MOMENTUM
engineering corp.

CURRICULUM VITAE

STEPHAN A. DIBIASE, BSME

SPECIALIZATION

- Accident Reconstruction
- Vehicle Dynamics and Loss of Control
- Rollover Analysis
- Computer Simulation & Animation
- Electronic/Crash Data Recorder
- Video Analysis
- Reenactments
- Visibility & Traffic Signal Studies

EDUCATION

- Bachelor of Science in Mechanical Engineering (BSME), with Automotive Emphasis
  Kettering University, Management Minor, Mathematics Minor, Flint, MI (1999)

CERTIFICATIONS

- SAE – Accident Reconstruction Certificate Program, 2020
- CDR – Technician (Crash Data Group), 2015
- CDR – Data Analyst (Crash Data Group), 2015
- PC-Crash 2013, 2016
- Most on Fire Kettering University International Club Member, 1999
- Goethe Certificate of German language fluency, Bogenhofen, Braunau Austria, (1990)

ADDITIONAL TRAINING

- NAPARS, Annual Joint Conference, 2020
- SAE, Fundamentals of Vehicle Dynamics, 2020
- SAE 2020 WCX Summit
- iNPUT ACE, 2020
- AV20, Autonomous Vehicles, Silicone Valley Conference, 2020
- SAE, Photogrammetry and Analysis of Digital Media, 2019
- SAE, Applying Automotive EDR Data to Traffic Crash Reconstruction, 2019
- Engineering Dynamics Corporation—HVE Forum (EDSMAC/EDCRASH Training), 2019
- Crash Safety Solutions, Human Factors in Traffic Crashes-Analysis of Driver's Reponses, 2019
- SATAI Winter Conference, 2019
- CA2RS 2nd Quarter Training, 2018
- Engineering Dynamics Corporation—HVE Forum (EDSMAC/EDCRASH/SIMON), 2018
- ARC-CSI Crash Conference, 2017
- PC-CRASH Vancouver Workshop, Advanced Features, 2016
- Collision Safety Institute – CDR Data Analyst Training, 2015
- Collision Safety Institute – CDR Technician Training, 2015
- SAE Vehicle Crash Reconstruction Methods, 2015
- SAE Reconstruction and Analysis of Motorcycle Crashes, 2015
- SAE Reconstruction and Analysis of Rollover Crashes of Light Vehicles, 2015
- ARC-CSI Crash Conference, 2014

- Engineering Dynamics Corporation (EDC)—Reconstruction EDCRASH Training Course, 2014
- PC-Crash Training, 2013
- NVH for Automotive Applications, University of Michigan, Dearborn, 2004
- SAE, Vibration Applications, 2004
- Drivers Development Seminars for (vehicle dynamics) limit handling & drivers' consistency, Levels I, II, III, Honda TRC, OH, 2000-2002
- Mulitmatic Vehicle Dynamics Evaluation & Tuning, 2001
- Systems Engineering by Hatli Pirabli, 2000
- Esslingen Fachhochschule, Stuttgart, Germany, Automotive Engineering, 1997

PROFESSIONAL EXPERIENCE

2013 to present — MOMENTUM ENGINEERING CORP.

Senior Forensic Engineer

Perform accident reconstruction, including heavy trucks, automobiles, rollovers, motorcycles, bicycles and pedestrian accidents. Utilize state of the art engineering services, including computerized laser measurement, photogrammetry, computer simulation & animation, reenactment, and graphics production. Acquisition and analysis of data from: vehicle and site inspections, mechanical failure analysis & design evaluation, visibility studies, traffic signal analysis, vehicle dynamics testing, rollover & crash test analysis.

1999 to 2007 — TANDY ENGINEERING & ASSOCIATES INC.

Forensics Engineer/Accident Reconstructionist

Performed product liability accident reconstruction engineering services. Specialized in SUV and automobile rollovers and vehicle dynamics, but also evaluated motorcycle accidents. Had extensive domestic and foreign travel to inspect and gather observable, photographic and survey data. Formalized vehicle testing procedures, data analysis, and publishing of the results.

2002-2005 — VISTEON NVH CHASSIS ADVANCED TECHNOLOGY

Chassis Systems ISO Managing Coordinator

Assisted the VP of Chassis Systems to implement a new ISO system for IT integration, which streamlined the work process flow.

NVH and Vehicle Dynamics Development Engineer

- Experimental Engineering Program Manager: coordinated design, testing, and manufacturing groups to develop and verify testing methods for NVH target setting to reduce engineering, production, and warranty costs.
- Expert vehicle dynamics & technology engineering evaluator.
- Developed chassis technologies on advanced active controls projects for steering, suspension, and driveline. Served as a technical and corporate liaison.
- Worked cross-functionally with business planning, marketing, design and manufacturing for cost savings.

