

Hernán Mercado-Corujo

PE, IAAI-CFI, CFEI, CVFI

Principal, Senior Director Auto / Marine Group



Hernán Mercado-Corujo is a professional mechanical engineer specializing in the engineering analysis of vehicle Product Liability issues as well as thermal events. He provides consulting and expert witness testimony for clients nationally and internationally.

Hernán has investigated the origin, cause, and spread of fires and explosions in a wide variety of applications, including motor vehicles, recreational products, agricultural / farming / construction equipment, and property, including fires aboard a cargo ship. He has experience with fuel system components, fuel-fed vehicle fires, and alternative fuel systems (LPG, CNG, hybrid, EVs, etc.).

Likewise, Hernán has investigated hundreds of vehicle incidents related to recalls, alleged defects, unintended movement / acceleration, airbag non-deployments, component failures, loss of control, ADAS technologies, etc. His experience with hands-on testing and in-depth knowledge of strength, durability, fatigue, and overall vehicle reliability qualifies him to perform Root Cause Failure Analysis and Crash Reconstruction on a variety of machines, vehicles, and automotive systems.

Prior to working at ESi, Hernán provided forensic engineering services at Crane Engineering and held engineering positions at Honda R&D Americas and Eaton Corporation – Automotive group. He is bilingual in English and Spanish.

Education

M.S. Mechanical Engineering. Georgia Institute of Technology, GA.

B.S. Mechanical Engineering. Massachusetts Institute of Technology, MA.

Licenses & Certifications

- State of Minnesota P.E. License 51642
- State of Ohio P.E. License 70561
- State of Texas P.E. License 135434
- State of Wisconsin P.E. License 43576-6
- Commonwealth of Puerto Rico P.E. License 20012

Contact Information

hmercado@engsys.com

(763) 447-2759

ESi Minneapolis

2355 Polaris Lane North
Suite 120, Plymouth, MN 55447

Areas of Specialization

- Agricultural/Farming Equipment Failure Analysis
- Automotive Design and Manufacturing
- Automotive Systems & Technology
- Construction Equipment Failure Analysis
- Products Liability
- Recreational Products Failure Analysis
- Vehicle Crash Reconstruction including passenger and commercial vehicles, motorcycles, bicycles, pedestrians, golf carts, etc.
- Vehicle Fire Origin and Cause Investigation and Analysis

- IAAI Certified Fire Investigator (IAAI-CFI)
 - NAFI Certified Fire and Explosion Investigator (CFEI)
 - NAFI Certified Vehicle Fire Investigator (CVFI)
-

Languages

- Spanish (native)
-

Positions Held

Engineering Systems Inc., Plymouth, Minnesota

- Principal & Senior Director, Auto / Marine Group, 2024 – Present
- Senior Managing Consultant & Director, Automotive Technology, 2022-2023
- Senior Managing Consultant & Director, Thermal, 2021-2022
- Senior Managing Consultant, 2020 – 2021
- Senior Consultant, 2019 – 2020

Crane Engineering, Plymouth, Minnesota

- Vehicle Technology Manager 2015-2018
- Mechanical Engineer, 2013-2018

Honda R&D Americas, Inc., Raymond, OH

- Senior Engineer II, 2013
- Senior Engineer I, 2010-2013
- Engineer III, 2004-2010

Eaton Corporation, Southfield, MI

- Product Engineer, 2001-2004
-

Continuing Education

- **Hyundai-Kia & Tesla EDR Tools Technician** – University of North Florida Institute for Police Technology and Management (IPTM), Aurora, IL, 2025
 - **Passenger Restraint Safety Systems** – University of North Florida Institute for Police Technology and Management (IPTM), Aurora, IL, 2025
 - **Advanced Driver Assistance Systems (ADAS) for the Crash Reconstructionist** – Northwestern University Center for Public Safety, 2025
 - **Restraint Systems Operation** – I-CAR, 2024
-

