

JEFFREY M. KOBILKA, P.E., CFEI
Electrical Engineer

PROFESSIONAL EXPERIENCE

2016 to present **Robson Forensic, Inc.**
Associate

Provide technical investigations, analysis, reports, and testimony toward the resolution of commercial and personal injury litigation involving design, implementation, programming, operation, maintenance, and failure analysis of electrical systems and related equipment.

- Development and analysis of functional requirements for industrial control systems
- Failure event recreation utilizing historical data and control system source code
- Control design: Electrical Power Distribution (generator staging, circuit breaker control, load shedding), Naval Propulsion Plant (cooling systems, main diesel engines, gas turbine engines, fuel oil service), Naval Damage Control System (HVAC, Watermist Fire Fighting, Aqueous Foam Fire Fighting), Naval Auxiliary systems (potable water, fuel oil transfer), Lead/Lag control for pumping stations (2-6 pumps), surface water pre-treatment plant, surface water filtration plant, wastewater treatment plant, chlorination, heating elements (temperature control), incinerator
- Air Flow Control loop utilizing dissolved oxygen sensors to control variable frequency drive blowers and modulating control valves in a multistage aeration basin
- Machine Guarding: Generator control, circuit breaker control, emergency stop (E-Stop), over-pressurization protection, over-fill protection, control panel design
- Programmable Logic Controllers (PLC): Allen Bradley PLC-5, SLC-500, MicroLogix, CompactLogix, ControlLogix; Modicon 984, Quantum, Momentum; Schneider Electric SCADAPack; Siemens S7-300, S7-400
- Programming Software for PLCs: Allen Bradley RS-Logix 500, RS-Logix 5000; Modicon ProWorx, ProWorx32, Concept, Unity; Schneider Electric Telepace, Telepace Studio; Siemens Simatic Step 7
- Programming languages: assembly, C++, Java, Visual Basic
- Human Machine Interface Software: Wonderware Intouch, Orchestra System Platform; Allen Bradley PanelBuilder, Panel Builder 32, RSView; Iconics Genesis64; Schneider Electric ClearScada
- Industrial Control System Networking and Cyber Security – network architecture, switch configuration, firewall configuration, fiber optic media, vulnerability scans, Defense Information System Agency (DISA) Security Technical Implementation Guide (STIG) application
- Fieldbus Networks: Devicenet, Controlnet, Profibus DP, Profibus PA, Profinet, Modbus RTU, Modbus TCP/IP, Modbus+, DNP
- Remote telemetry – licensed and unlicensed radio, AFSK modem telephony, cellular radio
- Reporting Software: Crystal Reports, XLReporter, Hach WIMS
- Software testing – test procedure development and code coverage analysis
- Variable frequency drives, motor controllers, motor soft start, solenoid valves, modulating valves, machinery control centers

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- Sensors and Instrumentation: Flow meters (turbine, electromagnetic, ultrasonic doppler, open channel, venture), pressure transducers, level indicators (pressure, bubbler, radar, laser, ultrasonic), reed switch, proximity switch, dissolve oxygen sensor, oxidation reduction potential sensors, residual chlorine meter, turbidity sensor, RTD's (resistance thermal detectors), thermostats, multi-meter, oscilloscope.
- Switches, fuses, relays, circuit breakers, contacts, contactors, motor starters, motors, drives, power supplies, timers, connectors, splices, strain relief, terminals, terminations, cables, cords, conductors, receptacles, plugs, bus bars, receptacles.
- Fire detection and suppression systems: Fire main pump systems, Watermist, HFP, AFFF, smoke detectors, sprinkling systems.
- Operations and safety, machinery operation manuals, machinery safety manuals, workplace safety, Personal Protective Equipment (PPE), warnings, labeling
- Electrical faults, electrical explosions, arc flashes, lightning damage, electrocution and electrical shock injuries, electrical causes of fires and failure analysis

