Daniel Lieberman

PhD, PE

Senior Consultant

Dr. Daniel Lieberman is a Senior Consultant at ESi and specializes in combustion, fluid mechanics, thermodynamics, and heat transfer. He performs origin and cause investigations of fires and explosions, ranging from small residential fires to large-scale industrial incidents.

Dr. Lieberman has investigated numerous vehicle-related fires, as well as fires in marine vessels. He also has investigated thermal-related failures of a broad range of consumer appliances; commercial and residential cooking equipment; heating, ventilation, air-conditioning, and refrigeration (HVAC&R) systems; and photovoltaic systems. His experience also includes evaluation of failures in natural gas and propane equipment and systems, oxygen equipment, hot work activities, industrial ovens, furnaces and boilers, burn injuries, carbon monoxide (CO) exposure, and damages caused by blast waves and other impulsive loading, including water hammer and supersonic flight.

Prior to joining Esi, Dr. Lieberman held several positions, including conducting forensic investigations at Colwell Consulting. Dr. Lieberman also has extensive experience in innovation and product development. He has over a decade of experience developing and scaling impactful products and services (novel supply chains, medical devices, and consumer products) for underserved markets in developing countries.

Dr. Lieberman has also held positions in the Explosion Dynamics Laboratory at the California Institute of Technology, as a part-time faculty member in the Aerospace and Mechanical Engineering department at the University of Southern California, and at the École des Métiers de l'Aérospatiale de Montréal aerospace trade school. Dr. Lieberman has testified as an expert witness in federal court on various occasions.

Education

PhD, Aeronautics. California Institute of Technology. 2005

MS, Aeronautics, California Institute of Technology. 2001

BEng, Mechanical Engineering (Honors). McGill University. 2000

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ESi Seattle

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Seattle, WA 98108

Areas of Specialization

- Combustion
- Fluid Mechanics
- Thermodynamics
- Heat Transfer

Licenses & Certifications

- State of California P.E. License M34477
- Hazardous Waste Operations & Emergency Response Training (29 CFR 1910.120)

Positions Held

Engineering Systems Inc., Seattle, Washington

- Senior Consultant, 2025 – Present

Global Health Labs Inc., Bellevue, Washington

- Senior Director Engineering and Software, 2020 – 2025

Intellectual Ventures Laboratory, Bellevue, Washington

- Principal Investigator, 2013 – 2020

Colwell Consulting LLC., Phoenix, Arizona

- Managing Engineer, 2014 – 2025

University of Southern California, Los Angeles, California

- Lecturer, 2012

Exponent Failure Analysis Associates, Los Angeles, California

- Managing Engineer, 2005 – 2013

École Aerospatiale de Montreal (Aerospace trade school), Montreal, Canada

- Lecturer, 1998-1999

Continuing Education

- **Introduction to Design Control for Medical Devices** – Medical Devices HQ, 2025

Professional Affiliations/Honors

National Fire Protection Association

- Member, Technical Committee on Explosives, NFPA 495 Explosive Materials Code, 2012 – 2013

California Institute of Technology

- Recipient, The William F. Ballhaus Prize, 2006
- Recipient, Donald Wills Douglas Fellowship, 2000

Fonds de Recherche sur la Nature et les Technology

- Recipient, Postgraduate Scholarship, 2000 & 2001

National Science and Engineering Research Council

- Recipient, Postgraduate Scholarship, 2000 & 2001
- Recipient, NSERC Undergraduate Summer Research Scholarship, 1999

McGill University

- Honoree, Dean's Honor List, McGill University, 1998 & 1999
- Recipient, J.W. McConnell Award, 1998
- Recipient, Clifford Wong Scholarship, 1998

Shock Waves

- Peer Reviewer, 2002 – 2006

Combustion Science and Technology

- Peer Reviewer, 2002 – 2006

Fuel: The Science and Technology of Fuel and Energy

- Peer Reviewer, 2002 – 2006

SAE International

- Peer Reviewer, 2006 – 2013

Publications

"Retrofitting Stoves with Forced Jets of Primary Air Improves Speed, Emissions, and Efficiency: Evidence from Six Types of Biomass Cookstoves," **D.H. Lieberman**, Energy for Sustainable Development, Vol. 71, pp. 104–117, 2022.

