Dr. Chukwudum Agbasi

Software Engineer with 1+ year of experience building production-grade backend systems, cloud-native infrastructure, and AI-powered SaaS products. Experienced in designing scalable microservices, webhook-driven architectures, developer tooling, and intelligent automation platforms. Passionate about systems architecture, DevOps, performance optimization, and transforming complex technical challenges into scalable, high-impact solutions.

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Technical Proficiencies

- **Systems Languages:** TypeScript, JavaScript, Python
- **Backend & APIs:** Node.js, Express.js, FastAPI
- **Databases:** PostgreSQL, MySQL, MongoDB, Redis
- **Cloud Service:** AWS
- **DevOps & Infrastructure:** Docker, Terraform, GitHub Actions, Jenkins, Kubernetes, Prometheus, Grafana
- **Frontend:** React, Tailwind CSS, Next.js
- **Other:** Langchain, REST APIs, Firebase Auth, Supabase, SQLAlchemy

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Professional Experience

Founding Engineer – TIME-WISE SOLUTIONS (Micro-SAAS, Nigeria)

April 2025 – Present

Core member of the founding team building micro-SaaS products focused on solving operational and career-growth challenges for medical professionals and students in Nigeria.

Housemanship Bot (Telegram-Based Placement Platform)

Led the architecture and backend engineering of a Telegram automation platform helping **100+ graduating medical students monthly** secure verified housemanship placements across Nigeria.
Scaled the system to **support growing paid users** through integrated payment channels **(Flutterwave)** and automated access control into private Telegram communities.
Designed webhook-driven microservices handling payment verification, user onboarding, and personalized messaging workflows.
Built secure backend infrastructure using **Node.js**, **Express, Supabase, Redis, and Docker**, ensuring reliable message delivery and transaction processing.
Implemented automated user segmentation and personalized broadcast systems to improve engagement and paid conversion rates.

MedVerify (Verified Opportunity Intelligence Platform)

Engineered a backend validation and content-vetting system that filters misinformation and aggregates verified medical opportunities, helping **100+ medical professionals monthly** avoid scams and unreliable listings.
Designed structured data pipelines to vet, categorize, and distribute trusted updates across Telegram and web platforms.
Built scalable backend services using **Node.js, Express, and PostgreSQL**, deployed on Railway for reliable hosting and streamlined DevOps workflows.
Developed an internal Admin Dashboard using **TypeScript and Next.js** to enable structured validation, opportunity review, and efficient content moderation.
Solving the problem of information overload, fraud, and fragmented opportunity access within the Nigerian medical ecosystem.

Survey Validator (Research Validation Tool)

Built a backend validation engine that helps medical students **automatically validate research survey datasets**, identify invalid entries, and generate structured output reports for academic projects.
Designed file upload processing, automated validation logic, and categorized result outputs (valid/invalid rows) to significantly reduce manual data cleaning time.
Implemented using **Node.js and Express** with optimized validation pipelines for large datasets.
Addressing inefficiencies in research data preparation and improving academic project turnaround time.

Key Projects

Expense Tracker (Full-Stack Personal Finance Platform)

Stack: React (Vite), Tailwind CSS, Node.js, Express, PostgreSQL (pg), Firebase Admin, Docker

- Built a full-stack personal finance and budgeting platform enabling users to track expenses, manage budgets, set financial goals, and visualize spending trends through an interactive analytics dashboard.
- Engineered unified authentication by integrating **Firebase Admin** for secure server-side auth with JWT-based API authorization and user session management.
- Designed modular **RESTful backend architecture** with clear controller–route separation, enabling scalable CRUD operations for transactions, budgets, categories, and goals.
- Implemented rich financial analytics and visualization using Recharts to provide actionable insights into spending patterns and budget performance.
- Developed production-ready **PostgreSQL** schema with structured migrations and seed scripts for reproducible database setup and streamlined deployment.

