



Andrew S. Rich, BSME, ACTAR, ASE
Rich Consulting, LLC
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Employment

2012 to present: **Rich Consulting, LLC—Principal**

- Accident reconstruction consulting
- Accident reconstruction training

2003 to Present: **University of North Florida, Institute of Police Technology and Management—Adjunct Instructor**

- Instruct advanced accident reconstruction courses
- Curriculum development
- Crash testing

1999 to 2012: **Bergen County Prosecutor’s Office, Paramus, N.J. – *Detective/Pilot***

Assigned to the Fatal Accident Investigation Unit (FAIU) and the Aviation Unit. Responsible for supervising serious/fatal collision investigations occurring within Bergen County. Duties included:

- Collision analysis and reconstruction
- Supervised a twenty-four member Fatal Accident Investigation Unit Task Force
- Reviewed and approved all task force reconstructions
- Prepared forensic maps using a total station, high definition laser scanner, and CAD
- Performed forensic vehicle, scene and pedestrian examinations

1988 to 1999: **Palisades Interstate Parkway Police, Alpine, N.J. – *Police Sergeant***

- Supervised all serious and fatal collision investigations
- Collision analysis and reconstruction
- Investigator for the Bergen County Prosecutor’s Office Fatal Accident Investigation Unit

1987 to 1988: **Larry Peters Hyundai, Ramsey, N.J. – *Auto Mechanic***

1986 to 1987: **Brogan Cadillac, Ridgewood, N.J. – *Auto Mechanic***

1983 to 1986: **Bergen Mall Shopping Center, Paramus, NJ –*Security Officer***

1982 to 1983: **Glen Motors Toyota, Hawthorne, NJ – *Auto Mechanic***

Education

- 2009 **New Jersey Institute of Technology**
- Bachelor of Science in Mechanical Engineering, *Summa Cum Laude*
 - Senior design project: An Excel Application to Estimate the Impact Speed of a Vehicle After a Collision with a Utility Pole or Tree.

Accreditations

- Sept. 2006 **Accreditation Commission for Traffic Accident Reconstruction (ACTAR)**
Certificate of Full Accreditation #1776.
- Dec. 2016 **National Institute for Automotive Service Excellence (ASE)**
Certified Automotive Technician #ASE-5604-6945

Licenses

- Federal Aviation Administration—Private Pilot, Single Engine Land

Specialized Education

- Oct. 2019 **Virtual Crash Simulation Software**
Forensic Training Group. Atlanta, GA (24 hours).
- Oct. 2019 **Operation and Maintenance of Heavy-Duty Vehicle Air Brake Systems and Components**
Bendix Spicer Foundation Brake, LLC. Elyria, OH (24 hours).
- Mar. 2019 **Scanning & Software Workshop**
FARO. Hudson, Ohio (4 hours).
- Feb. 2019 **Heavy Vehicle Event Data Recovery and Analysis**
Commonwealth Transportation Consultants. Charlotte, NC (24 hours).
- Nov. 2018 **Crash Reconstruction with Video Evidence**
OTARA. West Chester, OH (6 hours).
- Extraction of video evidence from surveillance systems
 - Video use for motor vehicle speed estimation
- Oct. 2018 **Pennsylvania State Police Collision Reconstruction Seminar**
Gettysburg, PA (10 hours).
- Distracted driving
 - Acceleration: Lateral, forward, backward and heavy truck
 - Role of NTSB and autonomous vehicle crashes
 - Pedestrian walking speeds
 - Heavy vehicle event logging devices
- May 2018 **Symposium on Traffic Safety**
University of North Florida, IPTM. Clearwater Beach, FL (6 hours).
- Human factors Research Update
 - FARO Zone 3D
 - Using 3D Scanners in Crash reconstruction
- Mar. 2018 **Traffic Crash Analysis Using Virtual Crash Software**
Forensic Training Group. Nashville, TN (19 hours).
- Feb. 2018 **Heavy Truck Crash Reconstruction—Including Digital Forensics**
Forensic Training Group. Nashville, TN (21 hours).

