

Thomas G. Livernois Ph.D., P.E.
LIVERNOIS CONSULTING
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Education and Licensing

- Ph.D., Electrical Engineering, University of Michigan, Ann Arbor
- M.S., Electrical Engineering, Michigan State University
- B.S., Electrical Engineering, Michigan Technological University
- Registered Professional Engineer, Michigan, Arkansas, New York, Virginia

Specialized Engineering Competencies

- Design and analysis of electrical and electronic control systems, including automotive, construction, agricultural, and lifting equipment; failure modes and functionality in adverse environments
- Design review, analysis, and testing of vehicle powertrain and supplemental restraints electrical and electronics systems
- Automotive radar and driver assistance systems (ADAS)
- Camera systems for transportation applications
- Thermal event analysis: electric machinery, distribution systems, appliances, and switch gear
- Electromagnetic compatibility, electrostatic discharge phenomena analysis and mitigation
- Root cause analysis of structural electrical fires, origin and cause of vehicle fires

Professional Experience and Qualifications

- Principal Engineer, Livernois Consulting, August 2022 to present
- Principal Engineer, Carr Engineering, 2019 to 2022
- Online Tutor – Varsity Tutors, 2020 to 2021
- Principal Engineer, Design Research Engineering, 2010 to 2019
- Principal Engineer, Electrical and Semiconductors Practice, Exponent, 2003 to 2010
- Owner/President, Physics Solutions, LLC, 2003
- Executive Director, AGC America Inc., 2000 to 2003
- Supervisor, Powertrain and Chassis Electronics, DaimlerChrysler, 1998 to 2000
- Senior Engineer, Electrical/Electronic Systems Compatibility, Chrysler Corporation, 1995 to 1998
- Product Engineer, Power Distribution / Electronic Systems, Ford Motor Company, 1991 to 1994
- Instructor in Electrical Engineering, Lawrence Tech University, 1988 to 1990

Professional Memberships

- Member, Institute of Electrical and Electronic Engineers (IEEE)
- Member, SAE International
- Journal Paper Reviewer, SAE International
- Chair, SAE Odometer and Speedometer Committee
- National Association of Fire Investigators – CFEI, CVFI (NAFI Certifications)

Professional Development

- Electric Vehicle Sensors – University of Colorado, Boulder, 2025
- International Symposium on Fire Investigation & Technology, NAFI, 2024
- EDR Use in Traffic Reconstruction, Institute of Police Technology and Management, 2022
- Wind Energy – Technical University of Denmark, 2021
- Emissions-Related OBD Systems Design, SAE, 2021
- Introduction to Brake Control Systems ABS, TCS, and ESC, SAE, 2021
- Introduction to NFPA 70, 2020 National Electrical Code, NTT, 2019
- Overview and Impact of the ISO 26262 Standard, SAE, 2019
- Introduction to Radar for Automotive Applications, SAE, 2018
- Leading High Performance Teams, SAE, 2016
- Keys to Creating a Cybersecurity Process from the J3061 Process Framework, SAE, 2016
- Cybersecurity: Introduction to Embedded System Exploitation, SAE, 2016
- Reconstruction and Analysis of Rollover Crashes of Light Vehicles, SAE, 2016
- Reconstruction and Analysis of Motorcycle Crashes, SAE, 2016
- FMEA for Robust Design, SAE, 2016
- Driver Distraction from Electronic Devices, SAE, 2016
- Applying Automotive EDR Data to Traffic Crash Reconstruction, SAE, 2016
- Fundamentals of Automotive All-Wheel Drive Systems, SAE, 2016
- Patent Litigation in the U.S., SAE 2015
- National Vehicle Fire, Arson, and Explosion Investigation Training, NAFI, 2015
- Investigating Motor Vehicle Fires – IAAI, 2014
- Arc Mapping Basics – IAAI, 2014
- The Scientific Method for Fire and Explosion Investigations – IAAI, 2014
- Vehicle/Powertrain Calibration Engineering – SAE, 2013
- Forklift Safety and Operator Training – 2011
- Side Impact Occupant Safety – SAE, 2010
- Vehicle Accident Reconstruction Methods – SAE, 2010
- Material Selection and Testing for Plastics – SAE, 2009
- Vehicle Frontal Crash Occupant Safety – SAE, 2008
- University of Michigan Ross Executive Education – Resilient Capitalism Symposium, 2003
- University of Michigan Ross Executive Education – Leading in Difficult Times, 2001
- University of Michigan Ross Executive Education – Finance for the Nonfinancial Manager, 2001