2000-2002 VISTEON CHASSIS, ADVANCED TECHNOLOGY

Advanced Product Design Engineer, CAE Engineering

- Software co-simulation of ADAMS and MATLAB for active suspension model and controls development. Developed the simulation tire model strategy.
- Department Webmaster: created department web site to centralize procedures. Trained and managed Section Masters for cross department coordination.

1999-2000 *Advanced Product Design Engineer, CAE Engineering*

- Developed Mechanical Dynamics ADAMS vehicle simulation mathematical models for co-simulation with MATLAB-Simulink.

BENTELER AUTOMOTIVE

1995-1999 *GMI Mechanical Engineering CO-OP*

- Rotations in product line work, manufacturing, design, testing & development, and marketing.
- Thesis research facilitated safety design change on a Ford minivan axle.

BMW MOTOR CO., REGENSBURG, GERMANY

GMI Mechanical Engineering CO-OP

- Set up Body in White Total Product Management process and simplified computing processes for the E-46 BMW 3-Series.

PROFESSIONAL AFFILIATIONS

- SAE International (formerly Society of Automotive Engineers)
- California Association of Accident Reconstruction Specialists (CAARS)
- Southwest Association of Technical Accident Investigators (SATAI)
- Management Honor Society, Kettering University
- KU International Club President

PUBLICATIONS

Siddiqui, O., DiBiase, S., Hoang, R., Nguyen, B. et al., "Evaluating the Accuracy and Reliability of Bicycle GPS Devices," SAE Technical Paper 2021-01-0882, 2021

Anderson, J., Gee, R., Germane, G., Henry, K. T. Hoover, S. DiBiase, "Analysis of a Real-World High Speed Rollover Crash from a Video Record and Physical Evidence", Paper No. SAE-2008-01-1486, April 2008.

Stephan DiBiase, "North American International Auto Show a Source of Inspiration for Visteon Employees", Published by Visteon Today, January 2005.

Stephan DiBiase, "Cumulative Fatigue Damage Correlation and Solution with Durability Test Track, Laboratory and FEA for a Production Axle", Benteler Automotive & Kettering University Thesis 1999.

Stephan DiBiase, Automotive & Business Editor for the Kettering University "Technician" newspaper, 1995-1999

ADDITIONAL TRAINING DETAIL

- NAPARS, Annual Joint Conference, 2020
  - Multi-day virtual conference with presentations and discussions on Motorcycle Turning, Investigating Rollover Crashes, GoPro GPS Data Analysis, Considering Tires in your Investigation, and Analysis of ECM in New Freightliners.
- SAE, Fundamentals of Vehicle Dynamics, 2020
  - Multi-day engineering analysis of formulas that dictate vehicle performance in acceleration, braking, ride, cornering and handling, and rollover. Also, understanding the working of sub-components like tires, brakes, suspensions systems, powertrain systems and steering systems.
- iNPUT ACE, 2020
  - Ten Sessions with leading video and law enforcement experts who provided training on the latest investigative techniques and technologies to expedite video-centric casework. Enhance the investigator's ability to properly interrogate video evidence. Topics including effective investigative workflow techniques, legal updates, major crime/traffic investigations and forensic video examinations.
- AV20, Autonomous Vehicles, Silicone Valley Conference, 2020
  - Topics presented and discussed by multiple companies in the developing autonomous vehicle industry. Break out round table discussions among individuals from companies, engineering interests, businesses, city, state, and federal regulators, and researchers. Discussions included applications of state, federal and international regulations; ethical and societal implications; performance and pitfalls of currently available standards and technology.
- SAE, Photogrammetry and Analysis of Digital Media, September 2019
  - Theory and techniques for getting the most out of digital media, including correctly processing raw video and photographs, correcting for lens distortion, and using photogrammetric techniques to convert the information in digital media to usable scaled three-dimensional data. Hands-on training using actual case studies and a variety of software titles such as 3D Studio Max, PTLens, Photoshop, and PFTrack.
- SAE, Applying Automotive EDR Data to Traffic Crash Reconstruction, 2019
  - SAE class providing the skills necessary to analyze EDR data that has already been imaged, apply it to crash reconstruction, and reconcile it with calculations using other data sources. Enable the participant to analyze any current and future EDR data set without regard to the manufacturer.
- Engineering Dynamics Corporation—HVE Forum, 2019
  - A series of workshops designed for HVE users to learn how to use the latest features and capabilities of HVE: EDSMAC/EDCRASH/SIMON. User's Group meetings, the HVE White Paper Session and interactive networking social hours were also all designed to learn the theories and techniques of this simulation modeling software.