- Oct. 2017 **Pennsylvania State Police Collision Reconstruction Seminar**
 Pennsylvania State Police. Gettysburg, PA (4 hours).
 • Results of Human Factors Testing
 • Heavy Truck Inspections
- Mar. 2017 **EDR Summit**
 Collision Safety Institute and Collision Publishing. Houston, TX (20 hours).
 • Hyundai/Kia Update
 • Autonomous Vehicles
 • Data from Infotainment Systems
 • Forensic Data from Heavy Vehicle Networks
 • Toyota Gen 3 Pre-Crash Brake Data
 • Asynchronous Data Concepts in EDR Data
 • Atypical Airbag Deployment Cases
 • Forensic Methods for Dealing with Damaged ECM/ECU Components
- Dec. 2016 **Bridgestone/Firestone Tire Forensics and Accident Investigation Clinic**
 Bridgestone/Firestone. West Chester, Ohio (6 hours).
- Sep. 2016 **Optics, Lighting, Visibility and Digital Photography for the Forensic Investigator**
 Clearly Visible Presentations, LLC. Indianapolis, IN (40 hours).
- May 2016 **Advanced Crash Reconstruction Utilizing Human Factors**
 North Western University (40 hours)
- Mar. 2016 **Comprehensive Air Brake Systems Training Program**
 Bendix. Online (3.5 hours)
- Jan. 2016 **CDR Summit**
 Collision Safety Institute and Collision Publishing. Houston, TX (20 hours).
 • Non-Supported Ford Vehicles
 • Damaged Airbag Control Modules
 • Hyundai-Kia Update
 • FCA Update
 • ACM Reprogramming Update
 • Testing and Analysis of Unsupported Kia Data
- Sep. 2015 **2015 Illinois Association of Technical Accident Investigators Conference**
 East Peoria, IL (24 hours).
 • Vehicle Inspections, Nomenclature and Inspections
 • Traffic Emerging Technologies
- May 2015 **Special Problems in Traffic Crash Reconstruction**
 University of North Florida, IPTM. Clearwater Beach, FL (32 hours).
 • The Proper Use of Simulation Technology for Collision and Rollover Reconstructions and Highway Safety
 • Air Brake Inspections and Brake Force Calculations for Heavy Vehicles Equipped with Air Disk Brakes
 • Video Analysis and Court Presentation in Collision Investigations
 • Crush, Stiffness Values, and Force Balance Case Study Application(s)
 • Crash Simulation 101
 • Working with Time and Distance in the World of EDRs
- Jan. 2015 **CDR Summit**
 Collision Safety Institute and Collision Publishing. Houston, TX (20 hours).
 • Toyota Event Recording Prioritization
 • Non-Supported Nissan and Infiniti Vehicle Crash Data
 • GM Ignition Switch Failures and the Associated CDR Data
 • New Vehicle Technologies
 • Clearing an ACM—What is it, How is it Done?
- Feb. 2014 **Roadway Design and Maintenance, Intersection Control, Punitive Damages, and MUTCD**
 New York Statewide Traffic Accident Reconstruction Society. Valhalla, NY (7 hours).

