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TYLER L. SHAW, MSBE

Senior Biomechanics Consultant

Tyler Shaw is a Senior Biomechanics Consultant at Guidance Engineering and Applied Research. He specializes in biomechanical engineering and accident reconstruction. Mr. Shaw evaluates product safety and performance for recreational sports equipment, injury prevention products, and mechanical systems. He also investigates human injuries in accidents and product failures by using biomechanical engineering techniques that apply the principles of engineering to the human body. He has reconstructed and evaluated injury claims resulting from transportation accidents, consumer product use, industrial equipment accidents, and recreational activities such as cycling. Mr. Shaw is a certified League Cycling Instructor (LCI) and bicycle repair technician. He also holds motorcycle road racing competition licenses with several organizations and has been recreationally riding and commuting on motorcycles for nearly 20 years.

Mr. Shaw has extensive experience with biomechanical engineering testing design and analysis. For recreational sports and motor vehicle accidents, Mr. Shaw has researched human motion and forces using anthropomorphic test devices, computational models of the human body, and statistical analyses. He has investigated the effectiveness of personal protective devices such as bicycle and motorcycle helmets. Mr. Shaw is an ISO accredited helmet testing technician and has tested hundreds of motorcycle and bicycle helmets for regulatory purposes. Mr. Shaw has extensive experience testing and analyzing vehicle dynamics and motion and worked as a design and failure analysis engineer for automotive brake systems.

Mr. Shaw has been ACTAR certified for accident reconstruction and participates in professional organizations such as the Society of Automotive Engineers, American Association for Automotive Medicine, and the ASTM F08 protective headgear committee.

Academic Credentials

MS, Bioengineering, Biomechanics Emphasis, San Diego State University, 2014

BS, Mechanical Engineering, San Diego State University, 2009

Licenses and Certifications

Accreditation Commission for Traffic Accident Reconstruction - ACTAR #4087

M1 Motorcycle License Endorsement

Certified Motorcycle Road Racing Competition License WERA, CVMA, and AFM organizations

ISO Accredited Helmet Testing Technician – DOT Standard; 2017

Association for the Advancement of Automotive Medicine – AIS15 and Injury Scaling: Uses and Techniques; 2018

League of American Bicyclists, League Cycling Instructor (LCI); 2015

United Bicycle Institute, Certified Bicycle Technician; 2015

Northwestern University Center for Public Safety -– Preserving and Analyzing Information from Heavy Vehicle EDRs; 2013

Engineering Dynamics Corporation EDC Reconstruction; 2012

Engineering Dynamics Corporation Vehicle Dynamics – Physics Simulation Analyst; 2011

EIT/FE No. 13-295-39, California; 2011

Collision Safety Institute, CDR Airbag Module Technician and Analyst; 2010

Continuing Education and Training

National Football League – Helmet Challenge Symposium 2019

Society of Automotive Engineers

- Reconstruction and Analysis of Motorcycle Crashes; 2018
- Reconstruction and Analysis of Rollover Crashes of Light Vehicles; 2018
- Vehicle Crash Reconstruction: Principles and Technology; 2018
- Vehicle Frontal Crash Occupant Safety and CAE; 2017
- Injuries, Anatomy, Biomechanics & Federal Regulation; 2016
- Accessing and Interpreting Heavy Vehicle Event Data Recorders; 2011

Sports Concussion Institute – Concussion Summit; 2017

Southwestern Association of Technical Accident Investigators, Inc, Seminar; 2012

Spine Research Institute of San Diego – Whiplash Injury Biomechanics & Traumatology; 2015

L.A. County Bicycle Coalition – Bicycling Traffic Skills 101; 2015

TASS Americas – MADYMO Introduction Course; 2012

Publications

"Quantifying Engine Braking for Various Common Street Motorcycles", H. Jansen, B. LeBlanc, C. Wilhelm, T. Shaw, A. Lowii, Society of Automotive Engineers 2020-01-0880, 2020.

Fatzinger, EC, Shaw TL, Landerville JB, "The Effects of Power Interruption on Electronic Needle-Display Motorcycle Speedometers," SAE Publication 2016-01-1474, 2016.

Master's Thesis: "Biomechanic Analysis of Injury Mitigation Performance for Novel Helmet Design," Montezuma Publishing, 2014.

Conference Presentations and Invited Lectures

ASTM F08.53 Low Velocity Impact Helmet Tests – 2017 Update – A Presentation for American Society of Testing and Materials F08 Committee Meeting; 2017.

Oblique Impact Response of Elastomeric Damper Matrix Helmets – A Presentation for American Association for the Advancement of Automotive Medicine 61st Annual Conference; 2017.

Presentation for LAPD Multidisciplinary Collision Investigation Team: Motorcycle Helmets; 2021

Bicycle Helmets – A Presentation for Southwestern Association of Technical Accident Investigators Fall Conference; 2016.

Lecture to San Diego County Sheriff Department Traffic Deputies: Pedestrian Accident Reconstruction; 2012

Presentation for San Diego Police Department Traffic Division: Pedestrian Collision Reconstruction; 2011

Testing and Technical Work Performed for Publications

"An Analysis of EDR Data in Kawasaki Ninja 300 (EX300) Motorcycles," Ed Fatzinger, Society of Automotive Engineers 2017-01-1436, 2017.

Motorcycle Crash Testing (16 Crash Tests), California Association of Accident Reconstruction Specialists, 2017.

"Acceleration and Braking Performance of Transit Style Buses," James English and Roman Beck, Society of Automotive Engineers 2012-01-0618, 2012.

Professional Affiliations

American Association for the Advancement of Automotive Medicine

American Society of Testing and Materials, F08.53 Headgear Subcommittee

California Association of Accident Reconstruction Specialists

League of American Bicyclists

Society of Automotive Engineers

Southwestern Association of Technical Accident Investigators

Licensed Motorcycle Roadracer with AFM, CVMA, WERA organizations