

RICHARD R. RUTH. P. E.  
Ruth Consulting LLC  
rick@ruthconsulting.com  
(313) 910-5809, 3275 Van Hazen NW, Washington, DC 20015.

### **Qualifications:**

#### **Education:**

09/69 03/73 B.S. Electrical Engineering (with Honors) Michigan Technological University  
09/73 04/78 M.B.A. Business Administration U. of Michigan - Ann Arbor

#### **Work Experience**

##### **Ruth Consulting LLC, 2007-present**

##### **Analyze performance of automotive restraint systems in crashes.**

**Read automotive Event Data Recorders (EDR's)** using the Bosch Crash Data Retrieval (CDR) system, the GIT Hyundai & Kia systems, the Bluestreak Subaru system, and the Mitsubishi EDR tool. Apply the data to Traffic Crash Reconstruction to determine vehicle speeds and driver behavior prior to impact. Assist engineers and lawyers in understanding how to make the best use of EDR data in their cases. Assist prosecutors and other attorneys in EDR data admissibility hearings. Assist crash reconstructionists and attorneys in getting EDR data from manufacturers that have their own proprietary tools.

**Instruct police officers and accident reconstructionists** in reading and interpreting EDR's.

**Conduct EDR accuracy research** and publish findings in peer reviewed professional journals to pave the way for improved data admissibility.

**Speak at national and regional accident reconstruction conferences** on new developments in EDR's.

**Perform beta testing** for the Bosch Crash Data Retrieval system. Assist automobile manufacturers in improving new releases to Bosch CDR.

**Consult on accident reconstruction** and analysis including human factors, restraint systems performance in crashes, and occupant kinematics.

**Read and interpret HVEDR data** using the Synercon Forensic Link Adapter with Synercon and truck engine manufacturer software.

**Read and interpret in-vehicle navigation and infotainment (phone/text) information** using Berla iVe hardware and software.

##### **Ford Motor Company, Dearborn, MI 1973-2006**

2001-2006 Manager of Design Analysis Vehicle Dynamics and Interior, managed 15 engineering supervisor level employees performing field investigations and technical support for Ford's Safety Office and Office of the General Counsel relating to restraints, handling and stability in rollover accidents, roof structure, glass, doors, and seating.

Personally conducted field investigations of restraint system performance in crashes including Event Data Recorder readouts including inquires by NHTSA, NTSB, police, and NICB.

Gave 30B6 corporate and expert depositions, and trial testimony as needed.

Member of Ford Event Data Recorder (EDR) Policy Committee; contributed to Ford and Auto Alliance responses to EDR NPRM and Part 563 EDR final rule requirements.

Led release of Ford EDR to Vetronix Corp (now Bosch) that makes Crash Data Retrieval (CDR).

Ford member of SAE "Vehicle Event Data Interface" Committee authoring standard J1698 on event data recorder output format.

Speaker on Event Data Recorders at 2004 SAE/NTSB technical meeting on EDR's.

1997-2000 Manager of Design Analysis Interior, managed 8 engineering supervisor level employees, similar to the above but subject areas limited to restraints and seating.

1995-1996 Project Manager of Mark VIII and Thunderbird vehicle programs.

1992-1994 Business Planner in Project Alpha, brought new technology to market faster.

1984-1992 Product Planner in small car and powertrain planning, responsible for Escort.

1973-1984 Product Engineer, in a wide variety of transmission & chassis, and vehicle engineering, including responsibility for developing the steering column airbag system, electronic controls for transmissions, rear axles, transaxles, power steering, and driveline NVH.

### **Additional Data:**

- Registered Professional Engineer, State of Michigan #6201025362.
- Completed Northwestern University "Traffic Accident Reconstruction for Engineers" 1997.
- Completed "Human Factors for Traffic Accident Reconstruction and the use of DRIVE" by the Accident Dynamics Research Center, 2009
- Completed "Energy Methods and Damage Analysis in Traffic Accident Reconstruction" through IPTM in 2009, in West Chester, OH.
- Completed "Digital Forensics of Heavy Vehicle Event Data Recorders" (HVEDR) through the University of Tulsa, June 2015, learning use of Synercon Forensic Link Adapter.
- Completed "Vehicle System Forensics" through Berla in use of iVe hardware and software to obtain in-vehicle navigation and infotainment system data – October 2015
- Completed "Acceleration and Vericom Familiarization" by Vericom Computers, 2015.
- Completed NHTSA **C**hild **P**assenger **S**afety Technical Training – certified **CPS** tech.
- 43-Year Member, **S**ociety of **A**utomotive **E**ngineers (**SAE**). Participant on the SAE Event Data Recorder J1698 EDR standards committee, presenter at the 2004, 2007 and 2011 Highway Vehicle Event Data Recorder Symposiums. Member of former SAE AIRP committee (**A**ccident **I**nvestigation and **R**econstruction **P**ractices) and the newer SAE crash reconstruction practices committee. Peer reviewer for SAE World Congress.
- Current Instructor for the University of North Florida, Institute of **P**olice **T**echnology and **M**anagement (***IPTM***) in Use of EDR Traffic Crash Recon since December 2008 – teaching approximately 10 classes per year, 40 hours each, at the home Jacksonville & extension Tempe, AZ campus, by request at state police academies, local police agencies, reconstruction associations, the RCMP, and Jamaica.
- Member of the International Standards Organization (ISO) 22/12/Working Group 7 as a technical expert on EDR's representing the United States of America. Collaborated in development of "Road Vehicles – Traffic accident analysis – Part 3: Guidelines for the interpretation of recorded crash pulse data to determine impact severity".
- Former Instructor CSI "CDR Operator Certification" & "Train the Trainer" class 2007/8.
- Presenter at the 2007-8-9-16 Crash Data Retrieval User's Conferences, Houston, TX
- Presented EDR update at the University of North Florida (UNF) IPTM "Special Problems in Traffic Accident Reconstruction", 2008-2015.
- Presenter at WREX (Worldwide Reconstruction Exposition) 2016, Orlando, FL
- Member of the crash crew for the IPTM Special Problems Conferences, handing EDR and additional instrumentation (VBOX), 2009-2015. Presented EDR readouts from staged collisions versus reference instrumentation to conference attendees.
- Presenter at the Midwest Association of Traffic Accident Investigators, 2009,12,14-16.
- Presenter at the MdATAI/NAPARS joint reconstruction conference in 2015.
- Member of the crash crew for the Collision Safety Institute/Accident Reconstruction Network (ARC-CSI) 2007 Crash Conference.
- Presenter at the Southwest Association of Traffic Accident Investigators (SATAI) conference 2007 on EDR's.
- Former Member ASTM, serving on Forensic Science Committee 30.05, work group 4150, developing Standard for EDR readout procedure (approx. 2005).
- Member of NAPARS – National Association of Professional Accident Reconstructionists
- Presenter at the Illinois Association of Technical Accident Investigators 2009 thru16.
- Presenter at the PA State Police Accident Reconstruction Seminar 2009-13 & 15-16
- Member of the Midwest Association of Technical Accident Investigators
- Member of the Rotary International – Dearborn 2009-14, Bethesda Chevy Chase 2015-16, Oscoda 2016.
- Regular attendee at accident reconstruction conferences including NAPARS, CDR User's Summit, IATAI (Illinois), PSP (Pennsylvania), MATAI (Michigan), MATAI (Midwest), etc.

