

ACCIDENT RECONSTRUCTION & ANALYSIS

807 So. Carancahua, Corpus Christi, Texas 78401-3443
P.O. Drawer 4937, Corpus Christi, TX 78469-4937
www.aracc.net

Brian David Charles

Ph. (361) 887-8529
Fax (361) 887-6448
e-mail address: bcharles@aracc.net

TX Lic.#A-07371
NM Lic.#1279

TOBY C. FRERICH, P.E. CURRICULUM VITA – December 2017

LICENSES AND CERTIFICATIONS:

Nikon Total Station Survey Training Certification.

Professional Engineer, No. 94707
Texas Board of Professional Engineers.

Crash Data Retrieval (CDR) System Technician and Analyst
Collision Safety Institute, Crash Data Retrieval Specialist

FORMAL EDUCATION:

1991 Bachelor of Science. Agricultural Engineering,
Texas A&M University.

CONTINUING EDUCATION:

1997 "ADVANCED ACCIDENT INVESTIGATION"
Law Enforcement & Security Training Division, Texas Engineering
Extension Service, The Texas A&M University System, Houston,
Texas.
Two-week course introducing the fundamental mathematical
formulas and diagraming skills needed to conduct thorough and
competent investigations of motor vehicle accidents. Subject matter
included documenting physical evidence, deriving and calculating
accepted accident reconstruction formulas, time and distance
studies, kinetic energy, and "Conservation of Momentum" equations
to calculate vehicle impact speed. Several case studies were
analyzed and solved.

1998 "ENGINEERING DYNAMICS HVE FORUM"
Le Meridien Hotel, New Orleans, Louisiana
One-week course introducing the HVE Engineering 3-D software for
vehicle dynamics and crash simulation. Subject matter included

study of the HVE environment, databases, history, and validation of 3-D physics models. Selected case studies were reviewed and discussed.

- 1999 “ENGINEERING DYNAMICS SIMULATIONS COURSE”
ENGINEERING DYNAMICS CORPORATION
California State University - Northridge, Northridge, California
One-week course in the use of computer simulations programs in accident reconstruction and analysis of vehicle performance, including heavy trucks. Emphasis on the technical aspects of the program, including input data and its effect on results. Vehicle tire and collision models were studied.
- 1999 “ENGINEERING DYNAMICS HVE FORUM”
Atlanta Hilton & Towers @ Peachtree Center, Atlanta, Georgia
One-week course for HVE Engineering users. Subject matter included a review of current research and professional papers, software updates; case studies utilizing the various programs, and specific training examples in the proper utilization and application of the HVE Vehicle Dynamics Programs.
- 2000 “ENGINEERING DYNAMICS HVE FORUM”
Hyatt Islandia/Mission Bay, San Diego, California
One-week course for HVE Engineering users. Subject matter included a review of current research and professional papers, software updates, case studies utilizing the various programs, and specific training examples in the proper utilization and application of the HVE Vehicle Dynamics Programs.
- 2001 “THEORETICAL & APPLIED VEHICLE DYNAMICS COURSE” ENGINEERING DYNAMICS CORPORATION
Embassy Suites Hotel, Phoenix, Arizona
Course work included discussion of the equations describing vehicle handling and stability. Discussion of variables that affect vehicle response to driver inputs. Steady state and transient motion analysis of under-steer and over-steer characteristics, application of vehicle dynamic theory using the HVE 3D vehicle model (VSM) to evaluate the effects of cornering stiffness and loading.
- 2001 “ENGINEERING DYNAMICS HVE FORUM”
Hotel Loretto, Santa Fe, New Mexico
One-week course for HVE Engineering users. Subject matter included a review of current research and professional papers, software updates, case studies utilizing the various programs, and specific training examples in the proper utilization and application of the HVE Vehicle Dynamics Programs.

