

Gaddiel Essuman-Acquah

AI & Automations Engineer

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QUICK FACTS

Largest dataset I've worked with: 4M+ customer and account records, reconciled during GTBank's Finacle core banking migration in 2024 to 2025. Extracted from Oracle source systems, transformed and reconciled across branches and currencies with full integrity controls. The DB Change Executor tool I built ran the cutover scripts safely against this volume.

Years of banking automation experience: 5+ years. GTBank Ghana from September 2022 to present. Union Systems Global from August 2020 to September 2022 (Graduate Trainee then Software Developer). Student intern at Genser Energy Ghana in 2019.

Production systems shipped: 65+ ProcessMaker workflows serving 500+ users; the DB Change Executor for safe schema changes during cutover; end-to-end integrations across Finacle Core Banking, Alfresco DMS, ProcessMaker, and SWIFT; daily Python ETL pipelines processing banking transactions across Oracle, SQL Server, and downstream reporting.

AI and LLM experience: Built a self-hosted RAG knowledge-assistant prototype on Llama 3, Qdrant, and FastAPI, with a custom evaluation harness for retrieval quality and hallucination control. The same citation-first pattern powers the chat at the top of this portfolio site. Use Claude and Claude Code daily, including MCP-based tool plumbing.

Stack I work in: Python (pandas, NumPy, FastAPI), SQL, PL/SQL, PySpark, C#, JavaScript. Databases: Oracle, Microsoft SQL Server, MySQL, Qdrant. Banking platforms: Finacle Core Banking, SWIFT (FIN, MX, Alliance Integration), ProcessMaker (PM2 and PM3), Alfresco DMS. AI tools: Claude, Claude Code, RAG, embeddings, semantic and hybrid retrieval, prompt engineering, LLM evaluation.

Education: BSc Computer Science and Engineering, University of Mines and Technology in Tarkwa, Ghana (2016 to 2020).

Location and availability: Accra, Ghana. Open to remote Automation Engineer, Integration Engineer, or AI Engineering roles. Comfortable across time zones.

PROFESSIONAL SUMMARY

Results-driven Automation Engineer with experience delivering enterprise-scale banking solutions across core banking systems, workflow automation platforms, and AI-powered knowledge systems.

Skilled in designing and integrating complex systems, building RAG-based solutions, optimizing large datasets, and automating high-impact processes in financial environments.

Proven success leading major transformation initiatives including Finacle migration, Sierra Leone redenomination, and a generative AI knowledge assistant leveraging LLMs, embeddings, and vector search to improve customer service and internal operations.

Strong in Python, SQL, C#, Oracle/SQL Server, with hands-on experience building scalable, secure, and efficient systems. Known for translating business needs into automated, data-driven solutions that enhance performance and decision-making.

WORK EXPERIENCE

Guaranty Trust Bank (Ghana) Limited

Automations Engineer *Accra, Ghana · September 2022 – Present*

- **Led the data workstream of GTBank's Finacle core banking migration:** designed and executed the end-to-end ETL flow that extracted, transformed, and reconciled 4M+ customer and account records from Oracle source systems into Finacle-ready datasets organised by branch and currency, with full data quality and integrity controls throughout cutover.
- **Build the SQL and ETL behind regular and ad-hoc reports** for stakeholders across the bank, integrating data from multiple source systems into reporting-ready datasets, partnering with downstream analysts and product owners to deliver actionable data.
- **Build and operate scalable Python data pipelines** for daily banking transaction processing, with monitoring, retries, and data-integrity checks.
- **Designed and built the DB Change Executor**, a Streamlit-based internal web application used to support the Finacle core banking migration. Three jobs: safely execute database schema changes, automate Finacle account number population (vectorised pandas mapping engine), and manage post-migration scripts. JSON-driven configuration for non-technical operators, transaction-safe SQL execution with dynamic CASE-based updates, real-time progress visualisation. **Outcome: hundreds of scripts run through cutover with zero data-integrity incidents, zero downtime, and zero human errors. The tool was stress-tested thoroughly before go-live, so the failure modes were already known.**
- **Lead the two-person Off the Shelf Solutions team** at GTBank, owning the bank's vendor application stack (ProcessMaker, SWIFT, Alfresco DMS) and in-house automation and data-engineering builds; mentor one engineer and set technical direction.
- **Integrated Finacle CBA with ProcessMaker** (REST APIs), enabling workflow-driven access to core banking data for 500+ users; contributed to the Finacle-Alfresco DMS integration (CMIS, REST APIs) as part of the migration team.
- **Automated bidirectional SWIFT message processing** between Finacle and SWIFT servers via secure SSH, ensuring real-time transaction synchronisation.

