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ADAM BOVIE, P.E., IAAI-FIT
SENIOR STAFF CONSULTANT

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Mr. Bovie is a Senior Staff Consultant with Engineering Systems Inc. (ESi). He is a Professional Electrical Engineer with extensive experience in failure analysis and forensic investigation of electrical and electronic systems for insurance, legal, government and manufacturing clients.

Mr. Bovie has performed numerous investigations of battery failures, including work on U.S. Consumer Product Safety Commission (CPSC) actions related to consumer Lithium-ion (Li-ion) packs, as well as utility-scale Li-ion battery storage incidents.

Mr. Bovie has been retained on projects ranging from Internet of Things (IoT) smart device incidents to commercial first-responder safety system failures in renewable power generation. Mr. Bovie has also worked on utility equipment incidents related to wildfire origin & cause and has investigated vehicle failures of hydrogen buses and battery electric vehicles.

In addition, Mr. Bovie has been a frequent guest lecturer at conferences and universities, including the California Conference of Arson Investigators, the Composites and Advanced Materials Exposition, and the University of Southern California. He has published papers related to CT radiography in accident investigations.

Mr. Bovie is an International Association of Arson Investigators (IAAI) Fire Investigation Technician (IAAI- FIT), and a member of the Institute of Electrical and Electronics Engineers (IEEE), National Society of Professional Engineers (NSPE), IAAI, and the California Conference of Arson Investigators (CCAI). Mr. Bovie has completed the Federal Emergency Management Agency (FEMA) and IAAI Coursework in fire and explosion investigations and additional continuing education in assessing and exploiting industrial control systems cybersecurity architecture from InGuardians and Black Hat.

Areas of Specialization

Custom data acquisition hardware / software: C, C++, Python, Verilog, ModBus TCP

Electric & alternative fuel vehicle fires

Electrical & electronics failures Lithium-ion battery failures

Electrical fire, arc flash, and explosion investigation

Electronic control system software & hardware failures EM interference & radio communications failures

PCB & electronic component failures, including identification of counterfeit and malicious components 3D-Computed Tomography (CT) analysis of products

Risk assessment & exploitation of industrial control systems software & hardware Internet-of-Things (IoT) device failures & cybersecurity

Wildfire origin & cause proximal to power & communications infrastructure

Education

B.S., Electrical Engineering (ABET, Cum Laude), Arizona State University B.A., University of California, San Diego
California SB-2142 Teaching Credential, Cal State Fullerton
IAAI Fire Investigation Technician (ATF / IAAI, Huntsville, AL), October 2018
IAAI Vehicle Fire Investigation (Certificated Training – Newport Beach, CA, 2019) NFPA Certified Fire Inspector

Licenses/Certifications

State of California License No. #E24063

Professional Affiliations/Honors

Institute of Electrical and Electronics Engineers (IEEE)
National Society of Professional Engineers (NSPE)
National Association of Fire Investigators (NAFI)
California Conference of Arson Investigators (CCAI)
International Association of Arson Investigators (IAAI)

Positions Held

Engineering Systems Inc., Anaheim, CA
Senior Staff Consultant, 2022 – Present

Kars' Advanced Materials, Anaheim, CA
Principal Electrical Engineer, 2022
Origin & Cause Investigator, 2018 - 2022
X-Ray Tomography Specialist, 2017 - 2022
Technical Specialist, 2015 – 2017

Continued Education – Practical

Assessing and Exploiting Control Systems and IIoT – BlackHat / InGuardians – August 2023

Continued Education – Tested Training

CFI Trainer Module - Documenting the Event (6/15/2017)

CFI Trainer Module - Fire Investigator Scene Safety (6/15/2017) CFI Trainer Module - Introduction to Evidence (6/15/2017)

CFI Trainer Module - The Scientific Method for Fire and Explosion Investigation (6/15/2017) CFI Trainer Module - Physical Evidence at the Fire Scene (6/16/2017)

CFI Trainer Module - Fundamentals of Residential Building Construction (6/20/2017) CFI Trainer Module - Introduction to Fire Dynamics and Modeling (6/20/2017)

CFI Trainer Module - Investigating Fatal Fires (6/20/2017)

CFI Trainer Module - Investigating Motor Vehicle Fires (6/20/2017) CFI Trainer Module - Search and Seizure (6/20/2017)

CFI Trainer Module - An Analysis of The Station Nightclub Fire (12/6/2017) CFI Trainer Module - Charleston Sofa Super Store Fire (12/6/2017)

CFI Trainer Module - Understanding Fire Through the Candle Experiments (9/18/2018) 40-Hour Fundamentals of Fire Investigation – ATF NCETR, Huntsville, AL (10/26/2018) CFI Trainer Module - Ethics and the Fire Investigator (10/30/2018)

CFI Trainer Module - NFPA 1033 and Your Career (10/30/2018)

CFI Trainer Module - The Practical Application of the Relationship Between NFPA 1033 and NFPA 921 (10/30/2018)

CFI Trainer Module - Motor Vehicles: The Engine and the Ignition, Electrical, and Fuel Systems (12/3/2018)

CFI Trainer Module - Motor Vehicles: Transmission, Exhaust, Brake, and Accessory Systems (12/3/2018) Motor Vehicle Fire Investigation-3 Day – Newport Beach, CA (3/20/2019)

CFI Trainer Module - Effective Investigation and Testimony (8/16/2019) CCAI Training Seminar – Private Track – San Luis Obispo, CA (2/10/2022) CFI Trainer Module - Investigating Natural Gas Systems (2/15/2022)

CFI Trainer Module - Lithium-Ion Battery Fires (2/15/2022)

CFI Trainer Module - Residential Natural Gas Systems (2/15/2022)

Publications Presentations

Kar N.K., Bovie A., Roig T., “The Complimentary Use of 3D X-ray Micro-Computed Tomography with Traditional Metallography,” *Advanced Materials and Processes*, January/February 2022.

Kar N.K., Bovie A., “Failure Analysis of a Composite Rudder Stock using 3D X-Ray Microcomputed Tomography,” *Journal of Failure Analysis and Prevention* (2019) Accepted.

Presentations

"Save that part! Using industrial CT, SEM, and microscopy to improve composite materials,"

The Composites and Advanced Materials Expo. Anaheim Convention Center, Anaheim, CA, October 2022

"Electrical Fire Case Study & Live Test Burn with Instrumentation"

California Conference of Arson Investigators Roundtable. Chino, CA, August 2022

"CT Scans - Hollywood vs. Reality, and Best Practices for Getting Answers," California

Conference of Arson Investigators Training Seminar. Anaheim, CA, June 2022