- 2005 “ENGINEERING DYNAMICS HVE FORUM”
Coconut Grove, Florida
One-week advanced course for HVE Engineering users. Subject matter included a review of current research and professional papers, software updates, advanced case studies utilizing the various programs, and specific training examples in the proper utilization and application of the HVE Vehicle Dynamics Programs.
- 2006 “CRASH DATA RETRIEVAL TRAINING & CERTIFICATION”
Las Vegas, Nevada
Instruction and training by Vetronix Corporation and General Motors Safety Engineering. Topics included history and development of event data recorders for automobiles relating to the production of air bag safety systems, and computerized diagnostic systems in vehicles and the utilization of that data by researchers and accident reconstructionists.
- 2007 “ENGINEERING DYNAMICS HVE FORUM”
San Antonio, Texas
One-week advanced course for HVE Engineering users. Subject matter included a review of current research and professional papers, software updates, advanced case studies utilizing the various programs, and specific training examples in the proper utilization and application of the HVE Vehicle Dynamics Programs.
- 2010 “ENGINEERING DYNAMICS HVE FORUM”
San Antonio, Texas
One-week advanced course for HVE Engineering users. Subject matter included a review of current research and professional papers, software updates, advanced case studies utilizing the various programs, and specific training examples in the proper utilization and application of the HVE Vehicle Dynamics Programs.
- 2015 “WINTER CONFERENCE: TEXAS ASSOCIATION OF
ACCIDENT RECONSTRUCTION SPECIALISTS”
Round Rock, Texas
Instruction and training on Evaluation and Analysis of Traffic Signal Timing in Accident Reconstruction, Measurement and Analysis of Crush Damage in Accident Reconstruction, Analysis and Demonstrations of Drones, Scanning, Mapping and aerial photography uses in Accident Reconstruction, and Accident Reconstruction Case Studies workshop.

2017

“ENGINEERING DYNAMICS HVE FORUM”

March 6-10, 2017. 5 days. New Orleans, Louisiana.

One-week course for HVE Engineering users. Subject matter included a review of current research and professional papers; software updates; case studies utilizing the various software programs; and specific training examples in the proper utilization and application of the HVE Vehicle Dynamics Programs with an emphasis on SIMON. Review and advanced applications of BRAKE DESIGNER®, DYMESH damage model, DAMAGE STUDIO, tire blowout modeling and Rollover modeling and analysis

“CRASH DATA RETRIEVAL TRAINING & CERTIFICATION”

October 19-20, 2017. 2 days. San Antonio, Texas.

Instruction and training by Collision Safety Institute. Topics included history and development of event data recorders for automobiles relating to the production of air bag safety systems, and computerized diagnostic systems in vehicles and the utilization of that data by researchers and accident reconstructionists. Hands-on in-vehicle DLC data imaging, module location and identification and direct-to-module data imaging, practical booster and adapter applications and, “back powering” in-vehicle systems to enable DLC data imaging.

WORK EXPERIENCE:

1996-Current Accident Reconstruction Technician, Accident Reconstruction & Analysis, Corpus Christi, Texas. Utilized microcomputer versions of the SMAC and CRASH collision algorithm in the analysis of collision accidents. Measured project’s roadway physical attributes using digital measuring wheels and Nikon Total Station® survey equipment. Used the Vericom® accelerometer to measure acceleration, deceleration and lateral G forces for subject vehicles. Produced 2-D & 3-D computer graphics, scaled models, and 3-D animations for court exhibits; Studied aerial photographs, computer and automated mapping products, layouts, sketches of accident locations, accident illustrations, and related materials; Prepared CAD drawings from aerial photographs, and survey data and identify, scale, and orient geodetic points, elevations, and other planimetric and topographic features; Graphically delineated aerial photographic details such as control points, hydrography, and topography. Used these diagrams and data to calculate speeds, momentum, energy, delta-v, coefficients of friction, and other variables used to analyze

and reconstruct the accident or parts of the accident. Incorporate real-time 3D modeling, precise topographical-vehicular interaction, accurate topographical data and high fidelity vehicle models. Developed and validated spreadsheets to calculate crash coefficients from vehicle crash tests performed by NHTSA by coding industry-standard equations, which were used directly in the simulation programs. Beta tested Human, Vehicle, Environment, HVE®, an advanced 3rd generation accident reconstruction and simulation program, by working closely with Engineering Dynamics Corporation to incorporate real-time 3D modeling, precise topographical-vehicular interaction, accurate topographical data and high fidelity vehicle models.

1993-1996 Accident Reconstruction Technician, Automotive Research Corporation, College Station, Texas. Produced 2-D & 3-D computer graphics, scaled models, and 3-D animations for court exhibits; Studied aerial photographs, computer and automated mapping products, layouts, sketches of accident locations, accident illustrations, and related materials; Prepared CAD drawings from aerial photographs, and survey data and identify, scale, and orient geodetic points, elevations, and other planimetric and topographic features; Graphically delineated aerial photographic details such as control points, hydrography, and topography.

Summers of 1987-1989 Texas Highway Department, Brackettville, Texas. Assisted with maintenance and construction work; aided engineering crew with surveying highway structures.