- May 2013 **Special Problems in Traffic Crash Reconstruction**
University of North Florida, IPTM. St. Pete Beach, Fl. (37 hours).
- Event Data Recorder Update (ver. 10.2)
 - CRASH3 in a Nutshell
 - Case Studies in Applying EDR to Traffic Crash Reconstruction
 - GM Hybrid and Electric Vehicle Technology and its Relationship to EDR
 - Motorcycle Modifications and How They Can Affect Your Reconstruction
- Apr. 2013 **How to Write a Bullet-Proof Expert Report**
SEAK. Chicago, Il. (14 hours).
- May 2012 **Special Problems in Traffic Crash Reconstruction**
University of North Florida, IPTM. Jacksonville, Fl. (4 hours).
- Introduction to HVEDR Technology
 - Event Data Recorder Update
- Apr. 2012 **High Definition Surveying (3-D Laser Scanning & Cyclone Software)**
Leica Geosystems. Paramus, NJ (32 hours)
- Apr. 2012 **How to be an Effective Expert Witness**
SEAK. Chicago, Il. (15 hours)
- Oct. 2011 **2011 NATARI Combined Conference**
Harrisburg, Pennsylvania (24 hours)
- Pedestrian Collisions
- Sep. 2011 **Crash Data Retrieval Update (Ver. 4.1)**
Crash Data Specialists. Millersville, Md. (14 hours)
- Sep. 2011 **Human Factors in Traffic Crash Reconstruction**
University of North Florida, IPTM (40 hours)
- Aug. 2011 **How to Start, Build and Run a Successful Expert Witness Practice**
SEAK. Falmouth, Ma. (11 hours)
- May 2011 **Special Problems in Traffic Crash Reconstruction**
University of North Florida, IPTM. (28 hours)
- Event Data Recorder Update (ver. 3.8)
 - Motorcycle Vs. Car Impacts
 - Passenger Car Rollovers
- Oct. 2010 **2010 Maryland Association of Traffic Accident Investigators Joint Conference**
Ocean City, Maryland (24 hours)
- Truck rollovers
 - Truck underrides
- Sep. 2010 **2010 Illinois Association of Technical Accident Investigators Conference**
Bloomington, Il (24 hours)
- Vehicle Rollovers
 - Tire Forces
 - Event Data Recorder Update
 - Pedestrian Collision Reconstruction
- Jul. 2010 **Grade Crossing Collision Investigation**
International Association of Chiefs of Police (8 hours)
- Apr. 2010 **Special Problems in Traffic Crash Reconstruction**
University of North Florida (28 hours)
- Case Preparation
 - Planar Impact Mechanics
 - Instrumentation and Testing for Crash Reconstruction
- Sep. 2009 **2009 Illinois Association of Technical Accident Investigators Conference**
Bloomington, Il (24 hours)
- Critical Speed Yaw Analysis and Lane Change Maneuvers
 - Crash Testing
 - Event Data Recorder Update and Validation Testing

- Jun. 2009 **Emergency Vehicle Operations Simulator Instructor Training**
Bergen County Police Academy (14 hours)
- Jun. 2009 **National Expert Witness Conference**
SEAK. Hyannis, Ma (14 hours)
- Apr. 2009 **Special Problems in Traffic Crash Reconstruction**
University of North Florida, IPTM (28 hours)
 - Event Data Recorder Version 3.1/3.2 Update
 - Single Image Planar Rectification and Multi-Image and Close-Range Photogrammetry in Crash Reconstruction
 - The Application of the Searle Throw Distance Formula
- Oct. 2008 **New Jersey Association of Accident Reconstructionists Joint Conference**
Atlantic City, NJ (20 hours)
 - Event Data Recorder Update
 - Critical Speed Yaw
 - Airborne Testing
 - Lateral Pole Impact Testing
- Apr. 2008 **Special Problems in Traffic Crash Reconstruction**
University of North Florida, IPTM (28 hours)
- Sep. 2007 **2007 Illinois Association of Technical Accident Investigators Conference**
Bloomington, Il (24 hours)
 - Momentum Methods
 - Crash Testing
 - Computer Animation
- Jun. 2007 **Energy Methods and Damage Analysis in Traffic Crash Reconstruction**
University of North Florida, IPTM (40 hours)
- Apr. 2007 **Special Problems in Traffic Crash Reconstruction**
University of North Florida, IPTM (28 hours)
 - Pedestrian Collision Testing
 - Animation
 - Case Preparation
 - Pole Impact Testing
 - Bus/Passenger Vehicle Crash Testing
- Mar. 2007 **Crash Data Retrieval Data Analyst (Ver. 2.9)**
Collision Safety Institute (32 hours)
- Oct. 2006 **Crash Data Retrieval Data Analyst (Ver. 2.8)**
Collision Safety Institute (24 hours)
- Oct. 2006 **Crash Data Retrieval Technician**
Collision Safety Institute (8 hours)
- May 2006 **Forensic Mapping Systems**
MJC and Associates (Certified Sokkia total station training, 40 hours)
- Mar. 2006 **Traffic Crash Reconstruction Update**
University of North Florida, IPTM (40 hours)
- Oct. 2004 **AAA Traffic Safety and Crash Investigation Conference**
Bergen County Law & Public Safety Institute (32 hours)
- Jun. 2003 **Human Bloodstain Patterns**
The Henry C. Lee Institute of Forensic Science (40 hours)
- May 2003 **Special Problems in Traffic Crash Reconstruction**
University of North Florida, IPTM (28 hours)
 - Rollover Testing
 - Validation of the WinSlam Spin Model
 - NHTSA Crash Testing

