DANIEL B. HONEYCUTT, MSME, PE
SENIOR CONSULTANT

dbhoneycutt@engsys.com

Mr. Daniel Honeycutt is a mechanical engineer who is passionate about using science to understand and explain complex technical problems. Mr. Honeycutt specializes in physics simulation, crashworthiness, fluid flow including aerodynamics, vehicle dynamics, design, testing, and accident reconstruction. Mr. Honeycutt has managed complex multidisciplinary engineering matters including finite element analyses, human factors, human safety, design, metal fabrication, composite materials, prototyping, and visualization. Mr. Honeycutt has extensive experience in vehicle rollovers including passenger vehicles, commercial vehicles, and racecars. Prior to joining ESi, Mr. Honeycutt worked at the NASCAR Research and Development Center as Director of Vehicle Engineering and as an engineer for one of the top NASCAR race teams.

Areas of Specialization

Vehicle Rollovers
Vehicle Crashworthiness
Vehicle Dynamics and Simulation
Mechanical Engineering
Computational Fluid Dynamics (CFD)
Finite Element Analysis (FEA)
Vehicle Aerodynamics
Automotive Research
Accident Reconstruction
Failure Analysis and Troubleshooting
Motorsports

Licensed Professional Engineer (PE)

Alabama: 051212
Georgia: 048912
North Carolina: 043180
South Carolina: 04014
Texas: 144555
Florida: 95912
NCEES: 16-053-76

Education

M.S., Mechanical Engineering, University of North Carolina at Charlotte

B.S., Mechanical Engineering, Mississippi State University

Professional Affiliations

American Society of Mechanical Engineers (ASME) Member
Society of Automotive Engineers (SAE) Member and Reviewer
SAE Impact and Rollover Test Procedures Standards Committee
SAE Motorsports Committee

Patents

Air Deflecting System for Automobiles, U.S. Patent No.: 7,517,004 B2. Inventor: Daniel Barry Honeycutt, May 22, 2008

April 2024

Positions Held

Engineering Systems Inc., Charlotte, North Carolina 2019-present
　　Senior Consultant

Richard Childress Racing, Welcome, North Carolina 2016-2019
　　Aerodynamicist and Lead Aerodynamics Test Engineer

NASCAR Research & Development Center, Concord, North Carolina 2001-2016
　　Senior Director, Aerodynamics, Simulation, Design & Prototyping
　　Director of Vehicle Engineering

Lockheed Martin, Marietta, Georgia 1998-2001
　　Design Engineer
　　Structural Analysis Engineer
　　Test Engineer

Continued Education

Event Data Recorder Update and Analysis (2023)
　　Ruth Consulting

Traffic Crash Reconstruction (2019)
　　Northwestern University Center for Public Safety, Evanston, Illinois

Commercial Vehicle Crash Investigation (2022)
　　Institute of Police Technology and Management, University of North Florida, Jacksonville, Florida

Case Preparation and Courtroom Presentation (2019)
　　Institute of Police Technology and Management, University of North Florida, Jacksonville, Florida

Roadway Evidence (2019)
　　Institute of Police Technology and Management, University of North Florida, Jacksonville, Florida

Safety Belt Examinations (2019)
　　Institute of Police Technology and Management, University of North Florida, Jacksonville, Florida

Tire Examinations – Tire and Wheel Forensics (2019)
　　Institute of Police Technology and Management, University of North Florida, Jacksonville, Florida

Vehicle Lamp Examinations in Traffic Collisions (2019)
　　Institute of Police Technology and Management, University of North Florida, Jacksonville, Florida

Bosch CDR Tool Technician Training (2019)
　　Institute of Police Technology and Management, University of North Florida, Jacksonville, Florida

Air and Foundation Brake Training (2019)
　　Bendix Commercial Vehicle Systems LLC, Brake Training School, Huntersville, North Carolina

HVE Accident Reconstruction Software Training (2020, 2021, 2022)
Engineering Dynamics Corporation, HVE Forum

Traffic Signal Timing Records Interpretation & Analysis (2020)
Traffic Signal Academy, University of Tennessee

Publications

Honeycutt, D., Rogers, G., Yang, S., and Chinni, J., "Comparison of a Tractor-Semitrailer Rollover Test and HVE Simulations," SAE Technical Paper 2024-01-2487, 2024.

Automotive Litigation. Committee News. American Bar Association Tort Trial and Insurance Practice Session. In the Circuit: How Auto Racing is Advancing EV Technology. Winter 2024.

Honeycutt, D., Uddin, M. Prediction of disc golf drivers' aerodynamic characteristics using Reynolds Averaged Navier Stokes computational fluid dynamics. *Sports Eng* 26, 29 (2023). https://doi.org/10.1007/s12283-023-00420-w.

Honeycutt, D. and Uddin, M., "Closed Wheel Race Vehicle Aerodynamic Lift-Off," SAE Int. J. Passeng. Cars - Mech. Syst. 10(2):573-579, 2017, https://doi.org/10.4271/2017-01-1516.

Selected Experience

Simulated heavy vehicle and passenger vehicle rollovers using a physics-based vehicle dynamics computer program.

Directed analysis of alternative roof structure designs using Finite Element Analysis (FEA).

Performed complex physics-based vehicle accident reconstructions using automated tools and classical hand calculation methods.

Member of the team responsible for the aerodynamic development of the 2018 Daytona 500 winning racecar.

Presenter at the Society of Automotive Engineers 2017 World Congress: "Closed Wheel Race Vehicle Aerodynamic Lift-Off"

Led the design team in charge of new racecar designs as Director of Vehicle Engineering at NASCAR for which the primary focus was crashworthiness and occupant safety.

Obtained a utility patent for an automotive wing endplate design. Worked closely with the legal team through the IP application process.

Participated in live media events and interviews with national print media in the NASCAR industry. Delivered numerous presentations to NASCAR industry members including drivers, team owners, technical directors, engineers, crew chiefs, and officials.

Engineer and project leader for research of racecar driver exposure to carbon monoxide (CO). The team included medical doctors and engineers. Designed and implemented a test laboratory to measure the effectiveness of scrubber devices and produced a scrubber device design and specification for the NASCAR industry.

Authored the aerodynamic and design standards for the NASCAR body approval process for the OEMs (Original Equipment Manufacturers: GM, Chrysler, Ford, Toyota). Directed the NASCAR OEM body approval process.

Planned and conducted numerous NASCAR multi-car track tests. The planning stages included conducting CFD (computational fluid dynamics), vehicle dynamics simulations, component design, and wind tunnel testing.

Researched, developed, and designed NASCAR racecar airborne prevention devices and strategies.

Designed and analyzed military aircraft structures. Performed durability and damage tolerance analysis using FEA and proprietary analysis software.

Provided engineering support to the military aircraft assembly line at Lockheed Martin.