



COMPASS
CONSULTING
ENGINEERS

CURRICULUM VITAE
OF
JAMES W. SLOAN

Compass Consulting Engineers

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NOT FOR EXPERT DISCLOSURE

CV - James Sloan

EXPERIENCE HIGHLIGHTS

2025 to Present	Compass Consulting Engineers Westminster, CO Senior Transportation Accident Reconstructionist
2007 to 2025	VERICRASH, LLC Saint Simons Island, GA Senior Transportation Accident Reconstructionist Company Owner
2005 to Present	University of North Florida INSTITUTE OF POLICE TECHNOLOGY AND MANAGEMENT (IPTM) Jacksonville, Florida Member of Adjunct Faculty Motorcycle Crash Investigation (Program Coordinator) Commercial Vehicle Crash Investigation Pedestrian/Bicycle Crash Investigation Motor Vehicle Crash Investigation & Reconstruction
1999 to 2007	SOUTHEAST COLLISION ANALYSIS, INC Brunswick, Georgia Senior Traffic Accident Reconstructionist Watercraft Collision & Incident Reconstructionist
1997 to 1999	THOMAS LANGLEY & COMPANY Acworth, Georgia Traffic Accident Reconstructionist
1987 to 1997	CHEROKEE COUNTY SHERIFF'S OFFICE Canton, Georgia Sergeant - Traffic Unit Supervisor of Traffic Enforcement and Accident Investigation/Reconstruction Unit Trained Officers in Traffic Accident Investigation and Traffic

Enforcement

Conducted underwater search and recovery operations, lake patrol watercraft operation and investigations

1985 to 1987

RISK MANAGEMENT ASSOCIATE

Stouffer Hotel Corporation
Atlanta, Georgia
Physical Property Security
Internal Loss Investigation
Critical Incident Response

1983 to 1996

UNITED STATES MARINE CORPS

(Reserve and Active Duty)
MCAS Camp Pendleton, CA HMA-169
MCAF Marietta, GA HMLA-773
Rank - Sergeant (E5)
Aviation Ordnance Non-Commissioned Officer

1979 to 1981

NEAL POPE FORD

Atlanta, GA
Automotive Service Technician
Ford Service Training Program – Hapeville, GA

1978 to 1979

OFF ROAD ATLANTA

East Point, GA
Automotive Service Technician
Aftermarket Equipment Sales & Installation

ACCIDENT RECONSTRUCTION EDUCATION AND TRAINING

2025

Washington Association of Technical Accident Investigators (WATAI) Fall Conference (Virtual)

24 hours

Statistics and Probability
Friction – theory, history, measurement, and use
Motorcycle Leaning & turning
Motorcycle CG – finding it several ways, testing, literature research

Critical Speed Yaw – theory, application, pitfalls
 Sideswipe speed ratio analysis – 3 different ways with literature review
 Digital Integration and Chart Building in Excel
 Examining Delta-v from an EDR file with Excel
 EDR - Beyond the last speed number
 Evaluating speed from crush case study

2024

**ATV Crash Investigation and Reconstruction – NAPARS
 (Virtual)**

**Determining Vehicle Speed from an Audio Recording – NAPARS
 (Virtual)**

**ATV Crash Investigation and Reconstruction – NAPARS
 (Virtual)**

**Motorcycle Collision Reconstruction - Lightpoint Learning
 (Live Virtual)**

32 Hours

Motorcycle Kinematics and Dynamics
 Inspection of Crash Involved Motorcycles
 Motorcycle Rider Perception and Response
 Braking, Swerve, Acceleration, Sliding Friction, Crush Calculations
 Rotational Mechanics
 Vault and Airborne Analysis
 Motorcycle EDR and Dataloggers
 Simulation and Modeling of Motorcycle Crashes
 Statistical Analysis – Monte Carlo Calculations

**Photos with Tripods, Flash, and Polarizers – NAPARS
 (Virtual)**

**Traffic Safety Symposium 2024 - University of North Florida Institute of
 Police Technology and Management – Orlando, FL
 32 Hours**

Nighttime Driver Recognitions: 2024 CAPLETS Approach
RV, utility, and boat trailer stability
Topics in Forensic Visibility
Physics of Momentum Equations and Vector Graphics
Autonomous Vehicle Crash Reconstruction: UBER 2018
Motorcycle Crash Investigation Update
EDR IN TCR Update
Human Factors and Autonomous Vehicles
Truck Rollover Insights: Stability Calculations

Accessing and Interpreting Heavy Vehicle Event Data – Society of Automotive Engineers – Fontana, CA

24 Hours

Multiplexed Vehicle Electronics Systems and Vehicle Data Networks
Accessing and Imaging Data
HVEDR Devices and Data Currently Available on Heavy Vehicles
Hands-On Imaging HVEDR Data
Active Safety Systems - VORAD; ABS & Stability Control Systems; Collision Warning & Active Braking Systems; Lane Departure Systems
Validation Studies and the Accuracy/Reliability of HVEDR Data
Interpreting and Applying HVEDR Data
Group Projects

Advanced Applications of Heavy Vehicle EDR Data - Society of Automotive Engineers – Fontana, CA

13 Hours

Analytical techniques and Anomalies
Correlation and applying HVEDR data to multiple data sets
Data and reference sources
Data validation and correlation
Transmission snapshots
ABS records
Crash avoidance systems
Telematics/GPS
Analysis workflow
Missing or incomplete information
Composing a written report
Evidence of impact in EDR reports
Download log files and extracting/correcting data using logs

Tool/computer ID in EDR reports
 Live data capture and applications
 Computer simulations and computational tools

Small UAS Recurrent Training Part 107 – Federal Aviation Administration
 Aeronautical Knowledge Requirements ALC-677