- **Event Data Recorder Update and Analysis** – Ruth Consulting, 2023
- **Safety Belt Examinations (VoD), Institute of Police Technology and Management** – University of North Florida, 2022
- **Traffic Signal Timing Records Interpretation & Analysis, Traffic Signal Academy** – University of Tennessee, 2020
- **Traffic Crash Reconstruction for the Forensic Engineer** – Northwestern University Center for Public Safety, 2019
- **Crash Data Retrieval (CDR) Technician** – Northwestern University Center for Public Safety, 2017
- **Alternative Fuel Vehicle Program** – International Association of Arson Investigators, Grinnell, IA, 2017
- **ATV RiderCourse** – ATV Safety Institute, Silver Lake, MN, 2016
- **Tire and Wheel Safety Issues** – SAE, Troy, MI, 2015
- **Applied Vehicle Dynamics** – SAE BMW Performance Driving School, Greer, SC, 2015
- **Hazardous Waste Operations and Emergency Response (Hazwoper)** – 40-Hour Waste Site Worker Training (29 CFR, 1910.120), Minneapolis, MN, 2015
- **Bicycle Repair and Maintenance Class** – Park Tool School, Minneapolis, MN, 2014
- **Traffic Skills 101** – The League of American Bicyclists, Minneapolis, MN, 2014
- **SolidWorks Flow Simulation** – Symmetry Solutions, Brooklyn Park, MN, 2014
- **Advanced Fire, Arson & Explosion Investigation Program** – NAFI, Richmond, KY, 2014
- **Snowmobile Safety Education Program** – Minnesota Department of Natural Resources, Sherburne Co., MN, 2013
- **Engine Failure Investigation and Analysis** – SAE, Troy, MI, 2013
- **Basic Fire and Arson Investigation** – MNDPS, Willmar, MN, 2013
- **Vehicle Fire, Arson & Explosion Investigation Science & Technology** – NAFI, Lexington, KY, 2013
- **Design and Analysis of Fasteners and Bolted Joints** – EduPro, Raymond, OH, 2013
- **Vehicle Dynamics for Passenger Cars and Light Trucks** – SAE, Troy, MI, 2011
- **Motorcycle Ohio Basic Rider Course** – ODPS, Columbus, OH, 2007

Professional Affiliations/Honors

Society of Automotive Engineers (SAE)

- Member, Motor Vehicle Fire Investigation Task Force

National Association of Fire Investigators (NAFI)

International Association of Arson Investigators (IAAI-Member)

International Association of Arson Investigators (IAAI-MN chapter)

American Society of Mechanical Engineers (ASME)

Society of Hispanic Professional Engineers (SHPE)

Honda R&D “Annual Business and Technology Award” for 2011 Odyssey sliding door development

Excellence in Oral Presentation, SAE World Congress, Detroit, MI 2009

National GEM Consortium Fellow, Georgia Tech, 1999

Reinhold Rudenberg Memorial Prize for Outstanding Thesis, MIT, 1999

Publications

“Bringing Things Full Cycle – How to Approach Bicycle Crash Investigations from Every Perspective Amid Rising Use,” **H. Mercado-Corujo**, Flores, L., Loyd, A., CLM Magazine, January 2017.

“¿Qué? Speaking your Client's Language in Forensic Investigations – Literalmente,” **H. Mercado-Corujo**, Subrogator, Fall 2016.

“Enhancement of Multi-Body Simulation Data Sharing,” Yoshimoto, H., Pearce, K., Rodrick, T., Slabach, B., Gagliano, C., **H. Mercado-Corujo**, Tener, D., Honda R&D Technical Review, April 2012.

“Utilization of MotionView for Automotive Strength and Durability Analysis,” **H. Mercado-Corujo**, 2009 SAE World Congress and Exhibition, paper number 2009-01-1196.

“Development and Application of a Press-Pin/PTH Reliability Model,” Kulkarni, A., Iannuzzelli, R., Seyedi, J., **H. Mercado-Corujo**, Conference Proceeding and Journal Volume 15-3, SMTA Journal of Surface Mount Technology, 2002.

“Thermal Finite Element Analysis of X9 and X29 X-Ray Ring Crotch Radiation Absorbers,” Lynch, D., **H. Mercado-Corujo**, BNL-66762, KC0204011, Energy Citation Database, 1999.

Presentations

“e-Mobility: Fire Investigations from Small (e-scooters) to Large (EVs),” **H. Mercado-Corujo**, H. Fetter, presented at Combined Claims Conference, Garden Grove, CA, May 2024.

