Bryan C. Randles, MS, ACTAR

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Executive Vice President – Biomechanics and Accident Reconstruction

EDUCATION

B.S.	Bachelor of Science, Biomedical Engineering University of Southern California – Los Angeles, CA – 1997
M.S.	Master of Science, Kinesiology, Emphasis in Biomechanics California State University, Northridge – Northridge, CA – 2003 Thesis: The development of a linear force plate for the assessment of the coefficient of friction.
Graduate Student	Biomedical Engineering, Biomechanics Discipline University of California, Los Angeles – Westwood, CA – 2001-2005

EMPLOYMENT SUMMARY

June 2005 - Present

Biomechanical Research & Testing, LLC – Long Beach, CA
Biomechanical Engineer and Accident Reconstructionist / Partner

Conducts research on the biomechanics, human response and injury potential of vehicular impacts and other activities. Performs fully instrumented tests utilizing human subjects and/or human surrogates. Data collected and analyzed include accelerations, velocities, displacements, GPS, forces, electromyography and high-speed film/video. Has conducted over 1,500 instrumented vehicle impact tests involving human subjects and/or surrogates for vehicle to vehicle and vehicle to pedestrian impacts. Has evaluated vehicular impact behavior, including various techniques for measuring vehicle crush and the assessment of vehicle damage, as well as vehicle crash and post-impact dynamics. Has conducted crash tests for various televised programs regarding automotive impacts and occupant response to impact. Conducted research regarding the use of photogrammetry in accident reconstruction.

Conducts fully instrumented human subject testing of amusement park attractions. Has tested roller coasters, water rides, go-kart/bumper cars, and additional attractions for purposes of ride evaluation, design and development. Currently serves on the ASTM F- 24 biodynamic testing subcommittee to develop biodynamic standards for testing and evaluation of amusement park rides.

Performs biomechanical and accident reconstruction analyses of automotive accidents and various events for purposes of litigation, including impact reconstruction, occupant kinematics, occupant force exposure and injury potential.

June 2009 - 2013

Clark Training Center, Law Enforcement & Public Safety Training
Instructor – Traffic Collision Investigation (TCI) – Reconstruction (POST certified)

Teach a half day course as part of the Advanced Accident Reconstruction training. Topics taught include Airbag-Related Injuries and Pedestrian Accident Reconstruction and Biomechanics.

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Jan. 1999 - June 2005	**Accident Research and Biomechanics, Inc.** – Valencia, CA *Research Engineer*

Responsible for the reconstruction and biomechanical analysis of accidents involving automobiles, trucks, buses, motorcycles, bicycles and pedestrians. Evaluation of vehicle dynamics, impact severity, injury potential, occupant kinematics and slip and fall accidents. Research included pedestrian crash testing, pedestrian gait studies, low- speed rear-end volunteer testing, low-speed lateral impacts using human volunteers, vehicle dynamics of low-speed vehicles and biomechanical analysis of slip and fall.

Sept. 1999 - Dec. 2000	**California State University, Northridge** – Northridge, CA *Instructor – Department of Kinesiology*

Taught an undergraduate level, upper division biomechanics lab. Also appeared as a guest lecturer on forensic biomechanics for undergraduate biomechanics class.

March 1998 - Dec. 1998	**Collision Research and Analysis, Inc.** – Torrance, CA *Research Engineer*

Analysis and reconstruction of automobile, auto-pedestrian, truck, bicycle and motorcycle collisions. Also participated in occupant kinematics analysis as it relates to accident reconstruction, vehicle component testing and visibility testing. Vehicle component testing included static seat pull testing, door latch testing, steering wheel and steering column testing and liftgate assembly and latch testing, including design and construction of the test fixture.