2023 World Reconstruction Exposition (WREX 2023) – Orlando, FL
42 Hours

Historical Perspective on Technology in Reconstruction
 Data Driven – The Future of Reconstruction
 Commercial Vehicle Collision Mitigation Systems
 Next Generation General Motors ACM/EDR/ASCM/Cameras
 Underride Reconstruction, Reporting, and Regulations
 Human Factors Study
 Full Scale Crash Testing – Motorcycle Crash Group Member
 Dashboard Cameras and Human Vision
 Toyota TechStream Vehicle Control History – Research and Testing
 Accessing Toyota Event Camera Data
 Accurate Measurements by Combining Images or Video
 Kawasaki Motorcycle Event Data Recorders
 Testing Automotive Switches and Sensors
 Photogrammetry with Photomodeler
 Infotainment System Data
 Motorcycle Rider's Field of View
 Scooter Drive Systems
 Advanced Driver Assistance Systems (ADAS)
 Motorcycle to Auto Side Impact Modeling
 High Speed Testing of Forward Collision Warning and AEB Systems
 Methods for Establishing Motorcycle Impact Speed
 Heavy Vehicle Side and Rear Underride Speed Analysis

Ignition Cycology (Ignition Cycles in EDR) – NAPARS
(Virtual)

Advanced Driver Assistance Systems (ADAS) and Crash Analysis – NAPARS

(Virtual)

Traffic Engineering: How it influences accident reconstruction – California Association of Accident Reconstruction Specialists

(Virtual)

Event Data Recorder Update – NAPARS

(Virtual)

2022

Microsoft Excel for Traffic Crash Reconstruction – Rich Consulting, LLC – Phoenix, AZ

24 hours

Writing formulas in Excel

Spin Analysis, Airborne, Critical speed yaw calculations

Conservation of Linear Momentum ("360 Momentum").

Sensitivity analysis

Performing Monte Carlo simulation with Excel

Performing finite difference analysis with Excel

Using Excel for EDR analysis

Closing speed analysis

Obtaining delta-V from acceleration data

Programming user-defined reconstruction functions and add-ins

Solving simultaneous energy/restitution and momentum equations

iPhone LIDAR for Crash & Crime Scene Documentation - Recon 3D

(Virtual)

ABS and non-ABS deceleration rates on different surfaces – California Association of Accident Reconstruction Specialists

(Virtual)

2021

Heavy Vehicle Forensic Mechanical Inspection for Collision Investigators – Northwestern University Center for Public Safety – Chattanooga, TN

40 Hours

Heavy vehicle nomenclature

Braking systems

Suspension systems

Wheel systems

Steering systems
 Proper forensic investigation methods
 Hands-on experience with collision-damaged trucks

Small UAS Recurrent Training Part 107 – Federal Aviation Administration
 Aeronautical Knowledge Requirements ALC-677

2020 National Association of Professional Accident Reconstruction Specialists (NAPARS) Joint Conference (Virtual)

14 Hours

Motorcycle Leaning, Turning, and Swerving
 Investigating and Reconstructing Rollover Crashes
 Perception-Response Times for Various Crash Types
 Chip-level Data Recovery: Understanding the Techniques
 Tires – A Brief Overview
 Analyzing GoPro GPS Data
 Using new Freightliner Cascadia data in Accident Reconstruction
 Crash Test review and Analysis

Video Evidence Training Symposium - Occam Video Solutions (Virtual)

15 Hours

Conducting a Video-Centric Investigation
 Legal Issues and Trends Related to Video Admissibility
 Calculating Accurate Timing from Video
 More than Meets the Eye
 Photoshop in the Video Analysis Workflow
 Getting Started with Input-Ace 2.6
 Video Evidence and Photogrammetry

2019 Virtual Crash (VCrash) Simulation Software Forensic Training Group - Atlanta, GA

24 Hours

Background and Basics of Simulation Analyses in Traffic Crash Investigation
 Vehicle, Object, and Environment Construction
 Basic Sequences and Simulation Control
 Importing Measurements and Diagrams (CAD, Laser Scan, UAS) Modifying

Vehicle Models – Crush Modeling
 Simulating and Analyzing Collision
Pennsylvania State Police Collision Reconstruction Seminar
Gettysburg, PA

24 Hours

Rollover Crash Investigation – Methodology and Evidence
 Optical Illusions in Crashes – Human Factors
 Video Evidence: Variable Refresh Rates, and Reverse Projection
 Advanced Momentum Applications
 Event Data Recorder Update
 Tesla EDR: Evidence, Data, and a Case Study
 Investigative Statement Analysis

2018

Commercial Vehicle Crash Investigation – Level II
Institute of Police Technology and Management
University of North Florida – Jacksonville, FL

40 Hours

Tractor-trailer ABS air brake system
 Hydraulic brake systems in commercial vehicles and how fluid pressures are boosted
 Quasi-static and dynamic rollover propensities and liquid loads
 Axle weight analysis and load reconstruction
 Off-tracking dynamics and path calculation
 Speed from engine RPM and gear ratio
 Rotational mechanics
 Field inspection techniques and documentation

Symposium on Traffic Safety
Institute of Police Technology and Management
University of North Florida – Jacksonville, FL

30 Hours

Crash Reconstruction: A complete step-by-step procedure
 Using Unmanned Aircraft Systems (Drones) in Crash Reconstruction
 Introduction to Energy and Updated Motorcycle Crush Equations
 Driver's Responses: Getting a Better Number and How to Use It
 Motorcycles: Myths, Methodologies and Momentum

Understanding Energy Methods and Measuring Techniques
 Interactive Driver Response Research Overview
 3D Crash Reconstruction and Simulation
 Case Studies Using EDR Information
 Post-Crash Data Analysis and Review
 Aerial Photogrammetry for Crash Reconstruction using Pix4D

2017

Human Factors in Traffic Crashes
Crash Safety Solutions – J. Muttart
Pelham, AL

40 Hours

Human Factors Terminology
 Measurement of Perception-Response Times
 IDRR: Hazards, Nighttime, Gap acceptance, Steering, Avoidance
 Perception-response Time History, Research, Changes
 Adjustments to Baselines
 Estimation of Perception-Response Time
 Use of Perception-Response Studies
 Nighttime Analysis
 Headlight Analysis
 Recognition Distance
 Novice vs. Experienced Drivers
 PRT – Lead Vehicle
 Steering Response
 Decision Making

