



Gabrielle R. Booth

BASc PE

Project Engineer

contact

✉ gabrielle.booth@meaforensic.com

📞 949.916.1058

📍 Los Angeles

expertise

Collision Reconstruction

Gabrielle Booth is a Project Engineer in the Collision Reconstruction group of MEA Forensic's Los Angeles office. She investigates collisions involving cars, trucks, bicycles, and pedestrians.

Gabrielle holds a Bachelor of Applied Science from the University of British Columbia. "My degree is in biomechanical engineering which helps me understand how the vehicles move during a collision, as well as the human body."

In addition to traditional physical evidence like vehicle damage, rest positions, and tire marks, Gabrielle incorporates digital information like black box data and video in her analyses. She uses her knowledge of physics principles like conservation of momentum and energy, and her understanding of digital video cameras and lenses, to create accurate reconstructions. Often, these involve recreating events with 3D models and laser scans of the accident scene. Gabrielle is also involved in MEA's research projects, and recently helped assess the accuracy and reliability of GPS data recorded by bicycle computers.

Prior to joining MEA, Gabrielle worked in a biomechanics research lab designing and testing helmet technologies and crash test dummies, and researching seatbelt fit using MRI for individuals of varying age, BMI, and sex. She has presented the results of her research at scientific conferences and through publications. "Humans and vehicles are complex - I'm hoping my research and case work can help us to understand the way they interact, and to develop a nuanced understanding of car crashes."



education

Bachelor of Applied Science, Biomedical Engineering, University of British Columbia, 2021.

professional status

Professional Engineer (PE). California Board for Professional Engineers, Land Surveyors, and Geologists. November 2024. License No. 42338.

professional experience

MEA FORENSIC ENGINEERS & SCIENTISTS

October 2022 to present | Project Engineer since November 2024

Conducts technical investigations involving motor vehicle accident reconstruction. Conducts site and vehicle inspections, participates in analysis including severity assessment, collision sequence, occupant kinematics, vehicle speed, vehicle dynamics, and accident-avoidance potential.

ORTHOPAEDIC AND INJURY BIOMECHANICS LAB, UNIVERSITY OF BRITISH COLUMBIA

Research and Development Engineer, 2020 to 2022

Co-invented and developed a helmet technology to prevent spinal cord injuries. Led the design and testing of a surrogate neck for automotive crash simulations. Conducted biomechanical research on seatbelt fit variability using MRI data. Designed and iterated an omnidirectional surrogate neck prototype using CT imaging, CAD, and rapid prototyping techniques. Directed an extensive systematic review of head kinematics.

research activities

Gabrielle is leading a study on the accuracy of bicycle computers in recording positions and speeds under various riding conditions. She is also contributing to the firm's research on anti-lock braking systems (ABS) and has conducted research in biomechanics, focusing on how human anatomy interacts with automotive safety systems such as seatbelts and helmets. She worked to better understand how variations in body shape and posture affect injury biomechanics.

awards

Editor's Choice Paper, ASME Journal of Biomechanical Engineering, June 2025.

Dean's Achievement Award in Engineering, Faculty of Applied Science, UBC, May 2021.

Trek Excellence Scholarship, UBC, October 2020.

Dean's Honour List, May 2018, 2019 & 2020.

Fred J. Muir Scholarship in Engineering, Faculty of Applied Science, UBC, March 2020.

NSERC Undergraduate Research Award, NSERC, March 2020.

publications

Bias and Uncertainty in the Time, Position, and Speed Data of Consumer-Grade GPS Devices

Differences in shoulder belt fit for females versus males measured using upright open magnetic resonance imaging

Quantifying the Uncertainty in Bicycle-Computer Speed Measurements

Quantifying Uncertainty in Bicycle-Computer Position Measurements

Variability in Body Shape, Superficial Soft Tissue Geometry, and Seatbelt Fit Relative to the Pelvis in Automotive Postures—Methods for Volunteer Data Collection With Open Magnetic Resonance Imaging

Methodology to measure seat belt fit in relation to skeletal geometry using an upright open MRI

Incorporating neck biomechanics in helmet testing: Evaluation of commercially available WaveCel helmets

The Lack of Sex, Age, and Anthropometric Diversity in Neck Biomechanical Data

lectures & presentations

April 15, 2026 – Bias and Uncertainty in the Time, Position, and Speed Data of Consumer-Grade GPS Devices, Occupant Protection: Accident Reconstruction, 2026 SAE World Congress, Detroit, MI.

