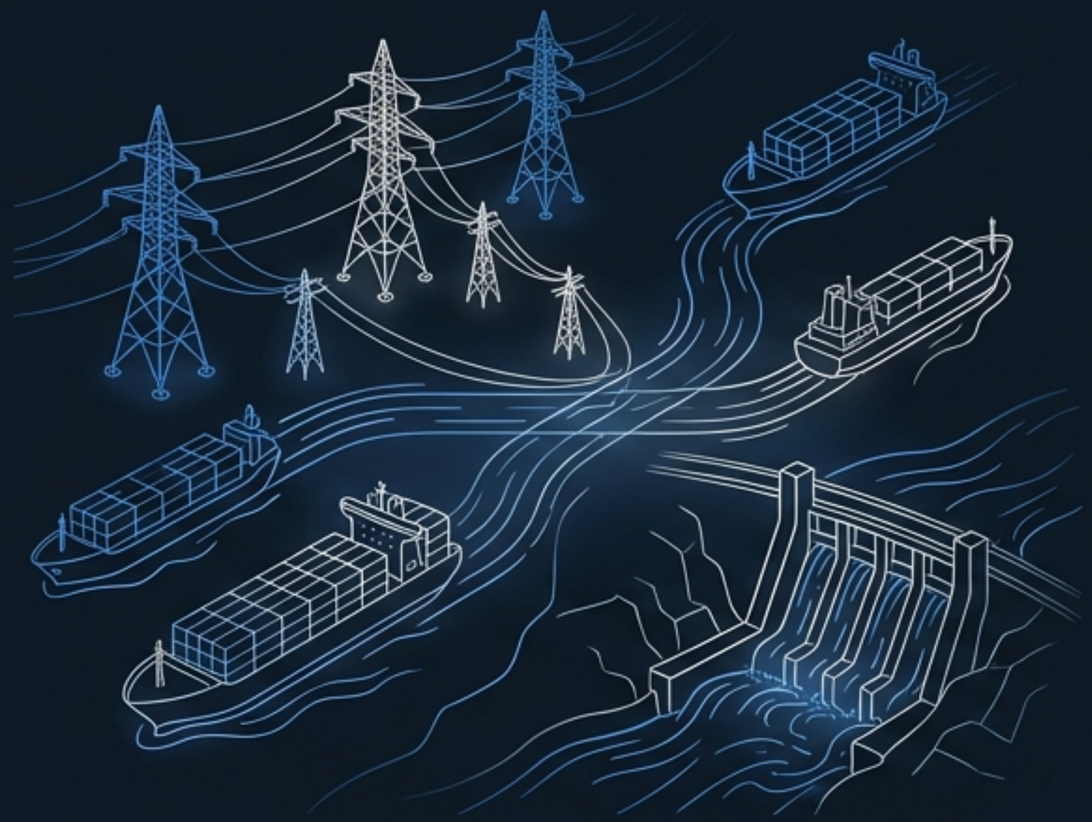

Forward Deployed AI at Institutional Scale

Philippe Küng | Forward-Deployed AI Architect

Brain Co.'s mission is to upgrade the world's most critical institutions—sovereign governments, energy grids, healthcare systems. My career is defined by this same objective: embedding on-site with clients, translating complex operational challenges into production-grade AI, and owning the outcome from specification to deployment. You require engineers who can advise, build from zero, and take ownership from day one. I am that engineer.

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The Forward-Deployed DNA: A Unique Archetype

Technical Foundation (Data/AI/Eng)

A strong grounding in data, AI, and production engineering, honed at Crayon AG and MIT.

Emerging Tech (Polymath/LLMs)

A fierce curiosity and polymathic approach to staying ahead of the curve with LLMs, agentic systems, and SOTA innovation.

Domain Fluency (Value Chains)

Deep expertise across diverse value chains and verticals, including Energy, Finance, and Healthcare.

Team Integration (Immersion/Empathy)

Seamless on-site integration and communication, embedding with client teams to foster trust and drive adoption.