Union Systems Global

Software Developer *Accra, Ghana · August 2021 – September 2022*

- **Led core monetary module delivery** for the Sierra Leone currency redenomination across three banks (Sierra Leone Commercial Bank, Rokel Commercial Bank, Union Trust Bank), ensuring 100% data integrity and operational continuity for 1M+ customers.
- **Built the Customer Risk Calculator**, an algorithmic client-risk scoring module used in onboarding and periodic review workflows.
- **Engineered the Dynamic Account Reassignment feature**, reducing manager-to-client transition time by 60%.
- Upgraded cheque processing modules to handle currency-conversion logic during redenomination.

Union Systems Global

Graduate Trainee (Software Developer) *Accra, Ghana · August 2020 – August 2021*

- Re-architected the Standing Order Payment System, significantly reducing latency.

- Contributed to the Central Approval System and Teller Transaction Call Over System.
- Reengineered the KYC Amendment System for improved compliance and user experience.
- Produced detailed stakeholder reports supporting strategic decision-making.

Genser Energy Ghana Limited

Student Intern (IT Analyst) *Accra, Ghana · May 2019 – August 2019*

- Designed the database schema for an IT inventory management system.
- Contributed to development of an online helpdesk system.

SELECTED PROJECTS

GTBank Core Banking Migration to Finacle

12/2024 – 06/2025

Led the data workstream: extracted 4M+ records from Oracle into structured Finacle-ready datasets; integrated Finacle with ProcessMaker (REST APIs); contributed to the Finacle–Alfresco DMS integration; sole engineer on the automated SWIFT message exchange between Finacle and SWIFT servers.

DB Change Executor: Database Migration & Mapping Tool

04/2025 – 06/2025

Streamlit-based internal web application built to support the Finacle core banking migration. Three jobs: safely execute database schema changes, automate Finacle account number population, and manage post-migration scripts. Vectorised pandas mapping engine for account number population; transaction-safe SQL execution with dynamic CASE-based updates and intelligent error handling; JSON-driven configuration so non-technical operators can define and run new flows without touching code; real-time progress visualisation. Stress-tested thoroughly before go-live; at cutover, hundreds of scripts ran with zero data-integrity incidents, zero downtime, and zero human errors.

Sierra Leone Redenomination

Field Operations Team Lead *04/2022 – 07/2022*

Delivered core monetary modules across three Sierra Leonean banks for a national currency redenomination affecting 1M+ customers, with zero operational discontinuity. Cheque processing systems automated to handle conversion logic during transition.

ProcessMaker 2 to 3 Migration

07/2023 – 09/2023

Migrated 500+ users and 65+ business processes (approvals, compliance, finance, legal, operations). Redesigned BPMN workflows in PHP/JavaScript; improved process performance by 40%; reduced manual intervention by 30%; delivered user training that cut onboarding time by 50%.

PERSONAL PROJECTS

AI Knowledge Assistant: RAG Prototype (self-directed)

2025 – 2026

Self-hosted Retrieval-Augmented Generation prototype built to explore end-to-end production AI patterns for banking knowledge retrieval in a regulated, on-prem context. Stack: Llama 3, Qdrant vector database, FastAPI, custom evaluation harness for retrieval quality and hallucination control. Hands-on with the agentic primitives that sit under frameworks like LangChain, MCP, and Google ADK: tool/context plumbing, retrieval and ranking, prompt-engineering controls, and LLM evaluation patterns.

TECHNICAL SKILLS

Languages: Python (pandas, NumPy, FastAPI), SQL, PL/SQL, PySpark, C#

Data Engineering: ETL, multi-source data integration, data modelling, data integrity and reconciliation, large-scale extraction and transformation, batch data processing, Apache Airflow, performance optimisation

Databases: Oracle, Microsoft SQL Server, MySQL, Qdrant (vector database)

AI / LLMs: Claude and Claude Code (daily driver), MCP (Model Context Protocol) via Claude Code, Retrieval-Augmented Generation (RAG) with Llama 3 + Qdrant + FastAPI, embeddings, semantic search, prompt engineering, LLM evaluation harnesses, hallucination mitigation, agentic primitives (tool/context plumbing, retrieval, ranking, evals; the same patterns underneath LangChain and Google ADK)

Banking Platforms: Finacle Core Banking, SWIFT (FIN, MX, Alliance Integration), ProcessMaker (PM2 and PM3), Alfresco DMS

Tooling: Git, GitHub, Streamlit, Claude Code, Visual Studio Code, Visual Studio

EDUCATION

BSc. Computer Science and Engineering University of Mines and Technology, Tarkwa, Ghana September 2016 – July 2020

WASSCE Certificate Mfantsipim Senior High School, Cape Coast, Ghana October 2013 – May 2016

REFERENCES

Mr. Daniel Kwarteng Head, Enterprise Applications Group, Technology Guaranty Trust Bank (Ghana) Limited daniel.kwarteng@gtbank.com · +233 501 462 340

Mr. Chris Armafio CEO, Union Systems Global chris.armafio@unionsg.com · +233 202 022 0102