

JOSEPH NEAL

MSE, PE

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TRAFFIC ACCIDENT RECONSTRUCTION MECHANICAL FAILURE ANALYSIS

PROFESSIONAL PROFILE

EDUCATION

KETTERING UNIVERSITY

MSE	Mechanical Engineering	2014
BSME	Mechanical Engineering	2009

LICENSES & CERTIFICATIONS

Accident Reconstruction Certificate
Program, Society of Automotive Engineers

Professional Engineer	MI
Professional Engineer	FL
Professional Engineer	CA
Professional Engineer	IL

Aerial Work Platform Operator
Remote Pilot Operator
Certified Flagger

AFFILIATIONS

SAE International
National Association of Professional
Accident Reconstruction Specialists
(NAPARS)

Mr. Neal's experience includes mechanical engineering positions in the automotive and consulting industries. As an engineer, he conducts vehicle accident and mechanical component investigations, and applies the principles of design, analysis, testing, and safety to forensic evaluations involving traffic crash investigation and reconstruction. Mr. Neal has performed hundreds of accident investigations and reconstructions.

Mr. Neal's experience includes tractor/trailer, motorcycle, passenger vehicle, pedestrian, construction zones and traffic control investigations and reconstructions. He is trained in using and has performed simulations using HVE, PC-Crash, and Virtual Crash. Mr. Neal is a trained technician in Crash Data Retrieval (CDR) and an analyst of CDR reports and has performed hundreds of vehicle data retrievals. He is also trained in commercial vehicle data imaging and analysis, and has performed commercial truck data retrievals from various heavy truck manufacturers.

Mr. Neal is trained in and has performed hundreds of photogrammetry evaluations (taking measurements from photographs) and has published research on the accuracy of photogrammetry. He is also trained in video analysis, such as dash camera, surveillance, and body camera videos. He is trained in the design and operation work zone traffic control zones and as a certified flagger. Mr. Neal has been trained in the operation of traffic signal timing and signal phases, and has evaluated the traffic signal operations of hundreds of intersections. Mr. Neal has performed crash sled testing, including frontal, rear, and side impacts, and holds B.S. and M.S. degrees in Mechanical Engineering from Kettering University.

AREAS OF EXPERTISE

Accident Reconstruction

Single, Multiple, and Specialty Vehicle Accident Reconstruction

Pedestrian - Vehicle Incidents

Commercial Vehicle Investigations and Reconstruction

Event Data Records (Passenger Vehicles, Commercial Vehicles, and Dash Cameras)

Motorcycle Incidents

Photogrammetry

Evidence Preservation

Collision Severity and Vehicle Damage Analysis

Simulations

Product Liability

Digitization and CAD Rendering of Accident Scenes

Litigation Support

Traffic Signal Operation Analysis

Roadway Construction Zones / Temporary Traffic Control

EXPERIENCE

Explico

2024 - Present

Managing Engineer

2016 - 2023

Senior Engineer

Kimley-Horn and Associates

2011 - 2016

Mechanical Engineer

Kettering University

2009 - 2011

Graduate Research Assistant

Magna Seating

2004 - 2009

Mechanical Engineering Co-op

PEER-REVIEWED ARTICLES

Neal, J., Leipold, T., and Petroskey, K., "The Effect of Image Stabilization on PhotoModeler Project Accuracy," SAE Technical Paper 2024-01-2474, 2024, <https://doi.org/10.4271/2024-01-2474>.

Neal, J., Lipscomb, M., and Funk, C., "A Method for Calculating Frontal A and B Stiffness Coefficients from NCAP Barrier Crash Tests Accounting for Bumper Cover Air Gap," SAE Technical Paper 2024-01-2473, 2024, <https://doi.org/10.4271/2024-01-2473>.

Neal, Joseph, Charles Funk, and David Sproule. The Accuracy of Vehicle Modeling When Using an Inversely Calibrated Camera in PhotoModeler. No. 2021-01-0883. SAE Technical Paper, 2021.

Neal, J., & Brelin-Fornari, J. (2013). Child Restraint Systems: Top Tether Effectiveness in Side Impact Collisions (No. 2013-01-0601). SAE Technical Paper.

Ludwigsen, D., Brelin-Fornari, J., & Neal, J. (2011). Crash Safety in the Introductory Physics Lab. In American Society for Engineering Education. American Society for Engineering Education.

PRESENTATIONS

Neal, J. & Leipold, T., "The Effect of Image Stabilization on PhotoModeler Project Accuracy," SAE World Congress 2024, Detroit, MI, April 2024.

Neal, J. & Lipscomb, M., "A Method for Calculating Frontal A and B Stiffness Coefficients from NCAP Barrier Crash Tests Accounting for Bumper Cover Air Gap," SAE World Congress 2024, Detroit, MI, April 2024.

Guest Speaker, Lawrence Technological University, Southfield, MI, September 2023.

Guest Speaker, Kettering University, Flint, MI, November 2017.

Guest Speaker, Lawrence Technological University, Southfield, MI, September 2017.

Neal, J., & Brelin-Fornari, J., "Child Restraint Systems: Top Tether Effectiveness in Side Impact Collisions," SAE World Congress 2013, Detroit, MI, April 2013.

PROFESSIONAL DEVELOPMENT

WREX

World Reconstruction Exposition (WREX), April 2023

AI2-3D Forensics

Recon-3D Training and Certification Course, February 2023

Crash Safety Solutions

Advanced Human Factors for Traffic Crash Reconstruction, October 2021

NAPARS

Tire Forensics Class, March 2021, Chattanooga, TN

Traffic Signal Design and Operation NHI-133121

March 2020

Certified Flagger

May 2019

Remote Pilot Operator

April 2019

Safety Training Aerial Work Platform Operator Certification

July 2018, Novi, MI

Northwestern University Center for Public Safety

Traffic Accident Reconstruction, April 2012, Evanston, IL

Crash Data Recorder System Technician — Level 1 & 2, March 2013, Evanston, IL

Heavy Vehicle Accident Reconstruction, May 2018, Evanston, IL

SAE International

Accessing and Interpreting Heavy Vehicle Event Data Recorders, May 2014, Charlotte, NC

Applying Automotive EDR Data to Traffic Crash Reconstruction, December 2016, Troy, MI

Photogrammetry and Analysis of Digital Media, December 2017, Troy, MI

Commercial Vehicle Braking Systems Seminar, May 2018, Troy, MI

Accessing and Interpreting Heavy Vehicle Event Data Recorders, October 2022, Oxnard, CA

Vehicle Crash Reconstruction: Principles and Technology, October 2023, Denver, CO

The Fundamentals of Vehicle Dynamics, December 2024, Online

Advanced Applications of Heavy Vehicle EDR Data Learning Assessment, June 2025, Appleton, WI

MRWA

Temporary Traffic Control, March 2018, Brighton, MI

National Highway Institute

Design and Operation of Work Zone Traffic Control, November 2017, Sterling, VA

Collision Publishing

EDR Summit, March 2017, Houston, TX

Engineering Dynamics Corporation

EDC Reconstruction, November 2012, Miami, FL

EDC Simulations, November 2013, Miami, FL

2016 HVE Forum, February 2016, Phoenix, AZ

Safety Council of Palm Beach County, Inc.

Maintenance of Traffic, March 2014, Riviera Beach, FL

DCM Technical Services, Inc.

PhotoModeler for Accident Reconstruction Analysis, May 2013, West Palm Beach, FL

Collision Engineering Associates, Inc.

DiscoverHVE, West Palm Beach, FL