Startup Spirit (Lean/CTO Mindset)

An entrepreneurial mindset focused on lean product development, rapid prototyping, and delivering measurable ROI, proven by founding The Code Venture and Clinic of AI.

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Turning Ambiguity into Specification: A Framework for On-Site Execution

Deploy on-site, coding side-by-side with Subject Matter Experts to map the "unwritten rules" and true friction points of the client's operational workflow.

Translate qualitative operational bottlenecks (e.g., administrative overhead, compliance risk) into a rigorous engineering specification, defining the precise technical requirernents and KPIs needed to achieve ROI.

Operate in tight feedback loops: "talk to users → write code → test → repeat." Move from discovery to a functional prototype in days, not months, prioritizing high-impact wins to prove value and secure stakeholder buy-in.

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Proven Impact Across Brain Co.'s Core Sectors

Energy & Critical Infrastructure

(Aligned with 'Optimized Supply Chains')

NTE

Architected a cloud-native data platform on Azure Synapse, integrating real-time industrial sensor data for grid monitoring and governance.

- Enabled fact-based corporate governance for critical national infrastructure by replacing capacity-limited legacy systems.

Sovereign Government & Compliance

(Aligned with 'Automated Permitting')

DNV

Built and deployed the 'DATE' NLP engine to classify and route technical regulatory inquiries.

82% Automation of 40-75k annual inquiries, delivering direct annual savings of ~$200k.

Healthcare Operations

(Aligned with 'Streamlined Patient Care')

Global Healthcare Quality Improvement Organisation

Deployed a Semantic Search solution on Azure Kubernetes Service (AKS) to match auditor observations to complex accreditation standards.

- Significantly reduced surveyor errors and time spent per audit, streamlining the accreditation process for hospitals globally.

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Evidence of Impact: Modernizing the National Grid

NTE (National Energy Provider, Norway) at Crayon

Challenge

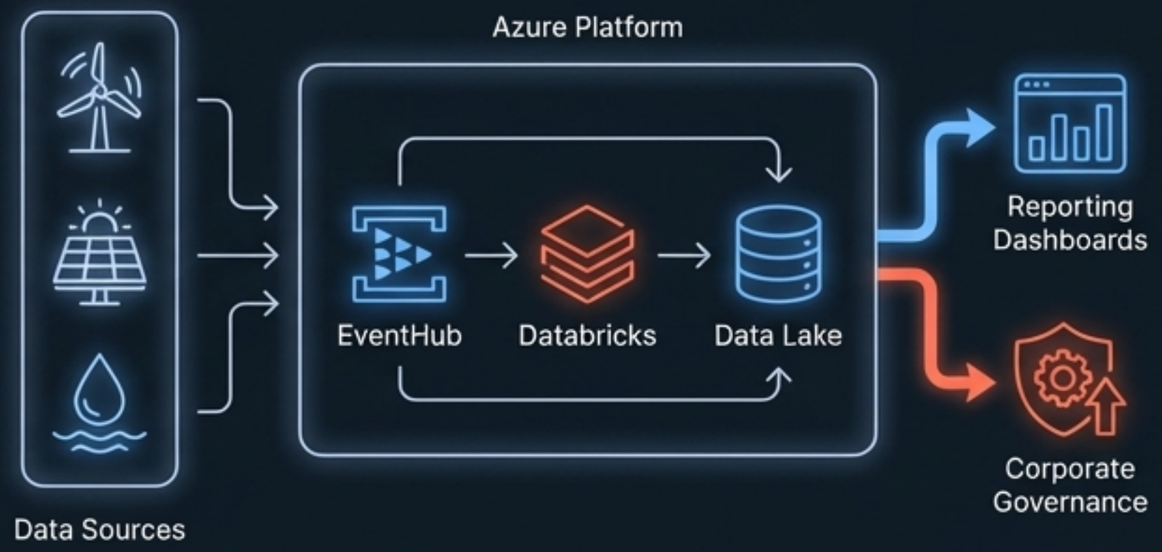
The client's legacy on-premise infrastructure had high costs, limited capacity, and could not integrate new data sources for power generation, grid downtime, and consumption, hindering effective corporate governance.

