

## Curriculum Vitae

Patrick D. Weber

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### BACKGROUND

Mr. Weber is a Forensic Technician with 55 plus years of law enforcement and accident reconstruction experience who specializes in accident site preservation and documentation. He is experienced in providing engineering support in the areas of accident/incident analysis, analysis of police photos and surveillance videos through use of photogrammetry, accident site surveying/mapping and photogrammetric documentation, and analysis of vehicle damage. As the investigation process continues, his duties include deposition testimony analysis, file analysis and related research to create scale Court diagrams depicting the accident scene with physical evidence present for subsequent accident reconstruction purposes.

### AREAS OF EXPERTISE

- Automobile Collisions
- Tractor-Trailer Collisions
- Bicycle Accidents
- Pedestrian Accidents
- Motorcycle Accidents

### PROFESSIONAL LICENSES & CERTIFICATIONS

- Accreditation: Commission for Traffic Accident Reconstruction, ACTAR #1479
- State Certified Instructor in Traffic Accident Investigation, Indiana Law Enforcement Training Academy (ILEA), Plainfield, IN, 1977 – 1984

### PROFESSIONAL EXPERIENCE

2019 – Present | Quality Forensic Engineering, LLC | Forensic Technician, Indianapolis, IN

2009 – 2019 | BEC Consulting, LLC | Engineering Technician III – Field Responder, Venice, FL

2000 – 2009 | BEC Consulting, LLC | Engineering Technician III, Tallahassee, FL

1984 – 2000 | Wolf Technical Services, Inc. | Consultant, Indianapolis, IN

1982 – 1984 | Private Accident Recon Consulting for Attorneys, Indianapolis, IN

1966 – 1986 | Indianapolis Police Department | Traffic Accident Investigation Supervisor,  
Fatality/Homicide Division, Indianapolis, IN  
| Formulated and Organized Accident Investigation  
Section, 1973

1972 – 1980 | Primary Instructor of Accident Investigation, Indianapolis Police Academy

1965 – 1966 | City of Indianapolis, Department of Transportation | Traffic Engineering Draftsman,

Indianapolis, IN

1964 – 1965 | National Life & Accident Insurance Company | Insurance Underwriting Agent,  
Indianapolis, IN

## NOTABLE PROJECTS

Mr. Weber has been involved in several forensic engineering projects, including the following:

### **Vehicular**

- Accident-event reconstruction with respect to time, speed, and distance in head-on, side, and rear impacts.
- Vehicle speed determination based on crush levels from collision
- Rollover-sequence reconstruction based on vehicle inspection and speed calculations
- EDSMAC and EDCRASH simulations
- Light-bulb-filament deformation examination to determine light illumination at impact
- Nighttime reenactment to determine visibility and reaction time of drivers
- Photogrammetric Analysis

### **Restraint Systems**

- Air-bag malfunction examination with respect to deployment failure and air-bag rupture
- Research of procedures for installation and replacement of inflator modules
- Seat-belt failure incidence investigation, including inertial unlatch, retractor spool-out, and passive-restraint design
- Restraint-systems research, from the RCF-67 buckle to various generations of the JDC buckle
- Accident-kinematics analysis to determine resulting forces, their translation to the buckle, and its potential for inertial unlatch
- Dynamic testing of buckles, applying various input parameters such as impact force and rate of deceleration while analyzing the results with respect to inertial unlatch
- Design work on a patented, non-inertial-unlatch buckle

### **Tractor-Trailer**

- Tractor-trailer inspection regarding annual inspection timeliness, driver's log, and conformance to Federal Motor Carrier Safety regulations
- Commercial vehicle brake-system analysis, concentrating on push rods, slack adjusters, and air pressure to determine attempted braking force v. actual braking force
- Tractor-trailer/automobile accident reconstruction, including underride, visibility, and intersection collisions

### **Pedestrian**

- Pedestrian-to-driver visibility determination, particularly at night
- Pedestrian walking speed and vehicle impact speed calculations based on physical evidence, including damage to the vehicle and the final-rest position of the pedestrian
- Initial point-of-impact determination for the pedestrian to the vehicle, based on damage to the vehicle and injury to the pedestrian

- Nighttime reenactment to determine pedestrian visibility to the driver

#### **Motorcycle**

- Accident reconstruction involving motorcycles and automobiles
- Bulb-filament analysis to determine headlight illumination prior to collision
- Speed calculation of motorcycle prior to braking based on perception-reaction, length of skid, and damage to motorcycle

#### **Railroad**

- Sight-distance triangle determination based on AASHTO recommendations for safe grade crossings
- MUTCD recommendations comparison to rate the use and placement of warning signs at highway grade crossings
  
- Time-speed distance reconstruction in locomotive v. automobile collisions

#### **PROFESSIONAL ASSOCIATIONS**

- Toastmasters International (TI)
- United States Power Squadron
- National Association of Professional Accident Reconstruction Specialists (NAPARS)
- Indianapolis Police Department -- Chief's Honor Guard, 1982 – 1986

#### **HONORS AND AWARDS**

- Toastmaster Vice-President of Education – Northside (VPE) 2002-2004
- Advanced Toastmaster Gold (ATM -G), 2009
- Advanced Toastmaster Silver (ATM-S), 2006
- Toastmaster Best Speaker of the Year Award, 2005-2006
- Toastmaster of the Year Award, 2005
- Advanced Toastmaster Bronze (ATM-B), 2004
- Competent Toastmaster (CTM), 2003
- Indianapolis Police Department -- Operations Division Officer of the Year, 1981

#### **COURSEWORK/CONTINUING EDUCATION**

July 2011 | “ARAS 360 3D Computer Diagramming for Crash Reconstruction”, ARAS 360 Technologies Inc., Tallahassee, FL

April 2005 | “PC Crash 6.2”, Accident Analysis Training Course, MacInnis Engineering Associates Ltd., Tallahassee, FL

April 2004 | “Analysis of Collision Involving Pedestrians or Bicycles”, Collision Safety Institute

September 2004 | “Crash Data Retrieval System Operator”, Collision Safety Institute

- May 2002 | "Traffic Accident Reconstruction", Northwestern University, Tallahassee, FL
- April 2002 | "OSHA Training Course", BEC Consulting, LLC, Tallahassee, FL
- 1997 | "United States Power Squadrons Piloting"
- 1984 – 1996 | Courses toward Mechanical Engineering Technology, Indiana University – Purdue University, Indianapolis, IN
- 1993 | "United States Power Squadrons Advanced Seamanship"
- 1993 | "United States Power Squadrons Public Boating"
- 1985 | "Supervisor Development Course", Indianapolis Police/Indiana Central University, Indianapolis, IN
- 1984 | National Association of Chiefs of Police, DUI Detection and Arrest
- 1983 | "Traffic Accident Reconstruction", Northwestern University Traffic Institute
- 1979 | "Supervision Management", Indianapolis Police Training Academy, Indianapolis, IN
- 1977 | "Criminal Justice", Indiana University/Purdue University, Indianapolis, IN
- 1973 | "Chemical Test Operator", Indiana University Department of Toxicology, Indianapolis, IN
- 1973 | "Supervisor and Command", Indianapolis Police Training Academy, Indianapolis, IN
- 1973 | "Technical Accident Investigation and Dynamics", Northwestern University Traffic Institute
- 1972 | "Supervision of Police Personnel", Indiana University, Indianapolis, IN
- 1971 | "At-Scene Accident Investigation", Northwestern University Traffic Institute
- 1971 | "Traffic Law Enforcement", Northwestern University Traffic Institute
- 1966 | Indianapolis Police Training Academy

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