

# Patrick Nyangoto Orangi Resume

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## WORK EXPERIENCE

### OneByOne Logistical

Melbourne, Victoria, Australia(Remote)

Tech Lead & FullStack Software Engineer

October 2023 - September 2024

- Led development of enterprise-scale AI platforms using Java, Python, and TypeScript, with demonstrated expertise in OpenAI integration and microservices architecture.
- Architected multilingual AI solutions supporting 4 languages, demonstrating commitment to accessibility and global reach.
- Implemented event-driven architecture using Kafka for scalable message processing across distributed systems.
- Led and mentored team of 10 developers across full-stack development, establishing coding standards and best practices.
- Reduced development cycle time by 40% through implementation of CI/CD pipelines and automated testing frameworks.
- Designed and implemented enterprise data repository systems handling complex business logic and transformations.
- Built AI-powered analytics platforms enabling automated data analysis for 15 enterprise clients.
- Developed comprehensive UI/UX standards ensuring consistent user experience across platforms, as evidenced by implementation of Material Design principles and responsive layouts.
- Led technical discovery sessions with stakeholders to understand requirements and propose AI-driven solutions.

**Technologies:** Java(Quarkus), Python, JUnit, Docker, OpenAI API, LAngchain, LlamaIndex, Kafka, PostgreSQL, AWS, Flutter, Typescript

### IntelliMedia - AI Powered Media/Brand Intelligence Platform

Solutions Architect & Software Engineer

May 2024 - Present

- Architected and led development of a comprehensive AI-driven media intelligence platform tailored for Sub-Saharan Africa, providing unified real-time insights from broadcast and digital media with an innovative conversational TTS assistant.
- Designed a modular architecture combining audio/video fingerprinting with advanced speech recognition to monitor media across radio, TV, social media, and news sources in multiple African languages, achieving 90%+ recognition accuracy.
- Implemented a sophisticated multi-modal data processing pipeline integrating audio fingerprinting (Chromaprint), speech recognition (Whisper), and multilingual NLP analysis (XLM-R, AfroLM) for sentiment analysis, topic extraction, and entity recognition.
- Engineered a conversational TTS assistant using LLMs (GPT-4, Claude 3) with Retrieval-Augmented Generation (RAG) to deliver personalized audio briefings and interactive voice queries, supporting multiple regional accents and languages.
- Developed an edge-cloud hybrid system to address regional infrastructure challenges, enabling reliable media monitoring even in areas with limited connectivity through intelligent local preprocessing and efficient data synchronization.
- Created comprehensive analytics dashboards with drill-down capabilities for competitive benchmarking, campaign tracking, and lead generation, empowering businesses across SSA to make data-driven decisions.

**Technologies:** Audio Fingerprinting (Chromaprint, FAISS), ASR (Whisper, Google Chirp), NLP (HuggingFace Transformers, spaCy), LLMs (GPT-4, Claude 3), TTS (Azure, OpenAI), Time-series/Vector Databases (TimescaleDB, Pinecone), Cloud Infrastructure (AWS, Kubernetes), React, D3.js, Python, FFmpeg/GStreamer, Typescript, NextJS

### SAND Technologies

Nairobi, Kenya(Remote)

Enterprise Innovation Lead - The Futurelist

March 2024 - Present

- Lead technical due diligence and architecture reviews for high-growth startups, producing comprehensive technical evaluation reports and scalability assessment.
- Author detailed technical whitepapers and innovation memos analyzing emerging technologies (GenAI, Web3, Cloud Native), guiding enterprise investment decisions.
- Spearhead collaborative innovation workshops with C-suite stakeholders, translating complex technical concepts into actionable business strategies.
- Drive enterprise sector analysis through data-driven methodologies, creating detailed technical landscape maps and adoption roadmaps.
- Establish and maintain technical evaluation frameworks for startup assessment, ensuring consistent quality standards across portfolio companies.
- Mentor startup technical teams on architecture best practices, scalability patterns, and technology selection.
- Facilitate knowledge transfer sessions between enterprise stakeholders and startup CTOs, bridging communication gaps and fostering successful partnerships.