The Build

Architected and deployed a full-scale, cloud-native data warehouse on Azure Synapse Analytics. The platform integrated Master Data Services and storage for machine learning models, ingesting real-time data from disparate sources (wind, solar, hydro, grid sensors) using Azure Synapse and Databricks (PySpark).

The Impact

Replaced capacity-limited legacy systems, enabling consistent and fact-based corporate governance. Delivered faster, more comprehensive financial reporting and improved data quality for managing critical national infrastructure.



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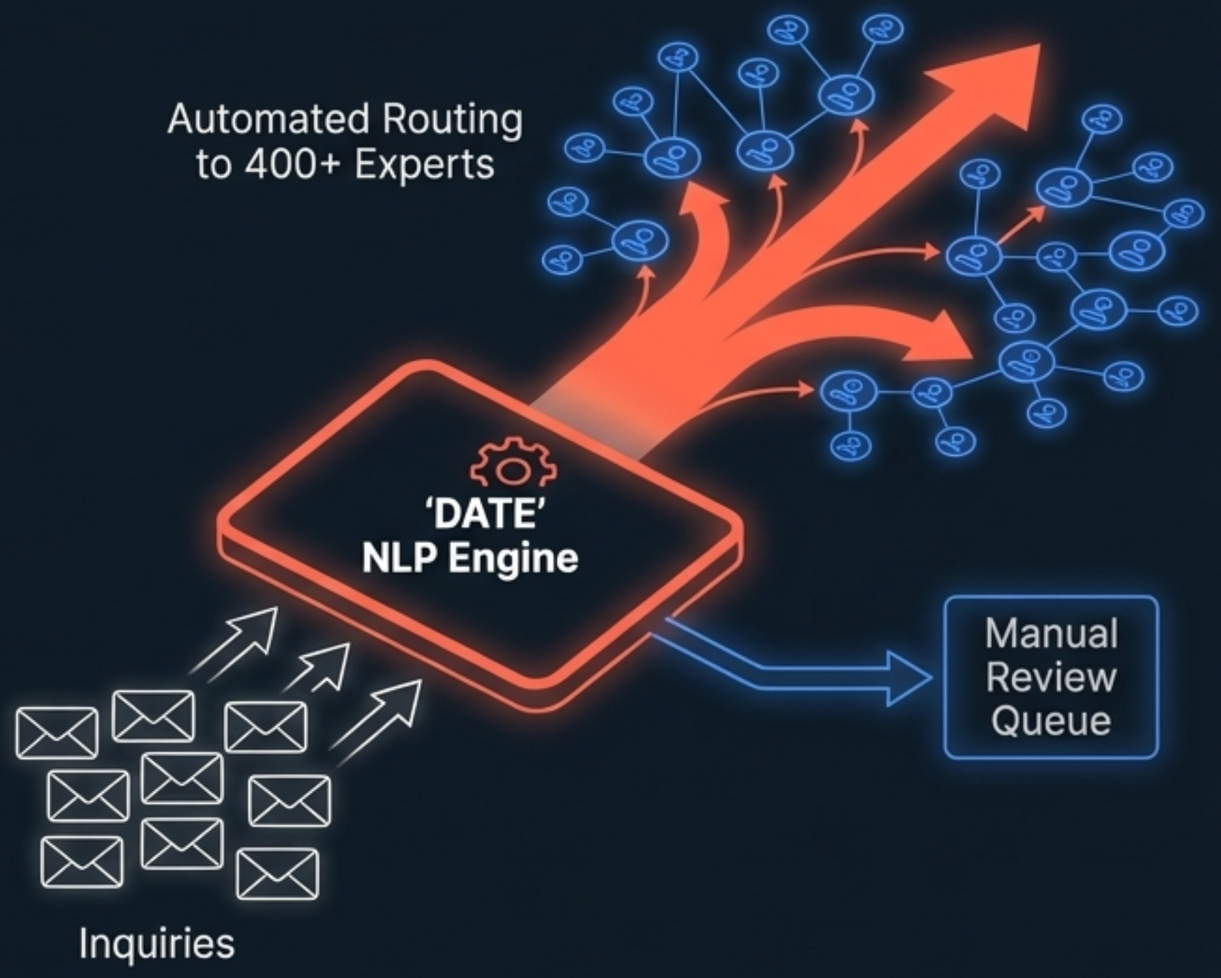
Evidence of Impact: Automating Sovereign-Level Compliance