"Development of Wood-Burning Rocket Cookstove with Forced Air Injection," **D.H. Lieberman**, Energy for Sustainable Development, 2021.

"A Feasibility Study Evaluating a Reservoir Storage System for Continuous Oxygen Delivery for Children with Hypoxemia in Kenya," **D.H. Lieberman**, BMC Pulmonary Medicine, 2021.

"Efficacy and Safety of Oxygen-Sparing Nasal Reservoir Cannula for Treatment of Pediatric Hypoxemic Pneumonia in Uganda: A Pilot Randomized Clinical Trial," **D.H. Lieberman**, BMC Pulmonary Medicine, 2020.

"Oxygen Insecurity and Mortality in Resource-Constrained Healthcare Facilities in Rural Kenya," **D.H. Lieberman**, Pediatric Pulmonology, 2020.

"Using On-Demand Dry Ice Production as an Alternative Cryogenic Cold Chain for Bovine Artificial Insemination Outreach in Low-Resource Settings," **D.H. Lieberman**, Translational Animal Science, 2020.

“Veterinary Parasitology: An Alternative Cold Chain for Storing and Transporting East Coast Fever Vaccine,” **D.H. Lieberman**, Veterinary Parasitology, 2020.

“Assessment of a Storage System to Deliver Uninterrupted Therapeutic Oxygen During Power Outages in Resource-Limited Settings,” **D.H. Lieberman**, PLoS ONE, 2019.

“Maintaining Semen Quality by Improving Cold Chain Equipment Used in Cattle Artificial Insemination,” **D.H. Lieberman**, Nature Scientific Reports, 2016.

“An Evaluation of Perceptual Experience of Skiers Using Quantitative Image Processing,” **D.H. Lieberman**, Journal of ASTM International, 2008.

“Detonation Interaction with a Diffuse Interface and Subsequent Chemical Reaction,” **D.H. Lieberman**, Shock Waves, 2007.

“Detonation Interaction with an Interface,” **D.H. Lieberman**, Physics of Fluids, 2007.

“Detonation initiation and propagation,” **D.H. Lieberman**, Proceedings of the 15th Office of Naval Research Propulsion Conference, 2002.

Presentations

“Analysis of a Bowstring Truss Roof Collapse by a Sonic Boom,” **D.H. Lieberman** and S. Tang, 4th International Conference on Engineering Failure Analysis, Cambridge, England, July 2010.

“Explosion Investigations and Failure Analysis,” **D.H. Lieberman**, University of Southern California Viterbi School of Engineering, Los Angeles, CA, November 3, 2008.

“Engineering Consulting: For Mechanical Engineers,” **D.H. Lieberman**, University of Southern California Viterbi School of Engineering, Los Angeles, CA, November 28, 2007.

“Shock Wave Induced Mixing and Reaction,” **D.H. Lieberman**, 20th International Colloquium on the Dynamics of Explosions and Reactive Systems, Montreal, Canada, August 2005.

“Characterization of a Corona Discharge Initiator Using Detonation Tube Impulse Measurements,” **D.H. Lieberman**, 43rd AIAA Aerospace Sciences Meeting, Reno, NV, January 2005.

“Combustion Behind Shock Waves,” **D.H. Lieberman**, S. Singh, and J.E. Shepherd, Combustion Institute, Western States Section, Los Angeles, CA, October 2003.

“Detonation Initiation by Hot Turbulent Jet for Use in Pulse Detonation Engines,” **D.H. Lieberman**, 38th AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, Indianapolis, IN, July 2002.

“Photographic Study of the Transition Between the Quasi-Detonation and Choking Regimes,” **D.H. Lieberman**, 18th International Colloquium on the Dynamics of Explosions and Reactive Systems, Seattle, WA, July 2001.