Apr. 2003 **Crash Data Retrieval Certification Course**
Collision Safety Institute (16 hours)

Feb. 2002 **Applied Physics for Traffic Crash Investigators**
University of North Florida, IPTM (40 hours)

Nov. 2000 **The Expert Witness and Courtroom Testimony**
New Jersey Association of Accident Reconstructionists (8 hours)

Sep. 2000 **Photogrammetry Using PhotoModeler**
DeChant Consulting Services (24 hours)

Aug. 2000 **Acceleration and VC-2000PC Training**
Vericom Computers, Inc. (8 hours)

July 2000 **Computerized Collision Diagramming**
University of North Florida, IPTM (40 hours)

Jun. 2000 **Inspection and Investigation of Commercial Vehicle Crashes**
University of North Florida, IPTM (40 hours)

Mar. 2000 **The Relationship Between Crush and Energy in Collision Reconstruction**
New Jersey Association of Accident Reconstructionists (16 hours)

Oct. 1999 **Forensic Mapping Specialist**
MJC and Associates (certified Sokkia total station training, 40 hours)

Sep. 1999 **Motorcycle Accident Investigation**
University of North Florida, IPTM (40 hours)

Mar. 1999 **VC-2000 Operator's Training**
Vericom Computers, Inc. (8 hours)

Mar. 1997 **Certificate in Supervisory Management**
N.J. Human Resource Development Institute, Rutgers University (320 hours)

Jan. 1997 **Police Work Zone Safety** (8 hours)
Bergen County Police Academy.

Sep. 1996 **Advanced Accident Reconstruction**
Texas A&M University, TEEX (40 hours)

Apr. 1996 **Catastrophic Aircraft Emergency Seminar**
Port Authority Police Department (8 hours)

Sep. 1995 **Certified Breathalyzer Operator**
N.J. Dept. Of Law and Public Safety (40 hours)

Sep. 1995 **Pedestrian/Bicycle Accident Reconstruction**
Texas A&M University, TEEX (40 hours)

May 1995 **Traffic Accident Reconstruction**
University of North Florida, IPTM (80 hours)

Feb. 1995 **Tire Damage Analysis**
Michelin Tire Company (8 hours)

Mar. 1994 **Advanced Traffic Accident Investigation**
University of North Florida, IPTM (80 hours)

Feb. 1994 **At Scene Traffic Accident Investigation**
University of North Florida, IPTM (80 hours)

May 1993 **Horizontal Gaze Nystagmus**
National Highway Safety Administration (24 hours)

Mar. 1993 **At Scene Traffic Accident Investigation**
Bergen County Prosecutor's Office (40 hours)

- Jun. 1991 **Rappelling Instructor Course**
Bergen County Police Academy (96 hours)
- Aug. 1988 **Doppler Radar Operator**
N.J. Department of Law and Public Safety (80 hours)
- Apr. 1988 **Police Training Commission Certificate, Basic Police Training**
Paterson (N.J.) Police Academy (880 hours)

