

Roy Abes

AI Architect | Evidence-First Systems for Industrial AI | 20+ Years Oil & Gas

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Summary

I build AI systems that enterprises can actually trust. After 20+ years in oil & gas — from field operations to data architecture — I've learned that in enterprise AI, accuracy is necessary but not sufficient. The harder challenges are evidence, accountability, and the judgment layer between AI output and human decisions.

- Evidence-first classification engines with full provenance trails
- Multi-agent document intelligence systems (P&IDs, datasheets, specs)
- RAG architectures for regulated industries
- Knowledge graphs connecting operational data to business decisions

Recent Projects (2024–2026)

- **Amphigraph** — evidence-first AI classification engine processing 500K+ maintenance work orders with full provenance trails
- **OpsWorth Doc** — engineering document intelligence; fine-tuned vision models for P&ID symbol detection (39% → 93% accuracy on domain-specific ISA symbols)
- **OpsWorth Work Order** — maintenance intelligence platform for work order classification and analytics
- **ProductionAnalytics** — SAGD production analytics, forecasting, and optimization
- **IdeaJar** — collective wisdom platform, EGI framework implementation (live at ideajar.ai)

Experience

Self-Employed — AI Architect / Independent Consultant

January 2019 – Present · Calgary, AB

- Consulting for industrial clients: Suncor Energy, Pembina, Cenovus, Formosa Plastics, Imperial Oil, Cameron LNG, Chevron Phillips, ConocoPhillips, OPTA
- Architected Amphigraph: 156-feature classification engine processing 500K+ maintenance work orders with full evidence trails
- Built multi-agent pipelines for industrial document intelligence using fine-tuned computer vision + LLM extraction — 93%+ accuracy on domain-specific ISA symbol detection
- Designed maintenance intelligence systems for work order classification, failure pattern analysis, and predictive maintenance pipelines
- Multiple production AI systems shipped to live industrial environments

Chevron Canada — Senior Production Analytics Specialist

January 2017 – December 2018

- Architected transition from Excel workflows to enterprise BI (Power BI, Spotfire) — 80% reduction in analysis time
- Implemented ML models for production optimization, improving forecast accuracy by 35%
- Enabled precise production balancing delivering \$500K+ monthly cost savings
- Enhanced SCADA and OSI PI data pipelines to 99.5% data reliability
- Awarded Employee of the Quarter for innovative analytics approaches

North West Redwater Partnership — Data Extraction & Quality Specialist

March 2015 – February 2016

- Extracted and cataloged instrument tag data from P&IDs with 99%+ accuracy
- Created systematic approaches reducing extraction time by 40%

Amec Foster Wheeler — Information Management & Document Control

October 2007 – March 2015 (7.5 years, staff then independent contractor)

- Directed migration of 100,000+ engineering documents to EDMS
- Implemented quality governance protocols achieving 99.8% compliance
- Designed SharePoint collaboration platforms serving 500+ users; reduced manual processing by 60%

Devon Energy — Information & Document Management Analyst

January 2012 – June 2012

- Built automated tools extracting equipment tags from engineering drawings
- Created structured repositories for 50,000+ technical documents

Shell Canada — Contractor: Web / Database Application Developer

January 2006 – September 2007

- Built enterprise web platforms serving 1,000+ users; automated transmittal system eliminating 20+ hours/week of manual work
- Only contractor to receive both "Contractor of the Month" and "Contractor of the Quarter"

Education & Certificates

- University of Illinois at Urbana-Champaign — Pattern Discovery in Data Mining (2015)
- Johns Hopkins University — Data Science Specialization Certificate (2015)
- Southern Alberta Institute of Technology — Records and Information Management (2008)
- St Joseph's College — Bachelor of Arts

Tech Stack

Python · PyTorch · LangChain/LangGraph · Anthropic & OpenAI APIs · HuggingFace · LoRA/QLoRA/PEFT · RF-DETR · SigLIP · YOLO · Neo4j · PostgreSQL · pgvector · Soufflé (Datalog) · FastAPI · vLLM · React · TypeScript · Next.js · Docker · GitHub Actions · GCP Vertex AI