



# Ayesigwa Ronnie

Full Stack Software Engineer and Lifelong Learner

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## Summary

Full stack engineer who ships end-to-end products, from enterprise SaaS platforms and mobile apps to agentic AI systems. I build with Next.js, Typescript, React Native, Node.js, and PostgreSQL across domains like fintech, education, and government, and have recently extended into AI engineering, designing LangGraph-orchestrated pipelines, and autonomous coding agents.

## Profiles

**github**  
[TheBoyWhoLivedd](#)

## Experience

**Hitaji Technologies (Part-Time)** Uganda  
Full Stack & AI Engineer June 2020 - Present  
Building full-stack solutions and agentic AI systems for internal use and external clients. Architected an autonomous coding agent that receives tasks via Slack, discovers and implements changes across 10+ microservices, orchestrates local service validation, and creates pull requests, reducing multi-service development cycle time significantly. Developed AI-powered products including document interaction SaaS and a voice/receipt-based transaction processor. Delivered production systems for clients including the Uganda Revenue Authority

**Uganda Revenue Authority** Uganda  
Software Engineer June 2022 - June 2024  
Design and build dynamic full-stack solutions tailored to supercharge the business operations of the Uganda Revenue Authority! In tandem with a power-team of developers, consistently delivered top-notch, unyielding production code. Always at the forefront of collaborative brainstorming, cutting-edge design, and impeccable product output <https://ura.go.ug/en/>

**Turing (Google - Deepmind)**  
Node/React Engineer July 2024 - Dec 2024  
Tested and evaluated Gemini's coding capabilities on open-source repositories to identify implementation gaps, leveraging insights to create RLHF datasets for advanced AI model training. Gained extensive expertise in complex coding structures, like parsers and linters, while contributing to the refinement and reliability of state-of-the-art AI coding models.

**Elite Software Automation**  
Software Design Engineer Jan 2025-September 2025  
Designing and implementing complex, end-to-end digital systems that streamline and scale operational workflows across many industries such as education, auto finance, marketing, and nonprofit organizations

**Trilogy (Khoros)**  
Software Engineer September 2025 - Jan 2026

- Lead AWS infrastructure cost optimization initiatives for Khoros' enterprise SaaS products (Care, Communities, Spredfast), achieving significant annual savings through strategic cloud resource management and automation.
- Spearheaded ElastiCache consolidation project to migrate 90 Redis clusters to shared Valkey 8.0 architecture, targeting >\$146K annual savings while improving operational efficiency and scalability.
- Reduced CloudWatch GetMetricData API costs by ~\$129K/year by consolidating duplicate Datadog integrations and migrating monitoring resources between organizations using Python automation scripts.
- Analyzed CloudFront traffic patterns for high-volume communities (100M+ daily requests) using AWS Athena and Parquet transformations to identify cache optimization opportunities and reduce origin bandwidth costs.

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

## Projects

**Hitaji Edu 360**

- Architected and developed a production React Native mobile application using Expo SDK 53 and React 19, implementing feature-sliced clean architecture with 23+ domain modules serving school administrators and teachers.
- Engineered offline-first attendance tracking with local queue management and automatic synchronization, enabling teachers in low-connectivity environments to record attendance without data loss.
- Implemented secure OAuth2/OIDC authentication with PKCE flow, featuring automatic token refresh, MMKV-based secure storage, and granular role-based access control across 66+ permission scopes.
- Integrated real-time push notifications using Firebase Cloud Messaging (FCM/APNS) with deep linking support, background handlers, and in-app notification banners using Expo Notifications.
- Built responsive UI component library using NativeWind (TailwindCSS), Reanimated animations, and Moti, with full dark mode support and tailwind-variants for consistent styling patterns.
- Developed multi-service API integration layer connecting to multiple microservices (Auth, Core API, Notifications, AI Chat) with TanStack React Query for caching, Axios interceptors for token management, and Zustand for local state.
- Implemented complex data-entry workflows including bulk assessment score entry, class attendance marking with optimistic updates, and student enrollment verification processes.
- Stack: Next.js, React, React Native (Expo), NestJS, [ASP.NET](#) Core, TypeScript, C#, PostgreSQL, MongoDB, TypeORM, Drizzle ORM, NextAuth, JWT/OIDC, Vercel AI SDK, OpenAI, AWS S3, [Socket.io](#), Docker, TailwindCSS, ReduxToolkit, Playwright, Jest.

**BBS Harness – AI Structural Drawing Analyzer**

- Architected a multi-stage LangGraph agentic pipeline that extracts bar bending schedules from structural engineering PDFs, using durable Postgres-backed checkpointing for resumable, crash-resilient orchestration.
- Engineered human-in-the-loop (HITL) review gates with typed interrupt boundaries for decomposition and classification phases, enabling engineers to approve or edit AI proposals without restarting the workflow.
- Built a multi-modal progressive inspection system where the agent starts with low-resolution page overviews, detects regions via computer vision, then zooms into detail and context crops for precise value extraction with evidence linking.
- Implemented intelligent token budget management with payload estimation and message pruning to handle large multi-page documents without exceeding model context limits.
- Designed a typed event contract system (40+ event types) with SSE streaming, enabling real-time progress tracking in the planner UI while maintaining full audit trails in Postgres.
- Stack: LangGraph, Vercel AI SDK, Next.js 16, Hono, Drizzle ORM, PostgreSQL, Zustand, Python (OpenCV/Tesseract), LangSmith tracing, TypeScript monorepo (pnpm).