Publications

- Rich, Andrew and Michelle Fish-Rich. "What is Monte Carlo Analysis." NAPARS newsletter, July 2019.
- Rich, Andrew and Michelle Fish-Rich. "Using Microsoft Excel for Traffic Crash Reconstruction." Impact, Volume 24, No. 2. Autumn 2016.
- Bartlett, Wade, Bill Wright and Andrew Rich. "Passenger Car Coastdown Rates." Accident Reconstruction Journal, Volume 26, No. 3. July/August 2016.
- Reade, Mike W. and Andrew Rich. "The Effects of Carry Distance, Takeoff Angle, Friction Value, and Horizontal Speed Loss Upon First Ground Contact on Pedestrian/Cyclist Crash Reconstruction." World Reconstruction Exposition publication, March 2016.
- Rich, Andrew and Michelle Fish-Rich. Fundamentals of Statistics for Traffic Crash Reconstruction. Jacksonville: University of North Florida, IPTM, 2014. ISBN 978-1-934807-13-2.
- Rich, Andrew S. "A Geometric Analysis for Estimating Collision Force for Narrow Object Impacts." Accident Reconstruction Journal, Volume 22, No. 2. March/April 2012.
- Rich, Andrew S., Joseph N. Cofone. "Side Impacts into Poles: The Effect of Rotation on Stiffness Coefficients." Accident Reconstruction Journal, Volume 22, No. 2. March/April 2012.
- Rich, Andrew, Bill Wright, and Michelle Fish-Rich. "EDR Delta-V Reliability and Restitution Values for Six Low- and Moderate-Speed Collinear Central Crash Tests." Accident Reconstruction Journal, Volume 20, No. 6. November/December 2010.
- Daily, John G., Jeremy S. Daily, and Andrew S. Rich. "A Method For Vehicle-Wooden Utility Pole Impact Speed Reconstruction." Accident Reconstruction Journal, Volume 19, No. 5. September/October 2009.
- Rich, Andrew S., et al. "2008 Joint Conference Lateral Pole Crash Test Results." Momentum, Volume 16, Issue 1, April 2009.
- Rich, Andrew S. Concepts from Physics and Mathematics Applied to Traffic Crash Reconstruction. Jacksonville: University of North Florida, IPTM, 2007. ISBN 978-1-934807-02-6.
- Cofone, Joseph N, Andrew S. Rich, and John C. Scott. "A Comparison of Equations for Estimating Speed Based on Maximum Static Deformation for Frontal Narrow-Object Impacts." Accident Reconstruction Journal, Volume 17, No. 6. November/December 2007.
- Rich, Andrew S, and Nathan Shigemura. Balancing Collision Forces in Crush/Energy Analyses. Jacksonville: University of North Florida, IPTM, 2007. ISBN 978-1-934807-03-3.
- Rich, Andrew S. "An Introduction to the Monte Carlo Method." Momentum, Vol. 13, Issue 2, August 2006.
- Rich, Andrew S. "EBS and Delta-V." Momentum, Vol. 13, Issue 1, February 2006.
- Rich, Andrew S. "Momentum Revisited." Momentum, Vol. 11, Issue 1, February 2004
- Rich, Andrew S. "A Special Case in the Conservation of Collinear Momentum." Momentum, Vol. 10, Issue 1, March 2003

Rich, Andrew S. “A Three-Point Airborne Trajectory Analysis: An Application of the Derivative.” Momentum, Vol. 6, Issue 3, September 1999, and Traffic Accident Reconstruction Origin, July 1999.

Rich, Andrew S. “Solving Second-Degree and Systems of Equations: Applications to Motor Vehicle Accident Reconstruction.” Traffic Accident Reconstruction Origin, April 1998, and Momentum, Vol. 5, No. 1, March 1998.

Rich, Andrew S. “Update on the Motorcyclist/Bicyclist Equation.” Momentum, Vol. 4, No. 2, January 1998, and Traffic Accident Reconstruction Origin, October 1997.

Rich, Andrew S. “Estimating Vault Distance and Speed After a Motorcyclist or Bicyclist Ejection.” Traffic Accident Reconstruction Origin, October 1997, and Momentum, Vol. 3, No. 2, September 1996.

Invited Lectures

Event Data Recorder Update

- New Jersey Association of Accident Reconstructionists Joint Conference. Atlantic City, NJ—October 8, 2019.

Sensitivity Analysis: Finite Difference and Monte Carlo Simulation

- Pennsylvania State Police Collision Reconstruction Seminar. Gettysburg, PA—October 31, 2018.

Using Simultaneous Equations in Traffic Crash Reconstruction

- Pennsylvania State Police Collision Reconstruction Seminar. Gettysburg, PA—October 31, 2017.

Post-Crash Mechanical Inspections

- Illinois Association of Technical Accident Investigators 2017 Conference. Springfield, IL—October 4, 2017.
- Ohio Traffic Accident Reconstruction Association. West Chester, OH—November 16, 2018.
- Summit Metro Crash Response Team. Hudson, OH—November 15, 2018.

ABS Braking Systems and ABS Braking Test Results

- Illinois Association of Technical Accident Investigators 2017 Conference. Springfield, IL—October 5, 2017.

