

ALFRED OLUMIDE ADENIGBA

FULL STACK SOFTWARE ENGINEER | TYPESCRIPT · RUST · AI & BLOCKCHAIN SYSTEMS

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[LinkedIn](#) · [GitHub](#) · [Portfolio](#)

PROFESSIONAL PROFILE

Full Stack Software Engineer with nearly three years of hands-on experience designing and shipping web, AI-agent, fintech, and blockchain products. Builds modular APIs, secure payment and wallet workflows, privacy-first applications, cloud-deployed agent systems, and production-ready user interfaces using TypeScript, NestJS, Next.js, Node.js, Rust, Solidity, Python, and modern cloud tooling. Strong in system design, data modelling, automated testing, security-focused engineering, and end-to-end product ownership.

CORE TECHNICAL EXPERTISE

Core Languages: TypeScript, Rust, JavaScript, Solidity, Python, SQL, Cairo

Frontend: Next.js, React, Vite, Tailwind CSS, TanStack Query

AI & Agents: Claude, Gemini, Google ADK, RAG, MCP, Ollama, multi-agent and human-in-the-loop workflows

Cloud & Delivery: Google Cloud Run, Vertex AI Agent Runtime, Vercel, Railway, Render, AWS

Backend & Systems: NestJS, Node.js, Express, FastAPI, Axum, Tokio, SQLx, REST, JWT, OpenAPI

Data & Infrastructure: PostgreSQL, MongoDB, Redis, MySQL, IndexedDB, ChromaDB, Docker, GitHub Actions, Linux

Blockchain & Payments: EVM, Starknet/Cairo, Arbitrum Stylus, Polkadot ink!, Stellar Soroban, Foundry, Hardhat, The Graph, Circle, x402, USDC

Testing & Security: Jest, Foundry, Hardhat, API testing, coverage analysis, Slither, Aderyn

PROFESSIONAL EXPERIENCE

Independent Software Engineer | Freelance / Product Engineering

Lagos, Nigeria / Remote | Sep 2023 - Present

- Design and ship full-stack applications and backend services using NestJS, Next.js, Node.js, TypeScript, Rust, PostgreSQL, MongoDB, Redis, Docker, and cloud deployment platforms.
- Architect secure APIs with authentication, validation, role-based access control, data modelling, caching, background processing, third-party integrations, and blockchain event workflows.
- Build agentic systems that combine LLM reasoning, RAG, MCP tools, deterministic business rules, wallet infrastructure, payments, and human-in-the-loop orchestration.
- Develop and test EVM, Starknet, Soroban, Stylus, and ink! smart-contract systems for payroll, escrow, creator monetisation, governance, security analysis, and privacy-preserving payments.
- Contribute to various open-source software platforms through pull requests, bug fixes, documentation improvements, and collaboration across web, backend, blockchain, and developer-tooling ecosystems.
- Own the product lifecycle across requirements, architecture, implementation, automated testing, documentation, cloud deployment, demos, and iterative improvement.

Civil / Geotechnical Engineer | Trevi Foundations Nigeria Limited

Lagos, Nigeria | Apr 2019 - Sep 2023

- Designed deep-foundation, shoreline-protection, and earth-retaining solutions by analysing geotechnical data, soil conditions, loading requirements, constructability, and commercial constraints.
- Prepared engineering calculations, technical drawings, design and soil-investigation reports, tender inputs, and pile-testing documentation.
- Coordinated engineers, contractors, consultants, and site teams on major infrastructure projects while maintaining quality, safety, and delivery expectations.
- Selected projects: Stanbic IBTC Project Windsor, Novotel Hotel, Afreximbank Office Development, PTML Berth 11 Extension, and CBN Development.

