Jacob A. Stegemann P.E.

Senior Consultant

Mr. Jacob Stegemann is a Mechanical Engineer and a Senior Consultant for Engineering Systems Inc (ESi). Mr. Stegemann is a licensed Professional Engineer. He specializes in automotive accident investigation and reconstruction for recreational, commercial and passenger vehicles. He is also experienced in vehicle and biomechanical instrumentation, imaging and interpreting event data recorders, scene documentation, 3D laser scanning and drone photography/mapping. Mr. Stegemann handles artifact chain of custody documentation for the Michigan office.

Mr. Stegemann has extensive experience in the inspections of vehicles, buildings, accident sites and fire scenes. He is experienced in generating 2D and 3D computer aided models and vehicle and pedestrian crash simulations.

Licenses & Certifications

- State of Michigan P.E. License No. 6201070428
- FAA UAS Remote Pilot

Positions Held

Engineering Systems Inc., Ann Arbor, Michigan

- Senior Consultant, 2024 - Present
- Senior Staff Consultant, 2023 - 2024
- Staff Consultant, 2020 - 2023
- Associate Consultant, 2016 - 2019
- Engineering Intern, 2016

RLE International, Ann Arbor, Michigan

- Engineering Intern, 2015 - 2016

Fiat Chrysler Automobiles, Detroit, Michigan

- Engineering Intern, 2015

Germain Honda of Ann Arbor, Ann Arbor, Michigan

- Service Department Porter, 2013 – 2014

Jacob A. Stegemann
Senior Consultant

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ESi MI – Ann Arbor
1174 Oak Valley Dr.
Ann Arbor, Michigan 48108

Education
B.S.E., Mechanical Engineering.
University of Michigan. 2016

Areas of Specialization

3-Dimensional Modeling

Artifact Handling

Automotive Accident Investigation & Reconstruction

Certified FARO Operator

Data Acquisition & Data Analysis

FAA Certified sUAS Pilot

Imaging & Analyzing Event Data Recorders for Light & Heavy Vehicles

Mechanical & Biomechanical Testing

Jacob A. Stegemann
Senior Consultant

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Publications

Sensitivity Analysis of Virtual Crash Simulation Software Using Design of Experiments (DOE)
J.M. Roberts, N.E. Civitanova, **J.A. Stegemann**, D.A. Buzdygon, and K.R. Thobe. SAE International, SAE Technical Paper, 2025. 2025-01-8693, doi:10.4271/2025-01-8693

Inclusion of Tire Forces into Low-Speed Bumper-to-Bumper Crash Reconstruction Simulation Models
R.M. Brach, **J.A. Stegemann**, E.J. Manuel, N.E. Civitanova. SAE International 2024-01-2479, Published 09 Apr 2024

CPSC All-Terrain Vehicle Research
Technical Review, Consumer Product Safety Commission Presentation. June 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, S.P. Capser. SAE Technical Paper 2019-01-1030, 2019

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

Continuing Education

- **Building Vehicles** - Certificate of Training, VCrash Academy, 2025
- **DroneU sUAS Flight and 3D Photogrammetry Training** - DroneU, Loveland, CO, 2024
- **Bendix Brake School Training** - Certificate of Virtual Training, Bendix, 2024
- **Accessing and Interpreting Heavy Vehicle Event Data Recorders** - Certificate of Achievement, SAE International, Fontana, CA, 2023. SAE Accident Reconstruction Certificate Program, Required Course
- **Event Data Recorder Update and Analysis** - Ruth Consulting, Atlanta, GA, 2023
- **Accident Reconstruction, The Autonomous Vehicle and ADAS** - Certificate of Achievement, SAE International, 2022
- **Bosch© CDR Tool Technician Training by IPTM (Online)** - Institute of Police Technology and Management, University of North Florida, 2022
- **Applying Automotive EDR Data to Traffic Crash Reconstruction** - Certificate of Achievement, SAE International, 2021
- **Traffic Signal Timing Records Interpretation and Analysis** - Traffic Signal Academy, University of Tennessee, 2020
- **HVE Forum** - Certificate of Completion, Engineering Dynamics Corporation, Austin, TX, 2020
- **Sunbelt Rentals, Aerial Work Platforms** - Certificate of Training, Ypsilanti, MI, 2019
- **Traffic Crash Reconstruction I** - Northwestern University for Public Safety, Ann Arbor, MI, 2019
- **Applied Vehicle Dynamics Course** - Autobahn Country Club, Joliet, IL, 2018

- **Photogrammetry and Analysis of Digital Media** - Certificate of Achievement, SAE International, Troy, MI, 2018
- **FARO Focus 3D Operator** - Certificate of Training, Ann Arbor, MI, 2018
- **Human Factors in Traffic Crash Reconstruction** - Institute of Police Technology Management, University of North Florida, Fort Myers, FL, 2017
- **Vehicular Crash Reconstruction Methods Seminar** - Certificate of Achievement, SAE International, Troy, MI, May 2016, Timron Scientific Consulting, Inc.

Professional Affiliations

Society of Automotive Engineers (SAE)

- Member

Project Experience

Investigations

Accident Reconstruction Analysis

- Downloaded and interpreted passenger vehicle airbag control module data and heavy vehicle event data
- Documented and preserved scene evidence with 3-D laser scanning and 3-D drone mapping in order to create a 3-dimensional model of a subject roadway
- Utilized accident reconstruction software to model the event data with 3-D scanned vehicles moving over the 3-D scanned accident site

Tire Failure Analysis

- Analyzed subject motorcycle and failed tire carcass to determine the mechanical default that led to a tire failure
- Analyzed failed tire carcass and identified evidence of over deflection from low inflation pressures or over loading

Automotive Systems Analysis

- Analyzed alleged automotive brake system failure components
- Accessed airbag control module data and analyzed the pre-crash braking performance of a vehicle

Line-of-Sight Analysis

- Documented the 3d geometry of the accident site using 3-D laser scanning and 3-D drone mapping
- Performed human kinematics study using motion capture of a human surrogate
- Created an animation of a driver's lines of sight using measured human surrogate motion and 3-D vehicle models on a virtual roadway