



JULIUS M. ROBERTS, M.S., P.E.
SENIOR MANAGING CONSULTANT
DIRECTOR, AUTOMOTIVE

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Mr. Julius Roberts is a Senior Managing Consultant and Director with Engineering Systems Inc. (ESi). His background includes mechanical engineering with expertise in accident reconstruction and biomechanics. Mr. Roberts is a licensed Professional Engineer and completed SAE's Accident Reconstruction Certificate Program. He specializes in accident investigation and reconstruction of recreational, passenger, and commercial vehicles including accessing and interpreting Event Data Recorders (EDR) in light and heavy vehicles, heavy vehicle air brake systems, vehicle dynamics instrumentation, mechanical testing, data acquisition and analysis, and three-dimensional laser scanning. Mr. Roberts has extensive experience with biomechanical instrumentation, incorporating the use of motion capture technologies to measure and visualize biological motion during complex interactions within the human-machine-environment.

Mr. Roberts' graduate studies focused on automotive crashworthiness, occupant protection and safety systems, impact biomechanics, injury mechanisms, injury tolerance, and musculoskeletal biomechanics. Mr. Roberts has experience in mathematical modeling, finite element methods, and computational simulation.

Areas of Specialization

- Accident Investigation & Reconstruction
- Imaging & Analyzing Event Data Recorders for Light & Heavy Vehicles
- Mechanical & Biomechanical Testing
- Injury Tolerance & Analysis
- Data Acquisition & Data Analysis
- Certified Heavy Vehicle Brake Inspector (49 CFR-396.25)
- 3-Dimensional Modeling
- Certified FARO Operator

Education

- M.S., Mechanical Engineering, Wayne State University, Detroit, MI, 2020
- B.S.E., Mechanical Engineering, University of Michigan, Ann Arbor, MI, 2013

Licensed Professional Engineer (P.E.)

- State of California License No. 38073
- State of Michigan License No. 6201069558

Professional Certifications

Accident Reconstruction Certificate Program, SAE, April 2022

September 2024

Professional Affiliations/Honors

ASTM International

Member

Society of Automotive Engineers (SAE)

Member

American Society of Mechanical Engineers (ASME)

Member

International Society for Occupational Ergonomics & Safety (ISOES)

Member

Wayne State University Master's Scholarship

Recipient, 2018-19, 2019-20

Wayne State University Workforce Development Scholarship

Recipient, 2018

University of Michigan General Dynamics Scholarship

Recipient, 2008

University of Michigan Maize and Blue Scholarship

Recipient, 2008

Positions Held

Engineering Systems Inc., Ann Arbor, MI

Director, 2024 - present

Senior Managing Consultant, 2023 – present

Senior Consultant, 2020 – 2023

Senior Staff Consultant, 2016 – 2020

Staff Consultant, 2015 – 2016

Associate Consultant, 2013 - 2015

Engineering Intern, 2012 - 2013

University of Michigan Orthopaedic Clinical Research, Ann Arbor, MI

Research Assistant, 2011 - 2013

International Automotive Component, Southfield, MI

Advanced and Safety Engineering Intern, 2011

Continued Education

Injuries, Anatomy, Biomechanics & Federal Regulations

Certificate of Achievement, SAE International, 2023

Event Data Recorder Update and Analysis

Ruth Consulting, Atlanta, GA, 2023

Accident Reconstruction, the Autonomous Vehicle and ADAS

Certificate of Achievement, SAE International, Troy, MI, 2022
SAE Accident Reconstruction Certificate Program, Elective Course

Applying Automotive EDR Data to Traffic Crash Reconstruction

Certificate of Achievement, SAE International, 2021
SAE Accident Reconstruction Certificate Program, Required Course

Traffic Signal Timing Records Interpretation and Analysis

Traffic Signal Academy, University of Tennessee, 2020

Sunbelt Rentals, Aerial Work Platforms

Certificate of Training, Ypsilanti, MI, 2019

Accessing and Interpreting Heavy Vehicle Event Data Recorders

Certificate of Achievement, SAE International, Appleton, WI, 2019
SAE Accident Reconstruction Certificate Program, Required Course