DNV (Global Classification Society & Sovereign Advisor) at Crayon

Challenge:
DNV's helpdesk manually routed 40,000-75,000 complex technical inquiries per year regarding vessel certifications to 400 experts, a slow, inconsistent, and error-prone process.

The Build: Developed and deployed 'DATE' (Digital Access to Experts), an NLP text classification engine. The model was trained on a dataset of 200,000 emails across 650 categories and weighted using TF-IDF to understand domain-specific keywords. The system was productionized to guarantee a 4-hour client response SLA.

The Impact:
Achieved **82% automated routing** of sovereign-level compliance inquiries. Delivered direct annual savings of **~$200k** in manual workload and significantly improved customer service and consistency.



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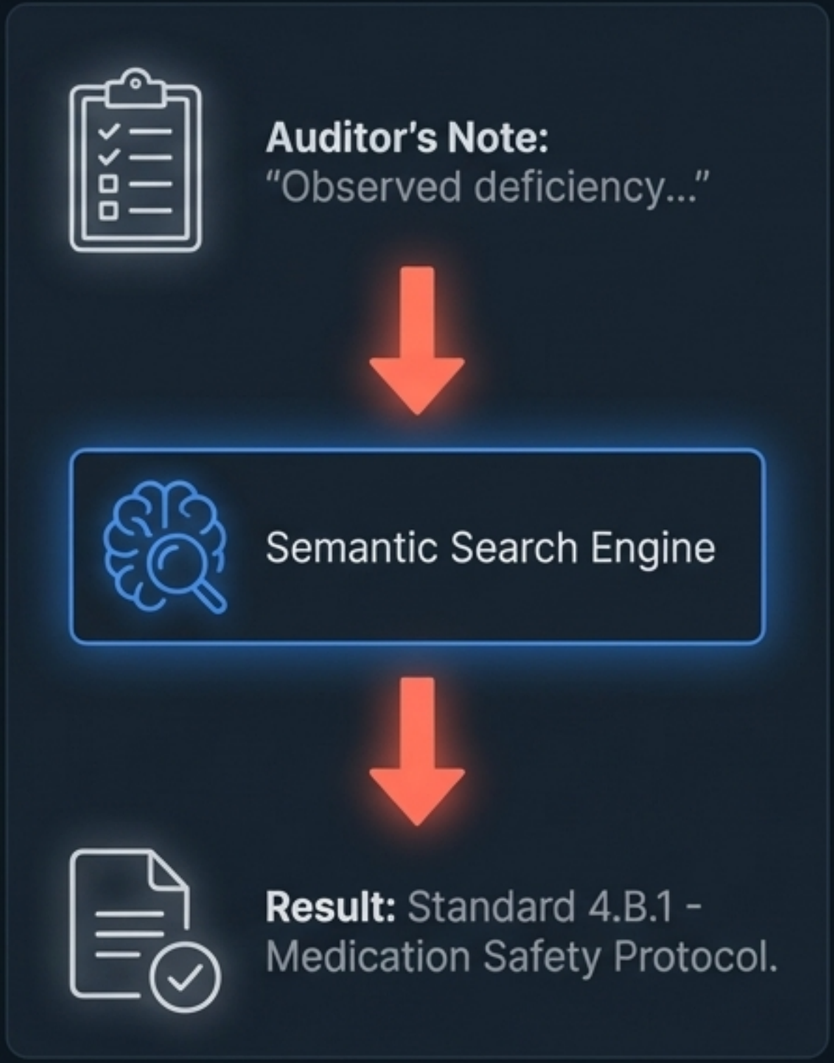
Evidence of Impact: Streamlining Quality & Safety Audits in Healthcare

A Global Healthcare Quality Improvement & Accreditation Organization at Crayon

Challenge: During hospital surveys, auditors must match observed deficiencies from thousands of potential issues to the correct complex standard. This manual process was time-consuming, prone to error, and led to inconsistent rule interpretation.