Symposium on Traffic Safety - Institute of Police Technology and
Management University of North Florida – Jacksonville, FL

27 Hours

Video Analysis of Body and Dash Cameras
 Interpreting Complex Signal Timings
 EDR Update 2017
 In-Vehicle Navigation and Infotainment Data Recovery
 Using UAVs (Drones) in Crash Investigations
 UAV Photogrammetry for Crash Reconstruction and Forensic Mapping
 Truck Brake Failure: Differences between Failure Modes for Drum and (New)
 Disc Brakes
 Heavy Vehicle Event Data Retrieval Using Synercon Hardware and Software
 GM Pedestrian Protection Systems and Their EDRs

Body Worn Camera Video as a Reconstruction Tool
 Tire Forensics and Tire Investigation Data
 Modern Motorcycle Technology and Reconstruction Technique

Part 107 Small Unmanned Aircraft Systems (sUAS)
Course Number ALC-451
Federal Aviation Administration Washington, DC
16 Hours

Small Unmanned Aircraft Systems (sUAS)
Embry-Riddle Aeronautical University – Daytona Beach, FL
16 Hours

Unmanned Aircraft and the National Airspace System
Air Safety Institute – AOPA Frederick, MD
8 Hours

2016

World Reconstruction Exhibition (WREX 2016)
Orlando, FL
42 Hours

Using Limited Vehicle Data to Estimate Time/Distance/Speed Relationships for
 Accelerating Cars and Motorcycles
 Vehicle Velocity Extraction from Witness Video
 Investigation of Emergency Vehicle Crashes
 Motorcycle and Pedestrian Speed Estimation Methods
 Speedometers and Collision Reconstruction
 Inspection and Analysis of Air Disc Brakes
 Unmanned Aviation and Robotics
 NTSB Crash Investigation – Learning from Tragedy
 EDR Data Survivability
 Driver Response Depends Upon Information Content
 Motorcycle Collision Reconstruction – PRT, Braking, Sliding Friction
 Pedestrian/Cyclist Reconstruction
 EDR Update 2016
 Staged Collisions and Testing (Team Member)
 Digital Forensics and Heavy Vehicle Post-Crash Inspections
 Vehicle Rollover Crash Testing Applied to Accident Reconstruction
 Human factors – The Anatomical Blind Spot

Crash Data Retrieval Technician 1 & 2
Collision Safety Institute – Given at Marietta, GA
16 Hours

2014 **Special Problems in Traffic Crash Reconstruction**
Institute of Police Technology and Management
University of North Florida – Jacksonville, FL
30 Hours

Accident Related Vehicle Fires
 Event Data Recorder Update – 2014
 Case Studies in Applying EDR to Traffic Crash Reconstruction
 Staged Collisions and Testing
 Unmanned Aerial Vehicles in Traffic Crash Reconstruction
 Heavy Vehicle Technology in Traffic Crash Reconstruction
 Application of Uniform Projectile Motion in Airborne Vehicle Dynamics
 Incorporating 3D Scanning Technology in Crash reconstruction
 Bicycle Collision Reconstruction
 Drag Factors in Current Vehicles – Friction Algorithms
 Fundamentals of Applied Statistics for Crash Reconstruction
 Forensic Vehicle Evidence Collection
 Motorcycle Technology Updates (Presenter)
 Practical Evidence Interpretation

Air, ABS, Foundation & Friction Brakes
Meritor/WABCO Aftermarket Product Training
Jacksonville, FL
8 Hours

2013 **Air, ABS, Foundation & Friction Brakes Training Program**
Meritor Inc. – Tom Nehl Truck Center
Waycross, GA
4 Hours

Cat C15 Engine Electronic Control System – Caterpillar University
Caterpillar, Inc.
4 Hours

Cummins Insite Training
Cummins Power South & Cummins Virtual College
12 Hours
 Operation of Cummins Insite
 Connection Methods
 Troubleshooting
 Bench Downloads
 Use of Work Orders
 Communication Protocols

2012 **Special Problems in Traffic Crash Reconstruction**
Institute of Police Technology and Management
University of North Florida Jacksonville, Florida
32 Hours
 Introduction to HVEDR (Heavy Vehicle Event Data Recorder) Technology
 Current Research in HVEDR (Heavy Vehicle Event Data Recorder) Technology
 Advancements in the Use of the iWitness Photogrammetric System in Traffic
 Crash Reconstruction
 Crush Analysis
 Collision Analysis – Kinematics, Vectors and Delta-V
 Trace Evidence: Locating, Collecting, Analysis
 Event Data Recorder Update
 Night and Low-Light Digital Photography for Crash Reconstruction including
 iPhone/iPad Photo “Apps”
 Case Review: High Speed Pedestrian Fatality with EDR Data
 Boating Accident Investigations
 How Risky are Distracted Drivers? The Results from Naturalistic Driving Studies
 How Risky are Distracted Truck Drivers?
 GPS Forensic Investigations
 Reconstruction 101: Speed, Cause and Avoidability
 Safety Belt Restraint Systems Overview
 Rotational Mechanics
 Tires 101

2011 **ARAS 360 Advanced 3D Computer Diagramming and Animation for**
Reconstruction
ARAS 360 technologies Inc. – N. Charleston PD

Special Problems in Traffic Crash Reconstruction
Institute of Police Technology and Management
University of North Florida Jacksonville, Florida
32 Hours

NASCAR Safety Innovations

Working the Crush and Momentum Solutions for Motorcycle-to-Car Collisions

Crash Data Collection Guide for GM Airbag Electronic Control Units What's New
 in Event Data Recorders

Applying EDR Data to Reconstruction: Real World Case Studies

Safe Following Distances and Nighttime Driving Speeds for Commercial
 Vehicles

Portable GPS Usage in Crash Investigation and Other Criminal Activities Police
 and Other Fleet Vehicle Crash Concerns and Special Circumstances

Traffic Signal Timing Essentials

Bicycle Crash Investigation

Using Simulation Software to Reconstruct a Crash

Tires, Tire Forces and Stability

Energy Concepts in Traffic Crash Reconstruction/Investigation

Physics for Crash Reconstruction

Microsoft Excel for Traffic Crash Reconstruction

2010

Energy Methods and Damage Analysis in Traffic Crash Reconstruction
Institute of Police Technology and Management
University of North Florida Tempe, AZ 40 Hours

