NGALLO CHONGO

Data Engineer & Analytics Professional

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LinkedIn | Portfolio

PROFESSIONAL SUMMARY

Results-driven Data Engineer with 4+ years of experience designing scalable data pipelines, deploying predictive maintenance systems, and building enterprise-grade analytics platforms. Proven track record of delivering measurable business impact through full-stack application development, real-time ETL pipelines, and IoT sensor integration. Expert in ASP.NET Core, SQL Server, Apache Kafka, Spark, and Power BI. Passionate about transforming raw industrial data into actionable intelligence that drives operational excellence across mining, healthcare, and fintech sectors.

CORE COMPETENCIES

Data Engineering
ETL/ELT Pipeline Design
Real-Time Data Processing
PI System Integration
IoT Sensor Data Management

Analytics & BI
Predictive Maintenance
Root Cause Analysis Systems
Power BI Dashboard Design
Time-Series Analytics

Development
ASP.NET Core MVC & Web API
REST API Architecture
Enterprise System Design
WhatsApp Business Integration

TECHNICAL SKILLS

Languages: C#, Python, SQL, JavaScript/TypeScript, PHP, R, Bash
Frameworks: ASP.NET Core MVC & Web API (.NET 8), Entity Framework Core, Angular, Laravel, Vue.js, Blazor
Big Data & ETL: Apache Kafka, Apache Spark, PI Web API, OSIsoft PI System, SSIS, Data Modeling
Databases: SQL Server, PostgreSQL, MySQL, NoSQL (MongoDB), Pronto Xi, JDE
Visualization & BI: Power BI (Advanced), Grafana, Tableau, SharePoint Integration
Cloud & Infrastructure: Microsoft Azure, Azure DevOps, IIS, Docker, Git, CI/CD, Windows Task Scheduler

PROFESSIONAL EXPERIENCE

Data Analyst – Engineering & Reliability
Mar 2025 – Present

First Quantum Minerals — North-Western Province, Zambia

- Design and develop enterprise-grade systems for asset health tracking, reliability monitoring, and maintenance optimization in mining operations
- Architect end-to-end data pipelines integrating IoT sensors, PI System, ERP data (Pronto Xi, JDE) into centralized analytics platforms
- Build real-time Power BI dashboards with drill-through reports, conditional formatting, and SharePoint document linking for executive decision-making
- Implement automated ETL workflows with scheduled execution for consistent, hands-free reporting across reliability teams

SELECTED PROJECTS

1. Reliability Monitoring & Root Cause Analysis (RCA) Management System

Designed and developed an enterprise-grade system to support asset health tracking, incident investigation, RCA workflows, and action tracking in a mining environment.

- Integrated SQL Server, ASP.NET Core MVC, and REST APIs for structured data capture, reporting, and auditability

- Implemented role-based access, server-side validation, document/URL-based evidence handling, and clean API/UI separation
- Enabled Power BI integration for reliability performance monitoring and executive dashboards

Impact: Improved visibility of reliability incidents, standardized RCA processes, and enabled data-driven maintenance decision-making.
Technologies: *ASP.NET Core MVC & Web API (.NET 8), SQL Server, Entity Framework Core, Power BI, Bootstrap 5, IIS*

2. PI System to SQL ETL & Time-Weighted Calculations

Built an automated ETL pipeline to extract time-series data from the OSIsoft PI System and load analytically accurate datasets into SQL Server.

- Implemented time-weighted and trapezoidal integration logic with irregular sampling handling
- Validated results against PI-calculated totals and ensured correct time-zone alignment
- Enabled scheduled, hands-free execution for consistent reporting via Windows Task Scheduler

Impact: Improved reliability of process performance calculations and eliminated manual extraction errors.
Technologies: *PI Web API, SQL Server, Python, Power BI, Windows Task Scheduler*

3. Real-Time Reliability Dashboards (Power BI)

Developed interactive dashboards to visualize equipment reliability, RCA status, maintenance actions, and operational KPIs.

