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WEIKUANG CHAO, B.S., M.S.

SENIOR FORENSIC SCIENTIST AND SAFETY ANALYSIS ENGINEER

ACCIDENT RECONSTRUCTION, HUMAN FACTORS, BIOMECHANICS & SAFETY ANALYSIS

Mr. Chao employs the multiple disciplines of accident reconstruction, human factors, biomechanics, and safety analysis to identify root causes of accidents, assess injury-prevention alternatives, and recommend safety practices and procedures as they relate to post-accident evaluation. During his 25 years of service with the Institute of Risk and Safety Analyses, he has been involved in over 1,800 forensic investigations which have included auto accidents, premises liability, industrial and construction safety, machinery operation, product defect, OSHA violations, and code requirements. Mr. Chao has testified in trials and depositions, and he has also assisted with rebuttal work against opposing experts.

Mr. Chao specializes in accident reconstruction and is proficient with crush analysis (energy), momentum balance, video analysis, CDR data analysis, drag factor assessments, critical speed yaw determinations, and evaluations of traffic signal phases and timing. Furthermore, he is a human factors expert on aspects such as line of sight, lighting conditions, visibility, visual cues, perception-response time, and event sequencing. In terms of biomechanics, Mr. Chao has conducted extensive analyses regarding the forces and movements affecting human body structures. Additionally, he is familiar with code compliance (OSHA, ANSI, ADA, ASTM, etc.) issues and has provided expert testimony in industrial machinery and product defect cases.

Mr. Chao's academic and civic contributions began as early as 1995; after the 1994 Northridge earthquake, Mr. Chao researched and designed a computer-simulating model of Resilient-Friction Base Isolator to prevent excessive damage to building structures during earthquakes. Since the early 2000s, Mr. Chao has actively participated in research and experiments with accelerometers and compiled a study titled "G-Force in Daily Activities" (2003, updated in 2014). Mr. Chao's extensive knowledge pertaining to air-bag deployment is evident by his co-authorship of the scientific book, *Defining the Criteria for Air Bag Activation in Passenger Vehicle* (2015).

Mr. Chao is highly skilled in utilizing software tools such as Google Earth Pro, AutoCAD, FARO 3D scans, and various animation programs, including 3D Max, FARO Reality, and Virtual Crash. He has contributed to the development of numerous trial exhibit presentations, enhancing the visual representation of complex case elements.

ACADEMIC CREDENTIALS AND PROFESSIONAL AFFILIATIONS

B.S.	Mechanical Engineering, Worcester Polytechnic Institute
M.S.	Mechanical Engineering, Columbia University

Member	National Association of Professional Accident Reconstruction Specialists (NAPARS) #62106873
Member	Society of Automotive Engineers (SAE) #6155632644
Member	Southwestern Association of Technical Accident Investigators (SATAI) #62106684

CERTIFICATION AND TRAINING

TBI in Low-Severity Crashes, NAPARS, January 2025

UAS Crime Scene Videography, NAPARS, December 2024

Joint Annual Conference by National Association of Traffic Accident Reconstructionists and Investigators (NATARI), October 2024

Need for Pre-Crash Acceleration Data in EDR for Accident Research and Analysis, NAPARS, September 2024

Advanced EDR Data Analysis, Collision Safety Institute, August 2024

ATV Crash Analysis, NAPARS, April 2024

Critical Speed Yaw Analysis, NAPARS, March 2024

Introduction to Brake Control Systems: ABS TCS and ESC, SAE, February 2024

Driver Distraction from Electronic Devices: Insights and Implications, SAE, November 2023

Evaluating Red Light Running Cases, NAPARS, October 2023

Update on Heavy Vehicle Event Data Recorders, NAPARS, July 2023

Injuries, Anatomy, Biomechanics & Federal Regulation, SAE, June 2023

Introduction to Digital Video Analysis for Crash Reconstruction, NAPARS, June 2023

EDR (Event Data Recorder) Update, NAPARS, February 2023

PhotoModeler for Collision Investigation, Photo Modeler, June 2021

General Industrial Safety and Health (30 hours training) #21-900510289, Occupational Safety and Health Administration (OSHA), 2019

Crash Data Retrieval (CDR) Data Analyst, Collision Safety Institute, July 2018

Crash Data Retrieval (CDR) Technician, Collision Safety Institute, February 2018