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Clackamas, Oregon 97015
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LOUIS F. BILANCIA, P.E.
SR. MANAGING CONSULTANT
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Mr. Bilancia is an electrical engineer and Senior Managing 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. He has more than 23 years of experience in forensic engineering, failure analysis, and expert witness testimony. He specializes in microelectronics, biomedical devices, and 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. 15954PE
State of Washington……License No. 53004
Certified Fire & Explosion Investigator (CFEI), March 2019–present

Professional Affiliations/Honors

American Academy of Forensic Sciences (AAFS)
Member, 2004–present

International Association of Arson Investigators (IAAI)
Member, 2003–present

Institute of Electrical and Electronics Engineers (IEEE)
Member, 1992–present

National Academy of Forensic Engineers (NAFE)
Member

National Society of Professional Engineers (NSPE)
Member

Professional Engineers of Oregon (PEO)
Member

National Association of Fire Investigators (NAFI)
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–present
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

2020
Manufacturing Lithium-Ion Cells And Batteries, 2020
Software Defined Radio For Forensic Investigation, 2020

2019
Arc Flash Awareness And Labeling, 2019
IEEE ISPCE International Symposium on Product Compliance Engineering, 2019

2018
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

2017
Insurance Fraud Conference and Expo, IASIU, Oregon Chapter, 2017
Conference & Symposium, IEEE ISPCE, 2017
IAAI Annual Training Conference, Texas, 2017

2016
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

2015
IAAI International Training Conference, Chicago, 2015

2014
Ignition Matrix™, Insurance Committee for Arson Control, Florida, 2014
IAAI Rogue Valley Conference, Oregon 2014

2013
IAAI Annual Training Conference, Oregon, 2013
OSBEELS Symposium, Salem, Oregon, 2013

2012

IAAI Annual Training Conference, Oregon, 2012
California Conference of Arson Investigators, San Luis Obispo, California, 2012

2011

California Conference of Arson Investigators, San Luis Obispo, California, 2011
IAAI Annual Training Conference, Oregon, 2011
Arc Mapping Basics, CFI Trainer, 2011

2010

IAAI Tennessee Chapter Conference, 2010

2009

IAAI Oregon Chapter 31, Annual Advanced Fire & Arson Seminar, 2009

2008 - 2007

California Conference of Arson Investigators, San Luis Obispo, California, 2007 and 2008
IAAI Oregon Chapter 31, Annual Advanced Fire & Arson Seminar, 2007

2006 - 2004

Oregon Rogue Valley Fire & Arson Career Development School, 2004 and 2005
IAAI Oregon Chapter 31, Annual Advanced Fire & Arson Seminar, 2004 and 2006

2003 - 2002

IAAI 25th Fire & Arson Seminar, Oregon, 2003
Fire Cause & Origin of Mobile Equipment, Oregon IAAI 25th Fire & Arson Seminar, 2003 B IAAI Oregon Chapter 31, Annual Advanced Fire & Arson Seminar, 2002 and 2003

2000

Software Verification and Validation for Medical Products, Logicon, 2000

1999

Fundamentals of GPS, Indyne, 1999

1996

Introduction to Reliability for Software Engineers, Software Quality Conference, 1996

1994

Hazard Analysis: FMEA & FDA/ISO, Noblitt & Rueland, 1994

Publications/Presentations

2020

“Electrical Fire Patterns Investigation”, author and presenter, International Symposium on Product Compliance Engineering, 2020
“Illumination Caused Permanent Bodily Injury, Photons Not Taken Lightly”, Professional Engineers Of Oregon, 2020

2019

“Arson Under The Christmas Tree”, International Symposium on Product Compliance Engineering, May 2019

“Illumination Caused Permanent Bodily Injury, Photons Not Taken Lightly”, International Symposium on Product Compliance Engineering, May 2019

2018

“Metalized Film Capacitors as Fire Pattern", contributing author and presenter, IEEE Product Safety Engineering Society (ISPCE), San Jose, California, USA, 2018

“Electrical Fire Causes” and “Arson Under the Christmas Tree”, presenter, Oregon State Police Arson Detectives, 2018

2017

Presenter, Ignition Matrix Cleveland Clinic Cold-Case Workshop, IAAI Texas, 2017

2016

Presenter, Ignition Matrix Cleveland Clinic Cold-Case Workshop, IAAI Utah, 2016

2014

"Computer Models in Fire Analysis: The Illusion of Scientific Accuracy", contributing author and presenter, Fire and Litigation Conference, 2014

"Safe product design forensic engineering and Asimov's Laws of Robotics", contributing author and presenter, IEEE Symposium on Product Compliance Engineering (ISPCE), 2014

Presenter, Ignition Matrix, Insurance Committee for Arson Control, Florida, 2014

2012

“The Beelzebub Zone: Rare but predictable failure conditions that can result in accidental fires”, contributing author and presenter, IEEE Symposium on Product Compliance Engineering (ISPCE), 2012

"Kirk’s Fire Investigation", contributing author, 7th Edition, 2012

2011

"Technical Review and Analysis", California Conference of Arson Investigators, 2011

2010

Presenter, Ignition Matrix, IAAI Tennessee Training Conference, Pigeon Forge, TN 2010

2009

"Forensic Fire Scene Reconstruction", contributing author, 3rd Edition, 2009

2007 & 2004

"The Scientific Method with Specific Attention to Fire Investigation", International Association of Arson Investigators of Oregon Chapter 31, several arson investigation groups in 2004 and 2007

2003

"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", author and presenter, AAFS, 2003

2002

"Metal Oxide Varistors in Fire Investigations", presenter, IAAI Chapter 31, 2002