

ALIU BOLADE LAWAL

Senior Software Engineer • Backend Systems, APIs & Distributed Services • Java, Spring Boot, Fintech
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PROFILE

Senior backend engineer with 8+ years building production systems, distributed services, and APIs across Nigerian Tier 1 banking and consumer fintech platforms. Deep Java and Spring Boot expertise, with strong patterns for event driven systems, async messaging, retry orchestration, idempotency, and graceful degradation. At First Bank of Nigeria, I designed and built complex backend systems handling multi billion naira daily flows. In parallel, I built Picki, a multi vendor commerce platform live with 30 active vendors on a modern stack (Next.js 14, Supabase, Vercel, Paystack, AI checkout). Comfortable across the full backend lifecycle: architecture, API design, database schema, integration, testing, deployment, observability, and on call.

SELECTED BACKEND SYSTEMS

Picki — Multi-vendor Commerce Platform

Live: <https://picki.store>

Engineered solo and shipped to production. Multi vendor commerce platform built on Next.js 14 with TypeScript, Supabase Postgres, Vercel, and Paystack. 84 REST API routes covering vendor onboarding, product management, order lifecycle, payments, and admin operations. Launched April 2026, currently in beta with 30 active vendors.

- API design: 84 REST endpoints with consistent contract patterns, request and response validation, structured error handling, and idempotency on payment and order operations. Schema first design across the full API surface.
- Third party integrations: Paystack for payments with webhook handling and reconciliation, Termii for SMS with GSM-7 Unicode sanitisation to reduce per message cost, Resend for transactional and broadcast email, Fez for delivery integration, and Groq (Llama 3.3 70B) for conversational AI checkout.
- Distributed infrastructure: server side rendering on Vercel with regional deployment pinning for storefront performance, Postgres with Row Level Security for multi tenant data isolation, and push notification infrastructure with web push and key rotation across 15 lifecycle events.
- Production operations: structured logging, error tracking, payment reconciliation tooling, vendor admin dashboards, and broadcast tooling for vendor and customer communications.

Treasury Investment Platform — First Bank of Nigeria

Solo designed and implemented First Bank's Treasury Investment Platform end to end. Core Java on the Newgen iBPS framework with select services and APIs delivered in Spring Boot. Integrated with Finacle via core banking APIs for customer account posting. Architected to support T-bills (primary and secondary market), Commercial Paper, FGN Bonds, and Eurobonds through a unified instrument lifecycle. T-bills live in production.

- Distributed services architecture: bid and subscription, eligibility and validation, settlement and posting, interest computation, scheduled background interest payment service, maturity with auto liquidation or customer rollover, certificate generation, and custodian transfer. Each module owns its responsibility with clear API boundaries.
- Integration patterns: REST APIs against core banking (Finacle) for customer account posting and balance checks, with double entry integrity, reconciliation hooks, and audit trails. Scheduled background services for interest payment runs with idempotent execution and recovery on failure.

GUSEG Cross Border Payment Service — First Bank of Nigeria

Designed and built a Spring Boot 3 / Java 17 service that ingests payment data from an upstream regulatory application, constructs valid SWIFT messages, and dispatches them to the bank's correspondent network. The service handles the full message lifecycle from ingestion to dispatch with audit, retry, and recovery.

- Architecture: Spring Boot 3 on Java 17 with IBM MQ as the async messaging backbone, configurable input adapters (DB polling or REST API consumption) and output adapters (file drop or REST dispatch). Strategy pattern across two message variants sharing a single construction and dispatch pipeline.
- Reliability patterns: tuned retry orchestration (2, 5, 10, 10, 10 minute intervals) for failed dispatches, circuit breakers for downstream dependency failures, idempotency guarantees on retried messages, and a startup recovery routine that resets orphaned records. Resolved a circular bean reference between Spring Boot 3 and IBM MQ Spring Boot Starter using a custom MQConnectionFactoryCustomizer pattern.
- Production discipline: Jasypt encrypted credentials with server side only key management, externalised configuration per environment, structured logging across application, error, audit, and health channels, and a nine finding security review cleared before go live.

Estacode USD Payment System — First Bank of Nigeria

End to end backend system handling USD payments to FBN staff travelling abroad for training. Spans rate calculation, workflow approval, automated SWIFT message generation, multi protocol dispatch, and offshore accounting entries.

- Rate calculation engine: configurable rate service across a 12 grade by 6 destination matrix, computing daily rate, travel days, training coverage rules, and grade based eligibility. Drives every USD entitlement across the bank.
- Multi protocol dispatch switch: configurable routing layer that can dispatch SWIFT messages via the bank's converter, directly to the alliance gateway via REST API, or via IBM MQ. Same construction pipeline, environment driven downstream selection.
- Spring Boot generation service: triggered automatically on workflow approval, auto generates sequential FX references from a year based sequence table, and constructs full SWIFT messages with dynamic field population.