Standards, measurements and dimensional analysis

Understanding and using conversion factors

Vectors

Damage momentum and crush analysis

Crush measuring protocol and measuring techniques

Outdoor project - interpreting damage and measuring crush

Energy concepts and analysis

Determining appropriate post-impact drag factors

Understanding EBS and delta-V

Conservations 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) analysis

Pole impacts and fracture energy

Using simultaneous equations to solve in-line collisions

2009

**Special Problems in Traffic Crash Reconstruction
Institute of Police Technology and Management
University of North Florida Orlando, Florida
32 Hours**

CDR Release 3.1

Validation for the Use of the Drag Sled in Determining a Reasonable
Range of the Coefficient of Friction in Traffic Crash Reconstruction
Protocol and Procedures for Drag Sled Users

Single-Image Planar Rectification and Multi-Image Close-Range
Photogrammetry in Crash Reconstruction

Airborne Trajectories and Analysis

Motorcycle Lateral Acceleration and Lean Angles

Using Simulation to Reconstruct and Visualize Motor Vehicle Crashes

Modern Technology for Measuring Coefficient of Friction and Vehicle
Dynamics

REC-TEC Update

**Traffic Crash Reconstruction Update
Institute of Police Technology and Management
Jacksonville, FL
40 Hours**

Geometry, trigonometry and selected mathematical topics

Dynamics and Newton's Laws of Motion

Skid analysis and testing

Critical speed yaw analysis

Time-distance analysis

Concepts in rotational mechanics

Pole and narrow object impacts

Conservation of linear momentum

Fundamentals of rollover crash reconstruction

Uniform projectile motion and airborne speed analysis

2008

**Special Problems in Traffic Crash Reconstruction
Institute of Police Technology and Management
University of North Florida Jacksonville, Florida**

32 Hours

An Effective and Accepted Traffic Safety Program
 A Comparison of Equations for Estimating Speed Based on Maximum Static Deformations for Frontal Narrow-Object Impacts
 Accounting for Impulse and Rotation: An Application to Left Turn, Failure-to-Yield Collisions
 Case Analysis of a 300+ Foot Projection of a Pedestrian and Vehicle Collision
 Comparing Methods of Measuring Drag Factor
 Driver Response Choice and Times
 Experiments in Crash Reconstruction
 Event Data Recorder Update
 New Technology and Commercial Vehicles
 The Science of Defining Safe Roads for Traffic Crash Investigation and Reconstruction
 Sudden Acceleration Incident Investigation
 Surviving the Deposition
 Test Results from Staged Collisions
 Validating the "f" in Searle

**South Carolina Association of Reconstruction Specialists
 Conference Charleston, SC**

32 Hours

Crash Testing
 Human Factors
 Commercial Vehicle ECM's
 Spin Analysis
 Rollover Crash Analysis
 Motorcycle Collision Investigation
 Reconstructing PIT Maneuvers
 Close-Range Photogrammetry
 Tire Failure Analysis

2007

**Crash Data Retrieval User's Conference
 Houston, Texas**

20 Hours

New Bosch Releases of Ford Event Data Recorders
 Two-dimensional analyses of EDR information

Average Daily Ignition Cycles in SDM-Equipped, GM Vehicles
 Survivability Aspects of the 563 Rule
 The Accuracy of General Motors Event Data Recorders in NHTSA Frontal
 Barrier tests
 Using Diagnostic Tools with the Crash Data Retrieval System
 GM vehicles: when non-deployments are saved/not saved, GM logic
 Detailed Evaluation of Vehicle Speed and Speed Recorded by an SDM
 When do Airbags Deploy
 Final NHSTA Ruling and Its Implications

VS Visual Statement Inc.

Advanced Diagraming and Animation Using Vista FX3

Brunswick, Georgia

32 Hours

South Carolina Association of Reconstruction Specialists

Combined Conference (SCARS, SeARS, NAPARS)

Charleston, SC

32 Hours

Crash Testing

Post impact trajectories and other important items to consider in speed calculations

Calculating speeds for ABS and ABS/conventional combination airbraked commercial motor vehicles

Human factors considerations

Pedestrian conspicuity

Drag Sled vs. Skid Testing

Rec-Tec Advanced Users Conference Jekyll Island, GA

32 Hours

2006

Special Problems in Traffic Crash Reconstruction

Institute of Police Technology and Management

University of North Florida Jacksonville, Florida

28 Hours

The Contribution of a Laterally Displaced Vehicle on the Post-Impact Speed
 Calculation of a Heavy Truck

Rotational Motion Analysis in Accident Reconstruction

Crush Damage Measuring Techniques
 Crush Analysis wit Under-rides and the Coefficient of Restitution Estimating
 Impact Speed in Frontal Collisions with Wooden Utility Poles and Trees
 Delta V and GM New SDM Technology – Epsilon Series.

Applied Physics for the Traffic Crash Investigator
Institute of Police Technology and Management
University of North Florida
Jacksonville, Florida

40 Hours

Advanced Mathematics overview
 Work-energy relationships and applications
 Conservation of linear momentum/impulse (with vector sum analysis using mathematical and graphical methods)
 Uniform projectile motion/airborne equations
 Uniform circular motion/critical speed
 Tire forces and tire mark evidence
 Time-distance relationships
 Energy loss in collisions/CRUSH
 Rotational mechanics/rotation after collision and pitch down in take off
 Low-speed collision considerations including coefficient of restitution

Air Brake Technician Certification - Bendix Corp.
Atlanta, Georgia

32 Hours

Air Brake Systems Training
 Fundamentals of Compressed Air Braking
 Air Brake System Failure Mode Diagnosis/Troubleshooting
 Air Brake System & Foundation Component Servicing
 ABS and Stability Control Systems
 Bendix Certification – Air Brake System Specialist