Using Monte Carlo Simulation to Determine the Sensitivity of Crash Reconstructions

- New Jersey Association of Accident Reconstructionists. Sayreville, NJ—July 11, 2017.

Using Monte Carlo Simulation and the Method of Finite Differences to Determine the Sensitivity of Crash Reconstructions (one-day class)

- Pennsylvania State Police. Greensburg, PA—May 10, 2017.

Damage Analysis (one-day class)

- Ohio Traffic Accident Reconstruction Association. West Chester, OH—November 3, 2016.

Using Event Data Recorder Delta-V to Calculate Closing and Impact Speeds

- Illinois Association of Technical Accident Investigators 2015 Conference. East Peoria, IL—September 18, 2015.
- Pennsylvania State Police Collision Reconstruction Seminar, State College, Pa—October 15, 2015.

The Effects of Rotation on Event Data Recorder Measured Delta-V and Closing Speed Analysis

- Pennsylvania State Police Collision Reconstruction Seminar. State College, Pa—September 25, 2014.

Fundamentals of Statistics for Traffic Crash Reconstruction (presented with Michelle Fish-Rich)

- University of North Florida, IPTM Special Problems. St. Pete Beach, FL—April 30 and May 1, 2014.
- World Reconstruction Exposition (WREX 2016). Orlando, FL—May 4, 2016

Investigating Pedestrian/Bicycle Crashes Requiring Special Considerations (presented with Mike Reade)

- University of North Florida, IPTM Special Problems. St. Pete Beach, FL—May 20, 2013.

Advanced Momentum Concepts

- University of North Florida, IPTM Special Problems—May 22nd and 23rd, 2013.
- Illinois Association of Technical Accident Investigators 2013 Conference. Peoria, IL—September 20, 2013.
- Pennsylvania State Police Collision Reconstruction Seminar. State College, Pa—September 26, 2013.
- New Jersey Association of Accident Reconstructionists Joint Conference. Atlantic City, NJ—October 10, 2013.
- Ohio Traffic Accident Reconstruction Association Annual Training. West Chester, OH—November 8, 2013.

Rotational Mechanics

- NYSTARS Joint Conference. Kingston, NY—October 19, 2012.

Tumbas-Smith Damage Measurement Protocol

- Pennsylvania State Police Collision Reconstruction Seminar. State College, Pa—September 26, 2012

Basic Damage Analysis

- University of North Florida, IPTM Special Problems—May 2nd and 3rd, 2012.

Expert Witnesses (with Bergen County First Assistant Prosecutor John L. Higgins III)

- Justice Morris Pashman American Inn of Court. Hackensack, NJ—February 21, 2012.

Pedestrian Crash Test Data Analysis

- NATARI Combined Conference. Harrisburg, Pennsylvania—October 7, 2011.

EBS, KEES, Delta-V and the First Law of Thermodynamics

- Illinois Association of Technical Accident Investigators 2009 Conference. Bloomington, IL—September 17, 2010.
- Maryland Association of Traffic Accident Investigators. Ocean City, Maryland.—October 8, 2010.
- Pennsylvania State Police Collision Reconstruction Seminar. State College, PA.—September 28, 2016.

Instrumentation and Testing for Crash Reconstruction (with Bill Wright, BSME, ACTAR)

- University of North Florida, IPTM Special Problems—April 28th and 29th, 2010.

Physics and Mathematics Applied to Collision Reconstruction

- Pascack Hills High School, honors physics curriculum—April 20, 2010, March 2011.
- Pascack Valley High School, honors physics curriculum—April 20, 2010, March 2011.
- Northern Highlands High School, physics AP class—June 15, 2010.

Using Microsoft Excel for Traffic Crash Reconstruction

- Ohio Traffic Accident Reconstruction Association. London, Ohio—January 22, 2010.
- Illinois Association of Technical Accident Investigators 2010 Conference. Bloomington, IL—September 14, 2010.
- Pennsylvania State Police Academy (3-day class). Harrisburg, Pa. February 2011.
- University of North Florida, Jacksonville, FL—May 4,5, 2011.
- Tennessee Highway Patrol Crash Reconstruction Seminar. Franklin, TN—May 27, 2015.
- Tennessee Highway Patrol Crash Reconstruction Seminar. Nashville, TN—June 1, 2016.