The Build: Developed a Semantic Search solution to match unstructured, textual descriptions of an observation to the correct regulatory standard. The complete platform was built on Azure using PyTorch for the model, Data Factory for acquisition, and Azure Kubernetes Service (AKS) for scalable, production-grade operationalization.

The Impact: Significantly reduced errors made by surveyors and decreased time spent searching for standards. Resulted in higher consistency in rule interpretation and a more efficient, streamlined accreditation process for hospitals globally.



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Engineering the Technology Frontier

From Institutional-Scale Deployment to State-of-the-Art Innovation (Clinic of AI)

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Evidence of Impact: Engineering the Technology Frontier

Project Guardian: Advanced RAG for Institutional Knowledge & Risk

Client: Downer Group (Leading Integrated Services Provider, ANZ)

Challenge: Managing operational risk by connecting unstructured incident reports to a vast library of 16,000 documented Health, Safety, and Environment (HSE) controls in real-time. The sheer volume made manual analysis and learning impossible.

'The Impact'

80% accuracy

in identifying and linking relevant safety controls to incident reports in seconds. The system now serves as a 'corporate cortex,' transforming HSE management and providing instant, reliable access to critical institutional knowledge.

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Evidence of Impact: Engineering the Technology Frontier

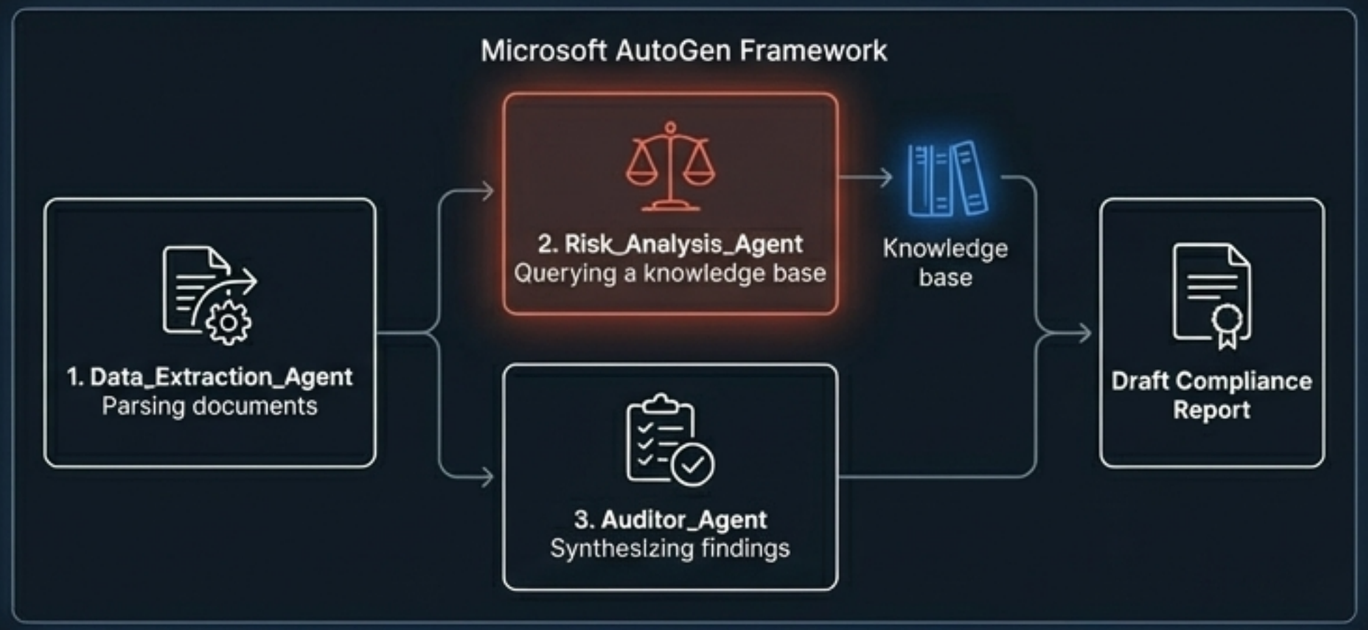
Project Chimera: Multi-Agent Automation for Financial Compliance

