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BENJAMIN A. ROYALL, B.S.M.E., M.S.C.E.
SENIOR STAFF CONSULTANT

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Mr. Royall is a Senior Staff 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. He is an expert in automobile and heavy truck accident investigations and reconstruction. He is a licensed Class-A commercial vehicle operator with endorsements for doubles, triples, tankers, and passengers, as well as motorcycles. He is also certified on aerial and scissor lifts, as well as, Class I-V forklifts. He has training and experience in highway safety, the Manual on Uniform Traffic Control Devices (MUTCD), and road design. He has experience in instrumentation and data collection and has assisted with automotive, aviation, machine component, and materials testing.

Mr. Royall has many years of experience in computer aided drafting (CAD), as well as machine shop and fabrication. He is a member of an amateur race team, acting as a car builder, mechanic, and driver.

Areas of Specialization

Vehicle, machine, and site inspections
Heavy equipment inspections
Evidence preservation
Vehicle event data imaging
Accident reconstruction
Human factors
Commercial vehicles and heavy trucks
Traffic Control
Highway Safety
Data acquisition and testing
Automotive research
Vehicle dynamics
Vehicle networks and systems
Computer aided modeling
Graphics and visualization
Machine shop and fabrication
Mechanical engineering

May 2021



Education

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

University of Colorado at Colorado Springs, 2014
B.S., Mechanical Engineering

Pikes Peak Community College, 2006
Certificate, Mill Journeyman; Lathe Journeyman; CAD/CAM

Professional Affiliations

American Motorcycle Association (AMA)

Society of Automotive Engineers (SAE)

Positions Held

Engineering Systems Inc., Colorado Springs, Colorado

Senior Staff Consultant – January 2020 to Present

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

Master Research Specialist - NexOne, October 2010 – November 2014

Research Technician – Valdez International, September 2006 – October 2010

Excalibur Machining and Sheetmetal, Colorado Springs, Colorado

January 2006 – September 2006

Machinist

Okeefe's Ceramics, Woodland Park, Colorado

August 2005 – January 2006

Machinist



Continued Education

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 and the Federal Highway Administration, March 2020

Certificate of Training, Basics of Work Zone Traffic Control, National Highway Institute and the Federal Highway Administration, 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

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

Team member, Project Yellow Racing, 2008 – Present
Car builder, mechanic, and driver