CONTINUING EDUCATION AND ACCREDITATION

Aug. 2020	Ruth Consulting, virtual training *Event Data Recorder Analysis in Traffic Accident Reconstruction*
Feb. 2020	PhotoModeler Technologies, Signal Hill, CA *PhotoModeler for Collision Reconstruction*
Feb. 2019	Collision Safety Institute, Long Beach, CA *Crash Data Retrieval (CDR) Technician*
June 2018	Crash Safety Solutions, LLC., East Hampton, CT *Human Factors in Traffic Crashes*
March 2014	Diversified Technical Systems, Seal Beach, CA *User Technical Training*
Feb. 2014	Engineering Dynamics Corporation, St. Petersburg, FL *HVE Forum*
Dec. 2013	FARO, Signal Hill, CA *FARO Laser Scanner Training*
April 2013	Collision Safety Institute, Long Beach, CA *Crash Data Retrieval (CDR) Technician Level 2*
April 2013	Collision Safety Institute, Long Beach, CA *Crash Data Retrieval (CDR) Technician Level 1*
August 2011	ARAS 360º, Montclair, CA *ARAS 360 Advanced 3D Computer Diagramming for Crash Reconstruction*
April 2010	MacInnis Engineering Associates, Laguna Hills, CA *PC-Crash Workshop*

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Jan. 2007	ACTAR (Accreditation Commission for Traffic Accident Reconstruction) *Full Accreditation as Traffic Accident Reconstructionist (Registration #1761)*
June 2006	I-CAR *I-CAR Material Damage Training Course*
March 2006	Eos Systems, Inc., San Diego, CA *PhotoModeler Pro 5 for Collision Reconstruction*
Feb. 2006	Diversified Technical Systems, Inc., Long Beach, CA *Principals of Dynamic Data Collection*
Dec. 2005	CSI Mapping, Yuma, AZ *Forensic Mapping*
Feb. 2005	Engineering Dynamics, Inc., Coconut Grove, FL *HVE Forum*
Nov. 2004	Eos Systems, Inc., Scottsdale, AZ *PhotoModeler Pro 5 for Collision Reconstruction*
April 2004	Association for the Advancement of Automotive Medicine, Tempe, AZ *Car Crashes and Occupant Injuries: A Team Approach to Crash Investigation*
Sept. 2001	Texas A & M University, Texas Engineering Extension Service, Mesquite, TX *Collision Trauma Biomechanics*
June 2001	Vetronix Corporation, Santa Barbara, CA *Crash Data Retrieval System Training Seminar*
Nov. 2000	McHenry Software, Inc., Los Angeles, CA *2000 McHenry Accident Reconstruction Seminar and Users' Conference*
Sept. 2000	MacInnis Engineering Associates, Vancouver, BC, Canada *Advanced PC-Crash Workshop*
April 2000	Veridian Engineering and Air Force Research Lab, Wichita, KS *Introductory ATB Class*
Dec. 1999	Society of Automotive Engineers, Costa Mesa, CA *Accident Reconstruction: State-of-the-Art TOPTEC*
Oct. 1999	California Association of Accident Reconstruction Specialists, Concord, CA *Speed from Crush*
August 1999	Texas A & M University, Texas Engineering Extension Service, Seattle, WA *Analysis of Low Speed Collisions*
Feb. 1999	Association for the Advancement of Automotive Medicine, Vancouver, BC, Canada *The Biomechanics of Impact and Occupant Protection: Understanding the Limits of Human Tolerance*

PROFESSIONAL CONFERENCES AND SEMINARS ATTENDED

May 2022	Barczyk Biomechanics Institute Crash Conference – New Orleans, LA *Presented by Barczyk Biomechanics Institute*
Feb. 2022	SATAI Winter Conference 2022, Glendale, AZ *Presented by Southwestern Association of Technical Accident Investigators, Inc. (SATAI)*

