

SAM KHALAF

Controls Project Management | Procore Certified (PM, Superintendent & Admin) | Ignition Gold | OSHA 30
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PROFESSIONAL SUMMARY

Controls engineer with a project-management focus, a dual B.S.E. in Electrical and Computer Engineering, and experience across data center BMS/EMS, automotive manufacturing, and OEM validation. Procore certified in the Project Manager, Superintendent, and Admin tracks, Ignition Gold certified (93.5%), and OSHA 30 trained. Brings an engineer’s command of drawings, sequences, and field conditions to scope review, commissioning readiness, and cross-team coordination.

CORE STRENGTHS

End-to-End Delivery Three-robot cell demo built from PLC logic to HMI, simulation, and SCADA	Mission-Critical Controls Data center BMS/EMS integration support and commissioning readiness	Procore Workflows RFIs, submittals, budgets, change orders, and crew planning
Commissioning & Validation I/O checks, interlocks, permissives, and controlled machine-cycle tests	Cross-Functional Coordination Machine startups with maintenance, production, and engineering teams	Quality, Risk & Safety FMEA/DFMEA, root-cause analysis, OSHA 30, NFPA 70E/79, and LOTO

CERTIFICATIONS

Procore (2026)	Project Manager: Core Tools, Project Management, Financial Management, Quality & Safety, Resource Planning, Resource Tracking · Superintendent Certification · Admin Certification, full series: Configure Settings, Configure Users & Projects, Manage Tools & Data
Ignition	Gold Certified, 93.5% (Sep 2026) · Core Certified (Aug 2026) · Ignition 8.3 Credential (Aug 2026)
Safety & Robotics	OSHA 30-Hour Construction · NACHI Robotic Systems, in person (2024): AX PLC & I/O (3-day, teach-pendant programming and motion control); FD Operation & Programming (2-day)

PROFESSIONAL EXPERIENCE

Controls Engineer <i>RoviSys Building Technologies (via Actalent) Saline, MI</i>	Aug 2026 – Sep 2026
- Supported BMS/EMS integration planning, commissioning readiness, and engineering review for a mission-critical data center, working from controls drawings, sequences of operation, SOPs, and chilled-water system documentation. - Built and delivered an Ignition Perspective BMS/EMS simulation and training application that models chiller status, operating conditions, alarms, and system levels using synthetic data. - Standardized equipment templates (UDTs, indirect bindings, parameterized components) so the application scales consistently across equipment instead of relying on one-off builds. - Authored BACnet/IP and controls-network technical references covering field-device communication, IP addressing, network topology, controller-to-SCADA integration, and structured troubleshooting.	
Controls Technician <i>American Axle & Manufacturing, DAUCH Forge Facility Oxford, MI</i>	Jan 2026 – May 2026
- Partnered with maintenance, production, and engineering teams on machine startups, taking equipment from fault diagnosis through repair to a validated return to production. - Verified repairs before handoff through PLC I/O checks, field-device testing, interlock and permissive verification, and controlled machine-cycle testing. - Documented downtime causes, repairs, troubleshooting steps, and corrective actions to support root-cause analysis and resolution of recurring faults. - Diagnosed PLC-controlled equipment in Studio 5000 and TIA Portal, tracing HMI alarms through ladder logic and field I/O to failed sensors, actuators, relays, motors, VFDs, and control panels. - Supported HMI/SCADA development and equipment monitoring with SQL and Python scripting.	

EMC Lab Test Technician

Aug 2024 – Sep 2025

Applus Reliable | Madison Heights, MI

- Executed automotive EMC testing to OEM procedures (BCI, radiated emissions and immunity, ESD) and recorded traceable pass/fail outcomes, failure modes, and measurement plots for compliance documentation.
- Set up repeatable test conditions and ran signal-integrity, impedance, continuity, and polarity checks, separating test-setup faults from true device behavior to minimize invalid data and retests.

Electrical Engineer Intern, ECU Test & Validation

Mar 2021 – Sep 2021

Robert Bosch (XC-Multimedia) | Plymouth, MI

- Flashed ECU software (ETAS INCA, Vector) and traced DTCs, timeouts, and sensor dropouts through CAN traces.

SELECTED PROJECTS

Automotive Oil Pan Automation Cell: PLC, HMI & SCADA Demo

2026

Independent portfolio project | Siemens TIA Portal, PLCSIM, ROBOGUIDE, OPC UA, web SCADA

- Delivered an end-to-end controls design for a three-robot oil pan cell on a Siemens S7-1500 (SCL): screw placement, torque/angle-verified fastening, laser barcode etching, scanning, and duplicate detection.
- Structured the logic as a step-controlled state machine with auto, manual, step, and demo modes, plus modular blocks for robot handshakes, traceability FIFO, alarm history, downtime, OEE, and PM counters.
- Validated the sequence offline in PLCSIM and ROBOGUIDE, supervised through a TP2200 Comfort Pro HMI with OPC UA data exchange and operator, maintenance, and engineering user levels.
- Designed a web SCADA command center (JavaScript, HTML/CSS) that tracks the 7-step sequence, 10 permissives, torque/angle, alarms, OEE, loss Pareto, and traceability, plus a digital-twin cell view.

Ignition Gold Certification Project

Sep 2026

Inductive Automation | Hands-on project development exam, passed with 93.5%

- Built a complete Ignition project from the gateway up: security zones, identity providers, nested/inherited UDTs, alarm notification and escalation pipelines, scripted reports, and database-driven Vision and Perspective screens.

TECHNICAL SKILLS & TRAINING

Project Tools	Procore: RFIs, submittals, project documents, budgets, commitments, change orders, inspections, observations, crew planning, labor-hour tracking, site records, administration
PLC, HMI & SCADA	Allen-Bradley Studio 5000; Siemens TIA Portal (S7-1500/1200, SCL, ladder, PLCSIM, WinCC, Comfort HMI); Ignition (Perspective, Vision, UDTs, alarm pipelines); OPC UA; ROBOGUIDE; VFDs
BAS & Networking	BACnet/IP, BMS/EMS integration, chilled-water systems, TCP/IP, Ethernet, VLANs, RS485, CAN
Design, Data & Test	AutoCAD Electrical, EPLAN P8, SQL, Python, JavaScript, HTML/CSS, Vector CANoe/CANalyzer
Recent Training	12 courses, Jun–Aug 2026: RSLogix/Studio 5000 (22 hrs), S7-1200 & WinCC (TIA V20), PowerFlex 525 and G120 VFDs, PLCopen motion, BACnet, chilled-water piping, CCNA prep

EDUCATION

University of Michigan–Dearborn

Sep 2019 – Apr 2024

Dual B.S.E., Electrical Engineering & Computer Engineering | GPA 3.4

- Relevant coursework: Controls, Electrical Power Systems, Mobile Robots, Computer Architecture, Operating Systems
- Senior Design, Smart Shoe System: developed an ESP32-based smart shoe integrating force, IMU, and ultrasonic sensors; calibrated sensor outputs and built a mobile app for real-time visualization and data logging.

RECOMMENDATIONS

“...motivation, curiosity, and systems-level thinking... Very bright engineer who strives for perfection.”

— Dr. Ali Hariri, PhD, Principal Engineer, DTE Energy; Adjunct Faculty, University of Michigan–Dearborn

“He is a tireless worker... He epitomizes the principle of servant leadership...”

— Martin Hershock, Professor of History and mentor, University of Michigan–Dearborn

“Sam demonstrates strong initiative, technical curiosity, and a practical engineering mindset...”

— Junaid Farooq, Associate Professor (controls), University of Michigan–Dearborn