

Ayesigwa Ronnie

Full-Stack & Applied AI Engineer

✉ ayesigwaronnie@gmail.com 📍 Kampala, Uganda · Available remote 🌐 <https://portfolio.builtbyron.com>

Skills

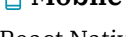
🛠️ AI & Agents

LangGraph, Vercel AI SDK, Claude API, OpenAI API, Tool-calling loops, RAG (pgvector), HITL workflows, SSE streaming, LangSmith, Evals & RLHF data



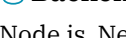
🖥️ Frontend

React, Next.js, TypeScript, TailwindCSS, Redux Toolkit, TanStack Query, Zustand



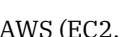
📱 Mobile

React Native, Expo (SDK 53), NativeWind, Reanimated, Expo Router, Offline-first sync



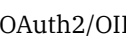
🗄️ Backend & Data

Node.js, NestJS, Hono, ASP.NET Core, PostgreSQL, MongoDB, Redis, TypeORM, Drizzle ORM



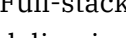
☁️ Infrastructure

AWS (EC2, EKS, Lambda, S3), CloudFront, Athena, ElastiCache, Aurora, Docker, Terraform, ArgoCD, Datadog, CloudWatch



🔒 Engineering

OAuth2/OIDC, RBAC, Multi-tenancy, TDD, Jest, Playwright, Git



Summary

Full-stack and applied AI engineer with six years of experience delivering production SaaS, mobile, government, and financial systems. Built authorized agent platforms spanning 10+ services, authored 200+ coding-model evaluation tasks, and delivered AWS optimization work saving approximately \$129K annually. Diagnosed a QuickJS/WASM runtime corruption failure in a production agent sandbox, published a minimal reproduction, and authored repair PRs for quickjs-emscripten and TanStack AI. Strongest in TypeScript, React and React Native, Node.js, PostgreSQL, AWS, and production LLM systems.

Profiles

GitHub

[TheBoyWhoLivedd](#)

LinkedIn

[ayesigwar](#)

Experience

Hitaji Technologies

Uganda

Founding Engineer

June 2020 - Present

Founding engineer for Hitaji 360, a production platform spanning 11 services across identity, payments, notifications, AI, and vertical products for schools, SACCOs, legal, agriculture, and construction.

- Architected **Hitaji Bot**, an autonomous coding agent that implements and validates changes across 10+ microservices from Slack requests; 60+ generated pull requests have been merged.

- Built **Hitaji Brain**, exposing thousands of LLM-callable capabilities through a shared authorization registry so agents enforce the same tenant and role permissions as the REST API.

- Designed a QuickJS/WASM sandbox for LLM-authored TypeScript, exposing budgeted read-only bindings while structurally preventing writes; replaced the async runtime after isolating a repeatable reference-count corruption defect in multi-read workloads.

- Delivered the platform end to end, including multi-provider idempotent payments, pgvector retrieval, LangSmith tracing, and URA EFRIS e-invoicing with RSA authentication and AES-encrypted fiscal submissions.

Trilogy (Khoros)

Remote

Software Engineer

September 2025 - January 2026

AWS cost engineering across Khoros' enterprise SaaS products (Care, Communities, Spreadfast).

- Cut CloudWatch GetMetricData spend by **~\$129K/year**, consolidating duplicate Datadog integrations and migrating monitoring resources across AWS organizations with Python automation.

- Led an ElastiCache consolidation moving **90 Redis clusters** onto a shared Valkey 8.0 architecture against a \$146K/year target — migrated 60 of 90 before handoff.

- Analyzed CloudFront traffic for communities serving **100M+ daily requests** (Athena over Parquet) to identify cache-hit and origin-bandwidth savings.

<https://www.khoros.com/>

Elite Software Automation

Remote

Software Design Engineer

January 2025 - September 2025

End-to-end operational systems for clients in auto finance, nonprofit, and education.

- **AutoFinance360** — Built a dealership operations platform unifying sales, underwriting, inventory, and collections for a multi-entity buy-here-pay-here group. Added a pre-deal risk module flagging mechanical and financial red flags, cutting early loan defaults by 18%.

- Architected centralized inventory tracking with GPS location and audit trails across **6+ sites**, covering procurement, inspection, repair, and distribution.

- **FaithOps** — Automated member lifecycle (registration, onboarding, demographic-triggered transitions) plus **15+ program workflows-**; built donation reconciliation combining OCR extraction with a manual review gate for financial integrity.

<https://elitesoftwareautomation.com/>

Turing

Remote

AI Training Engineer, Google DeepMind project

July 2024 - December 2024

- Evaluated Gemini's coding ability against real open-source repositories, isolating failure modes in genuinely hard codebases — parsers, linters, build tooling — rather than toy tasks.