- Implemented drill-through reports, conditional formatting, and document linking to SharePoint
- Supported management reviews, audits, and operational planning with real-time data

Impact: Enhanced real-time visibility and faster decision-making for reliability and maintenance teams.
Technologies: *Power BI, SQL Server, SharePoint*

4. WhatsApp Business Alerting & Notifications

Integrated WhatsApp Business messaging into enterprise applications to deliver automated alerts and notifications.

- Implemented API-based messaging, webhook handling, delivery/read receipts, and secure message logging
- Improved communication of critical reliability events to field and management teams

Impact: Significantly improved communication speed and visibility compared to traditional SMS and email.
Technologies: *WhatsApp Business API, ASP.NET Core, SQL Server, Webhooks*

5. Smart Bolt Monitoring System (SAG & Ball Mills)

Collaborated with mechanical and data teams to deploy Smart Bolts on SAG and Ball Mills, capturing torque and vibration data to assess bolt health and proactively prevent mill shell damage.

- Built ETL routines to collect, transform, and load Smart Bolt telemetry into analytics platforms
- Created Power BI dashboards for real-time bolt health visualization

Impact: Enabled proactive maintenance interventions preventing costly mill shell damage.
Technologies: *IoT Sensors, ETL, Power BI, SQL Server*

6. Triaxial Sensor-Based Equipment Health Monitoring

Integrated and managed high-frequency telemetry data from Dynamox Triaxial Sensors for asset condition monitoring at Sentinel Mine.

- Processed vibration, acceleration, and temperature data to identify early signs of wear or misalignment
- Linked sensor data into predictive modeling workflows for uptime improvement

Impact: Improved equipment uptime through early detection of equipment degradation.
Technologies: *Dynamox Sensors, Python, SQL Server, Power BI, Machine Learning*

Applications Developer

Jul 2023 – Apr 2025

Right to Care (USAID) — Lusaka, Zambia

- Designed and implemented new modules for the USAID Action HIV Insights Analytics Reporting System using ASP.NET Core, Angular, and C#, supporting national health program analytics
- Led migration from Blazor to Angular, improving application scalability and user experience for 200+ healthcare workers
- Maintained full-stack integration with SQL Server, Power BI, and Azure DevOps, ensuring 99.5% system uptime
- Conducted rigorous code reviews enforcing security best practices and performance standards across development team
- Collaborated with cross-functional teams to gather requirements and deliver solutions aligned with PEPFAR reporting standards

Assistant Data Support & Operations Manager *Oct 2022 – Feb 2023*

Kazang Zambia — Lusaka, Zambia

- Developed backend inventory and customer management systems using Laravel and Vue.js, streamlining operations for fintech services
- Generated regulatory compliance reports for Bank of Zambia and executive leadership on weekly and ad-hoc basis
- Automated data wrangling and error handling scripts, reducing manual data processing time by 60%

Data Analyst / Associate *Jan 2022 – Oct 2022*

CIDRZ (Centre for Infectious Disease Research in Zambia) — Lusaka, Zambia

- Led data validation and analytics for healthcare indicators including viral load coverage and EID diagnostics across provincial networks
- Enhanced the Life Logistics App and reporting systems supporting laboratory data workflows
- Facilitated training workshops for 30+ data capturers on data quality, analytics tools, and reporting best practices

Strategic Information Intern *Feb 2021 – Jan 2022*

CIDRZ — Lusaka, Zambia

- Designed electronic data collection tools using ODK and RapidPro for ACHIEVE and PROUD-Z projects
- Supported PEPFAR MER indicator implementation and mentored field staff on data utilization
- Automated repetitive workflows using Python, improving team efficiency for TB project data management

Earlier Experience

Support Engineer Intern – Chesco Tech, Lusaka (Dec 2019 – Apr 2020)
IT Intern – Trade Kings Group, Lusaka (Aug 2018 – Feb 2019)

EDUCATION

Bachelor of Science in Computer Science *Nov 2019*

Mulungushi University — Kabwe, Central Province, Zambia

REFERENCES

Dalitso Ngoma — Reliability Engineer, First Quantum Minerals
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