

EDMUND SPIRA

SYSTEMS ARCHITECT & IMPLEMENTATION SPECIALIST

Nairobi, Kenya

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Professional Profile

Systems Architect with a track record of engineering national-level digital infrastructure for the World Bank and Government of Kenya. Expert in deploying secure, high-performance PWAs and managing sovereign data residency (DPA) for systems processing 1M+ weekly responses.

Education & Professional Development

ALX Software Engineering Program

Jan. 2023 – Jan. 2024

Full-Stack Software Engineering Specialization

Remote

- Completed an intensive 12-month program focusing on low-level programming (C), system design, and modern full-stack development.

Zetech University

2020

International Computer Driving License (ICDL)

Nairobi, Kenya

- Developed core digital literacy and systems management skills applied to architecting large-scale data solutions.

Experience

Spatial Collective

March 2025 – Present

Systems Architect & Full-Stack Engineer

Nairobi, Kenya

- Architected a Unified Digitization Ecosystem** for the World Bank KISIP 2 project, automating data collection, youth onboarding, and reporting modules for urban resilience initiatives across multiple counties.
- Engineered a High-Scale PWA** (micro.spatialcollective.co.ke) that processes 1M+ weekly responses, enabling 200+ mappers to perform complex image annotation tasks in low-connectivity urban settlements.
- Optimized Operational Infrastructure** by migrating legacy Excel/paid-database workflows to a custom full-stack system, reducing project management time and licensing costs.
- Managed Sovereign Data Residency** by configuring and securing government-hosted servers (Ubuntu/Linux), ensuring 100% compliance with the Data Protection Act (DPA) for citizen IDs and payment records.
- Automated Financial Disbursements**, developing a system that validated and processed over 1M KES in payments to youth mappers within the first two months of operation.

Independent Software Consultant

Jan. 2022 – Feb. 2025

Full-Stack Developer

Remote

- Led Digital Transformation** for multiple organizations (camfeb.org, trexel.co.ke, npa.co.ke) by migrating legacy WordPress sites to React/Next.js, achieving a 65% improvement in Core Web Vitals and a 40% average increase in user retention.
- Architected Fintech Solutions** for Afribit.africa, integrating Bitcoin payment systems via Lightning Network APIs to facilitate 1M+ KES in decentralized transactions with zero downtime and robust fraud prevention via transaction logging and security headers.

Spatial Collective

2020 – 2022

Geospatial Mapping Specialist (Contract)

Nairobi, Kenya

- Spearheaded Geographic Data Validation** for the Nairobi region mapping project using HOTOSM and Java, ensuring high-integrity data for community planning and development.
- Collaborated with Cross-Functional Teams** to map critical infrastructure, transitioning from field-level mapping to developing the tools used for data integrity checks.

Technical Skills

Engineering & Languages: React.js, Next.js (PWA Specialist), TypeScript, Java, Node.js, REST APIs, State Management, HTML5/CSS3 (Tailwind)

Geospatial Ecosystem: ODK Server Management, HOTOSM (Humanitarian OpenStreetMap), GIS Data Validation, Image Annotation Workflows

Infrastructure & Security: Server Management (Ubuntu/Linux), Docker, CI/CD Pipelines, PostgreSQL/MySQL, Sovereign Data Residency, DPA Compliance, Micro-services Architecture

Fintech & Systems: Bitcoin Payment Gateways (Lightning), Automated Disbursement Systems, Learning Management Systems (LMS), Agile/Scrum