- Authored and reviewed 200+ evaluation tasks, converting model failures into RLHF training data used to improve code generation.

<https://www.turing.com/>

Uganda Revenue Authority

Uganda

Software Engineer

June 2022 - June 2024

Full-stack engineer on internal platforms for Uganda's national tax authority.

- Built the **AEOI Portal**, the system Ugandan financial institutions use to file cross-border account data under OECD tax-transparency standards (CRS/FATCA) — React front end, Java/Quarkus services, Dockerized deployment. Onboarded 30+ institutions.

- Built a risk-management and penalty-assessment platform for the compliance division, replacing a spreadsheet-driven process with automated case routing by jurisdiction and a full status/escalation workflow.

- Delivered internal tooling used across divisions — a centralized project progress tracker, a leave management system, and a material schedule generator for the Deemed VAT unit.

<https://ura.go.ug/en/>

Selected Projects

Hitaji Bot — Autonomous Coding Agent

An autonomous coding agent that receives Slack tasks, discovers relevant code across 10+ microservices, validates changes locally, and opens pull requests.

- Built a streaming tool-calling loop with 20+ tools for code search, editing, git operations, parallel exploration, and dependency-aware service orchestration.

- Automated environment configuration, ordered service startup, builds, tests, and health checks before pull-request creation.

- Reduced startup latency by 40–60% through pre-warmed workspace pooling, while per-repository mutexes prevented git contention.

- **Stack:** Bun, TypeScript, Claude API, Vercel AI SDK, Hono, SQLite, Slack API, GitHub API, Docker Compose.

Hitaji Brain — Agent Platform & Sandboxed Code Runtime

A production agent platform exposing 97 business capabilities through one authorization path, plus a sandbox where models can analyze live data without directly mutating it.

- Unified in-app and external-agent tools behind a single capability registry and authorization boundary, eliminating duplicated RBAC checks and preventing tools from bypassing tenant or role permissions.

- Executed LLM-authored TypeScript inside a QuickJS/WASM isolate with per-user read-only bindings, host-enforced budgets, and deadlines; write requests become explicit human-confirmation actions outside the sandbox.

- Replaced the sandbox's async runtime after isolating a WASM corruption defect in multi-read workloads, then published a minimal reproduction and proposed fixes upstream.

- **Stack:** NestJS, TypeScript, QuickJS/WASM, Zod, PostgreSQL, pgvector, LangSmith.

Open-Source

2026

Diagnosed a WASM runtime corruption failure from a production agent sandbox, published a minimal reproduction, and authored repair PRs.

- **quickjs-emscripten (PR #265)**: traced the failure to generated release bindings that omitted Asyncify's required { async: true } metadata; proposed the binding fix, an awaitable pending-job driver, and regression coverage for sequential host awaits and context reuse.

- **TanStack AI (PR #946)**: replaced affected Asyncify tool callbacks with synchronous QuickJS contexts and native promises, with coverage for sequential and concurrent calls, context reuse, timeout handling, and safe disposal.

- Published a [standalone reproduction harness](#) that isolates the failure boundary and verifies both repair paths.

BBS Harness — AI Structural Drawing Analyzer

An auditable AI workflow that extracts bar-bending schedules from structural drawings, preserving source evidence and human review for safety-critical decisions.

- Built progressive multimodal inspection from page overviews to detected regions and detail crops, linking every extracted value to its source location.

- Added typed human-review gates at decomposition and classification, with durable Postgres checkpointing so engineers can correct and resume runs without restarting.

- Streamed 40+ typed event variants over SSE for live progress and complete audit trails; managed large drawing sets through payload estimation and context pruning.

- Reduced an approximately eight-hour manual workflow to under 30 minutes in an internal evaluation, reaching 94% field-level accuracy across 40 drawing sets.

- **Stack:** LangGraph, Vercel AI SDK, Next.js, Hono, PostgreSQL, OpenCV/Tesseract, LangSmith.

Fundify — Investment Club Operating System

An investment-club operating system for contributions, loans, fines, payments, and profit distribution with configurable rules and complete audit trails.

- Implemented contribution, compounding, interest, payment-waterfall, and time-weighted distribution rules with multi-step financial approvals.

- Built a permission-scoped, read-only AI accountant for cash positions, member statements, and audit events.

- Enforced Stripe plan limits at both UI and server boundaries; secured payment evidence through S3 pre-signed uploads and retained 36+ automated test files.

- **Stack:** Next.js, TypeScript, PostgreSQL, Drizzle ORM, Better Auth, Vercel AI SDK, Stripe, AWS S3, Sentry.

<https://usefundify.com>