Case Analysis

- Illinois Association of Technical Accident Investigators 2009 Conference. Bloomington, IL—September 17-18, 2009.
- University of North Florida, IPTM Special Problems—April 26th and 27th, 2010.
- Pennsylvania State Police Crash Reconstruction Seminar—September 2010.

2008 Joint Conference Lateral Pole Crash Test Results

- New Jersey Association of Accident Reconstructionists, April 28, 2009.

Lateral Pole Impact Testing Analysis

- New Jersey Association of Accident Reconstructionists Joint Conference. Atlantic City, NJ—October 17, 2008. Presented with the Collision Safety Institute.

Airborne Trajectories and Analysis

- Ohio Traffic Accident Reconstruction Association. London, Ohio—July 24, 2009.
- New Jersey Association of Accident Reconstructionists Joint Conference. Atlantic City, NJ—October 16, 2008.
- University of North Florida, IPTM Special Problems—April 15th and 16th, 2009.
- Illinois Association of Technical Accident Investigators 2009 Conference. Bloomington, IL—September 17-18, 2009.
- Pennsylvania State Police Collision Reconstruction Seminar—October 26, 2011.

Applied Statistics for the Collision Reconstructionist

- West Chester, Ohio Police Department—September 5, 2008.

Narrow-Object Collision Reconstruction

- West Chester, Ohio Police Department—September 5, 2008.

A Comparison of Equations for Estimating Speed Based on Maximum Static Deformation for Frontal Narrow-Object impacts

- University of North Florida, IPTM Special Problems—April 24, 2008.

Balancing Collision Forces in Crush/Energy Analyses—Presented with Nathan Shigemura

- University of North Florida, IPTM Special Problems—April 30 and May 1, 2007.
- Illinois Association of Technical Accident Investigators—September 20 & 21, 2007.

Critical Speed Yaw Analysis

- New Jersey Association of Accident Reconstructionists “Back to the Basics Conference”—September 7, 2006.

A New Look at Momentum for the Police Reconstructionist

- Pennsylvania State Police Collision Reconstruction Seminar—September 28, 2004.
- New Jersey Association of Accident Reconstructionists—March 1, 2004.

Pedestrian Collision Reconstruction and Investigation Techniques

- AAA Traffic Safety and Crash Investigation Conference—October 13, 2004.
- New York Statewide Traffic Accident Reconstruction Society—February 24, 2004.
- The College of New Jersey: guest speaker for a class titled, “Laboratory and Field Analysis in Forensic Investigations”—March 17, 2003; April 5, 2004; April 7, 2005.
- New Jersey State Police Academy—August 14 and October 2, 2002.
- New Jersey Association of Accident Reconstructionists—June 10, 2002.
- Morris County Prosecutor’s Office—May 20, 2002.

- New Jersey Prosecutor’s Crash Investigator’s Association—December 4, 2001.
- Bergen County Prosecutor’s Office—November 30, 2001.

A Three-Point Airborne Trajectory Analysis: An Application of the Derivative

- Pennsylvania State Police Collision Reconstruction Seminar—September 28, 2004.
- New York Statewide Traffic Accident Reconstruction Society—February 24, 2004.
- University of North Florida, IPTM Special Problems—April 30 and May 1, 2003.
- New Jersey Association of Accident Reconstructionists – September 27, 1999.

Estimating Vault Distance and Speed After a Motorcyclist or Bicyclist Ejection

- New Jersey Association of Accident Reconstructionists -- Sept. 30, 1996.
- Bergen County Prosecutor’s Office -- June 21, 1996.