Technical Lead Business Development - [The ROOM](#)

April 2022 - May 2023

- Architected and led development of an AI-powered lead qualification system using NLP techniques (NLTK), achieving 95% reduction in qualification time and exceeding revenue targets.
- Designed and implemented a self-service contract management platform with Slack integration, streamlining organizational workflows and improving cross-departmental collaboration.
- Built and deployed automated workflows for contract processing, onboarding, and knowledge management, resulting in 30% faster service delivery.
- Developed executive dashboards using Tableau and Power BI, enabling data-driven decision-making for C-suite stakeholders
- Established data quality frameworks and mentored team members in data analysis, reducing data discrepancies by 20%
- Engineered ETL processes and internal workflows for transactional support, improving operational efficiency and scalability.

Technologies: Python, AWS Lambda, Docker, NLTK, Tableau, Pandas, Apache Superset, Apache Airflow.

EDUCATION

East Africa School of Aviation

Diploma in Aeronautical Engineering(AVIONICS Option)

Embakasi, Nairobi

2025

Andela - Google Africa Developer Scholarship( Remote)

Cloud Engineering Track

2022 Cohort.

ALX - Holberton

Software Engineering Bootcamp

San Francisco, California, USA(Remote)


January 2021 - March 2022

JKUAT

B. Sc. Telecommunication & Information Engineering

Juja, Nairobi

NOTABLE PROJECTS


ALX - Mastercard AI Hackathon  [Code](#)

Technical Lead & Solution Architect

20<sup>th</sup> - 24<sup>th</sup> November, 2023

- Led team of 4 developers to victory among 37 competitors in Mastercard AI Hackathon.
- Architected RAG-based AI solution for tax consultation using OpenAI API, Pinecone, and Langchain.
- Implemented custom data streaming solution for real-time document indexing into a PineCone VectorDB.

Technologies: OpenAI API, Pinecone, Python, Langchain AI framework, F.A.I.S.S, Typescript, NLTK, UnstructuredIO.

Loan Income Analysis Dashboard  [Code](#)

Solution Architect & Data Engineer

May 2023 - August 2023

- Architected and implemented an enterprise-grade financial analytics platform integrating CDC (Change Data Capture) pipelines with Oracle Flexcube core banking system for real-time transaction monitoring.
- Engineered dual-mode data ingestion framework supporting both batch ETL for historical analysis and stream processing for real-time interest calculations and revenue leakage detection.
- Designed fault-tolerant data lake architecture using Delta Lake for ACID compliance, enabling efficient querying of historical loan performance metrics.
- Built scalable data processing pipeline using Apache Spark and Python for complex financial computations, handling 5M+ daily transactions.
- Implemented event-driven architecture using Apache Kafka for real-time streaming analytics, enabling instant detection of interest discrepancies and fee anomalies
- Developed cloud-native data mesh architecture enabling self-service analytics for different business domains (loan performance, revenue analysis, risk metrics).
- Created interactive analytics dashboard using Streamlit and custom D3.js visualizations, featuring drill-down capabilities and automated weekly reporting.
- Containerized the entire solution using Docker and Kubernetes for seamless deployment across multiple banking environments.

Technologies: PySpark, Kafka, Delta Lake, Python (pandas, numpy), Streamlit, Docker, Kubernetes, Oracle Flexcube

## Smart Hazard Detection & Alerting System for Aviation Ground Operations

March - June 2025

### Embedded Systems Engineer

- Enhanced an aviation hazard detection system by integrating AI/ML capabilities into a full-stack architecture.
- Designed & fabricated a multi-modal sensor fusion combining proximity sensors, RFID, and computer vision using ESP32-CAM/Raspberry Pi with edge AI models (YOLOv8 Nano, DeepSORT) for real-time aircraft, vehicle, and personnel detection.
- Implemented MQTT-based communication pipeline and cloud microservices for alert processing, vision analytics, and predictive safety modeling. Designed a real-time operations dashboard with AI overlays, personnel tracking, and predictive warnings.
- Delivered a scalable edge-cloud hybrid system ensuring sub-120ms response times, advanced analytics, and regulatory compliance, demonstrating deep domain expertise in aviation safety and transferable skills in full-stack AI/ML system development

**Technologies:** *Arduino Uno, ESP32-CAM/Raspberry Pi 4, YOLOv8 Nano, MQTT over cellular/WiFi, AWS/Azure cloud microservices, Python, TensorFlow, Scikit-Learn, PostgreSQL, Typescript, Next.js, [React.js](#).*

