Alex Scaler
Curriculum Vitae

ASC FORENSICS
EXPERT FORENSIC ANALYSIS

BACKGROUND

Mr. Scaler is a Mechanical Engineer specializing in the forensic analysis of occupant protection systems in real-world crashes and the reconstruction, simulation, and animation of vehicular collisions. He has a wealth of experience and training with automotive and off-road systems such as occupant restraints and safety devices, engine repair, automatic and manual transmissions, steering, suspension, electrical, braking systems, and engine performance. He also has significant experience with the complexities of vehicle dynamics through theoretical and real-world testing as a professional racecar driver. Mr. Scaler is fluent in engineering equipment, including tools such as BOSCH Crash Data Retrieval (CDR) and three-dimensional laser scanning to document and preserve evidence. He also conducts research and stays up to date in the fields of occupant protection, Advanced Driver Assistance Systems (ADAS), vehicle performance, and their relevance to crash scenarios. Mr. Scaler leans heavily on both his educational background and his real-world experience with motorsports engineering to analyze complex collisions at a level beyond what a textbook can provide. Mr. Scaler also has a wide variety of experiences designing, testing, and implementing new innovative products for automotive and off-road applications. He is accredited as a Traffic Accident Reconstructionist by the Accreditation Commission for Traffic Accident Reconstruction (ACTAR #4222). He is also a Federal Aviation Administration (FAA) certified Remote Pilot of Small Unmanned Aircraft Systems (sUAS).

Mr. Scaler earned a Bachelor of Science in Mechanical Engineering with a concentration in Aerospace Engineering at Rutgers University School of Engineering, New Brunswick, New Jersey. While he was an engineering student, Mr. Scaler spent time designing, building, driving, and competing in a variety of high-performance vehicles at the professional level – a skill set that he still applies to this day. His experience involves all categories of vehicle performance, from occupant safety and restraints to handling and stability, chassis design, drivetrain optimization, aerodynamics, suspension geometry, tire dynamics, and driver ergonomics. He is also a knowledgeable fabricator with experience using machining equipment to build custom components and systems. From nearly two decades of experience in vehicle repair, maintenance, and design, Mr. Scaler brings a unique perspective to the forensic engineering industry. He spends his spare time driving custom-built vehicles and using data acquisition to optimize vehicle performance at racing circuits nationwide.

Before entering the Forensic Engineering and Accident Reconstruction field, Mr. Scaler supported several teams participating in amateur and professional motorsports events. While supporting these teams and organizations, Mr. Scaler designed, prototyped, and manufactured vehicle systems, including braking, suspension, engine management, stability control, steering, and safety systems for both production and off-road vehicles. He also supported all of the data acquisition and data analysis systems that were used both onboard and in the laboratory to evaluate the performance of these OEM, aftermarket, and proprietary systems.

Mr. Scaler provides research and development and testing solutions in the field of forensic engineering and accident reconstruction. This includes the design and fabrication of proprietary testing equipment, data acquisition solutions, and an analysis process to help clients better understand the outcome of the test. Mr. Scaler is experienced in all aspects of testing, including test set-up, instrumentation, data acquisition, data analysis, video or photograph documentation, photogrammetric analysis, and testing result illustrations.

AREAS OF EXPERTISE

- Accident Reconstruction
- Occupant Safety & Protection Systems
- Human Factors in Reconstruction
- EDR (Black Box) Imaging & Analysis
- Automotive Safety Device Testing
- Restraint System Performance Analysis
- Alternative Design Implementation
- Crash Simulation and Animation
- Aerial Imaging & Analysis using sUAS
- 3-Dimensional Laser Scanning
- Race Car Driving and Vehicle Dynamics
- Vehicular Handling and Stability
- Onboard Vehicle Data Analysis & Diagnostics
- Forensic Video Analysis

