



ALEXANDER E. MCCULLA
STAFF CONSULTANT

amcculla@engsys.com

Alexander McCulla is a degreed mechanical engineer in ESi's Automotive & Marine practice and brings significant expertise in the design, performance, and failure analysis of specialty purpose vehicles and equipment used in various industry sectors, including motorsport, oil and gas, and industrial-commercial construction. His experience spans the full lifecycle of these vehicles, including research and development, diagnostic and performance analysis, risk assessment, and failure analysis. Mr. McCulla also has significant experience in project management.

Prior to joining ESi, Mr. McCulla gained a wealth of experience in the operation and maintenance of high performance vehicles, working as a driver, driving instructor, mechanic, and engineering team lead for professional racing competitions. In these roles, he worked directly with clients and groups to help develop, implement, and manage specific projects in the areas of vehicle testing, product research, and vehicle/component tuning.

Areas of Specialization

- Automotive Accident Investigation/Reconstruction
- Automotive & Mechanical Design
- Failure Analysis & Investigation
- Design & Performance Review
- Vehicle Testing & Dynamics
- Risk Analysis

Education

- B.S., Mechanical Engineering, University of South Florida (USF), 2013
- A.A., Business & Project Management, State College of Florida (SCF), 2009

Professional Affiliations/Honors

Undergraduate Research at USF – Fluid Dynamics.

“Skin Friction Flow of a Surface – The Study of the Change in Shear Stress due to Skin-Friction and Aerodynamic Shape Altered by Surface Roughness”

Engineering Course Work Experiments at USF – Mechanical Lab. II

Created and conducted lab experiments to educate students on efficiencies, process of Internal Combustion Systems.

Society of Automotive Engineers (SAE)

- 2009-2013 Formula & Baja – Lead and Team Member
- 2010-Present – Society Member

American Society of Mechanical Engineers (ASME)

- 2020-Present – Society Member

October 2020

Positions Held

Engineering Systems Inc., Miami & Fort Myers, FL

Automotive & Marine Practice Group Staff Consultant, 2020 – Present

International Construction Consultants, Sarasota, FL

Project Management Lead & Engineer, 2015 – 2019

Researcher & Inspector, 2006 – 2013

Hayward Baker, Tampa, FL

Mechanical Engineer, 2014 – 2015

GoFrac LLC, OH, WV & TX

Field & Safety Engineer and Equipment Operator, 2013 – 2014

Kesatie Motorsports/Rev-X-Treme Performance, Bradenton, FL

Test Driver/Mechanic/Technician, 2009 – 2011

University Auto-Spa, Sarasota, FL

Vehicle Technician & Detailer, 2005 – 2009

Continued Education

Traffic Signal Timing Records Interpretation & Analysis; Traffic Signal Academy,
University of Tennessee
Norcross, GA

Traffic Crash Accident Reconstruction; Institute of Police Technology and Management,
University of North Florida
Las Vegas, NV

Pedestrian 100 Foot Walk & Vehicle Acceleration Study; Nevada Highway Patrol, Institute
of Police Technology and Management, University of North Florida
Las Vegas, NV

Investigation of Pedestrian Collisions; Institute of Police Technology and Management
University of North Florida
Jacksonville, FL

Forensic Evidence Recovery for Crash Investigators; Institute of Police Technology and
Management, University of North Florida
Ft. Myers, FL

Tire & Wheel Forensics; Institute of Police Technology and Management,
University of North Florida
Ft. Myers, FL

Safety Belt Examinations; Institute of Police Technology and Management,
University of North Florida
Ft. Myers, FL

Introduction to Automotive Ecosystem; Society of Automotive Engineers (SAE) International
Sarasota, FL

Vehicle Lamp Examinations in Traffic Collisions; Institute of Police Technology and
Management, University of North Florida
Ft. Myers, FL

New Mechanical Shifting Devices in Automotive Transmissions; Society of Automotive
Engineers (SAE) International
Sarasota, FL

At-Scene Traffic Crash/Traffic Homicide Investigations; Institute of Police Technology and
Management, University of North Florida
Ft. Myers, FL

Vehicle Acceleration & Friction Factor Study; Institute of Police Technology and
Management, University of North Florida
Jacksonville, FL

Bosch® Crash Data Retrieval (CDR) Technician; Institute of Police Technology and
Management, University of North Florida
Ft. Myers, FL

OSHA 30-Hour Certification; University of South Florida
Tampa, FL

OSHA 10-Hour Certification; University of South Florida
Tampa, FL

Presentations

A.E. McCulla, “Skin Friction Flow of a Surface: The Study of the Change in Shear Stress due to Skin-Friction and Aerodynamic Shape Altered by Surface Roughness” presented to USF Engineering Faculty Department.

Miscellaneous

Certified in First Aid & CPR/Basic Life Support, 2019
Florida Boater’s Safety Certification, 2015
Industrial Hydraulics Certification, 2015
Heavy Equipment Operator, 2014
Accomplished high performance driver & instructor, 2007