THOMAS G. LIVERNOIS

Publications

- Arora A, Medora NK, Livernois TG, Swart J, “Safety of Lithium-Ion Batteries for Hybrid Electric Vehicles,” *Electric and Hybrid Vehicles*, 2010, 18: 463-491
- Livernois, TG, “Electric and Magnetic Fields, Ions, Audible Noise, and Radio Noise”, New York Regional Interconnection Study, November 2007
- Livernois TG, “On the Reciprocity Factor for Shielded Microstrip,” *Microwave and Optical Technology Letters* 1995; 10(6):327–330, December.
- Livernois TG, “Characterization of Dissipative Losses in Microwave Circuits,” *Microwave and Optical Technology Letters* 1994; 7(15):687–689, October.
- Livernois TG, East JR, “Analysis of a Microstrip Step Discontinuity Fabricated on a Metal-Insulator-Semiconductor (MIS) Substrate,” *Microwave and Optical Technology Letters* 1992; 5(13):661-666, December.
- Livernois TG, Nyquist DP, Cloud MJ, “Scattering Effects in the Dielectric Slab Waveguide Due to Electrically Dissipative and Active Discontinuities,” *IEEE Transactions on Microwave Theory and Techniques* 1991; 39(3):579–583, March.
- Livernois TG, Katehi PB, “A Simple Method for Characterizing Planar Transmission Line Discontinuities on Dissipative Substrates,” *IEEE Transactions on Microwave Theory and Techniques* 1991; 39(2):368–370, February.
- Livernois TG, Katehi PB, “Characteristic Impedance and Transverse Field Distribution in MIS Microstrip,” *IEEE Transactions on Microwave Theory and Techniques* 1990; 38(11):1740–1743, November.
- Livernois TG, Katehi PB. “Generalized Method for Deriving the Space-Domain Green's Function in a Shielded, Multilayer Substrate Structure, with Applications to MIS Slow Wave Transmission Lines,” *IEEE Transactions on Microwave Theory and Techniques* 1989; 37(11):1761–1767, November.
- Livernois TG, Nyquist DP. “Integral Equation Formulation for Scattering by Dielectric Discontinuities Along Open Boundary Waveguides,” *Journal of the Optical Society of America A* 1987; 4(7):1289–1295, July.

Symposium Papers

- Medora, NK, Arora, A, Livernois, TG, “Series Arcing Faults in Electrical Transportation Systems,” SAE 2010-01-0036, April 2010
- Arora A, Medora N, Livernois T, “Circuit Protection Devices & Arc Fault Detection Schemes for Electrical Automotive Systems,” *IEEE Symposium on Product Compliance Engineering*, Austin, TX, October 20–22, 2008.
- Teune J, Livernois TG, “Correlation Between Automotive Electromagnetic Immunity Tests,” *IEEE 1999 International Symposium on Electromagnetic Compatibility*, Seattle, WA, August 2–6, 1999.

- Slattery K, Neal J, Livernois T, Smith S., “A Description of the Implementation of an Automated Conducted Emissions Chamber for Automotive Testing,” IEEE 1998 International Symposium on Electromagnetic Compatibility, Denver, CO, August 24–28, 1998.
- Schuster JW, Leubbers RJ, Livernois TG, “Application of the Recursive Convolution Technique to Modeling Lumped Circuit Elements in FDTD Simulations,” IEEE AP-S Symposium, Atlanta, June 21–26, 1998.
- Slattery KP, Monahan RL, Livernois TG, Smith SV, “Characterization of TEM Cell Discontinuities Due to Filtered DUT Test Harnesses,” IEEE EMC Symposium, Austin TX, August 18–22, 1997.
- Slattery KP, Livernois TG, “The Effects of I/O Wire Extensions on Measured RF Voltage,” IEEE EMC Symposium, Austin TX, August 18–22, 1997.
- Livernois TG, “Module Level Conducted Immunity Testing,” 1995 Society of Automotive Engineers EMC TopTec, Novi, MI, September 13–14, 1995.
- Livernois TG, “TEM Cell Radiated Immunity Testing,” 1995 Society of Automotive Engineers EMC TopTec, Novi, MI, September 13–14, 1995.
- Livernois TG, “Analysis and Design of Slow Wave Structures Using an Integral Equation Approach,” IEEE/MTT-S International Microwave Symposium, Long Beach, CA, June 12–16, 1989.

Speaking Engagements

- Autoline with John McElroy, Episode 1622, “Highly Charged”, May 25, 2012
- Product Liability Hot Topics Seminar for Defense Counsel, “Collision Avoidance Technology – New Technology Bringing A Host of New Claims”, Troy, Michigan, September 2009.
- Lotusphere 1997 – Pool of Knowledge, Engineering Book of Knowledge (EBOK), Orlando, Florida, January 27-30, 1997

Doctoral Thesis

- Livernois TG, “Numerical and Experimental Analysis of Metal-Insulator-Semiconductor Microstrip Structures,” The University of Michigan, Ann Arbor, Michigan, 1991.