2013 to
2016

Naval Surface Warfare Center- Philadelphia Division, Philadelphia, PA

Littoral Combat Ship Freedom Variant – Lead Systems Engineer / Software Lead

Acquisitions – Provide engineering oversight and support to Program and Technical Navy entities for the Machinery Plant Controls and Monitoring System (MPCMS) for LCS Freedom variant ships. MPCMS controls all non-combat shipboard machinery. Represent Navy technical community in meetings with industry. Review and comment on industry submitted system documents. Witness land based and at sea testing. *Key accomplishments:*

- Navy Lead for LCS Freedom Variant Machinery Control Systems Working Group
- Technical member of Navy Failure Review Boards
- Organized successful Usability Session with LCS 5 Crew – Developed agenda, technical discussion topics and hands on procedures.
- Worked closely with industry counterpart to develop 30 software changes based on the Usability Session
- Primary representative for NSWCPD on LCS Navy-Industry MPCMS Meetings to enforce contract specifications and military standards

In Service – Support of in service LCS Freedom Ships. *Key Accomplishments:*

- Lead Systems Engineer for MPCMS software development – system documentation, programming, implementation of System Engineering Process (CMMI), lead staff meetings
- Successfully planned, developed, and delivered multiple software builds with significant impact to shipboard operation
 - Human Machine Interface
 - Safety Systems: Fire detection and suppression
 - Electrical Power Distribution: Safety improvements in generator and circuit breaker control
 - Propulsion: Gas turbine engines

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- Successfully resolved server hard drive failures aboard USS Freedom (LCS 1)
- Developed Safety Hazard Analyses: Analyzed control system for potential safety hazards, rated hazards for severity and probability, developed mitigations
- Conducted risk analyses in accordance with MIL-STD-882E
 - Risks to ship and crew of at sea operation from defects within major components
 - Defined severity, probability, risk, and mitigations for a wide range of system defects/failures
- Performed investigations to determine maintenance requirements of shipboard equipment including computers, networking, PLC, servers, communications networks and signal wiring
- Developed maintenance and safety procedures

2006 to **Keystone Engineering Group, Inc., Frazer, PA**

2013 *Lead Automation Developer*

2012-2013

Project engineer plus the following responsibilities - mentor new programmers. Develop standard methods for PLC programming, HMI development, and SCADA network security.

Project Engineer - Automation and Electrical Design

2006-2012

Design of Supervisory Control and Data Acquisition (SCADA) Systems. Water and wastewater. PLC and HMI programming. Hands on system troubleshooting. Power distribution design. Lighting design. Creation of specifications, design drawings, and wiring schematics. Control system programming. Project start up and implementation. Commissioning of PLCs, Variable Frequency Drives, communications equipment, sensors, and electrical devices. Construction Management – supervision of electrical installation, scheduling, project management and construction cost estimation. Maintenance – troubleshooting failed electrical circuits including power, communications, control, and feedback signals. Troubleshooting defective code which resulted in undesirable equipment behavior. Analyzed systems where electrical equipment (power supplies, modems) had failed due to power surges or lightening damage.

2002 to **State Electric, Norristown, PA**

2005 *Part Time - Electrical Construction Cost Estimator, Electrician*

Developed bids; performed take offs; obtained quotes from vendors; Performed installation of electrical devices such as switches, receptacles, and luminaires; Installed conduit and load centers; pulled wire; Developed an Excel based application for electrical construction cost estimation

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PROFESSIONAL CREDENTIALS

Professional Engineer: Florida, Georgia, Hawaii, Indiana, Kentucky, Maryland, New York,
Pennsylvania, Virginia, Wisconsin
Global Industrial Cyber Security Professional (GICSP)
Certified Fire and Explosion Investigator (CFEI)

EDUCATION

Pennsylvania State University, University Park, PA, *Bachelor of Science in Electrical Engineering*, 2005

Continuing Education:

NAFI - National Fire, Arson, & Explosion Investigation Training Program, March 2017

Kamo Consultancy, Capability Maturity Model Integration (CMMI) Training,
July 2015

Kamo Consultancy, CMMI Peer Review and Facilitator Training, July 2015

Siemens, SIMATIC S7 Programming 2, August 2014

PROFESSIONAL MEMBERSHIPS

Institute of Electrical and Electronics Engineers (IEEE)

National Association of Fire Investigators (NAFI)

National Fire Protection Association (NFPA)