MJC & Associates
Sokkia Systems Training Program
Brunswick, Georgia

16 Hours

Forensic Mapping Specialist

**Conference on Factors, Formulae, Forensic Technology
Texas Association of Accident Reconstruction Specialists
Houston, Texas**

28 Hours

Dynamic vehicle to vehicle crash testing
Dynamic Truck-Tractor and Semi-Trailer Deceleration Testing; Experimental
Program to Study the Tire-Road Friction Related to Drag Sleds
Critical Speed Yaw Testing
Human Error, but Which Human and Whose Error - Perception and Reaction
Applicability of Crush Analysis Formulas
Computer Simulations
Nighttime Perception and Reaction Times
Commercial Event Data Recorders
Nighttime Visibility Studies and Digital Photography
Highway Sightlines for Accident Reconstruction

Crash Data Retrieval Specialist

Atlanta, Georgia

8 Hours - CDR System Technician

25 Hours - CDR Data Analysis

Crash Data Retrieval System Operator Training Series

2005

Practical Applications of PhotoModeler in Collision Reconstruction

Brunswick, Georgia

32 Hours

Side Crush Measurement
Crush from Unknown Photos
Vehicle Modeling for Simulation
From Photos to 3D Court Presentation
Combining Aerial and Ground Photos

**Special Problems in Traffic Crash Reconstruction
Institute of Police Technology and Management
University of North Florida Jacksonville, Florida**

28 Hours

Under-ride Staged Collisions
 Airborne Validation Testing
 Spin Analysis Testing
 Drag Sled Analysis
 Commercial Motor Vehicle Braking Systems
 Legal Aspects of Black Box Evidence
 Lamp Examinations
 Scene Mapping with P/C Crush Using Speed Laser and Total Station

Mapscenes Software- Sokkia Systems Training Program**MJC & Associates****Brunswick, Georgia****16 Hours****Caterpillar Electronic Technician Training****Caterpillar Inc. – Yancey CAT****Brunswick, GA****8 Hours**

Caterpillar ECM Imaging and Programming using CAT-ET
 Field exercises in ECM connection and data extraction

PhotoModeler Pro 5 Collision Investigation**EOS Systems, Inc.****Raleigh, North Carolina****32 Hours**

Photography techniques
 Scene diagramming and mapping from photos
 Scene and crush measurements
 Evaluating accuracy and developing standard operating procedures
 Exporting to a CAD package for further enhancement and diagramming
 Measurements from single photos and/or photos from unknown cameras
 Photo-realistic surfacing for visualizations and rendering
 Nighttime photography and the use of sub-pixel marked, retro-reflective targets
 Ortho-photo and rectified-photo generation
 Admission of photogrammetry and PhotoModeler into court

DDEC ECM Systems Data Retrieval**Detroit Diesel Training Center****Detroit, Michigan****32 Hours**

Extracting and Analyzing Data from Electronic Control Modules and
Prodrivers on Heavy Trucks

2004**Human Factors In Traffic Crash Reconstruction****Institute of Police Technology and Management****University of North Florida Jacksonville, Florida****40 Hours**

Perception and Response Time Development

Simple and Complex Task

Nighttime Visibility Studies

Eyewitness Testimony

MJC & Associates**Mapscenes Software - Sokkia Systems Training Program****Brunswick, Georgia****Forensic Mapping Specialist****16 Hours**

Drafting, Profiles and Contours

New Evidence Recorders

Field Mapping Exercises

Southeastern Collision Reconstruction Conference**Sixth Annual Conference Biloxi, MS****32 Hours****Special Problems in Accident Reconstruction****Institute of Police Technology and Management****University of North Florida Jacksonville, Florida****28 Hours**

Electronic Control Modules in Commercial Vehicles

Critical Speed and Lane Change Equations

Data Collection, Analysis, and Collision Reconstruction

(Presentation)

2003

**Special Problems in Accident Reconstruction
Institute of Police Technology and Management
University of North Florida Jacksonville, Florida
16 Hours**

Motorcycle Impact Friction Values
Performance of Motorcycle Brake Systems
Rollover Accident Reconstruction
Rollover Testing
Spin Analysis
Motorcycle Braking
Photogrammetry
Crash Data Retrieval, Ford RCM

**Investigation of Motorcycle Crashes
Institute of Police Technology and Management
University of North Florida Jacksonville, Florida
40 Hours**

Analyzing and interpreting the motorcycle crash scene
Determining acceleration and deceleration characteristics of the Motorcycle
Analyzing and interpreting modes of instability and handling characteristics in motorcycles
Interpreting the operator factor
Reviewing motorcycle tires, helmets and other equipment
Using a practical application of formulas (projects)

2002

**Mapscenes Software - MJC & Associates Sokkia Systems Training Program
Brunswick, Georgia
Forensic Mapping Specialist
24 Hours**

Drafting, Profiles and Contours
Mathematical Analysis Using Mapscenes
Field Mapping Exercises and Downloading

CDR Tool - User Certification Course

**Institute of Police Technology and Management
University of North Florida Jacksonville, Florida**

24 Hours

Methodology for accessing components
Applications of the data recorded
Recovery of data recorded
Types of SDM's
Data Interpretation
Operation of CDR System

Advanced Traffic Crash Reconstruction with WINCRASH

**Institute of Police Technology and Management
University of North Florida Jacksonville, Florida**

40 Hours

Speed change from crush damage
Computer aided linear momentum analysis
The importance of Delta-V to the understanding of collision dynamics
Methods for calculating the trajectories of vehicles after collision
Crashes where the computer cannot help
Quality of scene data required and how to gather it
Vector analysis

Operator of Uninspected Passenger Vessels (Near Coastal)

U.S. Coast Guard Captain's Course

Sea Schools, Inc.

