



ERIN HIGINBOTHAM, P.E.
Mechanical Engineer

Mr. Higinbotham is the President for 830 Engineering Group LLC. He has over 20 years professional experience with automotive engineering and over 40 years of experience with motorcycles. He has completed research for vehicle manufacturers, component manufacturers and industry consortiums. He has been involved in testing and research for motorcycles, light duty vehicles, and vehicle components. This work has included dynamometer testing, test riding, data acquisition, analysis and reporting. He has made technical presentations on his research to the Society of Automotive Engineers, Coordinating Research Council and the American Motorcyclist Association. He has investigated crashes involving motorcycles and light-duty vehicles throughout the United States. He is a voting member of the Society of Automotive Engineers' Motorcycle Technical Steering Committee.

AREAS OF EXPERTISE

Motorcycles, three-wheeled motorcycles (trikes), automobiles, all-terrain vehicles (ATVs), scooters, dirt bikes, snowmobiles, bicycles, motorized shopping carts, gasoline engines, diesel engines, alternative fuel vehicles, aftermarket modified powertrains, aftermarket modified fuel systems, catalytic converters, emissions control systems, on board diagnostics, motorcycle handling dynamics, motorcycle suspension tuning, motorcycle maintenance, motorcycle component failure, engine dynamometers, chassis dynamometers, powertrain test cells.

Crash reconstruction for motorcycles, automobiles, ATVs, and bicycles. Post-crash analysis of brake systems, steering components, lamps, seatbelts, restraints, and airbag systems. Event Data Recorder (blackbox) download and data analysis.

Performance modifications to motorcycle engines for racing applications. Machining of engine components using mill and lathe operations. Two and four cycle engines. Engine failure diagnosis.

Motorcycle riding and racing experience, performance brake testing on small (150 cc) and large (1800 cc) motorcycles for FMVSS compliance, operation of instrumented motorcycles, on road motorcycle endorsement since 1989, experience with off road motorcycle operation since 1977, licensed roadracer since 2001 with current "Expert" classification. Proper rider technique and rider actions. Instruction and operation of track days on racetracks. Gearing optimization and suspension tuning. Highside and lowside crashes. Dry and wet weather operation. Motorcycle riding strategies SEE and SIPDE.



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PROFESSIONAL EXPERIENCE

- 2014 to present **830 Engineering Group LLC**
President/Consulting Mechanical Engineer
Provide technical consulting, reporting and testimony for personal injury and property loss claims for incidents involving motorcycles and light duty vehicles. Consultation includes crash reconstruction, investigation of operator actions, vehicle design, vehicle performance, vehicle maintenance and repairs, failure analysis and defects.
- 2006 to 2014 **Robson Forensic, Inc.**
Associate
Provided investigations, analysis, reports and testimony on personal injury and property loss involving crash reconstruction, failure analysis, vehicle and motorcycle crashes, defects, vehicle and motorcycle engineering, motorcycle operator actions and maintenance.
- 2003 to 2006 **Transportation Research Center, Inc.**
Senior Project Engineer, Emissions and Powertrain Laboratory
Managed programs dealing with research in emissions, fuels, powertrain and alternative fuels. Consulted with clients regarding vehicle and component performance. Designed and constructed custom test and data acquisition equipment. Trained technicians on operation of equipment and motorcycle test programs. Completed brake testing and high performance operation of motorcycles.
- 1995 to 2003 **Automotive Testing Laboratories, Inc.**
Project Engineer, Emissions Laboratory
Oversaw research dealing with emissions, vehicle components and alternative fuels. Evaluated automotive technologies. Identified funding opportunities, prepared research proposals. Completed literature searches, presented project data.
- 1992 to 1995 **Electra Form, Inc.**
Service Engineer
Commissioned equipment for domestic and international customers for installation and operation of plastic injection molding equipment. Completed troubleshooting of mechanical, electrical and hydraulic systems. Provided training sessions.
- 1983 to 1986 **Harbor Cycle**
Bicycle Mechanic / Sales
Performed assembly, mechanical repair and tuning of bicycles. Inspected crashed bicycles and prepared repair estimates. Completed wheel building and wheel truing.



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EDUCATION

B.S. Mechanical Engineering, The Ohio State University, 1992

Continuing Education:

Recon-3D Certificate Course, ai2-3D Forensics 2023

Driver Distraction from Electronic Devices: Insights and Implications, SAE 2023

FAA Part 107 Made Easy, Pilot Institute 2022

Basic Tire Forensics 101, Pennsylvania Collision Analysis and Reconstruction Society 2021

Virtual Crash Simulation Training, Forensic Training Group 2020

Fundamentals of Vehicle Dynamics, SAE 2019

Design of Experiments, SAE 2019

Photogrammetry and Analysis of Digital Media, SAE 2017

Crash Data Retrieval Level 1 and Level 2, Collision Safety Institute 2016

Applying Automotive EDR Data to Traffic Crash Reconstruction, SAE 2015

Tire Dynamics, Michigan State University Highway Traffic Safety Program 2014

Lamp Examination, Michigan State University Highway Traffic Safety Program 2014

Engine Failure Investigation and Analysis, SAE 2013

Tire as a Vehicle Component, SAE 2012

Event Data Recorders, Ohio Traffic Accident Reconstruction Association, 2012

Threaded Fasteners and the Bolted Joint, SAE 2011

High Performance Engine Design and Development, SAE 2010

Motorcycle Safety Workshop, Public Health Traffic Safety Institute, 2009

Experienced Rider Course, Motorcycle Safety Foundation, 2009

Dirt Bike School, Motorcycle Safety Foundation, 2009

Basic Rider Course, Motorcycle Safety Foundation, 2008

Vehicle Accident Reconstruction Methods, SAE 2006

Level 1 High Performance Driver Training, Transportation Research Center 2005

National Instruments Labview Programming, 2003

Catalytic Converters, Design and Durability, SAE 2002

Western Eastern Roadracing Association Roadracing School 2001

Motor Fuel: Technology, Performance, Testing and Specifications, SAE 2000

Keith Code California Superbike School 1997



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MEMBERSHIPS

Society of Automotive Engineers (SAE)
Voting Member of Motorcycle Technical Steering Committee
American Motorcyclist Association
Life Member, Competition Licensed, 2003 and 2006 National Champion
Western Eastern Roadracing Association
Competition License #16642, Expert Class, Life Member
American Historic Racing Motorcycle Association
Life Member
East Coast Timing Association
Maxton Mile MPS/F 500cc Record holder – 136.9 mph
Ohio Mile MPS/F and MPS/G 500cc Record holder – 146.5 mph and 147.7 mph

PROFESSIONAL REGISTRATIONS

Professional Engineer: NCEES, Ohio, Kentucky, North Carolina, South Carolina, Texas, Florida, Louisiana, Georgia, Indiana, Pennsylvania, Wisconsin, Michigan, Tennessee, West Virginia, Alabama

PUBLICATIONS

Particulate Emissions from a Pre-Emissions Control Era Spark Ignition Vehicle: A Historical Benchmark (SAE #2000-01-2213)

Effect of Selected LPG Fuel Components on Speciated Exhaust Emissions (SAE #961990)

PRESENTATIONS/RESEARCH

American Board of Trial Advocates, Masters in Trial, 2010, 2012
Central Ohio Association for Justice, 2009
Society for the Scientific Detection of Crime, 2009
American Motorcyclist Association, Government Relations Department, 2002
Coordinating Research Council, On-Road Emissions Workshop, 1997, 1999
Development of Crash Test for Powered Two Wheeler (PTW) using Postmortem Human Subject (PMHS), The Ohio State University, 2021 - present