

Alexander E. McCulla

Manager of Miami Operations
Senior Staff Consultant, Auto/Marine



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. .

Education

B.S., Mechanical Engineering, University of South Florida (USF), 2013

A.A., Business & Project Management, State College of Florida (SCF), 2009

Languages

- English, Native

Positions Held

Engineering Systems Inc., Miami, Florida

- Senior Staff Consultant, 2022 – Present
- Manager of Miami Operations, 2022– Present
- Staff Consultant, 2020 – 2022

International Construction Consultants, Sarasota, Florida

- Project Management Lead & Engineer, 2015 – 2019
- Researcher & Inspector, 2006 – 2013

Contact Information

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ESi Miami

6735 NW 36th Street
Suite 325, Miami, FL 33166

Areas of Specialization

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

Keller North America (formerly Hayward Baker), Tampa, Florida

- Mechanical Engineer, 2014 – 2015

GoFrac LLC, Ohio, West Virginia & Texas

- Field & Safety Engineer and Equipment Operator, 2013 – 2014

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

- Test Driver/Mechanic/Technician, 2009 – 2011

University Auto-Spa, Sarasota, Florida

- Vehicle Technician & Detailer, 2005 – 2009

Continuing Education

- **The Fundamentals of Vehicle Dynamics** – SAE International
- **The Fundamentals of Automotive All-Wheel Drive System** – SAE International
- **Driver Distraction From Electronic Devices: Insights and Implications** – SAE International
- **Hyundai-Kia & Tesla EDR Tools Technician**– Institute of Police Technology and Management- Aurora, IL
- **Pedestrian/Bicycle Crash Investigation – Level 1; Institute of Police Technology and Management** - University of North Florida - Miami, FL
- **Traffic Crash Reconstruction; Center for Public Safety** - Northwestern University - Aurora, IL
- **Event Data Recorder Update & Analysis**- Ruth Consulting - Norcross, GA
- **Human Factors in Traffic Crash Reconstruction; Institute of Police Technology and Management** - University of North Florida - Miami, FL
- **Event Data Recorder (EDR) Use in Traffic Crash Reconstruction – Level 1** - University of North Florida - Jacksonville, FL
- **Bendix Commercial Vehicle Brake Training; Bendix Commercial Vehicle Systems** - Ft. Myers, FL
- **FARO 3D Scanner Certification**- FARO - Norcross, GA
- **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

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

Presentations

“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,” A.E. McCulla, presented to USF Engineering Faculty Department.

Miscellaneous

Certified Forklift Operator



Licensed Motorcycle Operator

Motorcycle Safety Foundation Rider Certification Course

Florida Boater's Safety Certification

Industrial Hydraulics Certification

Heavy Equipment Operator

Accomplished high-performance driver & instructor

Certified in First Aid & CPR/Basic Life Support