FLAGSHIP ENGINEERING PROJECTS

AfroMeet — Creator Monetisation & Autonomous Patron Platform | 2026 | [GitHub](#) | [Live](#)

NestJS · Next.js 16 · TypeScript · Solidity · Foundry · Circle · x402 · Arc · USDC · Privy · IPFS · Claude

- Architected a three-layer platform enabling African creatives to mint work, receive per-second or per-access USDC payments, configure immutable royalty splits, fractionalise NFTs, and operate isolated creator DAOs.
- Implemented Euterpe, an autonomous patron agent with a Circle-controlled wallet, budget guardrails, x402 nanopayments, Claude-based evaluation, on-chain identity, reputation, and transparent investment decisions.
- Built 12 Solidity contracts plus a NestJS API and Next.js workspace with encrypted media delivery, signature-authenticated settlement, marketplace flows, fractional revenue distribution, and DAO treasury controls.
- Delivered 100 Foundry contract tests and 23 Jest backend tests, including complete coverage across payment-critical contracts; deployed and verified eight core contracts on Arc Testnet and shipped live frontend/backend deployments.

Ares — Autonomous Smart-Contract Bug Bounty Hunter | 2026 | [GitHub](#) | [Live](#)

NestJS · Next.js · TypeScript · Python · FastAPI · Solidity · Foundry · Slither · ChromaDB · Claude/Ollama · PostgreSQL · Docker · Mantle

- Built an event-driven security agent that watches Mantle for new bounties, fetches verified source or bytecode, runs static and LLM-augmented analysis, submits findings on-chain, and triggers escrow payout without manual intervention.
- Developed a NestJS orchestrator, FastAPI analysis service, Next.js dashboard, and three on-chain contracts for reputation, bounty management, and escrow; the contract layer reports complete test coverage.
- Created a RAG pipeline backed by approximately 62,000 audit findings from public vulnerability databases, Sherlock, Code4rena, GitHub reports, and Solodit; merged and deduplicated Slither and LLM results into structured findings.
- Implemented missed-event backfilling, finding persistence, paid one-shot audits, feedback ingestion, and graceful fallbacks from Claude to Ollama to static-analysis-only operation.

Payfurl — Confidential Payroll Protocol | 2026 | [GitHub](#)

Rust · Stellar Soroban · Circom · Groth16 · BLS12-381 · snarkjs · Poseidon commitments · Next.js 16 · React 19 · TypeScript · x25519 · AES-GCM

- Designed confidential payroll, invoices, wallets, and income proofs where individual amounts remain hidden on-chain while senders and recipients stay identifiable for practical compliance.
- Implemented a Poseidon-commitment balance ledger and 10 Groth16 circuits for deposits, withdrawals, escrow, payroll notes, minimum-wage proofs, pay-equity proofs, and cumulative-income attestations.
- Used Stellar CAP-0059 BLS12-381 host functions for on-chain proof verification and x25519/AES-GCM encryption for auto-receive salary notes and auditor viewing access.
- Deployed verifier contracts to Stellar Testnet and created end-to-end scripts covering confidential balances, invoices, payroll claims, encrypted note recovery, stealth recipients, and compliance attestations.

APPLIED AI PRODUCTS

Clio — Accessible Multi-Agent Museum Guide | 2026 | [GitHub](#) | [Live](#)

Python · Google ADK v2 · Gemini 2.5 Flash · Vertex AI Agent Runtime · FastAPI · FastMCP · Cloud Run · Docker · Web Speech API

- Built an adaptive audio-guide system that generates distinct narrations for visually impaired visitors and art-history students from the same artwork metadata.
- Orchestrated Curator and Narrator agents in a structured DAG with schema-constrained outputs and a human-in-the-loop pause/resume node for personalised tour navigation.
- Deployed the reasoning service to Vertex AI Agent Runtime and the dashboard to Cloud Run; integrated an MCP artwork catalogue, Web Speech text-to-speech, and a nine-piece museum dataset.

MediMate — Privacy-First Medication Companion | 2026 | [GitHub](#)

Next.js 16 · TypeScript · Tailwind CSS · Gemma/Ollama · Google AI Studio · IndexedDB · Web Speech API · Camera APIs · PWA

- Built an offline-capable progressive web app for medication scanning, scheduling, interaction checking, voice symptom journaling, and printable doctor reports.
- Implemented a hybrid AI resolver that streams responses from local Gemma via Ollama by default and falls back to Google AI Studio; kept user data in browser IndexedDB with no account or cloud-storage requirement.
- Added camera-based label extraction, speech recognition/synthesis, service-worker installation, and an offline interaction checker backed by a curated dataset of 50+ drug interactions.