Research & Crash Testing

- 2010 to 2015: Contracted Test Engineer for the University of Tulsa Traffic Crash Reconstruction Consortium
- 2007 to present: Member of Crash Test Team for the University of North Florida (IPTM)

Crash Tests and Experiments

- Event Data Recorder Placement Effects on Closing Speed Analysis
- Closing Speed Analysis Using EDR Delta-V, Restitution and Effective Mass Ratio
- Low-Speed Impact Tests to Determine Coefficient of Restitution
- Event Data Recorder Delta-V Validation
- Planar Impact Mechanics
- Critical Speed Yaw
- Balancing Collision Forces Validation Tests
- Lane Change Maneuver
- New Jersey Barrier Impacts
- Three-car Collinear Impact
- Airborne Vehicle Testing
- Frontal Pole Impact Testing
- Lateral Pole Impact Testing
- Multiple Departure Planar Impact Mechanics
- Drag Sled Validation Tests
- Effects of ABS Braking on Grass
- Pedestrian Crash Testing
- Tractor Trailer Skid Testing
- Motorcycle Sliding Friction
- SLAM/WinCrash Spin Model Validation
- Motor Vehicle Rollovers
- Motor Vehicle Rollover Drag Factor Tests on Turf
- Motor Vehicle Sliding Drag Factors on Grass and Asphalt
- Coefficient of Friction Determination
- Normal Acceleration Rates for Passenger Vehicles
- Bloodstain Pattern Recognition
- Low, Medium and High Velocity Bloodstain Patterns
- Bloodstain Origin Determination

- Bloodstain Volume Estimation
- Truck underrides
- Rotational mechanics
- Validation of the Effective Mass Ratio
- Low Closing Speed Restitution Values for Transit Bus/Passenger Vehicle Impacts
- Truck v. Car Collisions
- ABS Brake Testing

Teaching Experience

- 2003 to present: Adjunct Instructor, University of North Florida, IPTM.
 - ✓ Applied Physics
 - ✓ Vehicle Dynamics
 - ✓ Traffic Crash Reconstruction Update
 - ✓ Energy Methods and Damage Analysis
 - ✓ Event Data Recorder Level I
 - ✓ Event Data Recorder Level II (co-created this class)
 - ✓ Forensic GPS Investigations
 - ✓ Advanced Pedestrian/Bicycle Accident Reconstruction
 - ✓ Post-Crash Forensic Vehicle Examinations (co-created this class)
- 2010 to present: ACTAR Exam Preparation
- 2011 to present: Using Microsoft Excel for Traffic Crash Reconstruction
- 1999 to 2003: Vehicle Dynamics instructor for the New Jersey Department of Highway Safety Accident Investigation Instructors Cadre.
- 1999 to 2012: FAIU squad training.
- 9/1997 to 5/1998: Tutor -- Bergen Community College, Paramus, N.J.
 - ✓ Tutored college students in algebra, precalculus, calculus and physics

Technical Advisements

Provided technical assistance for the following publications and computer software:

- Bonnett, George. *Rec-Tec*. Provided technical assistance with pole impact analysis.
- AITools. *WinCRASH* computer program User's Manual (CRASH3 software).
- Cofone, Joseph N. *A Guide to Determining Occupant Seating Positions and Injury Patterns*. Jacksonville: IPTM, 1997.
- Cofone, Joseph N. *Rollover Crashes of Motor Vehicles and Heavy Trucks*. Jacksonville: IPTM, 2002.
- Mitchell, J.F. *International Guidebook for Traffic Accident Reconstruction*. Ontario: Self-published, 1997.
- Russell, C. Greg. *Pedestrian Formulas for Excel*. Tucson: Lawyers and Judges.
- Young, Kelly. *AR Pro*. Hollowell, ME: Maine Computer Group.
- Reade, Michael. *PedBike2000 Plus*. New Brunswick: Forensic Reconstruction Specialists, Inc.
- 4N6XPRT. *StifCalcs* computer program. Provided beta testing and technical consulting for the balancing forces section of the software.

Expert Witness Testimony

Qualified as an expert in New Jersey Municipal and Superior Courts.

Media Appearances

- *The Accident Investigator*, Episodes 1 and 4, The Discovery Health Channel, 2006.
- *Legal Affairs Magazine*, July/August 2004. "Crash Course. The Science of Reconstructing Car Accidents".

Awards and Commendations

- Exceptional Duty Citation, December 12, 2003
- Exceptional Duty Citation, December 14, 2000
- Exceptional Police Service, December 2, 1993

Professional Affiliations

- Society of Automotive Engineers
- National Association of Professional Accident Reconstruction Specialists
- New Jersey Association of Accident Reconstructionists (Life Member)
- Ohio Traffic Accident Reconstruction Association (Life Member)