Client: A Swiss-based Private Wealth Management Firm

Challenge: The firm faced a significant operational burden in manually reviewing high-net-worth portfolios against evolving regulatory frameworks like FinSA, AML, and KYC. The process was slow and susceptible to human error.

'The Impact:

Reduced manual portfolio review time by an estimated **60%** and increased the detection rate of compliance anomalies by 25% in pilot testing. Provided auditors with a powerful tool to focus on high-risk exceptions.



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Evidence of Impact: Engineering the Technology Frontier

Project Citadel: Production-Grade LLM Ops for a Sovereign Entity

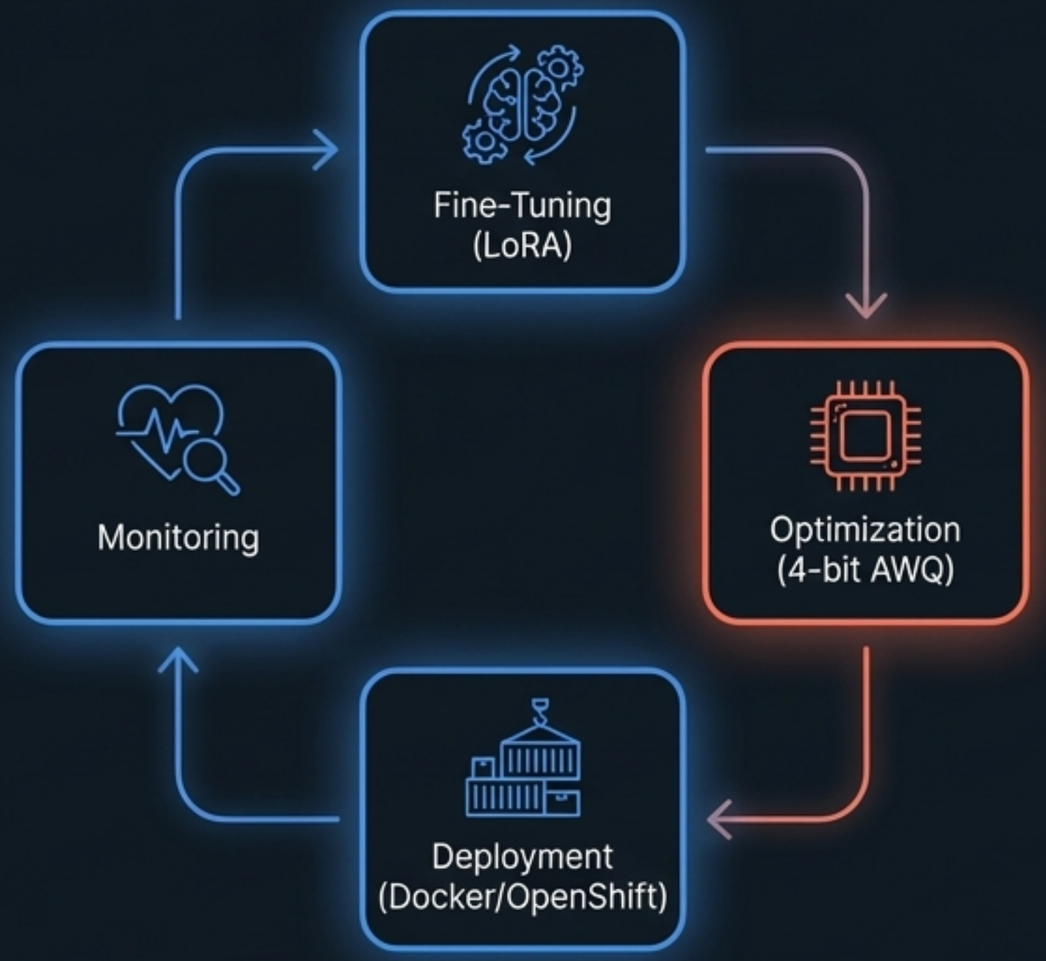
Client: A National Ministry of Economic Development

