



15800 Southeast Piazza Avenue, Suite 101
Clackamas, OR 97015

LOUIS F. BILANCIA, P.E.
SENIOR CONSULTANT

fbilancia@engsys.com

Mr. Bilancia is an electrical engineer and Senior Consultant with 14 years of experience in biomedical design of implanted pacemakers and defibrillators, with 11 years in the design and programming of industrial laser control, lumber sorting, and precision electronic instrumentation. Mr. Bilancia has 18 years of experience in forensic engineering, failure analysis, and expert witness. He specializes in fire origin and cause evaluations, including those where electrical activity may have been involved.

In addition, he has been an adjunct professor at Portland State University for four terms, as well as an instructor for several classes to the International Association of Arson Investigators (IAAI) community in electrical evidence collection and the scientific method. Mr. Bilancia has performed nearly 600 fire and electrical investigations.

Areas of Specialization

Electrical equipment and instrumentation

Electrical injury/electrocution

Fire debris examination, documentation, testing, and analysis

Fire origin and cause

Product failures involving electrical, electronic, and biomedical appliances and equipment

Education

B.S., Electrical Engineering, University of Portland, 1976

Licensed Professional Engineer (P.E.)

State of California..... License No. E21366

State of Oregon..... License No. 15954

State of Washington..... License No. 53004

Professional Affiliations/Honors

American Academy of Forensic Sciences (AAFS)

Member, 2004–present

International Association of Arson Investigators (IAAI)

Member, 2003–present

March 2019

Institute of Electrical and Electronics Engineers (IEEE)

Member, 1992–present

National Academy of Forensic Engineers (NAFE)

Member

National Fire Protection Association (NFPA)

Member

National Society of Professional Engineers (NSPE)

Member

Professional Engineers of Oregon (PEO)

Member

Awards

Presidential Award of Excellence

Oregon IAAI Chapter 31, 2011–2012

C. Walter Stickney Distinguished Service Award

Oregon IAAI Chapter 31, 2007–2008

Positions Held

ESi (Engineering Systems Inc.), Seattle, Washington

Senior Consultant, 2019

Senior Staff Consultant, 2016–2018

MDE, Inc., Seattle, Washington

Principal, 2014–2016

Cascade Forensic Engineering and Failure Analysis, Inc., Oregon City, Oregon

Electrical/Electronic Forensic and Consulting Engineer, 2001–2014

HTRI & HTRI Forensics, Cross Technology Integration Specialists, Newberg, OR

Electrical/Electronic Forensic and Consulting Engineer, 2008–2014

Synnovation Engineering, Inc., Milwaukie, Oregon

Owner and President, 1995–2014

MicroHelix, Inc., Portland, Oregon

Principal Investigator, 2001–2003

Portland State University, Portland, Oregon

Adjunct Professor, 2001–2002

Micro Systems Engineering, Inc., Portland, Oregon

Director of Design, 1987–2001

Electro Scientific Industries, Portland, Oregon

Senior Project Engineer, 1983–1985
Project Engineer, 1978–1981

Datricon Corporation, Portland, Oregon

Vice President, 1980–1983

Continued Education

Best Practices for Electric Shock/Electrocution Investigation, ESi, 2018
Electrical Safety, Lessons Learned, ESi, 2018
Combining and Expanding Electrical Safety Projects, ESi, 2018
IAAI Annual Training Conference, Oregon, 2018
Insurance Fraud Conference and Expo, IASIU, Oregon Chapter, 2017
Conference & Symposium, IEEE ISPCE, 2017
IAAI Annual Training Conference, Texas, 2017
IAAI Annual Training Conference, Oregon, 2016
EC&M Electrical Construction and Maintenance, Ground Fault Interrupters Webinar, 2016
Directing the Future of Professional Engineers of Oregon, PEO Chapter, 2016
IAAI Annual Training Conference, Utah, 2016
IAAI International Training Conference, Chicago, 2015
Ignition Matrix, Insurance Committee for Arson Control, Florida, 2014
IAAI Rogue Valley Conference, Oregon 2014
IAAI Annual Training Conference, Oregon, 2013
OSBEELS Symposium, Salem, Oregon, 2013
IAAI Annual Training Conference, Oregon, 2012
California Conference of Arson Investigators, San Luis Obispo, California, 2012
California Conference of Arson Investigators, San Luis Obispo, California, 2011
IAAI Annual Training Conference, Oregon, 2011
Arc Mapping Basics, CFI Trainer, 2011
IAAI Tennessee Chapter Conference, 2010
California Conference of Arson Investigators, San Luis Obispo, California, 2007 and 2008
Oregon Rogue Valley Fire & Arson Career Development School, 2004 and 2005
IAAI 25th Fire & Arson Seminar, Oregon, 2003
Fire Cause & Origin of Mobile Equipment, Oregon IAAI 25th Fire & Arson Seminar, 2003
IAAI Oregon Chapter 31, Annual Advanced Fire & Arson Seminar, 2002, 2003, 2004, 2006, 2007, and 2009
Software Verification and Validation for Medical Products, Logicon, 2000
Fundamentals of GPS, Indyne, 1999
Introduction to Reliability for Software Engineers, Software Quality Conference, 1996
Hazard Analysis: FMEA & FDA/ISO, Noblitt & Rueland, 1994

Publications/Presentations

- Contributing author and presenter "Metalized Film Capacitors as Fire Pattern", IEEE Product Safety Engineering Society (ISPCE), San Jose, California, USA, 2018
- Presenter "Electrical Fire Causes" and "Arson Under the Christmas Tree", Oregon State Police Arson Detectives, 2018
- Presenter, Ignition Matrix Cleveland Clinic Cold-Case Workshop, IAAI Texas, 2017
- Presenter, Ignition Matrix™ Cleveland Clinic Cold-Case Workshop, IAAI Utah, 2016
- Contributing author and presenter "Computer Models in Fire Analysis: The Illusion of Scientific Accuracy", Fire and Litigation Conference, 2014
- Contributing author and presenter, "Safe product design forensic engineering and Asimov's Laws of Robotics", IEEE Symposium on Product Compliance Engineering (ISPCE), 2014
- Presenter, Ignition Matrix™, Insurance Committee for Arson Control, Florida, 2014
- Contributing author and presenter, "The Beelzebub Zone: Rare but predictable failure conditions that can result in accidental fires", IEEE Symposium on Product Compliance Engineering (ISPCE), 2012
- Contributing author with others, "Kirk's Fire Investigation", 7th Edition, 2012
- "Technical Review and Analysis", California Conference of Arson Investigators, 2011
- Presenter, Ignition Matrix, IAAI Tennessee Training Conference, Pigeon Forge, TN 2010
- Contributing author, "Forensic Fire Scene Reconstruction", 3rd Edition, 2009
- "The Scientific Method with Specific Attention to Fire Investigation", several arson investigation groups in 2004 and 2007
- "Fuses and Circuit Breakers in Fire Investigations", IAAI Chapter 31, 2003
- "Introduction to Computer Forensics", IAAI Chapter 31, 2003
- "Modern Equipment Control Affects Electrocution Risk", AAFS, 2003
- "Metal Oxide Varistors in Fire Investigations", IAAI Chapter 31, 2002