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Nov. 2020	How have drivers responded in real world crash and near crash scenarios? *Sponsored by California Association of Accident Reconstruction Specialists*
Nov. 2018	Principles of Dynamic Data Collection, Seal Beach, CA *Presented by Diversified Technical Systems*
August 2018	Evaluating Injury Causation in Motor Vehicle Accidents: Applied Biomechanics and Clinical Science *Sponsored by California Association of Accident Reconstruction Specialists*
Feb. 2018	Crash Safety Solutions, LLC., Austin, TX *I.DRR User's Forum*
Sept. 2017	ARC-CSI Crash Conference 2017, Las Vegas, NV *Presented by the Accident Reconstruction Network and the Collision Safety Institute*
May 2016	ARC-CSI Crash Conference 2016, Las Vegas, NV *Presented by the Accident Reconstruction Network and the Collision Safety Institute*
April 2016	Barczyk Biomechanics Institute Crash Conference – Lafayette, LA *Presented by Barczyk Biomechanics Institute*
May 2015	ARC-CSI Crash Conference 2015, Las Vegas, NV *Presented by the Accident Reconstruction Network and the Collision Safety Institute*
Jan. 2015	CA2RS Training Conference, Glendora, CA *Sponsored by California Association of Accident Reconstruction Specialists*
June 2014	ARC-CSI Crash Conference 2014, Las Vegas, NV *Presented by the Accident Reconstruction Network and the Collision Safety Institute*
April 2014	CA2RS Training Conference, Los Angeles, CA *Sponsored by California Association of Accident Reconstruction Specialists*
March 2014	SATAI Spring Conference 2014, Laughlin, NV *Presented by Southwestern Association of Technical Accident Investigators, Inc. (SATAI)*
May 2013	ARC-CSI Crash Conference 2013, Las Vegas, NV *Presented by the Accident Reconstruction Network and the Collision Safety Institute*
April 2013	SAE World Congress 2013, Detroit, MI *Society of Automotive Engineers*
March 2013	SATAI Spring Conference 2013, Manhattan Beach, CA *Presented by Southwestern Association of Technical Accident Investigators, Inc. (SATAI)*
June 2012	ARC-CSI Crash Conference 2012, Las Vegas, NV *Presented by the Accident Reconstruction Network and the Collision Safety Institute*
March 2012	SATAI Spring Conference 2012, Manhattan Beach, CA *Presented by Southwestern Association of Technical Accident Investigators, Inc. (SATAI)*
May 2011	ARC-CSI Crash Conference 2011, Las Vegas, NV *Presented by the Accident Reconstruction Network and the Collision Safety Institute*
May 2010	ARC-CSI Crash Conference 2010, Las Vegas, NV *Presented by the Accident Reconstruction Network and the Collision Safety Institute*
April 2010	SAE World Congress 2010, Detroit, MI *Society of Automotive Engineers*

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Feb. 2010	Investigation and Analysis of Rollover Collisions, Santa Ana, CA *Presented by the California Association of Accident Reconstruction Specialists*
June 2009	ARC-CSI Crash Conference 2009, Las Vegas, NV *Presented by the Accident Reconstruction Network and the Collision Safety Institute*
June 2008	ARC-CSI Crash Conference 2008, Las Vegas, NV *Presented by the Accident Reconstruction Network and the Collision Safety Institute*
May 2008	Risk Management Seminar, Kansas City, MO *Presented by the American Public Transportation Association*
June 2007	ARC-CSI Crash Conference 2007, Las Vegas, NV *Presented by the Accident Reconstruction Network and the Collision Safety Institute*
June 2006	ARC-CSI Crash Conference 2006, Las Vegas, NV *Presented by the Accident Reconstruction Network and the Collision Safety Institute*
June 2005	ARC-CSI Crash Conference 2005, Las Vegas, NV *Presented by the Accident Reconstruction Network and the Collision Safety Institute*
June 2004	ARC-CSI Crash Conference 2004, Las Vegas, NV *Presented by the Accident Reconstruction Network and the Collision Safety Institute*
March 2004	SAE World Congress 2004, Detroit, MI *Society of Automotive Engineers*
Oct. 2003	CA2RS vs Bikes, Anaheim, CA *Presented by the California Association of Accident Reconstruction Specialists*
June 2003	ARC-CSI Crash Conference 2003, Las Vegas, NV *Presented by the Accident Reconstruction Network and the Collision Safety Institute*
April 2003	Southern California Conference on Biomechanics, Pepperdine University, Malibu, CA *Sponsored by the American Society of Biomechanics*
March 2003	SAE World Congress 2003, Detroit, MI *Society of Automotive Engineers*
Sept. 2002	Southern California Tissue Engineering Symposium, Los Angeles, CA *Sponsored by Baxter Biosciences and the UCLA Biomedical Engineering Society*
March 2002	SAE World Congress 2002, Detroit, MI *Society of Automotive Engineers*
August 2001	25th Annual Meeting of the American Society of Biomechanics, San Diego, CA March 2001 SAE World Congress 2001, Detroit, MI *Society of Automotive Engineers*
Oct. 2000	CA2RS Training Conference, Concord, CA *Sponsored by California Association of Accident Reconstruction Specialists*
June 2000	Vehicle Safety 2000, London, England *Institution of Mechanical Engineers (IMechE)*
April 2000	Southern California Conference on Biomechanics, USC, Los Angeles, CA *Sponsored by the American Society of Biomechanics*
March 2000	Mastering the Art of Digital Video, Burbank, CA *Sponsored by Adobe Systems, Pinnacle Systems, Compaq and Microsoft*

