COLLISION AND INJURY DYNAMICS 2275 W. 190th Street, Torrance, CA 90504 • 310.414.0449 • www.ci-dynamics.com

MICHAEL A. CALLAHAN, BSME
Senior Partner, Consultant
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Professional Competence

Vehicular Collision Analysis and Reconstruction involving automobiles, commercial/industrial vehicles, motorcycles, bicycles, skateboards/scooters and pedestrians. Subspecialties include Forensic Video Analysis and 3D Animation, Rapid Response and Event Data Recorder Imaging, Forensic Testing, and Nighttime Visibility/Videography.

Education and Certification

LEVA Certified Forensic Video Technician, 2021

California M1 Motorcycle Endorsement, 2011

Bachelor of Science in Mechanical Engineering (Magna Cum Laude)
University of Southern California, 2009

Certified SolidWorks Associate – Mechanical Design, 2008

Training

Law Enforcement and Emergency Services Video Association (LEVA)
- Level 3: The Principles of Forensic Video/Image Compare and Contrast; 2023

California Association of Accident Reconstruction Specialists
- ABS and non-ABS deceleration rates on different surfaces; 2022

Law Enforcement and Emergency Services Video Association (LEVA)
- Level 2: Digital Multimedia Evidence Processing; 2021

Law Enforcement and Emergency Services Video Association (LEVA)
- Level 1: Forensic Video Analysis & the Law; 2019

Southwestern Association of Technical Accident Investigators
- Forensic Mapping Using UAVs; 2017

Northwestern University Center for Public Safety
- Advanced Crash Reconstruction Utilizing Human Factors Research; 2017

Society of Automotive Engineers
- Vehicle Crash Reconstruction Methods; 2016

Effective January 2024

Society of Automotive Engineers
- Applying Automotive EDR Data to Traffic Crash Reconstruction; 2014

California Association of Accident Reconstruction Specialists
- The Application and Analysis of Video in Collision Reconstruction; 2014

Engineering Dynamics Corporation
- HVE Users Forum; 2013
- Wheel Impacts, DamageStudio, Video Creator, Environment Editor

Engineering Dynamics Corporation
- HVE Users Forum; 2012
- DyMesh and SIMON, Brake Designer, Blowouts and Rollovers

University of Tulsa: Continuing Engineering and Science Education
- Interpreting Commercial Vehicle Event Data Recorders; 2010
- ECM Imaging, CMV Performance Testing

ARC-CSI Crash Conference
- Low speed impacts, commercial vehicles, crash testing; 2010

Leica Geosystems
- High Definition Laser Scanning and Modeling Course; 2010

Crash Data Retrieval Users Summit
- Case studies, non-CDR system OEM modules, applications; 2010

Institute of Police Technology and Management
- Inspection and Investigation of Commercial Vehicle Crashes; 2009
- CMV Inspection, CMV Dynamic Testing and Roadway Evidence

Collision Safety Institute
- Bosch Crash Data Retrieval Technician and Analyst; 2009

Engineering Dynamics Corporation
- EDC Reconstruction with HVE-2D; 2008

Dassault Systemes
- Finite Element Analysis with CosmosWorks; 2008
- Assembly Kinematics and Analysis, CosmosMotion; 2008
- 3D Mechanical Design with SolidWorks (CSWA Certified); 2008
- Solid Modeling, 3D Mechanical Design, Kinematics with CATIA; 2005

Siemens PLM
- 2D & 3D Mechanical Design with SolidEdge; 2008
- Finite Element Analysis with FEMAP Express; 2008

Visual Statement
- Advanced Diagramming and Animation; 2007

Training cont.

MEA Forensic Engineers & Scientists
- PC-Crash Training Workshop; 2006

Autodesk
- Advanced Drafting, Geometric Dimensioning and Tolerancing; 2005
- 2D & 3D Mechanical Design with AutoCAD Mechanical Desktop; 2005

Professional Experience

2005 – Present — Collision and Injury Dynamics, Inc.
Analysis, reconstruction, inspection, and presentation performed on collisions involving automobiles, commercial/industrial vehicles, and pedestrian/bicycles. Conventional reconstruction methods are supplemented with data extraction from engine/airbag control modules, vehicle dynamics simulations, 3D models of terrain/vehicles for visibility studies, and photorealistic renderings of the final reconstruction. Forensic acquisition and analysis of video evidence to reconstruct vehicle and human motion. Other duties include High-Definition Laser Scanning and 3D modeling, forensic testing design/assembly, and forensic visualizations.

