Seth Robins

Industrial AI Leader | Production ML, Agentic Systems, ERP & IT/OT Integration

Pasadena, Texas | seth.robins@recursiveintelligence.io | LinkedIn | GitHub

I build the systems that make AI perform in live operations, not sandboxes. Over 20 years at the intersection of industrial automation (OT), enterprise data/ERP integration, and cognitive systems. A career forged as an instrumentation technician, refined through process control engineering, and proven in production AI architecture while keeping hard-won operational context intact. Recognized internally for patentable contributions to production-deployed AI optimization systems with measurable operational impact across live chemical manufacturing operations.
Earning trust from operations teams in environments where a wrong setpoint has real consequences is harder than building the model, and it's what actually decides whether a system ships.

KEY PERFORMANCE INDICATORS

Enterprise-Scale— **Recurring Operational Impact**
Delivered through AI optimization and architectural frameworks across live manufacturing operations.

Production-Deployed— **AI-Driven Process Optimization**
Live in chemical manufacturing operations, with measurable capacity gains realized in production.

3x— **Adoption Growth, Global AI Program**
Active user growth sustained across international manufacturing sites, driven by structured change management and human-centered rollout design.

PROFESSIONAL EXPERIENCE

Industrial AI/ML Architect
Jan 2025 – Present
Covestro

- Recognized internally for patentable contributions to production-deployed AI optimization systems across multiple manufacturing units, delivering measurable throughput, yield, and energy-efficiency gains.
- Architected and deployed a production multi-agent AI system automating FMEA (failure mode and effects analysis) workflows, with evaluation and safety guardrails built into the release process.
- Brought the petrochemical domain knowledge that closes the gap between what data science produces and what live plant operations will accept. Directly leading a data science and GenAI engineering team across multiple active GenAI/ML initiatives, each at enterprise impact scale — coaching the team on physically-informed feature engineering, validating models against operator judgment before deployment, and building safety-bounded guardrails around model outputs. Coach differently depending on the person: some need room to grow into ambiguity, others need to be pushed past a rigor that resists new methods — reading which is which is most of the job.
- Architected a cloud-native data platform to support multi-site AI modeling at scale, negotiating plant data and ERP access across organizational and site boundaries. Model outputs are delivered to plant control systems through a validated, standards-aligned verification process. Covers the industrial data engineering directly: plant data tag contextualization, SQL-based ETL pipeline design, and CI/CD coordination.
- Engineered and deployed an agentic AI system spanning the incident lifecycle from automated condition detection through notification and initial work scheduling, applying an industry-standard risk-based prioritization methodology. Deployed in live manufacturing operations with human-gated final approval and dispatch.
- Owned end-to-end IT/OT integration across the AI deployment stack. Drove UX/UI design informed by existing control system conventions so that operations teams trained on traditional interfaces actually use it.
- Drove AI adoption strategy across engineering, operations, and maintenance functions: structured change management, capability development programs, and human-centered rollout design. Outcome: 3x+ active-user growth sustained across global manufacturing sites.
- Conceived, scoped, and resourced a cognitive digital twin initiative, now underway, built on condition-based monitoring and anomaly detection, extending the global digital twin data foundation into predictive, AI-native operational intelligence.

Industrial Mobility & Intelligent Operations Architect
Apr 2022 – Jan 2025
Covestro

- Built intrinsically safe mobile device infrastructure for hazardous chemical manufacturing environments, bridging IT, OT, and safety requirements across plant operations teams.
- Led cross-functional deployment of a mobile device fleet across emergency mustering and turnaround operations. Cut full-site mustering time from hours to under an hour and replaced paper work packages with real-time task execution during time-sensitive turnaround windows.
- Delivered a digital twin visualization initiative for plant operations: AR/VR views via wearable and mobile devices with live plant data and standardized 3D assets. Operators executed procedural tasks (such as valve operations) through tracked hand gestures checked off in sequence; mobile devices supported touch-based task interaction and live data viewing. Also consulted on VR-based training program design for operations personnel.