ADDITIONAL ENGINEERING PORTFOLIO

UrlChop — URL Shortener & Analytics Platform | 2024 | [GitHub](#) | [Live](#)

React · TypeScript · Node.js · Express · MongoDB · Redis · Jest · QR generation · Swagger · Vercel · Render

- Developed a full-stack URL-shortening platform with generated and custom aliases, QR-code downloads, link history, click analytics, and origin tracking.
- Separated the React/TypeScript client and Node.js/Express API services, used MongoDB for persistence and Redis for caching, and published interactive API documentation.

Erebus — Private Agent Payment Pool | 2026 | [GitHub](#) | [Live](#)

TypeScript · Express · React · Vite · MongoDB · Stellar Soroban · USDC · x402 · OpenZeppelin facilitator · Railway · Vercel

- Built a pooled payment service for agents that accepts x402 USDC payments, credits internal balances, batches signed private payouts, tracks failures, and automatically refunds unsuccessful transfers.
- Delivered a React wallet interface, Express API, MongoDB-backed ledger, Stellar transfer processing, pool monitoring, and protected pay-per-request data endpoints.

PayTroix — Decentralised Payroll Web Application | 2024 - 2025 | [GitHub](#) | [Product](#)

Next.js · TypeScript · React · Solidity · Foundry · The Graph · Wagmi/RainbowKit · Privy · USDC · Vercel

- Contributed to a full-stack payroll product for managing on-chain salary payments, employee records, wallet interactions, transaction visibility, and payroll dashboards.
- Worked across smart-contract integration, subgraph-backed blockchain data, frontend wallet flows, cloud deployment, and production email/DNS configuration.

Rust Axum API — Authenticated Backend Service | 2026

Rust · Axum · Tokio · SQLx · PostgreSQL · JWT · Argon2 · Middleware · Docker

- Built a production-style asynchronous REST API with JWT authentication, role-based authorisation, Argon2 password hashing, middleware-based claims propagation, migrations, and structured application errors.
- Used Axum extractors, Tokio concurrency, and SQLx compile-time query checking to keep request handling strongly typed and database interactions explicit.

ColorSnap — Multi-Chain On-Chain Puzzle Game | 2026 | [GitHub](#) | [Live](#)

Next.js · TypeScript · Solidity · Tailwind CSS · Wallet integrations · Base · Somnia · Electroneum

- Built a decentralised colour-matching game with wallet-based play, on-chain game state, scoring, solution peeks, leaderboards, and multi-network deployment support.

EDUCATION & PROFESSIONAL DEVELOPMENT

Diploma in Backend Engineering | AltSchool Africa

Lagos, Nigeria | 2023 - 2024

- Backend architecture, API development, database management, authentication, testing, and cloud deployment.

Bachelor of Engineering (B.Eng.), Civil Engineering | University of Ilorin

Kwara State, Nigeria | 2012 - 2017

- Structural analysis, soil mechanics, geotechnical engineering, hydraulics, surveying, engineering graphics, and construction management.

Additional Training | Web3Bridge Africa alumnus; continuous professional development in Rust, Solidity, Cairo, Soroban, AI agents, distributed systems, and smart-contract security.

Additional Hackathon & Applied Innovation Highlights

- Lepton Agents Hackathon (2026): built AfroMeet using Circle wallets, x402 nanopayments, Arc USDC settlement, autonomous patronage, NFT monetisation, and creator governance.
- Agents for Good (2026): built and cloud-deployed Clio with Google ADK, Vertex AI Agent Runtime, Cloud Run, MCP tools, and accessible multi-agent narration.
- Regularly delivers end-to-end hackathon products spanning architecture, smart contracts, backend APIs, frontend interfaces, automated tests, cloud deployment, documentation, and live demos.

ENGINEERING STRENGTHS

System design · API architecture · Secure payments · Data modelling · AI-agent orchestration · Smart-contract engineering · Automated testing · Technical documentation · Project ownership · Cross-domain problem solving