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March 2000	"Going Back to the Back" New Approaches to Disorders of the Spine, Northridge, CA *California State University, Northridge, Center for Sports Medicine Clinical Seminars*
Feb. 2000	Motorsports Safety – Presented by John Melvin, Ph.D., San Luis Obispo, CA *Sponsored by the Society of Automotive Engineers*
Jan. 2000	Transportation Research Board 79th Annual Meeting, Washington, D.C. Dec. 1999 Accident Reconstruction: State-of-the-Art TOPTEC, Costa Mesa, CA *Sponsored by the Society of Automotive Engineers*
Oct. 1999	43rd Stapp Car Crash Conference, San Diego, CA
Oct. 1999	CA2RS Annual Conference, Concord, CA *Sponsored by California Association of Accident Reconstruction Specialists*
April 1999	Southern California Conference on Biomechanics, Cal. Poly., Pomona, CA *Sponsored by the American Society of Biomechanics*
Feb. 1999	World Congress on Whiplash-Associated Disorders, Vancouver, BC, Canada *Traffic Safety and Auto Engineering Stream*

PROFESSIONAL AFFILIATIONS

Accreditation Commission for Traffic Accident Reconstruction (ACTAR)

Society of Automotive Engineers (SAE)

California Association of Accident Reconstruction Specialists (CA^2RS)

American Society for Testing and Materials (ASTM)

PRESENTATIONS AND PUBLICATIONS

Vandiver, W., Anderson, R., Ikram, I., Randles, B. and Furbish, C. "Analysis of crash data from a 2012 Kia Soul data recorder," SAE Technical Paper 2015-01-1445.

Randles, B., Voss, D., Ikram, I., Furbish, C., Welcher, J. and Szabo, T. "Acceleration Testing and Modeling of Vehicle Kinematics Under Idle Conditions," SAE Technical Paper 2014-01-0484, doi:10.4271/2014-01-0484.

Vandiver, W., Ikram, I., Randles, B.,"Validation and Use of EDR Data from a Non-CDR Supported Vehicle in a Criminal Prosecution,", Collision Magazine, Volume 8, Issue 1, Spring 2013.

Vandiver, W., Ikram, I., and Randles, B., "Accuracy of Pre-Crash Speed Recorded in 2009 Mitsubishi Lancer Event Data Recorders," SAE Technical Paper 2013-01-1263, 2013, doi:10.4271/2013-01-1263.

Randles, B., Jones, B., Welcher, J., Szabo, T., Elliott, D. and MacAdams, C., "The Accuracy of Photogrammetry vs. Hands-on Measurement Techniques used in Accident Reconstruction," SAE Technical Paper 2010-01-0065, 2010, doi:10.4271/2010-01-0065.

Randles, B. Accident Reconstruction and Biomechanical Issues in the Transit Industry (Presentation). American Public Transportation Association. Kansas City, MO, May 2008.