**Hitaji Bot – Autonomous Coding Agent**

- Built an autonomous AI agent that receives tasks via Slack, discovers relevant code across 10+ microservices, implements changes, validates them by orchestrating local service deployments, and creates pull requests - all without human guidance.
- Engineered a streaming LLM tool-calling loop (50+ iterations per task) with 20+ specialized tools including code search (ripgrep), file editing, git operations, subagent spawning for parallel codebase exploration, and service orchestration.
- Designed intelligent service orchestration that dynamically configures environments (dotenv and JSON formats), starts services in dependency order, runs build/test validation, and performs health checks before PR creation.
- Implemented workspace pooling with pre-warming (5 slots, max 8) and per-repo mutexes to prevent git contention, reducing task startup latency by 40-60%.
- Built a publication quality gate with diff analysis, configurable limits, and a two-phase validation pipeline (build and test to quality metrics) before automated PR creation.
- Stack: Bun, TypeScript, Claude API (Anthropic), Vercel AI SDK, Hono, SQLite, Slack API (HMAC-SHA256), GitHub API, Docker Compose, dual-provider LLM abstraction (Anthropic/OpenAI).

**AutoFinance360 (BHPH Dealerships)**

- Engineered an end-to-end dealership operations platform that digitized and unified processes across sales, underwriting, inventory management, and collections for a multi-entity organization.
- Developed core workflow automation modules for lead acquisition, underwriting, and contract generation reducing manual data entry and processing time
- Architected a centralized inventory tracking system with real-time audit trails and GPS-based location services, optimizing vehicle-readiness operations (procurement, inspection, repair, distribution) across 6+ locations.
- Reduced early loan defaults by architecting a risk assessment module that flagged mechanical and financial risk factors pre-deal.
- Designed and prototyped a unified vendor management portal to standardize invoice approvals, track mechanic reliability, and validate repair quality.

**Fundify - Investment Club Manager**

- Developed a full-stack club finance operating system enabling investment groups to manage savings, contributions, loans, fines, and profit distributions with configurable financial rules and complete audit trails.
- Engineered a sophisticated financial rules engine supporting three contribution modes, fine compounding with configurable rates, multiple interest calculation methods (simple, reducing balance, compound), and time-weighted profit distribution.
- Built an AI accountant assistant using Vercel AI SDK with typed tool contracts that provides read-only financial insights (cash position, member statements, audit events) scoped to club-level permissions.
- Implemented multi-step approval workflows for payments, loans, and distributions with proof-of-payment attachments (S3 pre-signed URLs), payment waterfall allocation (fines, interest, principal, savings), and soft-delete audit tracking.
- Designed a three-tier SaaS monetization model (Starter/Pro/Enterprise) with Stripe integration, feature gating at both UI and server action boundaries, and tier-based storage limits.
- Stack: Next.js 16, React 19, PostgreSQL (Neon), Drizzle ORM, Better Auth, Vercel AI SDK, OpenAI, Stripe, AWS S3, Upstash Redis, Sentry, 36+ test files.

<https://usefundify.com>

**FaithOps Member Engagement System**

- Developed a comprehensive member lifecycle management system, automating visitor registration, onboarding, and transitions (e.g., Child to Youth) using demographic-based triggers and branching logic..
- Designed and implemented over 15 program-specific workflows for diverse operations including daycare, university enrollment, event management, and online subscriptions, standardizing processes across departments.
- Improved operational accountability by engineering automated feedback loops and SOP adherence monitoring into the core platform.
- Engineered a donation and reconciliation workflow, integrating OCR and manual review steps to ensure financial data integrity and streamline discrepancy resolution.

**Hitaji Save**

- Integrated an AI agent capable of transforming voice commands and extracting transaction data from receipt images to allow users upload bulk transactions in a single click.
- Utilized React for the front-end to deliver an intuitive and responsive user experience.
- Built robust backend services using Node.js, ensuring seamless processing of AI-driven data and efficient budget tracking functionalities.
- Containerized the application with Docker to simplify deployment and maintain consistent development and production environments.

<https://save.hitajitechnologies.com/>

**AEOI Portal**

- The project aimed to ensure compliance with global tax reporting standards and streamline the submission and management of financial information by local financial institutions.
- Utilized React for front-end development to create a user-friendly interface for financial institutions to submit tax information.
- Developed backend services using Java with Quarkus framework, ensuring high performance and scalability of the portal.
- Containerized applications using Docker to streamline deployment processes and maintain consistent development environments.

## Skills

🌐 **Web Technologies**  
HTML5, JavaScript, CSS  
● ● ● ● ●

📱 **Mobile Development**  
React Native, Expo (SDK 53), NativeWind, React Native Reanimated, Expo Router, Moti  
● ● ● ● ○

🔗 **Frameworks**  
React, NodeJS, TailwindCSS, NextJS, React Native, Expo  
● ● ● ● ●

🌀 **Tools**  
Git, Github, Docker  
● ● ● ● ○

☁️ **AWS**  
Athena, Lambda, Aurora, CloudFront, ElastiCache, EC2, EKS  
● ● ● ● ○

🔧 **DevOps**  
Datadog, CloudWatch, ArgoCD, Terraform  
● ● ● ● ○

🤖 **AI & Agent Engineering**  
LangGraph, Vercel AI SDK, LangSmith, RAG, Streaming (SSE), HITL Workflows  
● ● ● ● ●

## Interests

**Swimming**

**Reading**

## Languages

**TypeScript**  
● ● ● ● ●

**Python**  
● ● ● ● ○

**Java**  
● ● ● ● ○