Brunswick, Georgia

54 Hours

USCG Rules of the Road
COLREGS
SOLAS
Navigation
Techniques of Seamanship
Aids to Navigation
Radio Operation
Survival Techniques
Distress Signaling
Boating Terminology
Boat Equipment

Use of Flares
 Use of Life Jackets
 Anchoring
 Boat Registration
 Knot Tying and Ropework
 Firefighting

**South Carolina Association Of Reconstruction Specialists
 Myrtle Beach, South Carolina**

24 hours

Fourth Annual Southeastern Collision Reconstruction Conference
 Crash Testing
 Motorcycle Skid Test
 Vehicle Vaults
 Drag Sleds
 Motorcycle Collision Reconstruction
 Commercial Vehicle Acceleration
 PDOF and Delta V
 Transit Bus Crash Study

**2002 Conference - Southeast Accident Reconstruction Society
 Orange Beach, AL**

32 Hours

Conservation of Linear Momentum - Facts and Myths
 Event Data Recorders
 Collision Photography
 Heavy Truck Braking Efficiency - Computer Modeling

**Watercraft Crash Investigation and Incident Reconstruction
 University of North Florida - IPTM**

Jacksonville, Florida

40 Hours

Nautical Terminology
 Watercraft Operations
 USGC Rules and Regulations
 Rules of the Road: Domestic, International, Inland
 Characteristics of Powerboats, Sailing Vessels, Personal Watercraft
 Navigation and Plotting
 Search Patterns and Practices
 Vessel Construction Materials and Methods

Propulsion Technology
 Personal Flotation Devices
 Firefighting Equipment
 Watercraft Reconstruction Methodologies
 Speed Determination

2001 Sokkia Systems Training Program - Forensic Mapping Specialist

32 Hours

Mapscenes, Drafting, Profiles and Contours
 Mathematical Analysis Using Mapscenes
 Field Mapping Exercises and Downloading

**South Carolina Association Of Reconstruction Specialists
 3rd Annual Southeastern Collision Reconstruction Conference
 Myrtle Beach, South Carolina**

24 hours

Crash Data Retrieval System
 Staged Crash and Data Recovery
 Motorcycle Collision Reconstruction

**Pedestrian and Bicycle Accident Reconstruction
 Texas A&M University – Engineering Extension**

40 hours

Pedestrian crash problems
 Pedestrian impact dynamics
 Types of data: objective, subjective and performance
 Collection of data
 Pedestrian conspicuity
 Reaction time/human factors
 Reconstruction techniques
 Speed analysis
 Hit and run investigation techniques
 Vehicle Parts and Terminology,
 Body Trajectories and Movement
 Pedestrian Behavior, Walking and Running

**Southeast Coast Collision Conference
 Southeast Accident Reconstruction Society
 Cocoa Beach, Florida**

12 Hours

Human Factors

Understanding and Applying PDOF

2000

Professional Society of Forensic Mapping**Sokkia Systems Training Program, Forensic Mapping Specialist Course
(Level II-CPX)****Brunswick, Georgia****Forensic Mapping Specialist****32 Hours**

Mapping Crush Profiles of Vehicles

Vertical Mapping

Map Software

Advanced Commercial Vehicle Accident Reconstruction**Texas A&M University – Engineering Extension****50 Hours**

NTSB Study of Heavy Vehicle Airbrake Performance

Weight and Balance, Rollover Equation

Investigation of Driver and Carrier

Commercial Tire Properties

Heavy Vehicle Braking Efficiency & Regulated Formula

Dynamics Testing of Various Rigs, Formula Validation

Hands on Truck Driving

Nighttime Conspicuity Studies

Truck Accident Litigation Seminar – Nissenberg Law Group**Savannah, GA****8 Hours****World Reconstruction Exposition 2000****Sponsored By Various Reconstruction Associations****Texas A & M University College Station Texas****32 Hours**

Accident Reconstruction - A Search For The Truth

Event Data Recorders

Crash Data Retrieval Systems

Vehicle Restitution

Highway Liability

Human Factors
 Crash Testing of Motorcycles at Various Speeds and Configurations
 Skid Tests at Low-End Moderate Speeds With Different Tires
 High Speed Vehicle-to-Vehicle Crash Tests
 Crash Data Retrieval Systems
 Full-Scale Force/Weight Tests of Air-Braked Trucks, Truck Tractors, and
 Semi-trailers Compared to Automobiles

1999

**Texas Association of Accident Reconstruction Specialists
 Conference San Antonio, TX
 8 Hours**

Braking Capabilities of Pick-up Trucks and Trailers

**Special Problems in Traffic Accident Reconstruction
 Institute of Police Technology and Management
 University of North Florida Jacksonville, Florida
 27 Hours**

Tire Forensics
 Energy Calculation Methodologies
 Forensic Evidence
 Momentum Applications

**International Association of Accident Reconstruction Specialists
 Conference
 Charleston, SC
 32 Hours**

Parts Failure Analysis
 Occupant Kinematics
 ABS/ Vehicle Control Devices

**MJC & Associates
 Forensic Mapping Specialist Course
 Brunswick, Georgia
 32 Hours**

EDMI/Theodolite
 Data Collector
 Map Software

Commercial Vehicle Inspection and Collision Investigation
Texas A&M University – Engineering Extension
40 Hours

Federal Motor Carrier Safety Regulations
 Commercial Vehicle Terminology
 Commercial Vehicle Inspection
 Air Brake Systems and Performance
 Dynamics of Articulated Vehicles
 Driver Views, Blind Spots, Mirrors
 Skid Testing of Various Configurations
 Speed Calculations

1998 **Special Problems In Traffic Accident Reconstruction**
Institute of Police Technology and Management
University of North Florida Jacksonville, Florida
32 Hours

Rollover Accident Reconstruction
 Analyzing Nighttime Accidents
 Accident Fraud II
 Friction and Energy
 Human Factors
 Mechanical Vehicle Inspection
 New Automotive Technologies

Midwest Association of Technical Accident Investigators Conference
Kansas City, KS
20 Hours

Momentum, Energy and Restitution in Accident Reconstruction

1998 **Crush and Momentum Application in Accident Reconstruction**
Fulton Co PD – GA POST
32 Hours

Forensic Mapping Using AutoCAD LT98
Atlanta PD – GA POST
40 Hours

**Conference on Reconstruction and Safety on the Highways
Texas A&M University – Engineering Extension**

32 Hours

CRASH 98

History of Crash Testing

Overview of “CRASH” & “CRASH III” Concepts

Validation of CRASH Algorithm

Vehicle Measurement Protocol

CRASH III Applications in Europe

Total Station Applications for Vehicle Measurement

Car-to-Car and Car-to-Barrier Crash Tests

Derivation of Crush Stiffness Coefficients

Overview of HVE Software

Application of WinCrash Software

Applications of PC-Crash Software.