Randles, B. Mechanisms of airbag induced injuries (Presentation). ARC-CSI Crash Conference. Las Vegas, NV, June 2007.

Randles, B. Analysis of Curb Impacts (Presentation). ARC-CSI Crash Conference. Las Vegas, NV, June 2006.
Long, T., Fugger, T. and Randles, B., "Vehicle performance characteristics and seat belt effectiveness in low speed vehicles and golf cars." Enhanced Safety of Vehicles 05-0431, 2005.

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Fugger, T., Randles, B., and Eubanks, J., "The Efficacy of Event Data Recorders in Pedestrian-Related Accidents," SAE Technical Paper 2004-01-1195, 2004, doi:10.4271/2004-01-1195.

Fugger, T., Randles, B., Welcher, J., and Szabo, T., "Vehicle and Occupant Kinematics in Low-Speed Override/Underride Collisions," SAE Technical Paper 2003-01-0158, 2003, doi:10.4271/2003-01-0158.

Wobrock, J., Fugger, T., Randles, B. and Vrongistinos, K., "Vibrations experienced by wheelchair users while traversing decorative crosswalks." World Congress of Biomechanics, 2002 Annual Conference Proceedings.

Fugger, T., Randles, B., Wobrock, J., Welcher, J., Voss, D. and Eubanks, J., "Human Occupant Kinematics in Low Speed Side Impacts," SAE Technical Paper 2002-01-0020, 2002, doi:10.4271/2002- 01-0020.

Fugger, T., Randles, B., Wobrock, J., and Eubanks, J., "Pedestrian Throw Kinematics in Forward Projection Collisions," SAE Technical Paper 2002-01-0019, 2002, doi:10.4271/2002-01-0019.

Fugger, T., Randles, B., Wobrock, J. and Eubanks, J., "An analysis of pedestrian dummy throw characteristics for forward projection pedestrian collisions (published abstract)." International Research Council on Biomechanics of Impact (IRCOBI), 2001.

Randles, B., Fugger, T., Eubanks, J., and Pasanen, E., "Investigation and Analysis of Real-Life Pedestrian Collisions," SAE Technical Paper 2001-01-0171, 2001, doi:10.4271/2001-01-0171.

Fugger, T., Randles, B., Wobrock, J., Stein, A., and Whiting, W., "Pedestrian Behavior at Signal- Controlled Crosswalks," SAE Technical Paper 2001-01-0896, 2001, doi:10.4271/2001-01-0896.

Fugger, T., Wobrock, J., Randles, B., Stein, A., and Whiting, W., "Driver Characteristics at Signal- Controlled Intersections," SAE Technical Paper 2001-01-0045, 2001, doi:10.4271/2001-01-0045.

Fugger, T., Randles, B., Wobrock, J., Stein, A., and Whiting, W., "Analysis of elderly pedestrian gait and perception/reaction at signal-controlled crosswalk intersections." Transportation Research Board, TRB, National Research Council, Washington, D.C., 2001.

Randles, B. "Pedestrian motion analysis (Presentation)." California Association of Accident Reconstruction Specialists. Concord, CA, October 2000.

Fugger, T., Randles, B., and Eubanks, J., "Comparison of pedestrian accident reconstruction models to experimental test data for wrap trajectories." IMechE Conference Transactions 2000-2, C567/031/2000, 2000.

Fugger, T., Randles, B., Stein, A., Whiting, W., and Gallagher, B., "Analysis of pedestrian gait and perception/reaction at signal-controlled crosswalk intersections." Transportation Research Record 1705, TRB, National Research Council, Washington, D.C., 2000.

Fugger, T. and Randles, B.,"Forensic aspects of pedestrian accident reconstruction (Presentation)." Society of Forensic Engineers and Scientists. Big Sur, CA, January 2000.

AWARDS AND RECOGNITIONS

Dean's Scholarship Award, University of Southern California, 1992.

2000 Outstanding Paper Award from the Transportation Research Board Committee on Pedestrians A3B04 at the 79th Transportation Research Board Annual Meeting.

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