PROFESSIONAL EXPERIENCE

Senior Software Engineer • *Openfactor Technologies* — *Client: First Bank of Nigeria* Mar 2023 – May 2026

- Designed and shipped an event driven Account Opening and Maintenance workflow on Newgen iBPS with KYC validation services, audit trails, multi tier authorisation, and modification flows. Reduced onboarding cycle time across branches.
- Refactored the Bulk NIN Linkage utility from seven sequential JARs into a single multi threaded service. Diagnosed and corrected thread safety issues from shared static fields, tuned thread count to 30 (50 caused silent downstream failures), and added a circuit breaker that aborts a stage after 10 consecutive timeouts. Refactor cut processing time substantially and stabilised the service at high volume.
- Built support tooling and operational utilities including admin endpoints for record reconciliation, audit log query interfaces, and configuration management utilities.
- Lead technical mentor for two junior engineers under a structured engineering development programme, covering Java, Spring Boot, system design, design reviews, and code review practices.
- Engaged directly with senior stakeholders across Treasury, Operations, and IT to scope requirements, present technical solutions, and align delivery timelines.

Software Engineer • *TAJBank Limited* Aug 2021 – Feb 2023

- Designed and shipped an event driven Account Opening and Account Maintenance workflow on Newgen iBPS for Nigeria's pioneering non interest digital bank. Cut process cycle time by 50% and enabled instant onboarding aligned with CBN compliance and TAJBank's Sharia banking requirements.
- Integrated KYC gating and customer information modification flows, with downstream alerts to relationship management and compliance teams for high risk profile changes.
- Owned BPM measurement and reporting to senior leadership, with regular reviews of process metrics and benefit realisation.

Automation Engineer • *First Bank of Nigeria*

Nov 2019 – Dec 2020

- Built the Finacle Limit Enhancement Application, achieving a 50% reduction in operational cost of core banking limit enhancement by removing manual handoffs and codifying authorisation rules.

Software Developer (Intern) • *Gridworx Systems Strategies Limited*

Nov 2017 – Apr 2019

- Documented requirements and contributed to the implementation of a KYC address verification solution, collaborating across design and engineering.

ADDITIONAL INDEPENDENT WORK

Outside bank engagements, I run Alpha Global Tech and Consulting (AGT) where I build production platforms end to end and publish reusable banking infrastructure under commercial license.

iso20022-converter — Open Source Banking Middleware

Public repo: <https://github.com/aboladelawal/iso20022-converter>

Bi-directional SWIFT MT and ISO 20022 MX message converter written in Java 17 and Spring Boot 3. Supports MT103, MT102, MT202, MT205, MT900, MT910, and MT940 on the SWIFT side, paired with pacs.008, pacs.009, pacs.002, pacs.004, camt.053, and camt.054 on the ISO 20022 side. Multi-adapter routing across IBM MQ, SFTP, REST API, and filesystem. Full SAA envelope construction and Business Application Header generation. Operations dashboard, audit trail, and licensing model included. Public repository is an architecture preview; full implementation is held under commercial license through AGT.

sftp-mq-bridge — Open Source Integration Middleware

Public repo: <https://github.com/aboladelawal/sftp-mq-bridge>

Spring Boot 3 service that bridges SFTP file drops with IBM MQ queues, written for the partner integration pattern where one side speaks files and the other speaks messages. Scheduled SFTP polling with .success, .error, and .unsupported lifecycle handling on the outbound leg. JMS listener with configurable retry intervals and dead letter queue routing on the inbound leg. Spring Boot Actuator health indicators for both integration points. Public repository is an architecture preview; full implementation is held under commercial license through AGT.

Havyn — Multi-tenant Child Safety Platform

Multi tenant child check in and checkout SaaS for churches, schools, and daycares. Architected the full multi tenant model with an org, branch, and session hierarchy and role based admin separation. 33 API routes against a 12 table Supabase schema, with QR based parent to org pairing, guardian side mobile flow with live location verification, and a server of record cache then network sync pattern. In active development.

TECHNICAL SKILLS

- Languages: Java 17, Spring Boot 3, JavaScript, TypeScript, SQL
- Backend & Distributed Systems: REST APIs, microservices, event driven architecture, async messaging (IBM MQ), retry orchestration, circuit breakers, idempotency patterns, graceful degradation, scheduled background services, distributed transactions
- Databases: PostgreSQL, Oracle, schema design, Row Level Security, query optimisation, JPA/Hibernate
- Cloud & Infrastructure: Vercel, Supabase, RHEL on premises deployments, Docker containers, CI/CD with GitHub Actions, structured logging and observability
- Frontend (exposure): Next.js 14, React, server components, full stack development on modern web stack
- Security & Quality: Encrypted credentials, externalised configuration, security review compliance, code review, mentoring
- Domain: Banking and fintech (payments, treasury, KYC and AML, SWIFT MT/MX, ISO 20022), commerce platforms, multi tenant SaaS

EDUCATION & CERTIFICATIONS

MSc, Information Technology • *University of Lagos* 2020 – 2023

B.Eng, Electrical and Electronics Engineering • *University of Ilorin* 2011 – 2016

- Certified Scrum Master (International Scrum Institute)
- Certificate in IT (British Computer Society)
- Co-author, "Ethical and Responsible AI in Engineering and Construction Projects" (peer reviewed)
- Co-author, "Digital Twins and AI in Infrastructure Engineering" (peer reviewed)