

# Martin McEnroe

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## AI SOLUTIONS ARCHITECT

### Gen AI Platforms & Multi-Agent Orchestration | Licensed PE | 21 Patents

Solution architecture leader who designs and delivers AI/ML systems at enterprise scale — from Gen AI platforms and multi-agent orchestration to production ML serving thousands of daily users. Led 45-person cross-functional team at AT&T, managing \$9M P&L while delivering flagship AI solutions with \$10M+ in recurring annual savings. Currently architecting multi-model Gen AI systems coordinating Claude, Gemini, and LangGraph agents across distributed repositories. Established security frameworks and led security audits for AI-driven applications across multiple cloud platforms. Licensed PE with 21 U.S. patents, 8 AWS certifications including ML Specialty, Solutions Architect Professional, and Security Specialty, plus CISSP and CCSP.

## STRATEGIC LEADERSHIP & BUSINESS EXPERTISE

Executive Stakeholder Engagement  
Solution Architecture & Pre-Sales  
AI Strategy Development &  
Governance  
Responsible AI & Ethical  
Frameworks  
Change Management & AI  
Adoption Leadership

Customer Success & Relationship  
Management  
Cross-Functional Team Leadership  
Strategic Planning & Roadmap  
Development  
Business Process Transformation  
MLOps Lifecycle Management

Enterprise AI Architecture  
Program & P&L Management  
ROI Modeling & Business Case  
Development  
Regulatory Compliance & Risk  
Management  
Technical Mentorship & Code  
Reviews

## PROFESSIONAL EXPERIENCE

THRIVETECH.AI – Plano, TX

June 2022 – Present

### Founder & Principal AI Architect

Founded AI architecture practice designing production-grade platforms that demonstrate end-to-end Gen AI solution design, from concept through deployment architecture and MLOps.

- **AssemblyZero — Multi-Agent Orchestration Framework:** Architected parameterized configuration system coordinating Claude Code and Gemini agents across multiple repositories simultaneously. Designed worktree-isolated parallel agents with automated quality gates, Gemini-as-reviewer cross-model workflows, and deterministic build pipelines. Manages 3–4 concurrent agents across 4+ repos with session-level quota tracking. *Stack: Python, LangChain/LangGraph 1.0, Poetry, GitHub Actions.*
- **Aletheia — Serverless AI Context Engine:** Architected Gen AI-powered browser tool with serverless backend on AWS (API Gateway, Lambda, DynamoDB). Integration with Amazon Bedrock for contextual analysis. Architecture includes API key authentication with usage quotas and RAG pipeline using LangChain with vector databases. Event-driven “Scale-to-Zero” design (*Python*).
- **Platform Architecture Portfolio:** Designed enterprise AI architectures across all three major cloud platforms — Azure ML with Computer Vision and MLflow (Iconoscope), Snowflake Cortex AI with Snowpark for time-series analytics (GlucoPulse), and Google Cloud Vertex AI with BigQuery and LangGraph RAG (VeloForm). Each demonstrates end-to-end MLOps lifecycle from data pipeline through model deployment.

TEXAS DEPARTMENT OF TRANSPORTATION – Austin, TX

September 2023 – April 2024

### AI Strategic Consultant

Developed comprehensive AI governance and strategic implementation framework for state-wide transportation agency, balancing innovation with regulatory compliance and responsible AI adoption.

- Authored 76-page AI strategic plan encompassing 32 epics, 213 use cases, governance controls, and risk assessments. Applied LDA topic modeling to analyze stakeholder feedback and identify high-priority AI applications.
- Conducted extensive stakeholder interviews across operational divisions to identify high-value AI opportunities meeting federal and state regulatory requirements. Translated technical AI capabilities into business value propositions for non-technical executives.
- Created phased implementation roadmaps balancing technical feasibility, compliance constraints, and organizational change management. Established AI ethics framework and bias mitigation strategies for public-sector deployment.

**Vice President, Product**

Product leadership for AI-powered customer-agent pairing platform optimizing enterprise contact center operations through behavioral analytics and machine learning.

- Led security initiatives including architecture reviews, penetration test remediation, and SonarQube vulnerability remediation. API security hardening using Python and C++ codebases.
- Managed product strategy and prioritization across quarterly and sprint planning cycles. Balanced stakeholder requirements for ML algorithms, operational improvements, and production issues.
- Defined cross-functional product development processes spanning engineering, AI research, MLOps, and go-to-market. Technical thought leadership on cloud strategy and AI operations.
- Hands-on DevOps using Docker, Jira, CI/CD pipelines across GCP and Azure.

**Director, Data Science & Artificial Intelligence**

September 2017 – October 2020

Hands-on architect and individual contributor leading enterprise-scale AI/ML solutions. Architected end-to-end systems from concept through production deployment, serving thousands of daily users. Managed \$9M annual labor budget across cross-functional engineering, data science, and operations teams.