1997

Supervising a Selective Traffic Enforcement Program

Institute of Police Technology and Management

University of North Florida Jacksonville, Florida

40 Hours

Crash Causation, Pattern Identification, and Enforcement Strategies

Collecting and Analyzing police traffic data

Elements of a well designed records system

Elements of a selective traffic law enforcement program

Roles of the traffic supervisor

Writing a highway safety grant

**Conference on Reconstruction and Safety on the Highways
Texas A&M University – Engineering Extension**

32 Hours

CRASH 97

Commercial Vehicle Under-ride Collisions and Crash Tests

Human Acceleration Thresholds

Nighttime Visibility and Reaction Times

System Based Energy & Momentum

Low Speed Crash Tests

Air Bag Deployment Test Impact.

Special Problems in Traffic Accident Reconstruction

**Institute of Police Technology and Management
University of North Florida Jacksonville, Florida**

32 Hours

Neuro Linguistics

Accident Reconstruction, Legal Issues, Air Brakes

Advanced Computerized Collision Diagramming

Low Speed Collisions

Motorist Processing of Traffic Control Devices in Road Construction

**SOKKIA Accident Scene Surveying for Accident Reconstruction Fulton Co
PD – GA POST**

24 Hours

High Speed - Low Speed Crash Reconstruction

MacInnis Engineering Vancouver, BC

40 Hours

Engineering Evaluation of Minor Impacts

Passenger Car Bumpers

Impact Severity Using Barrier Data

Low Velocity Vehicle to Barrier & Vehicle to Vehicle Impact Tests

High Speed Vehicle to Vehicle Impact Tests

Minor Lateral & Sideswipe Impacts

Theory & Operation of PC-Crash & PC-Rect

1996

NHTSA Community Traffic Safety Programs Workshop

32 Hours

AutoCAD LT for Accident Reconstruction

Gwinnett Technical College – GA POST

40 Hours

FMCSA North American Standard Level I Inspection

General Hazardous Materials

Compliance Review Course

GA POST – GA DOT – NCGLEA

Cartersville, GA

40 Hours

FMCSA Rules and Regulations – Driver, Vehicle, Company

Basic Level 1 Inspections
Advanced Level 1 Inspections
Motor Coach Inspections
General Hazmat Inspections
Cargo Tank Inspections
Load Placement and Securement, Securement Devices
Driver Logbook Analysis, DVIR
Electric On/Board Recording Devices
Level VI Inspections (Radioactive Materials)
Weight and size rules and regulations
Escorting large over size loads
Drug interdiction in commercial motor vehicles

Railroad Grade Crossing Incident Management Instructor Course
North Central GA Law Enforcement Academy – NS Railway - NHTSA
32 Hours

Advanced Accident Reconstruction and Collision Prediction Course
(WinSMAC)
Institute of Police Technology and Management
University of North Florida Jacksonville, Florida
32 Hours

Prediction program operation and function
Types of prediction programs
Input data required and their scores
Damage prediction
Pre-impact analysis
Post-collision analysis
Practical applications

FEMA Response to Hazardous Material Incidents Course
North Central GA Law Enforcement Academy
8 Hours

Hazardous materials classification; labeling; packaging; recognition; identification; and use of response guides
Systematic process for Haz/Mat incident response
Hazard and risk assessment techniques

Basic options, requirements, and limitations of methods to control, contain,
And confine the hazard

1995

Field Training Officer Certification Course
North Central GA Law Enforcement Academy
24 Hours

NHTSA Standardized Field Sobriety Testing Instructor Course
GA POST - NHTSA
40 Hours

Basic instructor techniques
Overview of alcohol, drugs and highway safety
Review of Standardized Field Sobriety Tests including horizontal gaze
nystagmus
Proper procedures for conducting drinking exercises
Practice teaching
Curriculum revisions

LASER Operator / RADAR Recertification Course - CCSO
12 Hours

Advanced Accident Investigation Update
Fulton Co PD – GA POST
24 Hours

Speed Detection Devices Instructor Certification
Institute of Police Technology and Management
University of North Florida Jacksonville, Florida
40 Hours

History of the development of Lasers
Theory of Lasers: how they operate and how they measure speed
Operational considerations
Preparation for court presentation
Practical application, field training
Radar policy and procedure
Legal requirements/case law
Factors affecting Radar

Visual speed estimates
 Technical aspects of Radar
 Same direction moving Radar
 Lesson plan preparation
 Methods of instruction
 Practical and written examinations
 Classroom presentations

Advanced Commercial Vehicle Accident Reconstruction
Fulton Co. PD – GA POST
19 Hours

1994 Occupant Protection Usage and Enforcement Workshop
North Central GA Law Enforcement Academy
16 Hours

Supervisory Training Levels I and II
Georgia Public Safety Training Center
80 Hours

Supervisory Training Level III
Georgia Public Safety Training Center
40 Hours

Advanced Report Writing
North Central GA Law Enforcement Academy
16 Hour

1993 Railroad Grade Crossing Collision Investigation Course
North Central GA Law Enforcement Academy – NS Railway - NHTSA
24 Hours

Scope of the grade crossing collision problem: statistics, causation, speed and weight factors, stopping distances
 Information needed to investigate grade crossing collisions
 Railroad operations
 Locomotives and railcars
 Active and passive traffic control devices

Event recorders
 Freight and passenger trains
 Railroad personnel and their responsibilities
 Highway-rail grade crossing signs and signals
 Extensive hazardous materials training, including recognition, assessment and appropriate emergency response
 Review of state and federal motor vehicle codes pertaining to highway-rail grade crossing safety and railroad trespass prevention
 Review of case law pertaining to grade crossing collisions