January 13, 2026 – GPS Data for Collision Reconstruction, California Highway Patrol Multidisciplinary Accident Investigation Team (CHP MAIT), Irvine, CA.

April 9, 2025 – Quantifying the Uncertainty in Bicycle-Computer Speed Measurements, Accident Reconstruction: Simulation, Mobile Device Data Acquisition and Bicycle Collisions, 2025 SAE World Congress, Detroit, MI

October 12, 2022 – Methodology to measure seat belt fit in relation to skeletal geometry using an upright open MRI, Association for the Advancement of Automotive Medicine 66th Annual Conference, Portland, OR.

June 7, 2022 – Methodology to Image Occupant Posture and Seat Belt Fit using an Upright Open MRI, School of Biomedical Engineering Annual Symposium, Vancouver, BC.

May 24, 2021 – The lack of sex and age diversity in neck biomechanical data, 16th Annual Injury Biomechanics Symposium, Ohio State University, Online.

training and professional development

April 22, 2026 – Drive Down Safety Incidents: Predictive Tools, Rules and Collision Reconstruction, Geotab, Online.

April 14-16, 2026 – Society of Automotive Engineers World Congress, Detroit, MI.

November 18-19, 2025 – Electric Vehicle Safety and Vehicle Mechanical Inspection Training, Centennial College, Toronto, ON.

October 6-10, 2025 – Pedestrian/Bicycle Crash Investigation Level 1, Institute of Police Technology and Management, Online.

June 17, 2025 – PC-Crash 15.1 New Features, Online.

June 2025 – Motorcyclist Training Course, California Motorcyclist Safety Program, Mission Viejo, CA.

June 10, 2025 – Educating Drivers on Sharing the Road: What Works and How to Make it Happen, League of American Bicyclists, Online.

June 5, 2025 – Smart Cycling Complete class, The League of American Bicyclists, Laguna Hills, CA.

April 8-10, 2025 – Society of Automotive Engineers World Congress, Detroit, MI.

December 3-13, 2024 – LEVA Level 1: Forensic Video Analysis & the Law, Law Enforcement & Emergency Services Video Association, Franklin, MA.

October 28-November 1, 2024 – Law Enforcement & Emergency Services Video Association (LEVA) International Training Symposium, Indianapolis, Indiana.

October 3, 2024 – Hyundai-Kia-Tesla EDR Tool Operator/Technician Course, Kent E. Boots & Associates, Irvine, CA.

September 17, 2024 – PC-Crash Video Analysis using 15.0. Online.

June 20, 2024 – PC-Crash 15.0 New Features. Online.

February 18-20, 2024 – Response User Forum and Training. Long Beach, California.

February 6-8, 2024 – PC-Crash LA Workshop. Irvine, California.

October 2-6, 2023 – EDC Reconstruction, Online.

June 27-28, 2023 – CloudCompare Course, Online.

June 20, 2023 – PC-Crash 14.1 New Features, Online.

May 25, 2023 – CDR Update Class, Kent Boots, Online.

April 17-21, 2023 – WREX Conference, Orlando, Florida.

December, 2022 – Bosch CDR Technician Course, Online.

November 29, 2022 – PC-Crash 14.0 Super Scenes, Online.

October, 2022 – Association for the Advancement of Automotive Medicine (AAAM) Conference, Portland, Oregon.

June 7, 2022 – School of Biomedical Engineering (SBME) Annual Symposium, Vancouver, BC.

May 22-24, 2022 – 17th Annual Injury Biomechanics Symposium, Ohio State University, Columbus, OH.

May 24-25, 2021 – 16th Annual Injury Biomechanics Symposium, Ohio State University, Online.
