ENRIQUE BONUGLI, BSIE, MSBME

CURRICULUM VITAE

EDUCATION

M.S.	Biomedical Engineering UT Health Science Center San Antonio University of Texas at San Antonio	2015
B.S.	Industrial Engineering Marquette University Milwaukee, Wisconsin	2003

PROFESSIONAL EXPERIENCE

Technical Director — 2015-Present
Biodynamic Research Corporation
San Antonio, Texas

Senior Test Engineer — 2012-2015
Biodynamic Research Corporation
San Antonio, Texas

Test Engineer — 2003-2012
Biodynamic Research Corporation
San Antonio, Texas

Engineering Intern — 2002-2003
Biodynamic Research Corporation
San Antonio, Texas

Volunteer — 2003-2004
University Hospital ExpressMed Clinic
San Antonio, Texas

Chapter President — 2001-2003
Institute of Industrial Engineers (IIE)
Industrial Engineering Department
Marquette University
Milwaukee, Wisconsin

Research Assistant 2001-2002
Industrial Engineering Department
Marquette University
Milwaukee, Wisconsin

POST GRADUATE STUDIES

SAE International 2024
Accident Reconstruction Digital Summit

SAE International 2022
Applied Vehicle Dynamics
Thermal, California

SAE International 2022
Accident Reconstruction Digital Summit

MSF/Motorcycle Safety Foundation 2022
Basic Rider Course Segment 1: E-Course
San Antonio, Texas

Webinar: Elevating Collision Reconstruction Analyses with 2021
Laser Scanned Exemplars
Organization: Lightpoint

Webinar: Using Exemplar Vehicle Point Clouds for 2021
Improved Collision Investigation & Reconstruction
Organization: Lightpoint

FAA Aviation Safety 2021
FAA Safety Team Aviation Learning Center Online Course
Part 107 Small Uas Recurrent

High Performance Driving School 2021
The Driver's Edge: Motor Speedway Resort (MSR)
Houston, Texas

Accessing and Interpreting Heavy Vehicle Event Data Recorders 2021
Society of Automotive Engineers
Oxnard, California

Stapp Car Crash Conference 2019
San Antonio, Texas

Advanced Crash Reconstruction Utilizing Human Factors Northwestern University Center for Public Safety Evanston, Illinois	2019
Certificate of Participation FARO Laser Scanner San Antonio, Texas	2018
Federal Aviation Association Remote Pilot-in-Command Certification Hallmark University San Antonio, Texas	2018
Crash Data Retrieval – Data Analyst Northwestern University Center for Public Safety Evanston, Illinois	2018
EDC Simulation Engineering Dynamic Corporation Burbank, California	2017
Crash Data Recorder System Technician Levels 1&2 Northwestern University Traffic Institute Evanston, Illinois	2014
Data Analysis Using SAS UT Summer Statistics Institute University of Texas at Austin, Texas	2012
ARAS360 Advanced 3D Computer Diagramming and Animation for Incident Reconstruction San Antonio, Texas	2011
Certified Powered Industrial Truck Operator Toyota Lift of South Texas San Antonio, Texas	2011
Heavy Vehicle Crash Reconstruction Class # HVCR1170060A Northwestern University Traffic Institute Evanston, Illinois	2011
Computer-Aided Drafting AutoCAD 2011 Certificate No: 1MSJBYYGKE1 Avatech Solutions, Inc.	2010

Irving, Texas

The Fundamentals of Heavy Truck Dynamics 2009
Course I.D. #C0837
Society of Automotive Engineers
Detroit, Michigan

EDC Reconstruction 2008
Engineering Dynamics Corporation
Coral Gables, Florida

Assessing and Analyzing Crash and Injury 2008
Data from Online Databases: Course I.D. #96019
Society of Automotive Engineers
Detroit, Michigan

Traffic Accident Reconstruction I & II 2007
Northwestern University Traffic Institute
Evanston, Illinois

Completion of Pre-Medical Requirements 2005
Our Lady of the Lake University
San Antonio, Texas

APPOINTMENTS/QUALIFICATIONS

Prefreshman Engineering Program (PREP) 2023-Present
Board of Advisors
University of Texas at San Antonio (UTSA)

University of Texas Medical Branch, 2020-Present
Aerospace Medicine Residency Program
Guest Instructor

UTSA Roadrunner Network Mentorship Program 2020-Present
Mentor
University of Texas at San Antonio (UTSA)

UTSA Biomedical Engineering Alumni Advisory Board 2020-Present
Panel Member
University of Texas at San Antonio (UTSA)

Association for the Advancement of Automotive Medicine 2019-Present
Policy Committee Member
Chicago, Illinois

USAF School of Aerospace Medicine 2019-Present
Clinical Adjunct Professor
Wright-Patterson AFB, Ohio

Department of Biomedical Engineering 2019-Present
University of Texas San Antonio (UTSA)
Lecturer

