

RAY SWAN

GENAI / ML ARCHITECT | AI PLATFORM ARCHITECT | MLOPS / LLMOPS

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PROFESSIONAL SUMMARY

GenAI/ML Architect and hands-on AI Platform Architect with 25 years delivering enterprise software, data, integration, and transformation programs. Builds governed AI systems from infrastructure through model and agent runtime: Azure ML, Azure Databricks, Microsoft Foundry, MLflow, Terraform, GitHub Actions, Entra/OIDC, RAG/vector retrieval, and production lifecycle automation. Combines architecture, implementation, product leadership, and evidence-based governance across Azure, GCP, and AWS.

ARCHITECTURE & ENGINEERING EXPERTISE

AI Platforms & GenAI:

Azure ML; Azure Databricks; Microsoft Foundry; MLflow; RAG; vector retrieval; grounded assistants; agentic systems; MCP-oriented tool boundaries; model evaluation

MLOps / LLMOps:

Local-to-cloud lifecycle; champion/challenger; model registry; promotion/retain gates; drift monitoring; retraining; rollback-ready versioning; observability-ready contracts

Cloud & IaC:

Terraform; GitHub Actions; Entra ID/OIDC; RBAC; Docker; Azure; GCP/Vertex AI; AWS/SageMaker; APIs; microservices; PostgreSQL

Governance & Security:

Digest-bound saved plans; least-privilege identity separation; immutable evidence/provenance; state-machine guardrails; deterministic validation; bounded permissions

SELECTED GENAI / ML PLATFORM ARCHITECTURE

Azure GenAI/ML Ops Factory - Architect & Hands-on Engineer | 2026

- Re-engineered Microsoft's Azure MLOps v2 Accelerator concept into a single factory that generates modular, self-contained AI/ML project repositories with governed infrastructure and configurable project behavior.
- Proved a local-first Azure ML lifecycle using shared Python logic locally and as a four-stage Azure ML pipeline (prepare -> train -> evaluate -> register); live run completed and registered an MLflow model.
- Implemented Terraform-managed Azure ML infrastructure with keyless storage, Key Vault, Log Analytics/Application Insights, scale-to-zero compute, Entra/OIDC GitHub CI/CD, and evidence-bound plan/apply governance.
- Detected and blocked destructive Container Registry ownership drift before apply; every infrastructure mutation is reviewed through saved-plan and digest verification rather than portal changes.
- Established a separate platform-foundation Terraform state and live Azure Databricks Premium workspace; adopted existing Microsoft Foundry resources into Terraform with zero unintended mutation.
- Separated factory and generated-project deployment identities so generated workloads cannot inherit platform-administration privileges; platform RBAC and immutable resource-ID contracts preserve ownership boundaries.
- Built Databricks retrieval proof with governed Gold data and three Vector Search indexes for notes, tickets, and playbooks; live filtered retrieval returned the correct customer evidence and ranked the relevant intervention first.
- Current roadmap extends the proven foundation into governed retrieval/agent runtime, OpenTelemetry/SLO observability, and automated recovery; unproven capabilities remain explicitly separated from completed evidence.

ADDITIONAL AI / ML SYSTEMS

Tokyo Eye - Scientific AI / Drug Discovery | Eidetix Bio Research | 2025-Present

- Architected a governed scientific-AI platform using hyperbolic GNN and atom-level Transformer/Mixture-of-Experts architectures for structural inference and ligand-protein binding prediction.
- Pivoted from an underperforming PyTorch GNN to a replacement atom-level Transformer architecture; designed, trained, and evaluated it in one day, producing same-day Pearson correlation of 0.407.

- Built MLflow governance with preregistered estimates, immutable metric gates, ablations, provenance, and preservation of failed experiments; scientist-facing LLM workflows use XState guardrails, Python Hypothesis validation, deterministic structural-biology checks, and RCSB semantic search.

NeuroNote - Governed Agent Runtime

- Designed a dual-kernel AI governance architecture that separates generative reasoning from controlled runtime state and deterministic execution, limiting agent authority while preserving useful interaction.

Kitchen Kontrol - Production Operations AI

- Built an offline-first operational PWA with voice-model capability, forecasting, workflow automation, structured audit logging, and cloud-connected data flows; product roadmap spans 23 operating sites.

ENTERPRISE EXPERIENCE

Founder & Technical Lead | EIDETIX BIO RESEARCH | Oct 2025-Present

- Architected Tokyo Eye, a governed scientific-AI platform for computational drug discovery using hyperbolic GNN and atom-level Transformer/Mixture-of-Experts architectures for ligand-protein binding prediction. Own architecture, data pipeline, model training, and deployment with MLflow governance.

Area Supervisor & Operations Applications Developer | SODEXO | Aug 2025-Present

- Translates frontline operational problems into deployable AI-enabled products, combining product ownership, application development, integration design, and adoption.

Technical Business Analyst & Project Manager | INTERNATIONAL REAL ESTATE SERVICES | Jan 2024-Jan 2025

- Led CRM, analytics, commercial-loan origination, API integration, ETL, process mapping, roadmap planning, and acceptance criteria for audit-ready enterprise workflows.

Senior Enterprise Program / Product / Architecture Leadership | 1999-2024

- Led application modernization, CRM, e-commerce, data, integration, and platform programs for Slumberland Furniture, Sunrun, Mazda North American Operations, Fox Sports, Theragun, Lakeshore Learning, Kayne Anderson Rudnick, and HomePlus Mortgage.
- Directed cross-functional teams, platform/vendor evaluation, source-of-truth design, governance, rollout planning, and production adoption in complex Fortune 500 environments.

EDUCATION & CREDENTIALS

M.A., Humanities - California State University, Dominguez Hills | **B.A., Economics** - University of California, Irvine | **Certified ScrumMaster (CSM)**