Rodrigue Tchamna, PhD

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SUMMARY

- AI Engineer & Data Scientist with a PhD and 10 + years of experience building full-stack data solutions from research to production.
- Expert in LLMs, Retrieval-Augmented Generation (RAG), and cloud deployment pipelines.
- Combines deep knowledge in machine learning, data engineering, and MLOps to deliver scalable AI solutions for real-world applications in finance, language technology, and enterprise automation.

CORE TECHNICAL SKILLS

AI / Machine Learning:
LLMs (OpenAI, Hugging Face), LangChain, FAISS, Transformers, PyTorch, TensorFlow, Scikit-learn, Flan-T5, Cross-Encoders

Data Engineering / Cloud Deployment:
ETL, Airflow, AWS S3, Azure App Service, Azure Blob Storage, Snowflake, Spark, Docker, CI/CD (GitHub Actions), Terraform (IaC), Power BI Automation

Software Development:
Python (Advanced), FastAPI, Streamlit, React, Flask, SQL, Pandas, NumPy, Git, Bash Scripting

Tools / Visualization:
Tableau, Power BI, Plotly, Dash, Matplotlib

SELECTED PROJECTS

Bank Assistant Chatbot – RAG AI Foundations Demo

GitHub: github.com/tchamna/rag_ai-foundations-demo

- Developed an intelligent bank-assistant chatbot using a Retrieval-Augmented Generation (RAG) framework to answer banking FAQs and policy questions with contextual precision.
- Built a hybrid retrieval system combining FAISS vector search + Flan-T5 generation, achieving instant semantic query resolution on pre-indexed financial documents.
- Designed Streamlit and React front-ends for interactive querying and real-time transcript downloads (XLSX/CSV).
- Deployed to Azure App Service with automated CI/CD via GitHub Actions, featuring incremental vectorstore updates and runtime health checks.
- Integrated Azure Blob Storage for persistent vector index storage and role-based access (“Storage Blob Data Contributor”).
- Added lightweight fallback retrieval mode (lexical matching) for low-resource cloud plans. **Stack:** Python, LangChain, FAISS, Hugging Face Transformers, Azure App Service, Blob Storage, GitHub Actions, Docker

Financial Trading ETL Pipeline

GitHub: github.com/tchamna/financial-trading-etl-pipeline

- Engineered a **cloud-native ETL pipeline** for real-time cryptocurrency market data collection and storage.
- Automated data retrieval from Binance → CryptoCompare → Kraken (fallback mechanism) with 9,600 records/day ingestion.
- Implemented multi-format storage (**JSON + Parquet**) in AWS S3 with 92 % compression and lifecycle policies (S3 → Glacier).
- Integrated with **Snowflake Data Warehouse** for analytical queries and Power BI dashboards.

  Stack: Python, AWS S3, Snowflake, Pandas, Parquet, Docker, Airflow, Power BI, SQL

EXPERIENCE

Data Scientist — EOS Energy Enterprises *(2022 – 2025)*

- Built deep learning models for battery state-of-charge prediction (< 3 % RMSE).
- Automated real-time data pipelines for battery health monitoring and failure detection.
- Deployed data APIs and dashboards on AWS and Power BI for executive insights.

AI Project Manager — Resulam *(2012 – 2025)*

- Directed teams building applications for language education and revitalization across 20 African languages.
- Oversaw deployment of voice recognition and translation apps on the cloud.

EDUCATION

PhD — Mechanical Engineering, Gyeongsang National University, South Korea
Master's — Physics, University of Yaoundé I, Cameroon
Postdoctoral Research — Data Science for Transportation, City University of New York

HIGHLIGHTS

- Proven expertise in building and deploying **end-to-end AI solutions** (LLMs → RAG → Cloud).
- Strong skills in **ETL engineering**, data orchestration, and cloud infrastructure.
- Deployed multiple AI systems on **Azure** and **AWS**, using containerization and CI/CD.
- Leader in AI projects combining data science and software engineering at scale.