IZAAC THOMAS

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PROFESSIONAL SUMMARY

Data Scientist & AI Engineer with a unique background in heavy civil construction operations. Expert in architecting **Retrieval-Augmented Generation (RAG)** systems and **Full-Stack Web Applications** that solve complex, real-world industry problems. Transitioned from field supervision to engineering proprietary AI solutions, bridging the gap between physical site operations and automated intelligence. Specializes in building secure, **SOC 2 compliant** inference infrastructure and fine-tuning embedding models for domain-specific terminology.

TECHNICAL SKILLS

- **AI & Machine Learning:** Python, PyTorch, RAG Pipelines (Haystack/LangChain), Vector Databases (Qdrant), LLM Quantization, Fine-tuning (BAAI/bge, MPNet), Computer Vision (OpenCV, SIFT), OCR, BERTopic, LDA.
- **Full Stack Development:** TypeScript, React, Vite, Mantine UI, Hono, FastAPI, REST APIs.
- **DevOps & Cloud:** Docker, Azure (Container Apps), Linux, Private Inference Endpoints, SOC 2 Compliance Data Sovereignty.
- **Data Analysis:** SQL (MySQL, MSSQL), Pandas, NumPy, Data Collection (Selenium, Puppeteer, BeautifulSoup).

PROFESSIONAL EXPERIENCE

Data Scientist & AI Engineer | EllisDon (Blue Energy Technologies) Oct 2022 – Jan 2026

Promoted from Junior Analyst to lead data science initiatives for Western Canada operations.

- **Architected "Lyceum" RAG System:** Designed a secure Q&A pipeline for unstructured docs (RFIs, NCRs, Audits, AB OH&S), achieving superior retrieval accuracy (Precision hits@1, 3, & 5) via fine-tuned `BAAI/bge` embeddings and Qdrant vector search.
- **Private Inference Infrastructure:** Engineered a SOC 2 compliant, zero-egress inference API on Azure Container Apps using Docker and 4-bit quantized Mistral 7B models.
- **Full-Stack Web Development:** Built the "Retrospect" Lessons Learned platform (React/Hono/TypeScript), replacing fragmented spreadsheet workflows with a centralized knowledge base.
- **Client Onboarding & Data Migration:** Led end-to-end software deployment for enterprise clients, managing complex data migrations and translating external business requirements into technical engineering tasks.
- **Documentation & Knowledge Management:** Served as the primary maintainer of the internal product documentation website, ensuring accurate API references and user guides were maintained for the engineering team.
- **Sales Engineering:** Partnered with executive leadership to create technical sell sheets and support client pitch meetings, directly aiding in the technical validation and acquisition of new contracts.

Junior Data Analyst | EllisDon (PME) Dec 2021 – Oct 2022

Transitioned from field operations to corporate technology roles.

- **Automated Competency Extraction (SIFT):** Developed a Computer Vision pipeline using **OpenCV** and **SIFT feature matching** to digitize 3,000+ physical training tickets.
- **Efficiency Gain:** Reduced manual data entry time by **~90%** for new hire onboarding by auto-extracting metadata (expiry dates, ticket types) and populating the MySQL database.
- **Automated Corporate Quality Reporting:** Engineered a data ingestion pipeline to aggregate raw construction management logs, automatically generating custom quarterly quality metrics and executive dashboards for regional leadership.

Field Foreman & Topman | PME / GS Construction *2017 – 2021*

- **Leadership:** Managed deep utility crews and heavy civil projects, overseeing safety compliance and site workflows.
- **Pivot to Tech:** Leveraged deep domain knowledge of RFI/QAQC processes to identify high-value automation targets, facilitating a successful transition to Data Science.

EDUCATION & CERTIFICATIONS

IBM Data Science Professional Certificate | Coursera / IBM

- Comprehensive coursework in Machine Learning, SQL, Data Analysis, and Methodology.
- **Core Modules:** Machine Learning with Python, Data Visualization with Python, SQL and Databases for Data Science.