- Crash Safety Solutions, Human Factors in Traffic Crashes-Analysis of Driver's Reponses, January 2019
    - Research of driver behavior given different roadway stimuli and situations was presented as applied to real-world crashes. A discussion of human growth as applied to behavior while on foot, bicycle, motorcycle, and automobile was applied to real-world crashes.
- SATAI Winter Conference, January 2019
    - Seminars on driver acceleration behaviors, Monte Carlo calculation method, pedestrian walking speeds, and nighttime crashes on unlit and lighted roads. Crash tests including auto v. motorcycle v. auto; a broadside; and a rollover were conducted.
- CA2RS 2nd Quarter Training, June 2018
    - Bicycle accident reconstruction. Techniques, research, human factors. Analysis of evidence. Key issues in bicycle-involved personal injury litigation.
- Engineering Dynamics Corporation—HVE Forum, 2018
    - A series of workshops designed for HVE users to learn how to use the latest features and capabilities of HVE: EDSMAC/EDCRASH/SIMON. User's Group meetings, the HVE White Paper Session and interactive networking social hours were also all designed to learn the theories and techniques of this simulation modeling software.
- ARC-CSI Crash Conference, September 2017
    - Discussions of crush analysis. Discussions and examples of disputed red-light accidents.
- PC-CRASH Vancouver Workshop, Advanced Features, 2016
    - 3-day PC-Crash training on the new and advanced features of PC-Crash including: Active Systems, Case Studies, Multibody, Programing, Graphics, 3D-Scans/Point Clouds, Camera Optimization, Triangulations, and Staged Collisions.
- Collision Safety Institute – CDR Data Analyst Training, 2015
    - Insight into the function of the automobile Event Data Recorder (EDR) function or subcomponent, its history, and evolution as well as expanded interpretation skills enabling the application of a Bosch Crash Data Retrieval (CDR) Tool generated report to a situationally complete crash reconstruction.
- Collision Safety Institute – CDR Technician Training, 2015
    - Training on the use of the Bosch Crash Data Retrieval system to collect electronic data from event data recorders installed in vehicles.
- SAE Vehicle Crash Reconstruction Methods, 2015
    - Lectures and Analysis Workshops on topics including: Straight Line Motion, Point Mass Collisions, Planar Impact Mechanics, Crush & Tangential Energy Loss, EDR Technology, Crash Reconstruction, Frontal Vehicle Pedestrian Collisions, Planar Photogrammetry, Mechanics & Modeling of Tire Forces, Critical Speed from Tire Yaw Marks, Articulated Vehicle Impact, and Vehicle Dynamics.
- SAE Reconstruction and Analysis of Motorcycle Crashes, 2015
    - Learning Objectives utilized field case studies to learn engineering design parameters, motorcycle kinematics, dynamics, phases of motorcycle crashes, documentation, evidence, accident reconstruction, including steering and braking inputs used by a rider.
- SAE Reconstruction and Analysis of Rollover Crashes of Light Vehicles, 2015
    - Overview of Rollover Reconstruction, References, Physical Evidence, Analysis Methods, Loss of Control Phase, Trip Phase, Rollover Phase, Advanced Analysis.
- ARC-CSI Crash Conference, June 2014, Las Vegas

- Boot Camp Low Speed Data, Recon Techniques for Low Delta-V Crashes, Crash Data Review, HVEDR developments, Wheel Slip and Speed, Quick Clearance GPS-GIS MSP, Vehicle History CarFax, Fatigue One Big Risk Factor, Motorcycle Sliding Friction, Conspicuity, and Inadequate repairs.

- Engineering Dynamics Corporation (EDC)—Reconstruction EDCRASH Training Course, 2014
  - Key concepts of how the physics calculation routines in EDCRASH work. Apply to real-world cases and present results. CDC, PDOF, and damages measurements. Calculation procedures, trajectory simulation and linear momentum. HVE Execution Environment.
- PC-Crash Training, 2013
  - Learn and navigate through the UI of PC-Crash. Apply engineering concepts and simulate real-world cases. Topics covered: Introduction, Essentials, Features, Vehicle Control, Looking at the Results, Rollovers, and Validation
- NVH for Automotive Applications, University of Michigan, Dearborn, 2004
  - Overview of time vs. frequency-based domain systems analysis, with case studies to analyze, design, test and problem solve in-field troubleshooting techniques.
- SAE, Vibration Applications, 2004
  - Case studies in noise and frequency analysis within the domain of civil structures.
- Drivers Development Seminars for (vehicle dynamics) limit handling & drivers' consistency, Levels I, II, III, Honda TRC, OH, 2000-2002
- Mulitmatic Vehicle Dynamics Evaluation & Tuning, 2001
- Systems Engineering by Hatli Pirabli, 2000
- Esslingen Fachhochschule, Stuttgart, Germany, Automotive Engineering, 1997