Motor Vehicle Crash.

University of North Florida, Institute of Police Technology and Management (IPTM)
Investigation of Motorcycle Accidents
May, 1995, Concord, New Hampshire

Successfully completed a 40 hour course of instruction. Topics included Motorcycle Identification and Orientation; Braking and Turning Accidents; Modes of Stability; Roadway Evidence; Vehicle Evidence; Acceleration, Braking, and Sliding Motorcycle Tests; Applied Formulas; Motorcycle Tires; Time/Distance; Single Vehicle Accidents; Motorcycle vs. Vehicle Crashes; and Helmets.

New Hampshire Police Standards & Training Council
Homicide Investigation
November, 1992, Concord, New Hampshire

Successfully completed a seven day course of instruction regarding death investigation. Topics included Medical Examiner Classification; Cause and Manner of Death; Investigation Management; Forensics, Evidence and Crime Scenes; and Crime Scene Profiling.

New Hampshire Attorney General's Office
Motor Vehicle Fatality Seminar
September, 1992, Manchester, New Hampshire

Attended a three day seminar. Topics included Team Approach to Vehicular Homicides; On-Scene Investigation; Technical Accident Reconstruction; Legal Issues and Investigation Coordination; and Autopsy, Toxicology, and Crime Lab Role.

New Hampshire Police Standards & Training Council
Basic Physics, Richard Brockway, P.E.
February, 1987, Amherst, New Hampshire

Attended a seven week (fourteen hour) course covering the basic principles of physical science as they apply to the momentum of moving vehicles relative to the investigation of traffic accidents.

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University of North Florida, Institute of Police Technology and Management (IPTM)
Traffic Accident Reconstruction
June, 1985, Concord, New Hampshire (NHPSTC)

Successfully completed a 96 hour course of instruction. Topics included Derivation of: Minimum, Fall, Vault, Radius, Tangent Offset, Kinetic Energy, Combined Speed and Critical Speed Equations; Motorcycle Speed Estimates; Conservation of Linear Momentum Speed Estimates; Weight Shift in Cars, Trucks, and Buses; Behavior in Collisions using Newton's Laws of Motion; Evaluation and Interpretation of all Evidence Located at an Accident Scene; and Evaluation and Interpretation of Information from the Initial Investigations, Reports, and Diagrams.

New Hampshire Police Standards & Training Council
Radar Instructor Course
November, 1983, Concord, New Hampshire

Successfully completed a 24 hour course of instruction. Topics included Instructional Techniques in Radar Speed Measurement, Lesson Plan Familiarization, and Hands-on Training.

New Hampshire Police Standards & Training Council
On-Scene Accident Investigation
February, 1983, Nashua, New Hampshire

Successfully completed a 40 hour course of instruction. Topics included Traffic Accident Process; Cause and Factors; Use of the Traffic Template; Lamp Examination; Measurements and Diagrams; Scale Diagrams; Time-Distance and Speed Calculations; and Road and Vehicle Evidence.

New Hampshire Police Standards & Training Council
Radar Speed Measurement Operator
March, 1981, Concord, New Hampshire

Successfully completed a 16 hour course of instruction. Topics included Speed Offenses and Speed Enforcement; Basic Principles of RADAR Speed Measurement; Legal and Operational Considerations; and Operation of Specific Radar Devices.

Division of Public Health Services, State of New Hampshire
Breath Examiner Specialist
September, 1980, Concord, New Hampshire

Successfully completed a 40 hour course of instruction. Determined to be competent and qualified to perform breath tests for the determination of the quantitative concentration of alcohol in an individual's blood. Certified to operate Breathalyzer 900A. Subsequently certified to operate Intoximeter 3000 and Intoxilyzer 5000.

New Hampshire Police Standards & Training Council
New Hampshire Police Officer Training Academy
March-April 1976, Pease Air Force Base, New Hampshire

Successfully completed the 29th session of the New Hampshire Police Academy with certification as a New Hampshire law enforcement officer upon full-time employment.

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New Hampshire Police Standards & Training Council
Special-Part Time Officer Training Course
March-June 1975, Nashua, New Hampshire

Successfully completed a 14 week (two hours per week) course of instruction for certification as a part-time New Hampshire law enforcement officer.

New Hampshire Governor's Commission on Crime and Delinquency, Chiefs of Police Association, and Exploring Division, Daniel Webster Council, Boy Scouts of America
New Hampshire Police Cadet Training Academy
June, 1974, Gilmanton Iron Works, New Hampshire

Successfully completed a 40 hour General Course of Instruction in Law Enforcement in preparation for summer employment as a police cadet.

ADDITIONAL EDUCATION:

Keene State College, Keene, New Hampshire

Driver Education Courses, **2002 to 2004**
Undergraduate level courses required for certification as a driver education instructor. Introduction to Traffic Safety; Methods of Teaching Driver Education and Traffic Safety; Alcohol, Drugs, and Driving; Adolescent Growth & Development; Learning Styles-Teaching Styles; Special Education in the Schools.

Saint Anselm College, Manchester, New Hampshire

Bachelor of Science, Criminal Justice, **1980**

New Hampshire Vocational Technical College, Nashua, New Hampshire

Advanced Police Training Program, **1975 to 1976**
Associate of Science degree track that was interrupted to attend the full-time police officer's academy and subsequent enrollment at Saint Anselm College.

ACHIEVEMENTS:

Letter of Commendation

Mont Vernon, New Hampshire Police Department, **October, 1998**
Recognized for providing assistance to the Mont Vernon Police Department during the reconstruction of a fatal automobile vs. bicycle collision.

Letter of Commendation

Amherst, New Hampshire Police Department, **June, 1989**
Recognized, in a department letter, for performance of duties associated with a double homicide and a suicide; a stabbing; two fatal automobile crashes; and an assisted suicide, all occurring within a two-week period.

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Letter of Congratulations

Amherst, New Hampshire Police Department, **November, 1988**
Recognized, along with all department members, for the professionalism displayed during the appropriate investigation of a stabbing, a felony assault, and a reported fatal automobile crash that was determined to be a homicide, all occurring within a one-week period.

ASSOCIATIONS/MEMBERSHIPS:

International Association of Accident Reconstruction Specialists **(IAARS)**
National Association of Professional Accident Reconstructionist Specialists, Inc. **(NAPARS)**
New York Statewide Traffic Accident Reconstruction Society, Inc. **(NYSTARS)**
New Hampshire Driver Education Teachers Association (**NHDETA**)
New Hampshire Association of Retired Law Enforcement Officers, Life Member
New Hampshire D.A.R.E. Officers Association, Life Member, Past President
New Hampshire Police Association, Retired, Life Member