Applied Vehicle Dynamics Course

Autobahn Country Club, Joliet, IL, 2018

Photogrammetry and Analysis of Digital Media

Certificate of Achievement, SAE International, Troy, MI, 2018
SAE Accident Reconstruction Certificate Program, Elective Course

Human Factors in Traffic Crash Reconstruction

Institute of Police Technology and Management, University of North Florida, Fort Myers, FL, 2017

Understanding Bloodstain Pattern Analysis

Bevel, Gardner & Associates, Ann Arbor, MI, 2017

Vehicle Dynamics for Passenger Cars and Light Trucks

Certificate of Achievement, SAE International, Troy, MI, 2016
SAE Accident Reconstruction Certificate Program, Required Course

Traffic Crash Reconstruction I

Northwestern University for Public Safety, Ann Arbor, MI, 2015

Vehicular Crash Reconstruction Methods Seminar

Certificate of Achievement, SAE International, Troy, MI, 2014
SAE Accident Reconstruction Certificate Program, Required Course

Collision Safety Institute, Crash Data Retrieval (CDR) Technician Level 1

Certificate of Training, Fort Myers, FL, 2014

FARO Focus 3D Operator

Certificate of Training, Atlanta, GA, 2014

Bendix Spicer, Truck Air Brake Systems, Heavy Truck Brake Inspector (49 CFR-396.25)

Certificate of Achievement, Owosso, MI 2014

Publications/Presentations

"How and When to Effectively Utilize Technology to Your Advantage," **J.M. Roberts** and E.J. Tuczak, Property and Liability Resource Bureau (PLRB) 2024 Central Regional Adjusters Conference, St. Louis, MO, August 27-28, 2024

"The Kinematic Analysis of Occupant Excursions and Accelerations during Staged Low Speed Far-Side Lateral Vehicle-to-Vehicle Impacts," **Co-Presenter**, SAE International, Detroit, MI, April 9-11, 2019

"The Kinematic Analysis of Occupant Excursions and Accelerations during Staged Low Speed Far-Side Lateral Vehicle-to-Vehicle Impacts," P.A. Shibata, **J.M. Roberts**, J.K. Sprague, A.E. Light, J.A. Stegemann, M. Meza-Arroyo, and S.P. Capser, SAE International, SAE Technical Paper, April 2, 2019

"Building Damage from Vehicle Impacts," E.J. Tuczak, **J.M. Roberts**, International Association of Special Investigation Units, Michigan Chapter, Livonia, MI, October 18, 2018

"Human Factors: Answering the "How" and "Why" Questions," J.L. Auflick, **J.M. Roberts**, Aviva Insurance, Toronto, ON, October 5, 2018

"Stump Grinder Accident Reconstruction and Design Testing Methodologies," D.B. Brickman, A.C. Mathias, **J.M. Roberts**, "Proceedings of The XXXth Annual International Occupational Ergonomics and Safety Conference, Pittsburgh, PA, pp. 007-012, June 7-8, 2018

"Automotive Failure Analysis: How They Crash, How They Break," J.K. Sprague, **J.M. Roberts**, MDTC, Webinar, May 31, 2018

“Analysis of an Unexpected Impact to the Crown of the Head”, P.A. Shibata, A.L. Stern, **J.M. Roberts**, J.A. Stegemann, Proceedings of The XXVIIIth Annual International Occupational Ergonomics and Safety Conference, Chicago, IL, pp. 126-131, June 9-10, 2016

“Automatic Sliding Door Sensor Safety Analysis”, D.B. Brickman, **J.M. Roberts**, C.A. Fox, Proceedings of The XXVIIIth Annual International Occupational Ergonomics and Safety Conference, Chicago, IL, pp. 29-35, June 9-10, 2016

“Automatic Sliding Door Sensor Safety Analysis,” **Presenter**, Case Studies and Applications – I, XXVIIIth Annual International Occupational Ergonomics and Safety Conference, Chicago, IL, June 9, 2016

“A Picture is Worth 1000 Words: Demonstrative Exhibits in Litigation,” **Co-Presenter**, XXVIIIth Annual International Occupational Ergonomics and Safety Conference, Chicago, IL, June 9, 2016