- **TAVI — NLP Customer Service Chatbot:** Python, TensorFlow, BERT, AWS Lambda, DynamoDB. 10,000+ daily interactions, 92% accuracy. Reduced costs \$4.5M in 15 months, 30% first-call resolution improvement.
- **SNAP — Computer Vision Field Operations:** Python, Azure Computer Vision, Core ML, Azure DevOps. First cloud-native solution at AT&T enterprise scale. \$5.8M annual savings, 30% field productivity improvement.
- **EasyBake — No-Code Chatbot Platform:** Built drag-and-drop chatbot builder on Azure with API and RPA overlays to dozens of AT&T enterprise systems. Enabled non-technical teams to deploy conversational automation without engineering support. Three internal production customers. Pre-LLM conversational AI architecture.
- **Label Quest — Gamified Data Labeling Platform:** Invented gamified human-in-the-loop labeling system (U.S. Patent Application 20220374930) used by dozens of internal data science teams. Supported text, image, and video labeling with real-time leaderboards, accuracy tracking, and consensus-based quality gates.
- Delivered 90+ proof-of-concept solutions over three years, identifying operational root causes and driving automation initiatives.
- Security protocols for all AI deployments, security audits, vulnerability remediation.
- SVP-level executive partnership, secured \$20M+ initiative funding.

**Lead Member Technical Staff, Enterprise Architect**

May 2013 – August 2017

- Founding chair of AI and Data Science Architecture Review Board (ARB/TRB).
- Deployed and administered Stack Overflow Enterprise on internal secure infrastructure, driving adoption through Technical Architecture Board approvals, security reviews, and privacy compliance. Scaled to 31,000 users across the organization.
- Drove adoption of Python and R as enterprise-approved languages, resolving SBOM compliance, training pipelines, and cross-team standardization.
- Led tech evaluations: R vs SAS, MicroStrategy vs Tableau, GitHub vs Atlassian, AWS vs Azure vs GCP.
- Product manager for ‘RCloud’ internal data science platform. Led training on Python, R, APIs, AI architectures.

**Director, Emerging Video Services, Corporate Strategy**

July 2012 – April 2013

- Led cross-company post-mortem of multi-day, multi-state U-verse outage. Implemented reliability improvements.
- Developed 60 use cases for video services architecture.

**Additional Roles (1991–2012)**

AT&T Bell Labs R&D • Director of Program Management, IP Backbone • Network Operations & Engineering • Wireless communications development (multiple patents) • Resolved year-long migration crisis: 100-fold efficiency in 45 days • Secured SVP funding for AI initiatives.

## TECHNICAL SKILLS

**AI/ML & Gen AI:** Multi-Agent Orchestration, Agentic AI Frameworks, LangChain/LangGraph, RAG Architectures, Generative AI (Claude, Gemini, ChatGPT), Open-Source LLMs (Llama, Ollama), AI Observability (LangSmith), Multimodal AI, NLP (intent classification, NER, BERT), Computer Vision (Azure CV, Core ML), TensorFlow, PyTorch

**Cloud Platforms:** AWS (Lambda, API Gateway, DynamoDB, SageMaker, Bedrock), Azure (DevOps, ML, Cognitive Services, Computer Vision), Google Cloud (Vertex AI, BigQuery, Gemini API), Snowflake (Cortex AI, Snowpark)

**AI Safety & Governance:** CISSP, CCSP, Responsible AI Frameworks, AI Ethics, NIST AI RMF, Penetration Testing, Vulnerability Remediation, Security Audits, Bias Mitigation

**Languages & Tools:** Python, C++, R, SQL, Docker, GitHub Actions, CI/CD, Poetry, Jira, MLflow

**Architecture:** Enterprise Architecture, Microservices, Serverless, Event-Driven Design, API Gateways, Scale-to-Zero Patterns, MLOps Lifecycle

## EDUCATION

**Master of Computer Science,** University of Illinois Urbana-Champaign, IL (2017)

**Master of Science, Electrical Engineering,** University of Maryland, College Park, MD

**Bachelor of Science, Electrical Engineering,** University of Maryland, College Park, MD

## CERTIFICATIONS

### AWS — 8 Certifications including:

- Machine Learning – Specialty
- Solutions Architect – Professional
- Security – Specialty
- Data Analytics – Specialty
- Data Engineer Associate

CISSP & CCSP – (ISC)<sup>2</sup> | PMP & PgMP – PMI | IEEE Senior Member & WCP

### Azure Certifications:

- DevOps Engineer Expert
- Security, Compliance & Identity Fundamentals
- AI Fundamentals

## LICENSURE

Licensed Professional Engineer – State of Texas

## PROFESSIONAL MEMBERSHIPS

IEEE Senior Member (39 years) • International Association of Privacy Professionals (IAPP) • (ISC)<sup>2</sup> • Project Management Institute (PMI) • Institute of Transportation Engineers (ITE) • OWASP

## PATENTS & ACHIEVEMENTS

Inventor of **21 granted U.S. patents** spanning AI, cloud computing, cybersecurity, IoT, and wireless communications, plus 4 published applications. Domains include document analysis using ML and neural networks, customer service automation, sentiment detection, autonomous vehicle systems, edge network management, and biometric systems. Full listing available upon request.