EDUCATION

- Bachelor of Science with High Honors in Mechanical Engineering, Rutgers School of Engineering
- Board of Professional Engineers, Licensed Engineer in Training (EIT) TX # 78575
- Board of Professional Engineers, Licensed Engineer in Training (EIT) PA # ET029989
- Crash Investigation 1, Northwestern University Center for Public Safety
- Crash Investigation 2, Northwestern University Center for Public Safety
- Human Factors in Traffic Accident Reconstruction, IPTM, University of North Florida
- Bosch CDR Tool Technician, University of North Florida Institute of Police Technology and Management
- Event Data Recorder Use in Traffic Crash Reconstruction for Engineers, Ruth Consulting
- Advanced Photogrammetry for Collision Reconstruction, Lightpoint Learning
- Virtual CRASH Accident Reconstruction Software Training Course – Essentials and Animations
- Determining Speed From Video – Vehicle Positioning Methods, Lightpoint Data
- Microsoft Excel for Traffic Crash Reconstruction, Rich Consulting LLC
- 3 Generations of Air Bag System – Operation, Servicing, and Troubleshooting, NAPA Auto Parts
- Advanced Driver Assistance Systems (ADAS) – Operation, Testing and Calibration, ATEC Training
- Advanced Driver Assistance Systems (ADAS) – Advanced Technology Vehicles, ADAS Best Practices – WORLDPAC Training Institute
- Advanced Driver Assistance Systems (ADAS) – Successful Calibrations & Troubleshooting – L1 Automotive Training
- High-Speed CAN Communication – Automotive Seminars, Inc.
- Electronic Vehicle Stability Controls (VSC) – Anti-slip, Anti-slide, Anti-spin, Anti-skid, ATEC Training
- Advanced Steering and Suspension, ATEC Training
- Mastering Wheel Alignment Angles, ATEC Training
- Troubleshooting 3 Generations of Airbag Electrical Systems, ATEC Training
- Electronic Throttle Systems (ETC) – “Fly-by-wire”, ATEC Training
- Diagnosing Vehicle Networks and Data Lines, including Controller Area Network (CAN) Systems, ATEC Training
- Reading Wiring Diagrams, ATEC Training
- Opportunities in Hybrid Vehicle Service Course, ATEC Training
- Advanced Tire Pressure Monitoring Systems (TPMS) Diagnosis, ATEC Training
- TPMS: Tire Pressure Monitoring Systems, NAPA Auto Parts
- Federal Aviation Administration (FAA) Part 107 Remote Pilot Training, Drone Pro Academy

PROFESSIONAL AFFILIATIONS

- Society of Automotive Engineers (SAE)
- National Association of Professional Accident Reconstruction Specialists (NAPARS)
- Sports Car Club of America (SCCA)
- Experimental Aircraft Association (EAA)

PROFESSIONAL EXPERIENCE

2022 – Present | ASC Forensics | Forensic Engineer and Accident Reconstructionist

- Research, analyze, and test the effectiveness of occupant protection systems
- Research the performance of Advanced Driver Assistance Systems (ADAS)
- Investigate and reconstruct collisions involving passenger and commercial vehicles, off-road vehicles, trailers, and other “tow-behind” systems
- Preform data retrieval and analysis from on-board Event Data Recorders
- Apply handling and stability principles to evaluate vehicle behavior in real-world collisions
- Apply and relate driver/rider behavior to outcomes of real-world collisions
- Preform vehicle and site inspections to accurately relate, assess, and document the available evidence
- Provide consulting services in the design and fabrication of innovative vehicle systems for use in the off-road motorsports industry

2020 – 2022 | Automotive Safety Consulting | Forensic Engineer and Analyst

- Analyze the performance of both active and passive restraint systems in real-world crashes
- Research the technological advancement of supplemental restraint system technology through its implementation in the automotive industry
- Identify defects/deficiencies, or lack thereof, in the design or implementation of occupant protection systems
- Determine the feasibility of safety system technologies for mitigating permanent or fatal injuries in a wide variety of real-world crash conditions. (i.e., frontal, side, rollover, and rear impact collisions)