Instructor Training Course
Georgia Public Safety Training Center
80 Hours

1991 Traffic Management Systems Computer Course
North Central GA Law Enforcement Academy
24 Hours

DUI Standardized Field Sobriety Testing – NHTSA
North Central GA Law Enforcement Academy
24 Hours

DUI Visual Detection
 Standardized field sobriety testing (including horizontal gaze nystagmus)
 Sobriety checkpoints
 Legal aspects of DUI enforcement
 Two NHTSA recommended drinking exercises

Accident Investigation Update – Roswell PD
8 Hours

Traffic Law Update - CCSO
8 Hours

1991 Traffic Accident Reconstruction
Institute of Police Technology and Management
University of North Florida Jacksonville, Florida
80 Hours

Derivation and origin of the commonly used speed formula

Speed of vehicles at impact using conservation of linear momentum
 Behavior of vehicles in a collision using Newton's three laws of motion
 Effects of weight shift in braking involving large trucks and buses
 including truck-tractor semi-trailer combinations
 Effects of computer or anti-skid braking systems in stopping distances and
 Braking action
 Determination of direction of travel, initial contact and position of
 vehicles on the roadway
 Extensive project work and controlled vehicle experiments

Intoximeter Breath Analyzer Operator Course
Georgia Public Safety Training Center
16 Hours

Traffic Accident Reconstruction
Georgia Public Safety Training Center
80 Hours

Measuring critical speed scuff mark evidence
 Calculation of radii and speed from critical speed scuff marks
 Radius and critical speed equations variations and derivation
 Trigonometric concepts to measure fall distances
 Calculation of the speeds of vehicles which fall, flip, vault or spin
 Conservation of linear momentum principles
 Calculation of the impact speeds of accident vehicles using COLM
 Solving momentum problems graphically and mathematically
 Time/Distance Analysis
 Application of time/distance equations to the traffic accident
 reconstruction process
 Vehicle crush measurement and documentation
 Using vehicle damage to calculate the impact speeds of accident vehicles

1990 On Scene Accident Investigation
Georgia Public Safety Training Center
80 Hours
 Physical evidence from the roadway
 Physical evidence from the vehicle
 The human element

Occupant kinematics
 Mathematical principles and equations
 Skid marks and vehicle speeds
 Crash scene photography
 Traffic templates
 Measuring and scale diagramming
 Driver and witness interviews
 Information analysis and case preparation

RADAR Operator Course
Georgia Public Safety Training Center
16 Hours

Technical Traffic Accident Investigation Course
Georgia Public Safety Training Center
104 Hours

Speed estimates from kinetic energy, skidmarks, scuffmarks, and airborne situations
 Vehicle dynamics and motion
 Time, distance, and motion equations
 Conservation of momentum equations
 Center of mass calculation
 Vehicle damage analysis including thrust, overlap and collapse
 Vehicle lamp examination
 Tire damage evaluation
 Use of photographs, video recording and computer images
 Vector sum analysis

1989 **Advanced Traffic Law**
North Central GA Law Enforcement Academy
32 Hours

Emergency Vehicle Operations Course
Georgia Public Safety Training Center
24 Hours

Basic Law Enforcement Management and Supervision
Georgia Public Safety Training Center

40 Hours

1987 Basic Law Enforcement Training Course
Floyd College – GA POST
240 Hours

1200+ hours of additional training in law enforcement courses from:
University of North Florida, Institute of Police Technology and Management
Texas A&M University, Engineering Extension Service
Georgia Public Safety Training Center
Georgia Peace Officer Standards and Training Council

CERTIFICATIONS:

GA Peace Officer Standards and Training Council-1987
 GA Peace Officer Standards and Training Council-1993; General Instructor
 National Highway Traffic Safety Administration Instructor-1995;
 Standardized Field Sobriety Testing
 GA Peace Officer Standards and Training Council Specialized Instructor-1996; Railroad
 Grade Crossing Collision Investigation
 GA Peace Officer Standards and Training Council Specialized Instructor-1996; Speed
 Detection Devices (LIDAR/RADAR)
 United States Coast Guard Captain - 2002
 U.S. Merchant Marine Officer (OUPV)

PROFESSIONAL AFFILIATIONS:

Accreditation Commission for Traffic Accident Reconstruction
 Southeast Accident Reconstruction Society - Charter Member

Law Enforcement and Emergency Services Video Association International (LEVA)

International Association of Forensic and Security Metrology (IAFSM)

International Network of Collision Reconstructionists

National Association of Professional Accident Reconstruction Specialists

Society of Automotive Engineers

South Carolina Association of Reconstruction Specialists

California Association of Accident Reconstruction Specialists

Texas Association of Accident Reconstruction Specialists

Washington Association of Technical Accident Investigators

American Professional Captains Association

QUALIFICATIONS:

Investigated or assisted in the investigation and reconstruction of over 100 fatal traffic crashes, 400 serious injury crashes, and over 2000 minor injury/property damage crashes while with the Cherokee County Sheriff's Office.

Investigated or assisted in the investigation and reconstruction of over 100 boating accidents, incidents, or drownings while with the Cherokee County Sheriff's Office.

Reconstructed or assisted in the reconstruction of over 150 injury or fatal crashes while with Thomas Langley & Company.

Reconstructed or assisted in the reconstruction of over 1500 injury or fatal crashes while with Southeast Collision Analysis, Inc. Trained staff reconstructionists in investigative techniques, evidence interpretation, photography, and advanced reconstruction methodology.

Reconstructed or assisted in the reconstruction of over 1500 injury or fatal crashes while with VeriCrash LLC.

Testified as an expert witness in accident reconstruction for the State in the prosecution of vehicular homicide cases. Testified as an expert witness in civil proceedings in State, Superior, and Federal courts in motor vehicle accident cases.

Trained law enforcement officers and engineers in traffic law, accident investigation, advanced accident investigation and reconstruction, forensic mapping and computerized reconstruction topics.

Fully Accredited by the Accreditation Commission for Traffic Accident Reconstruction. Accreditation number 1018. Accreditation maintained via continuing education requirements since 1999.

(CV Revised October 2025)

NOT FOR EXPERT DISCLOSURE