## E-commerce Platform with Integrated Services (MamboBazaar)

### Full-Stack Developer

- Designed and developed a comprehensive e-commerce platform with robust backend services and modern frontend architecture.
- Architected a scalable multi-service e-commerce platform using Next.js, Node.js, TypeScript, and Prisma ORM with a microservices approach for payments, inventory, shipping, and analytics.
- Implemented secure authentication system featuring JWT token-based authentication, RBAC authorization, multi-factor authentication, and third-party OAuth integration.
- Engineered webhook controller system to process events from multiple external services (Stripe, payment providers, shipping carriers) with robust error handling and transaction management.
- Designed a flexible payment factory pattern allowing merchants to self-onboard with their own credentials, seamlessly integrating M-Pesa mobile payments for African markets and Cybersource for global card processing with 99.9% transaction success rate.
- Developed real-time inventory management with automatic stock updates, notification triggers, and support for bulk product uploads via CSV/Excel.
- Integrated multiple payment gateways including Stripe, custom bank integrations, and mobile money services with secure token-based transaction processing.
- Created comprehensive analytics dashboards for both sellers and administrators with real-time data visualization, exportable reports, and performance metrics.
- Designed an event-driven notification system utilizing WebSockets for real-time alerts and templated email/SMS communications for order updates.
- Implemented DevOps automation with Docker containerization, CI/CD pipelines, and Terraform infrastructure as code for AWS deployment.
- Built scalable and fault-tolerant systems with centralized logging (OpenTelemetry), comprehensive monitoring, and advanced security features including rate limiting and audit trails.

**Technologies:** *TypeScript, Next.js, Node.js, Express, Prisma ORM, PostgreSQL, Redis, AWS (S3, Lambda), Stripe API, JWT, OAuth, Elasticsearch, BullMQ, Docker, Terraform, Jest, React, Headless UI, Radix UI, Zod, OpenTelemetry.*

## GitHub All In Open Source Program

April 2024 - Present

### Open-Source Developer

#### **Project: Africa Sustainability Hackathon** **Code**

- Collaborated with a team of 4 Software Engineers to develop a Python application within 24 hours to address sustainability issues in Africa, guided by the UN's SDG #13: Climate Action.
- Integrated Google Earth Engine API and Streamlit to analyze and visualize environmental metrics across different African regions.
- Enabled targeted analysis for West, East, and Southern Africa, displaying indicators like land area, GHG emissions, precipitation, air pollution, and temperature changes over time.
- Highlighted correlations between various environmental factors, emphasizing their interrelationships.
- Enhanced skills in API integration, data management, and web app development, with a focus on environmental sustainability in Africa.

**Technologies:** *Python, Google Earth Engine Python API, Streamlit, Google Cloud Platform, Jupyter/Google Colab, geemap, Pandas, NumPy, Matplotlib/Plotly, API integration, and data visualization libraries.*

## SKILLS

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### Key Competencies

- Communication for impact.
- Ability to explain technical concepts to non-technical people.
- Technical Team Leadership & Mentoring
- Agile/Kanban Methodologies
- Business Development
- Stakeholder Management
- Rapid Prototyping.

### Technical Skills

- **Programming Languages:** C, Python, TypeScript, Bash Scripting.
- **Operating Systems:** Windows, Linux,
- **Web Frameworks:** Django, Flask, FastAPI, React.
- **Developer Tools:** Git, Docker, Selenium, Postman, Ansible, Jenkins, GitHub Actions. K8s.
- **Libraries:** pandas, NumPy, SciKitLearn, PySpark, Plotly, Langchain, LlamaIndex, NLTK.
- **Databases:** PostgreSQL, SQLite, Pinecone.
- **Cloud Technologies:** Azure, AWS, GCP..
- **Architecture:** System Design, Microservices, Cloud Architecture, Distributed Systems, Event Driven(Kafka)

## AWARDS

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### Gold Fellowship at The ROOM

As a proud recipient of the Gold Fellowship, I am honored to be recognized among the top 7 graduates out of a cohort of 5,000 in ALX Tech's software engineering program at The Room. This distinguished award grants me access to exceptional resources and exclusive opportunities that foster both my personal and professional development, including valuable mentorship, specialized networking events, and skill-building workshops tailored to deepen my expertise.