2009 – 2013 — MaBa Media Group
Preparation of over 300 photorealistic animations and 3D analysis visualizations, involving passenger/commercial vehicle accident reconstruction, biomechanics and premises liability, night-time visibility, and products liability. Developed methodology to combine validated simulation data with scene and vehicle 3D models reverse-engineered from HDS Laser Scan point clouds, resulting in highly foundational trial presentation exhibits.

Organizations

Society of Automotive Engineers (SAE)
California Association of Accident Reconstruction Specialists (CA2RS)
Law Enforcement and Emergency Services Video Association (LEVA)
Southwestern Association of Technical Accident Investigators (SATAI)
American Academy of Forensic Sciences (AAFS)
The League of American Bicyclists

Forensic Qualifications

Testimony in Federal and Superior Courts of California

Rapid-Response Sub-Specialty

Mr. Callahan is integrally involved in the growth of Collision and Injury Dynamics as an early-response team in pre-litigation transportation collisions. Since 2009, Mr. Callahan has responded to over 500 collisions, documenting fresh physical evidence, downloading Event Data Recorders and DVR Video Systems, and working with law enforcement and investigators to collect all pertinent and volatile data related to an incident. This wealth of on-scene experience is typically limited to Highway Patrol and emergency personnel. Mr. Callahan's background in accident reconstruction, combined with immediate

collection of volatile data, has provided valuable early liability assessment to numerous attorneys, insurance carriers, and transportation companies.

Biographical Sketch

Mr. Callahan was born in Port Hedland, Western Australia in 1985. Upon moving to California, Mr. Callahan began his studies of Engineering, with a special focus on Computer Aided Drafting (CAD), Computer Aided Analysis (CAA), and Finite Element Analysis (FEA). Throughout his early undergraduate studies, he worked in the field of outdoor education, teaching rock climbing, team building workshops, and high ropes courses.

In 2005, Mr. Callahan took an associate engineering position at Collision and Injury Dynamics, Inc. Duties included forensic inspection, accident reconstruction and analysis, trial presentation, and extensive bicycle/automobile testing. After receiving a Bachelor of Science in Mechanical Engineering from the University of Southern California in 2009, Mr. Callahan's role was extended to Senior Consultant, directly designated to perform accident reconstruction, rapid response accident documentation, and trial testimony.

In addition to consulting, forensic testing, and giving technical presentations, Mr. Callahan is actively involved in cycling, rock climbing, surfing, beach volleyball, and backpacking the Sierra Nevada.

Publications and Presentations

Animation and Simulation – Foundation, Limitations, and Case Examples
Association of Southern California Defense Counsel, August 2020.

Body-Mounted Camera Motion Analysis—Accuracy and Validation of 3D Camera Match Solutions,
American Academy of Forensic Sciences 72nd Annual Scientific Meeting, Anaheim, CA, February 2020.

Accident Reconstruction Technology Presentation, Department of the Attorney General - State of Hawai'i,
Honolulu, HI, May 2019.

Rapid Response and Early Liability Assessment, Artex Risk Management,
El Segundo, CA, August 2017.

DVR Evidence: Documentation, Analysis, and Presentation, SATAI,
Glendale, AZ, July 2017.

Forensic Animation and Video Analysis in Accident Reconstruction, Washington Defense Trial Lawyers,
Seattle, WA, October 2013.

Close-Range Photogrammetry with Laser Scan Point Clouds, M. Callahan, B. LeBlanc, R. Vreeland, G. Bretting, SAE 2012-01-0607, April 16, 2012.

Analysis of Bicycle Pitch-Over in a Controlled Environment, G.P. Bretting, J.A. Bogler, H.P. Jansen, M.A. Callahan, J.A. Prunckle, SAE 2010-01-0064, April 12, 2010.

Accident Reconstruction Technology Presentation, Multidisciplinary Accident Investigation Team (MAIT)
Southern Division, El Segundo, CA, July 2010.