“An Introduction to Hybrid & Electric Vehicle Fires: Investigation & Analysis”, **H. Mercado-Corujo**, presented at the IAAI International Training Conference, Las Vegas, NV, April 2024.

“Understanding Airbag Non-Deployment Claims: Case Studies,” **H. Mercado-Corujo** & J. van Poppel, presented at the ABA Motor Vehicle Product Liability Litigation Conference, Scottsdale, AZ, April 2023.

“Advanced Fire Investigation”, **H. Mercado-Corujo**, presented at AEM Product Safety & Compliance Seminar, Lincolnshire, IL, April 2022.

“Hybrid and Electric Vehicle Fires”, **H. Mercado-Corujo**, presented at DRI Strictly Automotive, Washington, DC, September 2021.

“Effective Vehicle Testing to Convey Vehicle Technology and Dynamic Behavior: A Case Study,” **H. Mercado-Corujo**, presented at the Emerging Issues in Motor Vehicle Product Liability Litigation Conference, San Diego, CA, April 2019.

“Cutting Edge Tools and Techniques in Investigating and Reconstructing Crashes,” **H. Mercado-Corujo**, presented at the Emerging Issues in Motor Vehicle Product Liability Litigation Conference, Phoenix, AZ, April 2018.

“Failure Modes and Effects Analysis in New Product Development,” **H. Mercado-Corujo**, presented at the ASME Symposium, MN Section, Plymouth, MN, March 2017.

“Large Loss Incidents in Industrial Settings: Tools and Techniques for Site Management and Root Cause Analysis,” **H. Mercado-Corujo**, presented at the 27th Annual Product Liability Conference, Department of Engineering Professional Development, University of Wisconsin-Madison, WI, 2015.

“Vehicle Technology Trends That Will Make a Difference: A Forensic Engineering Perspective,” **H. Mercado-Corujo**, presented at the Farmers Mutual Hail – Adjuster's School, Story City, IA, 2014.

“Frequency & Amplitude Dependent Bushing Model Implementation in Full-Vehicle Simulation,” **H. Mercado-Corujo**, presented at the 6th European Altair Technology Conference, Turin, Italy, 2013.

“Full-Vehicle Multibody Simulations on Virtual Roads – The Challenges of Success,” **H. Mercado-Corujo**, presented at the 5th European HyperWorks Technology Conference, Bonn, Germany, 2011.

“Customization of MotionView for Automotive Strength and Durability Analysis,” **H. Mercado-Corujo**, presented at the 2008 Americas HyperWorks Technology Conference, Novi, MI, 2008.

“Thermo-Mechanical Analysis of Water-Cooled Brakes,” **H. Mercado-Corujo**, presented at the 2004 International ANSYS Conference, Pittsburgh, PA, 2004.

Instructor / Evaluator

Faculty – Performed controlled burn of lithium-ion battery-powered ride-on toy car as part of live burn demonstrations for **DRI's Fire Science and Strictly Automotive Seminars** at the Washington DC Fire & EMS Training Academy. Led training sessions and discussed findings at conference, August 2023.

Invited Speaker, 2023 **Annual MNIAAI Spring Conference** – Taught 2-hour tested lecture on Introduction to “Hybrid and Electric Vehicle Fires - Investigation and Analysis”, March 2023.

Faculty – Performed controlled burns of passenger vehicle seats as part of live burn demonstrations for **DRI's Fire Science and Strictly Automotive Seminars** at the Maryland Fire and Rescue Institute. Led training sessions and discussed findings at conference, September 2021.

Guest Lecturer, Products Liability Seminar, LAW 6227, **University of Minnesota**. Discussed the role of experts/ engineers in Products Liability cases utilizing real-life case studies. Session included post-baccalaureate, LL.M. students, October 2018, March 2020 & March 2021.

Passenger & Commercial Vehicle Fire Origin & Cause Investigations, 3-hour seminar at **Professional College of Engineers & Surveyors of Puerto Rico (CIAPR)**, San Juan, PR, May 2016.

University of Minnesota Solar Vehicle Project – performed Crashworthiness and Roadworthiness evaluation for EOS (2015), EOS II (2017, 2019), and Gaia (2025) vehicles prior to World Solar Challenge.