



**COLLISION
AND INJURY
DYNAMICS**

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

Gerald P. Bretting, PE
Senior Consulting Engineer, Partner Emeritus
gbretting@ci-dynamics.com

Professional Competence

General vehicular collision analysis and reconstruction, including commercial vehicles, automobiles, motorcycles, trains, bicycles and pedestrians. Specializing in mechanics and dynamics of vehicular collisions and causative factors of vehicular accidents. Sub-specialties include biomechanics of human body motion and injury, dynamics of bicycle and rider systems, and bicycle products, including design, analysis and test.



Education and Certification

Registered Mechanical Engineer in the State of California, License No. M 27165; 1991

Institute of Police Technology, Advanced Accident Reconstruction Course; 1990

Graduate studies in Mechanical Engineering

- University of California at Los Angeles; 1979 – 1980

Bachelor of Science in Mechanical Engineering

- University of California at Los Angeles; 1979

California Driver's License M1 Motorcycle Endorsement; 1975

Continuing Education in the fields of Accident Reconstruction and Biomechanics of Injury. Attending two to four seminars or short courses per year that are typically sponsored by either the Society of Automotive Engineers or the Association for the Advancement of Automotive Medicine.

Professional Experience

2000 – Present	Collision and Injury Dynamics, Inc.
1990 – 2000	Accident Reconstruction Associates, Inc.
1980 – 1990	Self-employed, providing engineering consultation to manufacturers, attorneys and agencies for Cities, Counties and States
1981 – 1990	Hughes Aircraft Company, Space and Communications Group, Space Vehicles Division

Teaching Experience

Southwestern Association of Technical Accident Investigators, Inc. (SATAI): Aspects of Bicycle Reconstruction; 2016

Society of Automotive Engineers (SAE) Toptec, Aspects of Bicycle Accident Reconstruction; 2001

Accident Reconstruction Seminar, presented to Law Firms, Insurance Companies. Seminar has been presented approximately 3 times per year; 1992 – 2000

Bicycle Accidents and Related Injuries, Bio-Mechanics Symposium, San Diego, CA; 1995

Bicycle Accident Reconstruction Seminar, San Diego Trial Lawyers Association; 1993

Bicycle Accident Reconstruction Seminar, San Diego Police Department (Accident Reconstruction Course); 1989

Technical Advisor and Riding Instructor for the movie "Breaking Away" on all aspects of bicycle riding and racing.

Organizations

American Society of Testing and Materials
Association for the Advancement of Automotive Medicine
National Association of Professional Accident Reconstruction Specialists
Society of Automotive Engineers

Forensic Qualifications

Testimony in Federal, Superior and Municipal Courts throughout the United States
Testimony in the Queens Court, England

Biomechanics Sub-Specialty

Mr. Bretting's educational background is in Mechanical Engineering with an emphasis on the human body as primary structure. This was a program offered through the UCLA Mechanical Engineering Department that combined the basic Mechanical Engineering Degree with classes on Human Anatomy, Physiology, Kinematics of Motion and Mechanics of Injury. Mr. Bretting's continuing education focuses on mechanics of motion and injury. The combination of Mechanical Engineering and Biomechanics enables Mr. Bretting to perform collision analysis and reconstruction, as well as the kinematics of motion and the mechanics of injury.

Bicycle Sub-Specialty

Mr. Bretting has extensive experience in the fields of bicycle products and bicycle riding. From 1976 through 1980, he raced bicycles in the United States Cycling Federation progressing to a Senior Category I Road Racer in 1979. During this time period, he rode a bicycle over 100,000 miles. From 1975 through 1981, Mr. Bretting was the lead man for Gitane Pacific, manager of Wilshire West Bicycles and owner of Professional Bicycle Services. As lead man for Gitane Pacific, Mr. Bretting was responsible for the output and quality of the bicycle assembly line. At both Wilshire West Bicycles and Professional Bicycle Service, Mr. Bretting was responsible for bicycle sales, service and assembly, as well as the managerial tasks associated with running



a bicycle shop. During the years of bicycle retail, he worked with a frame builder designing and fabricating custom frame sets and/or complete bicycles to meet the customer needs.

This experience combined with his education enables Mr. Bretting to provide expert testimony in all aspects of bicycle accident reconstruction, involving either a single vehicle (bicycle) or multiple vehicles (bicycle v. auto). This includes matters dealing with bicycle products, cycling techniques and interaction between the bicycle rider and bicycle, as well as the surrounding environment. Within the area of bicycle products, Mr. Bretting analyzes defects, abuse, performance, and consumer expectation.

Biographical Sketch

Mr. Bretting was born in Austin, Texas, in 1956 and is a licensed Mechanical Engineer in the State of California. He graduated with a B.S. in Mechanical Engineering, studying within the Bio-Structures Department, from University of California at Los Angeles, UCLA, in 1979 and continued with graduate studies in Mechanical Engineering. While attending UCLA, Mr. Bretting actively participated in bicycle racing, sanctioned by the United States Cycling Federation, progressing to a Senior Category I. He supported himself through college by managing a bicycle shop and later owned his own bicycle shop.

From June 1981 to December 1990, Mr. Bretting worked at Hughes Aircraft Company as a Member of Technical Staff progressing to a Project Manager, responsible for Satellite Structure Design and Integration. During this time, he developed many Computer Aided Engineering (CAE) skills, including Computer Aided Drafting (CAD) and Finite Element Analysis (FEA). In the field of Accident Reconstruction, he has added Computer Aided Collision Analysis Accident Reconstruction, and Simulation to his CAE skills. Mr. Bretting also has extensive experience in the fields of static and dynamic analysis and testing. This experience and available tools allow him to perform various component and system level analysis and testing.

Since 1980, Mr. Bretting has been retained as a consultant on more than 4,000 litigation matters. His area of expertise is analysis and reconstruction of single or multiple vehicle collisions, with sub-specialties in bicycle rider systems, bicycle products and biomechanics of injury. Furthermore, he has experience in the analysis of product failure resulting from design, improper assembly, manufacturing defects or product abuse.

Reports & Publications

Quantifying the Accuracy of Reporting the Onset of Lateral Movement for a Selection of Bicycle Global Positioning System Computers, Sweet, D., Bretting, G., Wilhelm, C., and O'Brien, N., SAE Technical Paper 2026-01-5078, October 01, 2026.

Testing of Rigid Two- and Three-Wheeled Vehicle Pitch-Over Threshold Models, Sweet, D., O'Brien, N., and Bretting, G., SAE 2026-01-0538, April 7, 2026.

FIT File Processing for Accident Reconstruction, Sweet, D., Bretting, G., , SAE Technical Paper 2025-01-8696, 2025.

Testing and Analysis of Riding a Road Bicycle over an Artificial Pothole, Sweet, D., Bretting, G., and Wilhelm, C., SAE 2024-01-2755, April 8, 2024.

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.

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