Smart Invoice Analyzer (AI-Powered Document Intelligence Platform)

Stack: Python (FastAPI), React (Vite), PostgreSQL (SQLAlchemy + Alembic), LangChain, Docker

- Built an AI-powered invoice intelligence platform that performs invoice ingestion, OCR extraction, semantic embedding, and conversational analysis over uploaded documents.
- Engineered a **FastAPI backend** with modular routes for upload, analysis, querying, and authentication, enabling structured data extraction and natural-language interaction with invoices.
- Designed an OCR and document extraction pipeline to process PDFs and images, converting unstructured invoice data into structured, queryable formats.
- Implemented document chunking and embedding workflows using **LangChain and OpenAI embeddings,** storing vectors in a Chroma-based vector database for semantic search and retrieval.
- Developed LLM-driven conversational analysis flows that allow users to ask natural-language questions about uploaded invoices and receive context-aware responses.
- Integrated PostgreSQL with **SQLAlchemy models and Alembic migrations** for structured data persistence alongside vector storage.
- Built a responsive React (Vite) frontend supporting file uploads, preview, analytics dashboards, and authenticated user sessions via Firebase.
- Containerized backend and frontend services with Docker and prepared the infrastructure for asynchronous background processing using Celery and Redis.

Cloud Cost Calculator (AWS Cost Analysis & Reporting Platform)

Stack: Terraform, AWS, Python (serverless Lambdas), HTML/CSS/JS, GitHub Actions

- Built a serverless AWS cost monitoring platform that centralizes cost collection, automated reporting, and alerting with a lightweight dashboard for visibility.
- Engineered Terraform modules to provision budgets, IAM policies, EventBridge rules, Lambdas, S3, and SNS, ensuring reproducible infrastructure with version-controlled IaC.
- Developed Python-based serverless Lambdas to collect, normalize, and process AWS cost and usage data, powering real-time insights and automated notifications.
- Implemented Telegram alerting and scheduled reporting Lambdas to notify stakeholders of cost anomalies and provide weekly summaries.
- Designed a static HTML/CSS/JS dashboard for intuitive cost visualization, deployment notes, and quick operational inspection.
- Established CI/CD via GitHub Actions to automate Terraform deployments, manage state, and maintain consistent infrastructure across environments.
- **Delivered automated cost signal collection,** proactive alerts, and reproducible infrastructure, enabling
- teams to monitor AWS spending efficiently.

Cloud-Native Kubernetes Platform

Stack: AWS, Terraform, Kubernetes, Jenkins, Docker, Prometheus, Grafana,

- Built a production-ready Kubernetes platform on AWS with **GitOps-driven deployments** and full observability.
- Provisioned modular infrastructure (VPC, EKS, IAM) using Terraform across multiple availability zones.
- Implemented GitOps continuous delivery with ArgoCD using declarative Kubernetes manifests as the single source of truth.
- Engineered a **Jenkins CI/CD pipeline for Docker image builds**, vulnerability scanning with Trivy, and secure image push to Amazon ECR.
- Deployed AWS Load Balancer Controller (ALB Ingress) with automated DNS routing via Route 53 and HTTPS using cert-manager and Let's Encrypt.
- Configured IAM Roles for Service Accounts (IRSA) to enforce least-privilege pod-level AWS access.
- Integrated Prometheus and Grafana for cluster and application-level monitoring, including request rate, error rate, and latency tracking.

🎓 Education

MBBS, Medicine and Surgery – University of Nigeria, Nsukka Enugu Campus

- Developed strong analytical thinking and structured problem-solving skills through systematic clinical diagnosis and patient

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🚀 Summary

Software engineer combining medical precision with startup execution speed, **building scalable backend systems,** AI-powered SaaS products, and cloud-native infrastructure from the ground up. Proven track record architecting production systems serving **100+ monthly active users,** automating payments and real-time notifications, and **deploying reproducible infrastructure** with Terraform and Kubernetes. Known for designing secure, high-performance platforms across AI, DevOps, and backend engineering while turning complex, real-world problems into scalable digital solutions.