Process Control Capability Development Specialist
Apr 2019 – Apr 2022

Covestro

- Designed and coordinated global capability development programs reaching hundreds of direct and thousands of indirect personnel across international manufacturing sites, building qualification-based training infrastructure for process control functions.
- Partnered with regional and global operations and safety leadership to develop and present qualification-based training strategy for safety-critical plant systems including DCS, APC, and Process Safety to technical and executive audiences.

MES Asset Engineer
Apr 2015 – Apr 2019

Covestro / Bayer Material Science

- Directed a major site transition from a legacy process historian to a structured data asset management system, building the tag contextualization layer and asset hierarchy that formed the site's digital twin data foundation, making plant data legible for engineering systems and downstream analytics.
- Executed a portfolio of IT/OT infrastructure projects (network and security upgrades, device-agnostic endpoint rollout). Coordinated resources across business units and adapted global standards locally.
- Implemented condition-based maintenance (CBM) and energy efficiency operations programs, developing project cost analysis, use cases, and ROI assessments for each initiative. Trained and qualified local personnel on data asset management practices.

Process Control Technology Engineer / Production Technician
Aug 2007 – Apr 2015

Bayer Technology Services / Bayer Material Science

- Progressed from plant-floor production technician to DCS/APC engineering; supported enterprise-scale DCS migrations through site acquisitions and organizational mergers.

Instrumentation Technician
Oct 2006 – Aug 2007

Dow Chemical

- Entry point into industrial automation: instrumentation design and Allen Bradley PLC support at a major chemical manufacturing facility.

INDEPENDENT LEADERSHIP

Founder & Principal Researcher

Recursive Intelligence, LLC

- Applied AI Research & Development Lab: Designed and deployed live production-grade, multi-agent automated pipelines utilizing AWS Lambda and Amazon Bedrock to ingest, clean, and synthesize complex multi-source intelligence feeds autonomously, with continuous autonomous operation sustained since April 2026: zero missed weekly runs across all three pipeline stages (briefing, triage, summarization), and a ~97% clean execution rate on the highest-volume stage.
- Publishes applied industrial AI methodology research at recursiveintelligence.io: constraint-aware human-AI collaboration frameworks informed by cognitive science and shaped by real-world manufacturing experience.
- Public speaking and industry outreach on applied industrial AI, building visibility for the practice's methodology work.

CORE COMPETENCIES

Industrial Stack

DCS Control · Advanced Process Control (APC) · Process Safety Layers · Instrumentation & Controls · SCADA · PLCs (Allen Bradley) · PI Historian (AVEVA OSIsoft) · OPC-UA · ISA-95 / ISA-88 · Hazardous Area Operations · Process Optimization · Predictive Maintenance · Digital Twin (Data Foundation to Cognitive/AI-Native Systems) · XR/AR-VR Digital Twin Visualization (HoloLens)

Systems Architecture

IT/OT Integration · ERP Data Integration & Access Negotiation · Cloud-to-Edge Architecture · Agentic Workflows · RAG Pipelines · LLM Orchestration · Model Routing & Tool Selection · Serverless AWS Architecture · Cross-Functional Leadership · Change Management

Ai Practice Operations

AI FinOps · Token Economics & Model Tiering · Evaluation Tooling · Consumption Governance · Agent Reliability Engineering (bounded loops, human-in-the-loop checkpoints)

Data Governance

Industrial Data Pipelines · ETL Design & Engineering · CI/CD Pipeline Coordination · ERP Data Integration · MES · Asset Management · Data Contextualization

AI & Automation

Python · SQL · Classical ML & Neural Networks · NLP / LLM Techniques · AWS Bedrock · AWS Lambda · Multi-Agent Systems · LLM Deployment · ML Model Deployment

EDUCATION

Professional Certificate, AI & Machine Learning (2024), structured coursework supporting applied AI deployment in industrial environments

Texas McCombs School of Business — University of Texas at Austin

AAS, Instrumentation Technology

Lee College

BS, IT / Software Engineering

University of Phoenix