USAF School of Aerospace Medicine 2017-Present
Guest Instructor
Wright-Patterson AFB, Ohio

PROFESSIONAL ACTIVITIES

Reviewer
Society of Automotive Engineers
Elsevier Publishing

PROFESSIONAL AFFILIATIONS

Human Factors & Ergonomics Society 2023-Present
Association for the Advancement of Automotive Medicine 2009-Present

Accredited Traffic Accident Reconstructionist (#2183) 2009-Present
Accreditation for the Commission for Accident Reconstruction

Society of Automotive Engineers 2008-Present

HONORS AND AWARDS

1st Place in the College of Engineering and Dept. of Mechanical and Industrial Engineering Senior Design Competition (R.W. Marklin Advisor) 2003
Marquette University
Milwaukee, Wisconsin

PRESENTATIONS AND INVITED LECTURES

Chapter 26: Biomechanical Analysis of Low Speed Collision and Injury Risk Assessment (Non-CME Presentation), 24th Annual AAOS Workers' Compensation and Musculoskeletal Injuries Course, American Academy of Orthopaedic Surgeons, San Antonio, Texas, November 2022.

Replicating Real-World Friction of Motorcycle Helmet Impacts and Its Effects on Head Injury Metrics, Society of Automotive Engineers World Congress, Detroit, Michigan, April 2017.

Instructor: Twenty-Eighth Annual Scientific Session with Advanced Clinical Skills, American Academy of Disability Evaluating Physicians, "Event/Crash Data Recorders", San Antonio, Texas, November 2014.

Instructor: Twenty-Eighth Annual Scientific Session with Advanced Clinical Skills, American Academy of Disability Evaluating Physicians, "Importance of Crash and Other Testing", San Antonio, Texas, November 2014.

Instructor: Twenty-Eighth Annual Scientific Session with Advanced Clinical Skills, American Academy of Disability Evaluating Physicians, Demonstration: "Bumper Crushing, Roll Spit, Hybrid 3 Dummies", San Antonio, Texas, November 2014.

Characterization of Force Deflection Properties for Vehicular Bumper-to-Bumper Interactions, Society of Automotive Engineers World Congress, Detroit, Michigan, April 2014.

Biomechanics of Brain Injury, American Academy of Disability Evaluating Physicians 27th Annual Scientific Session, San Antonio, Texas, January 10, 2014.

Assessing Injury Risk from Low Energy Vehicle Crashes, Defense Trial Counsel of Indiana 20th Annual Conference, Michigan City, Indiana, November 22, 2013.

Assessment of Occupant Injury by Reconstruction of a Minimal Damage Crash, Trucking Industry Defense Association 20th Annual Industry Seminar, Dallas, Texas, October 13, 2012.

PUBLICATIONS

Watson, R.A., Bonugli, E., Greenston, M., Santos, E., and Matinez, J., *Event Data Recorder Trigger Probability in the Crash Investigation Sampling System Database*, in SAE Technical Paper Series. 2024-01-5027, 2024.

Watson, R., Bonugli, E., and Greenston, M., *Frontal Crash Reconstruction Compared to Event Data Recorders in the Crash Investigation Sampling System Database and the Effect on Injury Risk Models*, SAE Technical Paper 2023-01-5043, 2023.

Watson R; Cormier J; Bonugli E; and Greenston M. *Comparison of Rear Impact Crash Reconstructions to Event Data Recorders in the Crash Investigation Sampling System Database. SAE Technical Paper.* SAE # 2022-01-5069. September 2022.

Bowles, AP and Bonugli, E. Forensic kinesiology. Wecht, CH. IN: *Forensic Sciences*. New York: Matthew Bender Elite Products; 2022.

Bonugli E; Wood R; Greenston M; Scott W; Folley A, and Gwin L. *Human subject kinematic response to low-speed sideswipes involving a truck tractor*. *SAE Technical Paper.* SAE #2021-01-5043. 2021.

Guzman H; Barraza A; Bonugli E; Reinhart L and Gwin L. Comparison of lumbar spine acceleration profiles of every day activities and examination of their frequency content. *41st Annual Meeting of the American Society of Biomechanics*. 2017.

Scott WR: Bonugli EJ; Guzman HM; and Swartzendruber DJ. System Force-Deformation Modeling Apparatuses and Methods. Biodynamic Research Corporation, Assignee. U.S. Patent No. 9,453,786. 2016 Sep 27.

Bonugli E; Cormier J; Reilly M and Reinhart L, *Replicating Real-World Friction of Motorcycle Helmet Impacts and Its Effects on Head Injury Metrics*, SAE Technical Paper 2017-01-1433, 2017, doi:10.4271/2017-01-1433.

Bonugli E; Watson R; Freund M and Wirth J, *Expanded Characterization of Force-Deflection Properties of Vehicle-to-Vehicle Systems*, SAE Technical Paper 2017-01-1417, 2017, doi:10.4271/2017-01-1417.

