

Tim Johnson is a Senior Consultant at ESi, with experience in electrical system failure analysis, electrical system testing and design, and electrical safety.

Prior to joining ESi, Mr. Johnson was a Senior Engineer at IIT Research Institute (IITRI). His career includes 15 years with IITRI, two years with McDonnell Douglas, and two years with Magnavox.

While employed at IITRI, Mr. Johnson specialized in electromagnetic pulse (EMP) failure analysis, electromagnetic field health effects research, and training simulator development. At McDonnell Douglas, he was responsible for operating and maintaining test stand electrical systems. At Magnavox, he worked in a communication systems development group.

Education

M.S., Electrical Engineering, Illinois Institute of Technology, 1989

B.S., Electrical Engineering, Purdue University, 1984

Licenses & Certifications

- State of Illinois License No. 062-055348
- State of Indiana License No. PE11300428
- Certified Fire & Explosion Investigator (CFEI)
- National Association of Fire Investigators
- Membership No. 14288-7489

Positions Held

Engineering Systems Inc., Aurora, Illinois

- Senior Consultant, 2014 to present
- Senior Staff Consultant, 2001 to 2013

IIT Research Institute, Chicago, Illinois

- Senior Engineer, Transport Technology, 2000 – 2001
- Senior Engineer, Tactical Systems, 1993 – 2000
Research Engineer, Electromagnetics, 1986 – 1993

Contact Information

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ESi Aurora

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Areas of Specialization

- Failure analysis of electrical and electronic equipment
- Electrical safety
- Fire/explosion investigation
- Product design
- Safety aspects of design

McDonnell Douglas, Kennedy Space Center, Florida

- Associate Engineer, Cargo Integration Testing, 1984 – 1986

Magnavox Government Systems, Fort Wayne, Indiana

- Co-op Engineer, Communication Systems, 1980 – 1983

Professional Development

PDHOnline

- AC/DC Wall Adapters, September 2025
- Engineering Ethics, September 2025
- Illinois Statutes for PE, September 2025
- Arc Fault Circuit Interrupters, September 2025
- Motor NEMA Nameplate Standards, August 2025
- 240 V Motor Operation on 208 VAC, August 2025
- Small Motor Control, August 2025
- Power System Quality, August 2025
- Laws, Rules, and Ethics for Indiana Professional Engineers, May 2024
- Duplex Convenience Receptacles, August 2023
- Arc Fault Circuit Interrupters, June 2023
- Standard AC System Voltages, June 2023
- Electric Vehicles 101, June 2023
- AI Technologies for Smart Systems Design, April 2023
- Plant Electrical Troubleshooting, April 2023
- Limiting Arc Flash Exposure, April 2023
- Electrical Safety, April 2023
- Controlling Electrical Hazards, OSHA 3075, April 2023
- Simplified Short Circuit Calculations, April 2023
- A Guide to Electric Vehicles, May 2022
- Photovoltaic Systems Safety, November 2021
- OSHA 3075, September 2021
- Wind Energy, April 2021

- Solar Energy, March 2021
- DC Generators and Motors, February 2019
- Engineering Ethics, May 2016
- Digital Power Metering and Industrial Data Communication for Meter Systems, August 2013
- Boiler Control Systems, June 2013
- Wind Energy Technology, June 2013
- Battery Technology, January 2013
- Uninterruptive Power Systems, January 2013
- Energy Storage Technology, September 2011
- OSHA 3075 Electrical Hazards, June 2011
- Programmable Logic Controllers, March 2011

CFITrainer.net

- Lightning Fire Cause Investigation, July 2025
- Site Safety, PPE Donning and Doffing, July 2025
- Lightning Behavior, May 2025
- Commercial Kitchen Fires, April 2025
- The Scientific Method for Fire and Explosion Investigation, May 2019
- Motor Vehicle Systems, April 2019
- Explosion Dynamics, February 2019
- Investigating Motor Vehicle Fires, November 2015
- NFPA 921 and 1033 Revisions, November 2015
- Fire Dynamics and Modeling, September 2014

Engineering Systems Inc.

- Software Defined Radio for Forensic Investigation, May 2020
- Arc Flash Hazard Awareness, April 2020
- Li-Ion Failures, February 2020

Additional

- Fire Investigation Training Conference, IAAI, September 2006
- Stallcup's 2005 NEC Changes NFPA, February 2005
- ISPE Annual Conference, July 2004

- National Electric Code Course, June 2004
- Fire Investigation Training Conference, Illinois Chapter IAAI, June 2007
- Lightning Effects and Detection, Global Atmospheric, Inc., March 2002
- Wireless Communication Systems Graduate Short Course, IIT, June 1998
- Simulation HLA, Distributed Simulation Technology, Inc., December 1997
- Object-Oriented C++, American Research Group, Inc., April 1996
- Electrical Safety, National Technology Transfer, Inc., May 1994
- National Fire, Arson, & Explosion Investigation Training Program, Denver, Colorado, The National Association of Fire Investigators Co-Sponsored by the National Fire Protection Association, March 2009

Publications

“Exposure to 60 Hz Magnetic Fields and Risk of Lymphoma in PIM Transgenic and TSG, p53 (p53 Knockout) Mice”, D. McCormick, B. Ryan, J. Findlay, J. Gauger, **T.R. Johnson**, R. Morrissey, G. Boorman, *Carcinogenesis*, Vol. 19, no. 9, pp. 1649-1653, 1998.

“A Developmental Toxicity Study of 60 Hz (Power Frequency)”, Ryan, E. Mallett, **T.R. Johnson**, J. Gauger, D. McCormick, *Magnetic Fields in Rats, Teratology*, 1996.

“Immune Function and Host Defense in Rodents Exposed to 60 Hz Magnetic Fields”, R. House, H. Ratajczak, J. Gauger, **T.R. Johnson**, P. Thomas, D. McCormick, *Fundamental and Applied Toxicology*, Vol. 34, pp. 228-239, 1996.

Presentations

“Design, Construction, and Operation of a Dedicated Magnetic Field Animal Exposure Facility”, J. Gauger, **T.R. Johnson**, D. McCormick, J. Harder, *Proceedings of the Second World Congress for Electricity and Magnetism in Biology and Medicine*, 1997.

“Two-Year Toxicity/Oncogenicity Studies of 60 Hz Magnetic Fields in F344 Rats and B6C3F1 Mice”, Seminar presented as part of Canadian National Advanced Fire, Arson & Explosion, D. McCormick, J. Findlay, B. Ryan, J. Gauger, **T.R. Johnson**, R. Morrissey, G. Boorman, *Proceedings of the Second World Congress for Electricity and Magnetism in Biology and Medicine*, 1997.

“A Cooperative Analysis for Siting a Proposed Urban 345 kV Transmission Line”, J. Stangel, **T.R. Johnson**, M. Hart, M. Lewandowski, *Proceedings of the American Power Conference*, Chicago, Illinois, 1992.