



Exponent®

Engineering & Scientific Consulting

Jerry Stepan, P.E., CFEI

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Professional Profile

Mr. Stepan specializes in electrical and electronic systems, particularly digital and embedded systems. He has extensive practical experience in embedded systems, software design (C/C++, JAVA, ADA, Perl, assembly, and other languages), and HDL design (VHDL and Verilog).

Mr. Stepan has experience in root cause failure analysis investigations for a broad range of electrical issues. Products investigated include appliances, consumer electronics, battery systems, power supplies, industrial electrical equipment, medical devices, and military systems. Mr. Stepan also has experience with evaluation, review, FMEA analysis, single point failure analysis, reliability analysis, and safety analysis of electronics and the electronics manufacturing process.

Mr. Stepan additionally has an extensive background working with computer architecture, real-time systems, avionics, process control, configuration control, and electronics manufacturing and design cycles.

Prior to joining Exponent, Mr. Stepan was employed at Northrop Grumman, Navigation Systems Division. His work experience includes lead designer of System Processors for several Inertial Navigation System product lines. This encompassed Digital Card Design, PCB Layout, Signal Integrity Analysis, FPGA design and verification, production testing development, managing manufacturing process and configuration control, firmware development, system integration, and design process development. His experience also includes developing System/Subsystem hardware requirements, requirements traceability, and requirements verification and validation.

Academic Credentials & Professional Honors

M.S., Electrical Engineering VLSI Design, University of Southern California, 2003

B.S., Electrical Engineering, University of California, Los Angeles (UCLA), 2002

Licenses and Certifications

Certified Fire and Explosion Investigator (CFEI)

Professional Affiliations

IEEE Institute of Electrical and Electronics Engineers (member)

NFPA National Fire Protection Association

NAFI National Association of Fire Investigators

Publications

Ibrahim Z, Stepan J, Slee D, Reza A. Forensic examination, and failure analysis of a 220 MV step-up transformer fire. Proceedings, ASME International Mechanical Engineering Convention & Exposition 2013, San Diego CA, November 15-21, 2013.

Turner GG, Stepan J, Mikolajczak CJ. Safety considerations when designing portable electronics with electric double-layer capacitors (supercapacitors). Proceedings, 2011 IEEE Symposium on Product Compliance Engineering, Product Safety Engineering Society, October 2011.

Slee D, Stepan J, Wei W, Swart J. Introduction to printed circuit board failures. Proceedings, IEEE Symposium on Product Compliance Engineering, October 2009.

Project Experience

Electrical failure analysis of appliances, consumer electronics, battery systems, power supplies, medical devices, and military electronics.

Industrial equipment electrical failure analysis, including generators, motors, transformers, control systems, automation systems, and elevators.

Battery-pack testing and failure analysis of lithium ion cells and other cell chemistries.

Fire investigations involving electrical wiring, components, devices, and appliances.

Marine electrical systems failure analysis.

Automobile electronics systems failure analysis.

Electronics architecture design, hardware design, analysis, review, reliability, FMEA, evaluation, and new design bring-up support.

Software architecture design, code design, analysis, and review.

IP infringement cases involving computer and electronics hardware and software.

Evaluation and design review of appliances, consumer electronics, battery systems, power supplies, medical devices, and military electronics.

Evaluation of electric distribution systems of buildings.

Counterfeit integrated circuit identification.