



Carolyn W. Roberts PhD

Engineering Associate

contact

✉ carolyn.roberts@meaforensic.com

📞 949.779.0409

📍 Los Angeles

expertise

Injury Biomechanics

areas of specialization

Sex difference in injury risk, tolerance

Dr. Carolyn Roberts is an Engineering Associate in the Biomechanics group of MEA Forensic's Los Angeles office. She brings more than a decade of research in biomechanics to her work investigating a wide range of injury-producing events, from car accidents, to slips, trips and falls.

Carolyn has specific research experience in rollover crashworthiness and occupant response, cervical spine injury, blast injury, epidemiology, the effect of shoes on lower extremity injury risk, bone morphology, and orthopedic biomechanics. In fact, her PhD studies at the University of Virginia focused on the differences in lower leg injury risk between males and females in car crashes. "I am always looking for holes in the data and research that exists", she explains. "Once I identify gaps, I seek ways to fill them. I see this as the best way I can contribute to improving the work of biomechanists."

Carolyn is not only an award-winning researcher and mentor, she has been recognized for her ability to communicate technical material. Driven by a desire to help others understand, she often presents her research to other experts, engineers, and non-technical audiences. "Communication is just as important as technical skill", she adds. "And the impact of your work is greater if you can translate it for more audiences."

education

Doctor of Philosophy, Mechanical and Aerospace Engineering, University of Virginia, Charlottesville, VA, 2020.

Bachelor of Science, Engineering Science and Mechanics, Virginia Tech, Blacksburg, VA, 2013.



professional associations

International Research Council on the Biomechanics of Injury (IRCOBI) Scientific Review Committee, member since 2020

Society of Automotive Engineers, member since 2020

Association for the Advancement of Automotive Medicine, member since 2017

Society of Women Engineers, member since 2017

awards

Mid-Atlantic Postdoctoral Symposium hosted by VIMS – second place (2021)

University of Virginia's Graduate Engineering Student Council's Mentor of the Year (2021)

Autoliv Diversity Fellowship (2018-2020)

Atlantic Coastal Conference 3 Minute Thesis Competition and Research Advocacy Event – Third Place (2019)

University of Virginia 3 Minute Thesis Competition – First place (2019)

University of Virginia Mechanical and Aerospace Engineering Distinguished Fellowship (2019)

International Research Council on Biomechanics of Injury (IRCOBI) Murray Mackay Young Researcher Award (2018)

University of Virginia Mechanical and Aerospace Engineering Department Outstanding Graduate Student of the Year (2018)

Association for the Advancement of Automotive Medicine (AAAM) Best Student Symposium Presentation (2017)

publications

Seatbelt use trends by pregnancy status and state in the United States, 2011–2024

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

Biomechanics of Brachial Plexus Injuries Due to Shoulder Dystocia

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

training and professional development

September 11-13, 2024 – International Research Council on Biomechanics of Injury (IRCOBI) Annual Conference, Stockholm, Sweden.

September 10, 2024 – Tissue-based Head Injury Criteria and Risk Curves for Virtual Assessment. IRCOBI Pre-conference Workshop, Stockholm, Sweden.