

Harry A. Layman, PhD

AI/ML Engineering & Delivery Leader

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Senior technology leader with 10+ years directing AI/ML engineering teams and delivering production intelligent systems across enterprise (Dell Technologies), education (ThinkCERCA, College Board), healthcare, and industrial domains. Proven ability to build data science organizations from scratch, establish cross-industry ML development processes, and ship award-winning solutions spanning predictive analytics, NLP, automated assessment, and generative AI. Hands-on architect comfortable operating from proof-of-concept through scaled deployment on AWS. PhD in Educational Measurement; published researcher in automated evaluation.

PROFESSIONAL EXPERIENCE

Principal Consultant & AI Product Manager

Oct 2024 – Present

CogWrite Semantic Technologies — San Diego, CA

- Designed, built, and deployed **Cognosa**, a multi-tenant RAG platform (FastAPI, React/TypeScript, LangChain, PostgreSQL, Qdrant) supporting 6 LLM types and 3 vector DB backends, serving two enterprise customers with distinct knowledge bases. Supported Chroma, Qdrant and pgVector for vector operations and multiple open-source LLMs (including Llama 3.X and Qwen 2.5-72B) and proprietary LLM services from Anthropic, OpenAI and Google.
- Architected and delivered a Sales Quote Management system (React, Express, FastAPI, python-docx) automating complex quote generation for a European industrial equipment manufacturer with 20+ product lines across global markets. Built hybrid solution using Claude Code and an agentic, visual harness to auto-code a React & Node/Express front / backend solution supported by a separate hand (Claude-supported) coded FastAPI back end. Both applications share the same PostgreSQL database, while the FastAPI part of the platform implements complex business logic in Python for both large batch jobs and shared services serving the Node Express backend via local (back end) API services).
- Managed product roadmaps, led requirements sessions, and coordinated 2–3 person contractor teams across both engagements; delivered iterative demos on a regular cadence.
- Assisted with quality reviews, usability and functional testing of a Marketing Mix Modeling platform built with FastAPI, open source MMM models, deployed on Google Cloud Platform (GCP).

Senior Technical Advisor

Aug 2024 – Sep 2025

CalSAWS.org via Ethos West LLC — Remote

- Provided technical oversight for California's statewide benefits management system — reviewed vendor deliverables, validated system sizing and security, and advised on AWS architecture, ML integration, and GenAI adoption strategies.

Vice President, Data Science

Jan 2022 – Aug 2024

ThinkCERCA, LLC — San Diego, CA

- Developed LLM-based scoring and feedback system that **outperformed transformer models (XLNet, RoBERTa)** through rigorous prompt engineering — iterating from item-specific to rubric-aligned, intention-based schemes that generalized across lesson families.
- Built the Automated Writing Evaluation feature that won the **2022 Learning Engineering Tools Competition (\$250K prize)**. Published research in the 2024 Routledge Handbook of Automated Essay Evaluation.
- Hired and led a small data science team; integrated scholarly research into the e-learning platform to create novel formative feedback capabilities.

Program Manager, Applied Data Science & Engineering

Mar 2019 – Jan 2022

Dell Technologies LLC — Austin, TX

- First hire in a new Applied Data Science group; built the team, established a cross-industry ML development process (IBM CRISP-DM adapted to Dell's product management framework), and managed multiple concurrent model-building programs.
- Won **Dell AI Center of Excellence Award** for innovative predictive analytics preventing blue-screen errors — integrating new data collection pipelines and predictive models into existing service workflows.

- Fostered collaboration between data science and software engineering teams; developed a common framework for articulating AI project objectives, data requirements, and measurable outcomes.

Solution Architect & Project Director

Oct 2015 – Feb 2019

CogWrite Learning Analytics — Irvine, CA

- Directed NLP and speech analytics projects for multiple clients on AWS and Azure — including a year-long evaluation of AI-driven diagnostic radiology assessment tools for the American College of Radiology.
- Developed real-time job classification microservices and psychological text scoring systems; provided strategic architecture direction for a global medical specialty organization.

Executive Director, Enterprise Architecture & Digital Testing

Jan 2010 – Oct 2015

The College Board — Reston, VA

- Established the Digital Testing Center of Excellence, consolidating workstreams for digital test development, delivery, and research across vendor ecosystems.
- Led four major research tracks evaluating ML-based automated scoring, adaptive testing, and automated item generation; contributed to multi-million-dollar procurements for high-stakes assessment services.

Earlier Career

CTO at LifeMinders (NASDAQ, e-commerce personalization) · Director, offshore development teams, Hangzhou, PRC · Executive Director, College & University Services, The College Board · CEO & Founder, Virginia Software (acquired by College Board, 1996). Clients included Sallie Mae, Freddie Mac, and Fannie Mae.

EDUCATION

PhD, Educational Measurement, Assessment & Testing — University of Leicester	2021
MBA, Strategic Marketing Planning — Columbia University	2003
MS, Management of Technology — American University	1980
BS, Computer Science — Columbia University, School of Engineering & Applied Science	1978

AWARDS & PUBLICATIONS

- ThinkCERCA: **2021 Learning Engineering Tools Competition Winner — \$250K Award** (K-12 Assessment category). Contributor on follow-on awards and patent applications.
- Dell: **FY21 AI Center of Excellence Award** for innovative predictive analytics solutions.
- Layman, H. A. (2024). "Automated Feedback in Formative Assessment." In *The Routledge International Handbook of Automated Essay Evaluation*. Routledge.

TECHNICAL PROFICIENCIES

AI/ML: LLMs (GPT, Claude, Gemini, Ollama/local models), RAG architectures, LangChain, prompt engineering, transformer models (XLNet, RoBERTa), NLP/NLU, predictive analytics, text & speech analytics

Platforms & Tools: AWS (certified SA + ML Specialist), Azure, Python, FastAPI, React/TypeScript, PostgreSQL, Qdrant, ChromaDB, pgvector, Docker, sentence-transformers, scikit-learn, nltk, spaCy

Management: Agile/Scrum (PSM I), CRISP-DM, cross-functional team leadership, global virtual teams (US, China, India, Mexico), vendor management

CERTIFICATIONS

AWS Solutions Architect (2014–2023) · AWS Machine Learning Specialist (2021–2024) · Professional Scrum Master I · Prior: CISSP, CISA, PMP