- Member of and regular contributor to the Yahoo EDR group “CDR Tool” that exchanges information on EDR’s among members for 10+ years.
- Subcontractor to Virginia Tech Transportation Institute under Professor Clay Gabler, worked on a contract for NHTSA to evaluate the state of EDR’s in the auto industry in 2012/2013.

**Publications:**

“Accuracy of Powertrain Control Module (PCM) Event Data Recorders”, SAE 2008-01-0162, by Ruth, West, Engle, and Reust, presented at SAE World Congress April 15, 2008.

“Dynamic Accuracy of Powertrain Control Module (PCM) Event Data Recorders During ABS Braking”, by Ruth and Reust, Collision Magazine, Spring 2008.

“The Accuracy of Speed Recorded by a Ford PCM and the Effects of Brake, Yaw, and Other Factors” by Reust, Morgan, and Ruth, Collision Magazine, Spring 2008

“Accuracy of Selected 2008 Chrysler Airbag Control Module Event Data Recorders”, SAE 2009-01-0877 by Ruth and Reust, presented at SAE World Congress April 22, 2009

“Accuracy of Selected 2008 Ford Restraint Control Module Event Data Recorders”, SAE 2009-01-0884 by Ruth, West, and Nasrallah, presented at SAE World Congress April 22, 2009.

“Accuracy of Selected 2008 Chrysler ACM EDR’s During Braking” by Ruth and Reust, Collision Magazine, Spring 2009

“Using Ford PCM Data to Evaluate Deceleration Rates, Brake Time and Impact Speeds” by Reust, Ruth, and Morgan”, Collision Magazine, Spring 2009

“Accuracy of EDR During Rotation on Low Friction Surfaces”, SAE 2010-01-1001 by Ruth, Brown, and Lau, presented at SAE World Congress April 2010.

“2009 Crown Victoria PCM EDR Accuracy in Steady State and ABS Braking Conditions” SAE 2010-01-1000 by Ruth and Brown, presented at SAE World Congress April 2010.

“Accuracy of Event Data Recorder in 2010 Ford Flex During Steady State and Braking Conditions”, SAE 2011-01-0812, by Ruth and Daily, presented at SAE World Congress April 2011

“Speed Accuracy of Event Data Recorder in the 2010 and 2011 Toyota Camry During Steady State and Braking Conditions”, SAE 2012-01-0999, by Ruth, Bartlett and Daily, presented at SAE World Congress April 2012.

“Accuracy of Toyota EDR’s”, Collision Magazine, Volume 7 Issue 1, Spring 2012 by Ruth

“Accuracy and Characteristics of 2012 Honda Event Data Recorders from Real-Time Replay of Controller Area Network (CAN) Traffic”, SAE 2013-01-1264, by Diacon, Daily, Ruth, and Mueller, presented at SAE World Congress April 2013.

“Validation of Event Data Recorders in Full-Frontal Crash Tests, SAE 2013-01-1265, by Tsoi, Gabler, Hinch and Ruth presented at SAE World Congress April 2013.

**“Accuracy and Timing of 2013 Ford Flex Event Data Recorders”,** SAE 2014-01-0504, by Ruth & Daily, presented at SAE World Congress April 2014

**“Accuracy of Translations Obtained by 2013 GIT Tool on 2010-2012 Kia and Hyundai EDR Speed and Delta V Data in NCAP Tests”,** SAE 2014-01-0502, by Ruth & Tsoi, presented at SAE World Congress in April 2014.

**“Longitudinal Delta V offset between front and rear crashes in 2007 Toyota Yaris Generation 04 EDR”**, SAE 2016-01-1496, by Ruth and Muir, presented SAE World Congress in April 2016

**“Using Ford EDR Pre-crash Stability Control System Data”**, Collision Magazine 2016, by Bruno and Ruth

(18 publications to date)

October 2016