Funk JR; Watson RA; Cormier JM; Guzman H, and Bonugli E. Kinematics and kinetics of vigorous head shaking. *J Appl Biomech*. 2015; Ahead of Print.

Wirth J; Bonugli E, and Freund M. Assessment of the accuracy of Google Earth imagery for use as a tool in accident reconstruction. *SAE Technical Paper*. SAE #2015-01-1435. 2015:doi:10.4271/2015-01-1435.

Bonugli EB, Wirth JL, Funk JR, Cormier JM. "Characterization of Force Deflection Properties for Vehicular Bumper-to-Bumper Interactions," *SAE Int. J. Trans. Safety*. SAE #2014-01-1991. 2014; 2(2):doi:10.4271/2014-01-1991.

Gwin LP, Guzman HM, Bonugli EB, Scott MW. "Measurement of Tolerable and Non-Injurious Levels of Back-to-Front Whole Body Accelerations," SAE Technical Paper 2014-01-0492, 2014.

Funk JR, Bonugli EB, Guzman HM, and Freund MT. "Comparison of Quasistatic Bumper Testing and Dynamic Full Vehicle Testing for Reconstructing Low Speed Collisions," *SAE Int. J. Passeng. Cars - Mech. Syst* 7(3):2014.

Cormier JM, Freund MT, Bonugli EB, and Guzman HM. "Passenger Car Response to Interaction with Tractor-Trailer Steer Tire Lugs," *SAE Int. J. Commer. Veh.* 7(1):2014.

Funk, JR, Cormier JM, Bain CE, Wirth JL, Bonugli EB, and Watson RA, "Factors Affecting Ejection Risk in Rollover Crashes," *Annals of Advances in Automotive Medicine*., 56:203-211, 2012.

Funk JR, Wirth JL, Bonugli EB, and Watson RA. Asay A, "An Integrated Model of Rolling and Sliding in Rollover Crashes," *Society of Automotive Engineers*, Paper 2012-01-0605, 2012.

Scott WR, Bonugli EB, Guzman HM, and Swartzendruber DJ. "Reconstruction of Low-Speed Crashes Using the Quasi-Static Force vs. Deformation Characteristics of the Bumpers Involved in the Crashes," *Society of Automotive Engineers*, Paper 2012-01-0598, 2012.

Funk JR, Watson RA, Cormier JM, Bain CE, Guzman HM, and Bonugli EB. "Neck Muscle Strength Measured During Vigorous Head Shaking," *Proceedings of the ASME 2011 Summer Bioengineering Conference*, SBC2011-53193, 2011.

Funk JR, Cormier JM, Bain CE, Guzman HM, Bonugli EB, and Manoogian SJ. "Head and Neck Loading in Everyday and Vigorous Activities," Annals of Biomedical Engineering, DOI: 10.1007/s10439-010-0183-3, 2010.

Manoogian SJ, Funk JR, Cormier JM, Bain CE, Guzman HM, and Bonugli EB. "Evaluation of Thoracic and Lumbar Accelerations of Various

Volunteers in Vertical and Horizontal Loading Scenarios," *Society of Automotive Engineers World Congress*, Paper 2010-01-0146, 2010.

Funk JR, Cormier JM, Bain CE, Guzman HM, Bonugli EB. "Validation and Application of a Methodology to Calculate Head Accelerations and Neck Loading in Soccer Ball Impacts," *Society of Automotive Engineers World Congress*, Paper 2009-01-0251, 2009.

Funk JR, Cormier JM, Bain CE, Guzman HM, Bonugli EB. "Relationship Between Linear and Rotational Head Acceleration in Various Activities," *Proceedings of the 45th Annual Rocky Mountain Bioengineering Symposium*, in *Biomedical Sciences Instrumentation*, 44: 207 – 212, 2008.

Funk JR, Cormier JM, Bain CE, Guzman HM, Bonugli EB. "An Evaluation of Various Neck Injury Criteria in Vigorous Activities," *IRCOBI Conference.* International Research Council on the Biomechanics of Injury. Maastricht, The Netherlands. September 19-21, 2007:16 pp.

RESEARCH ASSISTANT ACKNOWLEDGEMENTS

Scott WR, Bain CE, Manoogian SJ, Cormier JM, and Funk JR. "Simulation Model for Low-Speed Bumper-to-Bumper Crashes," *Society of Automotive Engineers World Congress*, Paper 2010-01-0051, 2010.

Guzman HM, McConnell WE, and Smith DA. Vehicle Dynamics in Non-Collinear Low-Velocity, Rear End Collisions, *Accident Reconstruction 2004* (SP-1873). Warrendale, PA, Society of Automotive Engineers, Inc. 2004; 67-80. SAE Paper #2004-01-1193.

Guzman HM, Meredith RE, and Hiltner EC. Development of an Impact Pendulum for Use in Collinear, Low-Velocity Front-to-Rear Crash Tests, Society of Automotive Engineers, Inc. 2005; SAE Paper #2004-06B-313.