PATRICK J. DOHERTY
Accredited 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

EDUCATION:

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 Reconstructionists (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

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.

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EDUCATION:

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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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; 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, NH
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; tools and methods utilized.

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EDUCATION:

National Institute for Driver Behavior (NIDB), Cheshire, CT
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

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 Reconstructionists (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.

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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.

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 Reconstructionists (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 ATV's; Vehicle Operation v. Motorcycle Operation Human Factors Studies; Rotational Mechanics; and Analysis of The Tulsa Consortium Motorcycle Testing.

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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 Reconstructionists (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 Services; and Analysis of Collision Test Results as it Relates to Pedestrian and Bicycle Collisions.

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

Nighttime Path Intrusion: **Jeffrey Muttart**
September, 2011, Hawthorne, New York
Attended one day seminar. Reconstructing a Nighttime Path Intrusion Crash Utilizing Human Factors Research.

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 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.

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EDUCATION:

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

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 competed 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.

Clearly Visible Presentations, LLC:

Forensic Photography 1.
November, 2009, Indianapolis, Indiana
Successfully completed three day course. Topics included Lens Optics; Camera Principals; 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.

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EDUCATION:

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; Advance Features of 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.

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.

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EDUCATION:

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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EDUCATION:

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.

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EDUCATION:

University of North Florida, Institute of Police Technology and Management
Applied Physics for the Traffic Crash Investigator
May, 2006, Jacksonville, Florida
Successfully completed a forty 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.

New York State Accident Reconstruction Society (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; Secure the Appropriate Evidence of a Download; and Effectively Support 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 (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.

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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; 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.

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.

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New York Statewide Traffic Accident Reconstruction Society (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
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.

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.

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EDUCATION:

University of North Florida, Institute of Police Technology and Management
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; and 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.

University of North Florida, Institute of Police Technology and Management
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.

PATRICK J. DOHERTY
Accredited 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

EDUCATION:

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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EDUCATION:

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.

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EDUCATION:

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**
Associates 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 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.

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.

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.