

Samuel N. Oyaro

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EDUCATION

BSc. Telecommunication and Information Engineering, Jomo Kenyatta University of Agriculture and Technology

Relevant Coursework: Artificial Intelligence; Database Management; Business Law; Network Security & Cryptography; Analog & Digital Electronics; Software Development; Digital Systems Design; Embedded Systems; Research Methodology; Project Management

WORK EXPERIENCE

AI/Data Engineer, Safaricom

May 2025 – present | Nairobi, KE

- Full cycle development of generative and agentic AI solutions to support analytics and self-service business intelligence.
- Designing and maintaining robust ETL & ELT pipelines for large-scale data ingestion, processing, and transformation workloads.
- Architecting and optimizing storage solutions, including distributed file systems, NoSQL databases and data warehouses.
- Developing processing jobs, procedures, and analytics workflows using distributed computing frameworks and query languages.
- Documenting ML system designs, implementation tradeoffs and BI processes for knowledge sharing and support.

AI/ML Engineer Intern, Nethermind

Jan 2025 – Apr 2025 | London, UK

- Engineered autonomous AI agents with LLM-driven reasoning cycles, context-awareness and multi-step orchestration.
- Collaborated with ML and cryptography research teams to prototype AI agentic solutions across distributed environments.
- Developed prompt strategies, embedded toolchains, and vector-assisted retrieval to augment agent capabilities.
- Built evaluation pipelines to benchmark agent performance, cost efficiency, and alignment with user intent.
- Enhanced local agent infrastructure by testing and experimenting with emergent frameworks.
- Reviewed breakthrough AI/ML research papers to identify engineering solutions for existing limitations.

Blockchain Data Analyst, Securities.io

Jun 2022 – Sep 2023 | S. Francisco, CA, US

- Implemented extraction utilities for blockchain analytics and dashboards to visualize DeFi metrics.
- Led quantitative research on Layer 1 and 2 networks, reporting on gas economics, consensus, and onchain activity.
- Authored blog posts on zk-proof systems, tokenomics, smart contract security, DeFi exploits and blockchain compliance.
- Delivered metric-based narratives and external-facing communication highlighting protocol and ecosystem milestones.
- Maintained contributor relationships and aligned reporting cadence with evolving strategic objectives.

AWS ReStart Learner, Azubi Africa

Jan 2022 – Apr 2022 | Nairobi, KE

- Explored cloud-native ingestion pipelines and app stacks using AWS architecture best practices.
- Deployed models for image classification and computer vision applications, optimizing for accuracy and latency.
- Refined model performance through hyperparameter tuning, inference optimization, and quantization.

IoT Engineer Attachee, Gearbox

Feb 2021 – May 2021 | Nairobi, KE

- Prototyped motion-sensing IoT systems using Raspberry Pi/Arduino; integrated alert logic and edge processing.
- Validated sensor network designs via circuit simulation and proof-of-concept field testing.
- Configured Linux-based IoT gateways to bridge PLCs with telemetry and monitoring pipelines.
- Collaborated with mechatronic engineers in PCB design reviews and firmware development for application-specific ICs.

IT Support Attachee,

Ministry of Information, Communications and Digital Economy

Jul 2019 – Oct 2019 | Nairobi, KE

- Automated system patching workflows using WSUS and MECM (formerly SCCM).
- Diagnosed network disruptions (DNS, SMTP) via Wireshark captures and traceroute-based packet path analysis.
- Deployed Cisco and Juniper network infrastructure; configured firewall rules, VLANs, and switch logic.
- Resolved application faults through log tracing and hotfix deployment strategies.

PROJECTS

Agentic Orchestration and Workflow Automation Suite

AI agents management platform leveraging Next.js, TypeScript, and FastAPI. Platform orchestrates autonomous AI agents with workflow automation capabilities, integrating with Google Workspace, Slack, Notion, Teams, GitHub, and LangFuse for observability. Distributed task processing architecture using Redis and MongoDB, with authentication via Okta.

Agentic BI and Analytics System

Agentic business intelligence system that enables data teams to query databases in natural language (NL2SQL) and other sources (RAG), get results, visualizations, reports and insights at production scale with auditable access controls.

Deep Learning Model for Waste Classification

An intelligent waste management system tapping a convolutional neural network for image classification and Raspberry Pi single-board compute to power automated waste items disposal.

Zero-Knowledge ASP System

A zero-knowledge attestation service provider PoC enabling private and compliant blockchain transactions. Combines optimized Circom circuits using PLONK proving schemes with a multi-chain compatible architecture to verify Merkle tree-based membership claims.

ADDITIONAL INFORMATION

Certifications — Oracle AI Vector Search Professional; OCI Foundation Associate, Kubernetes and Cloud Native Associate

Programming Languages — Python; TS; Rust; SQL

Tools & Frameworks — BI Tools; Database Systems; LLM Orchestrators; AI SDKs; Graph Memory

Cloud & DevOps — AWS; GCP; Docker; K8s; Hardhat

Interests — Mathematical and Engineering Interdisciplinary Research