2020 – 2022 | ARCCA, Inc. | Forensic Engineer & Senior Accident Reconstructionist

- Investigate and reconstruct passenger and commercial vehicle collisions
- Apply handling and stability principles to evaluate vehicle behavior in real-world collisions
- Preform data retrieval and analysis from vehicle on-board Event Data Recorders
- Preserves scene and vehicle evidence by capturing three-dimensional laser scanning hardware and software
- Utilize reconstruction software to analyze collisions and three-dimensional scan data
- Preform vehicle and site inspections
- Conduct research and pioneer the latest technology in motorsports biomechanics to optimize driver performance and safety

2016 – Present | Advantage Motorsports

Motorsports Engineer & Designer

- Design and incorporate driver safety devices into new and existing racecars to reduce crash-related injuries
- Design, manufacture, test, and distribute a proprietary disc brake package for off-road vehicle use
- Design a computer-controlled, remote suspension adjustment tool for motorsports using the C++ programming language, micro controller, and fabricated components that react to live onboard data readings
- Design various mechanical and aerodynamic devices for a land-speed racing vehicle seeking to break records above 300 mph
- Experienced in additive manufacturing technology for product prototyping, material selection, and analysis
- Participate in vehicle drivetrain tuning and optimization through dynamometer testing
- Use onboard data acquisition tools to determine vehicle performance limits and diagnose mechanical issues
- Led a team that specializes in the maintenance and construction of racecars for motorsports competition
- Design and construct unique and innovative racecars to compete in national competition
- Create improvements in all areas of racecar performance and measure the effect through post-test data analysis

Driving Instructor & Data Analysis Engineer

- Instruct and coach a variety of racecar drivers competing in Porsche Club of America (PCA), BMW Car Club of America (BMW CCA), Formula Race Promotions (FRP) Pro Series, International Motor Sports Association (IMSA), Sports Car Club of America (SCCA), Vintage Racer Group (VRG), and recreational track days
- Use a combination of onboard vehicle data acquisition and video to identify practical areas of improvement for each individual driver

Professional Racecar Driver

- Conduct extensive tests to determine ideal vehicle dynamics for a variety of different racecars – including, but not limited to, tire construction and compounds, suspension geometry, shock absorber settings, aerodynamic devices, transmission gearing, engine tuning, driver ergonomics, steering settings, and hydraulic braking design.
- Create baseline parameters for suspension components through on-track testing of the vehicle's handling and stability
- Drive to collect consistent data to determine variations in car setup
- Develop motion characteristics and settings of a three-axis Simcraft racing simulator
- Competitive racecar driver in multiple categories

2016 – 2020 | Powerslide Motorsports | Professional Racecar Driver, Motorsports Engineer, System Designer

- Operate and manage a professional race shop that constructs both modern and vintage race cars
- Led all at-track activities to ensure a safe and successful performance from all customer cars
- Complete vehicle restorations and maintenance for both street and motorsports use
- Modify street vehicles for motorsports use
- Construct racecars from raw materials through machining, fabricating and welding

RELATED VEHICLE DYNAMICS / AUTO RACING EXPERIENCE

2021 - 2025

- Current SCCA Record Holder
- SCCA National Championship Runoffs

2020

- Awarded the Stevenson Wood Cup by the SCCA
- SCCA Northeast Majors Conference Champion
- SCCA National Championship Runoffs

2019

- FRP Pro Series
- Team USA Scholarship Finalist
- Mazda Road to 24 Scholarship Nomination
- Porsche Track Experience Instructor Program, Birmingham, Alabama
- SCCA National Championship Runoffs

2018

- Multiple SCCA lap records set
- SCCA National Championship Runoffs Podium Finish

2017

- Driver of the Year Award – SCCA
- Winner of the GP Four Pro Championship
- SCCA Northeast Majors Conference Champion
- SCCA National Championship Runoffs

2015 - 2016

- SCCA National Championship Runoffs

2005 - 2014

- National Sprint Kart Racing with the World Karting Association
- Motocross Racing

Updated 5/2025