Challenge:
The Ministry required an internal generative AI capability to analyze sensitive economic data. The solution had to be fully air-gapped on a private cloud, with high performance and complete data sovereignty. Commercial APIs were not an option.

Technical Architecture Highlights:

- **Fine-Tuning**: Performed PEFT using LoRA on a curated dataset of proprietary economic reports.
- **Optimization**: Applied 4-bit quantization (AWQ) to a 70B parameter model, reducing memory footprint by ~75%.
- **MLOps**: Built a robust CI/CD pipeline using Azure DevOps and Kubernetes on Red Hat OpenShift for automated testing, versioning, and secure deployment.

The Impact:
Successfully deployed a sovereign, secure, and highly performant LLM for internal government use, ensuring complete control over sensitive national data while providing a powerful analytical tool for policymakers.



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The Production-Grade AI Stack

GenAI & Agentic Workflows

- **Models & Frameworks:** LLM Fine-Tuning (PEFT, LoRA), RAG Architectures, Agentic Systems (AutoGen, LangChain), Transformer Models, Prompt Engineering.
- **Platforms:** OpenAI APIs, Anthropic, Hugging Face, LlamaIndex.

MLOps & Production Readiness

- **CI/CD & Orchestration:** Azure DevOps, Kubernetes, Docker, Terraform.
- **Platforms:** Azure ML, AWS SageMaker, Kubeflow, Databricks.
- **Practices:** Model Versioning, Monitoring (Drift, Bias), Performance Optimization (Quantization, TensorRT).

Full-Stack Application Build

- **Frontend:** React, TypeScript.
- **Backend:** Python (Expert), JavaScript, Java, RESTful APIs, Microservices.
- **Databases:** SQL (Advanced), NoSQL, Vector Databases (Weaviate, Pinecone).

Data Engineering & Integration

- **Pipelines & Processing:** Azure Data Factory, Apache Spark, ETL/ELT Design, Data Modeling, Industrial Sensor Integration.
- **Infrastructure:** Azure Synapse Analytics, AWS Redshift, Data Lakes (ADLS Gen2).

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Education & Professional Credentials

Certifications & Specialized Training

AI Developer Certification Program - MindStudio (2024)

Verified proficiency in latest AI development techniques and agent orchestration.

Generative AI Foundations - GSDC (Global Skill Development Council) (2024)

Comprehensive training in Generative AI architectures and deployment.

Formal Education

Data Science and Machine Learning: Making Data-Driven Decisions - MIT Schwarzman College of Computing (2021–2023)

Focus on productionizing ML, Data Engineering fundamentals, and statistical rigor.

Bachelor of Science in Hospitality - EHL (Ecole hôtelière de Lausanne) (2013–2018)

Languages Native/Bilingual: English, Portuguese | Professional: Spanish | Working: French, German

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Ownership from Day One. Ready to Deploy.

Key Takeaways

Global Mobility: Eager and prepared to deploy on-site globally—starting with the UAE—for 6+ months to embed with your customers and guarantee success.

The Ethos: I understand this is not a 9-to-5 role. It is a mission to upgrade the world's operating system. I am built for the ambiguity and intensity of zero-to-one product development in high-stakes environments.

The Value Proposition: I bring the engineering skill to build it, the product sense to design it, and the client-facing aptitude to deploy it.

Contact Information

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