



BENJAMIN A. ROYALL, BSME, MSCE, PE
SENIOR CONSULTANT

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Mr. Royall is a Senior Consultant for Engineering Systems Inc. (ESi) where he is a member of the Automotive Research and Accident Reconstruction team. He has a bachelor's degree in mechanical engineering, and a master's degree in civil engineering. Mr. Royall's experience spans all manners of transportation related accidents. He has training and expertise in vehicle Event Data Recorders (EDR), vehicle dynamics, human factors, road design, highway safety, work zone design and safety, and the Manual for Uniform Traffic Control Devices (MUTCD). He has investigated accidents involving passenger vehicles, motorcycles, commercial vehicles, locomotives, heavy machinery, forklifts, and aircraft. He also has experience in mechanical and vehicle testing, data acquisition, mathematical modeling and simulation, and failure analysis.

Mr. Royall has over 20 years of experience in computer aided drafting (CAD), as well as machine shop and fabrication. He is a licensed Class-A commercial driver with endorsements for passengers, tanks, doubles, triples, as well as motorcycles.

Areas of Specialization

Motor vehicle accident investigations
Commercial vehicles and heavy trucks
Human factors and conspicuity
Traffic control devices
Road design and safety
Work zones
Accident reconstruction

Vehicle event data imaging
Vehicle dynamics
Data acquisition and testing
Computer aided modeling
Machine shop and fabrication
Civil engineering
Mechanical engineering

Education

Ohio University, 2021
M.S., Civil Engineering with emphasis in traffic engineering

University of Colorado at Colorado Springs, 2014
B.S., Mechanical Engineering with emphasis in mathematical modeling

Pikes Peak Community College, 2006
Certificates: Mill Journeyman, Lathe Journeyman, and CAD/CAM



Licensed Professional Engineer (P.E.)

State of Colorado

License No. 0060289

Professional Affiliations

American Motorcycle Association (AMA)

Member since 2009

Society of Automotive Engineers (SAE)

Member since 2015

Positions Held

Engineering Systems Inc., Colorado Springs, Colorado

Senior Consultant	January 2022 to Present
Senior Staff Consultant	January 2020 to December 2021
Staff Consultant	July 2017 to December 2019
Senior Technician	January 2017 to June 2017
Technician	December 2014 to December 2016

Center for Aircraft Structural Life Extension (CAStLE), USAF Academy, Colorado

Contracted by NexOne

Master Research Specialist October 2010 to November 2014

Contracted by Valdez International

Research Technician September 2006 to October 2010

Excalibur Machining and Sheetmetal, Colorado Springs, Colorado

Machinist January 2006 to September 2006

Okeefe's Ceramics, Woodland Park, Colorado

Machinist August 2005 to January 2006

Continued Education

Attendance, ATSSA Traffic Expo, Accommodating Vulnerable Users in Work Zones, What Happens in the Court Room Following a Work Zone Incident, The New MUTCD: Temporary Traffic Control, You Cannot Save Lives with Bad Work Zone Data, American Traffic Safety Services Association (ATSSA), February 2024

Attendance, Event Data Recorder Update and Analysis, Ruth Consulting, 2023

Attendance, ATSSA Traffic Expo, Update on the rewrite of Mash and DOT Implementation Schedules, The Future of the MUTCD, How Do I Reduce Crashes and Fatalities in Work Zones, American Traffic Safety Services Association (ATSSA), February 2023

Certificate of Training, Commercial Vehicle Crash Investigation Level I, Institute of Police Technology and Management, University of North Florida, February 2022

Certificate of Training, Traffic Control Design Specialist, American Traffic Safety Services Association (ATSSA), July 2021

Certificate of Training, Traffic Signal Timing Records Interpretation and Analysis, Traffic Signal Academy, University of Tennessee, October 2020

Certificate of Training, Maintenance of Traffic for Supervisors, National Highway Institute (NHI) and the Federal Highway Administration (FHWA), March 2020

Certificate of Training, Basics of Work Zone Traffic Control, National Highway Institute (NHI) and the Federal Highway Administration (FHWA), March 2020

Certificate of Training, Strategies for Developing Work Zone Traffic Analyses, National Highway Institute and the Federal Highway Administration, March 2020

Certificate of Training, Traffic Crash Reconstruction for the Forensic Engineer
Northwestern University Center for Public Safety, Ann Arbor, MI, March 2019

Attendance, 2018 HVE Forum, Simulation Fundamentals Part I-IV, Advanced 3D Environments Part I & II, Engineering Dynamics Corporation (EDC), February 2018

Certificate of Training, Human Factors in Traffic Crash Reconstruction, Institute of Police Technology and Management (IPTM) University of North Florida, November 2017

Certificate of Training, Acquiring and Analyzing Data from Sensors and In-Vehicle Networks
Society of Automotive Engineers (SAE), October 2017

Certificate of Training, Accessing and Interpreting Heavy Vehicle Event Data Recorders
Society of Automotive Engineers (SAE), October 2016

Certificate of Training, FARO Focus 3D Scanner
FARO Company, February 2016

Certificate of Training, Digital Forensics of Heavy Vehicle Event Data



University of Tulsa, December 2015

Certificate of Training, Entry Level Commercial Motor Vehicle Operator
CDL College, June 2015

Certificate of Training, Bosch Full CDR Technician
Institute of Police Technology and Management (IPTM), February 2015

Certificate of Training, Bendix Comprehensive Air Brake Systems
Bendix, January 2015

Certificate of Training, Linear Analysis with MCS Patran/Nastran
MSC Software, December 2013

Publications

“Fracture Toughness and MixedMode Failure of 7079-T6 Thin Sheet Aluminum”,
Shah, S.R., Walters, M.R., Hammond, M.J., **Royall, B.A.**, Fawaz, S.A. (2008)
Center for Aircraft Structural Life Extension, United States Air Force Academy, Colorado
USAFA TR 2008-07

“Effects of Cold Expansion on T-38 Steel Dorsal Longeron near Fatigue Critical Location B-12”,
W. Ponzoha, M. Hammond, J. Greer, Jr., S. Shah, and **B. Royall**, US Air Force
Academy, Co (2010) USAFA-TR-2010-05

“Structural Teardown Analysis Program Report for KC-135, S/N 57-1505”,
USAFA-TR-2013-02 Volume I, II, III

Related Experience

Boulder Street Moto Garage

Non-profit, member funded, member run, DIY motorcycle garage.

Member June 2021 – December 2023

Board of Directors January 2024 - Present

Project Yellow Racing

Armature endurance and budget racing team.

Co-founder

Builder, Mechanic, Driver 2008 - Present