EMMANUEL F. IYAHEN

***SOFTWARE ENGINEER***

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# PROFESSIONAL SUMMARY

# Results-driven Software Engineer with 7 years of expertise in Python backend development and cloud-native architecture. I specialize in building scalable, high-performance systems, with significant experience in the end-to-end development and production integration of AI/ML models. My track record includes designing robust APIs, infrastructure provisioning and hardening, and creating data-intensive platforms that serve as the backbone for intelligent applications and real-time decision-making.

# EXPERIENCE

**Backend Engineer / Technical Lead**

**Melcombe Security,** *UK* Contract 2025 – Present

* Architected and developed a **production-grade backend** using FastAPI, PostgreSQL, Celery, and RabbitMQ, delivering modular, async-first REST APIs with **RBAC enforcement** for sensitive data (payslips, attendance logs).
* Designed and implemented **geofenced clock-in/out functionality**, reducing attendance fraud by ~90% with 95%+ GPS accuracy.
* Provisioned and deployed infrastructure via **Terraform** on a hardened Ubuntu VPS (Nginx, Gunicorn/Uvicorn, systemd), applying **Fail2Ban, SSH lockdown, firewall rules, and SSL**, achieving **99.9% uptime** and resisting multiple intrusion attempts.
* Led **TDD adoption** with Pytest, achieving 90%+ unit and integration test coverage, catching regressions early and reducing post-release hotfixes by ~70%.
* Ran **A/B testing** for shift notifications and clock-in flows, increasing read rates by 25%, while collecting structured **tester feedback**, triaging 50+ issues, and implementing prioritized fixes before production.
* Delivered **API documentation** (OpenAPI + Postman) that accelerated frontend integration by 40% and ensured alignment across cross-functional teams.
* Implemented **auditable attendance and location logs**, enhancing operational transparency and internal reporting.

**Software Engineer**  2023-2025

**Fortsolar Energy Nigeria**

* Designed and implemented a custom, single-tenant ERP system using a modular architecture to manage core business functions including Customers, Inventory, Installations, and Supplier/Engineer workflows, significantly improving operational efficiency and resource tracking.
* Designed user management with role-based access control (admin, installer, customer, supplier, engineer) for secure workflow management.
* Automated the entire software release process with a CI/CD pipeline, reducing deployment times by 60% and minimizing manual errors for consistent and stable updates.
* Set up real-time monitoring and alerting using Prometheus and Grafana, enabling visibility into application performance, resource usage, and background task processing, while supporting proactive issue detection and system reliability.

**Starlyke Medical Services (E-commerce) | Software Engineer 2020 – 2023**

* Designed and implemented scalable RESTful APIs using Django REST Framework (DRF) to support product listings, user authentication, order management, and inventory management.
* Boosted API performance by 35% through cursor-based pagination and optimized query handling.
* Developed a personalized ML product recommender system using user behavior data (views, purchases), increasing user engagement by 22% and driving conversions.
* Integrated secure online payments via Paystack, ensuring seamless transactions and 99.9% payment success rate.
* Achieved 91% test coverage using Pytest and Django’s test framework; implemented CI/CD with GitHub Actions for automated testing and deployment with near-zero downtime.
* **Implemented SEO-optimized product endpoints** using slugs, canonical URLs, and dynamic metadata, improving organic search traffic by **28%**. Captured and stored UTM parameters for user acquisition tracking, enabling attribution for over **95%** of leads. Integrated lead events with **HubSpot** and **Google Analytics**, contributing to a **20% increase in campaign ROI** and faster sales response times.

**Personal Project & Research**

**AI-Powered Document-Aware Conversational Chatbot**

* Developed a **document-aware AI chatbot** using **FastAPI**, LangChain, FAISS, and OpenAI GPT-4 to assist customer support teams by answering queries based on uploaded PDFs while maintaining conversational context. Designed **scalable API endpoints** for document upload, query processing, and memory management, with **fallback to GPT-4** for questions outside document context. Enabled **efficient, intelligent self-service support** for technical documentation and internal knowledge bases, similar to systems used by companies like Namecheap.
* **Deployed on Google Cloud Run** with containerized workloads, ensuring cloud-native scalability and reliable performance

[Github Link](https://github.com/townbox01/AI-CHATBOT/tree/main)

# MSc Dissertation Project

# Cloud-Based Microservices Architecture for FinTech

# Designed and developed a scalable, containerized FinTech platform using AWS, integrating PostgreSQL (RDS) and Redis (ElastiCache) for hybrid data management. Built backend services with FastAPI, implemented asynchronous communication with Celery and RabbitMQ, and containerized the system using Docker, deployed via AWS ECS Fargate.

# Key achievements:

# Improved system performance by 30–40% with async processing and load-tested with 100,000+ transactions using Locust.

# Enabled auto-scaling via AWS NLB, increasing uptime by 20% during peak loads.

# Reduced deployment time by 50% using GitHub Actions CI/CD pipeline.

# Enhanced security with JWT auth and container vulnerability scanning, reducing incidents by 15%.

# Monitored performance using AWS CloudWatch and Grafana, cutting incident response time by 25%.

# Reduced cloud costs by 15% using AWS Cost Explorer, Budgets, and Anomaly Detection.

# EDUCATION

# MSc Computing (Distinction), *University of East London* 2025

Database Systems | Cloud Computing | Software Engineer | Computer Networks

# TECHNICAL SKILLS

* **Languages & Frameworks:** Python (FastAPI, Django, Flask), JavaScript/TypeScript (React), HTML, CSS, Tailwind
* **Databases & Caching:** PostgreSQL, Redis, MongoDB, MySQL
* **AI/LLM Tools:** LangChain, OpenAI APIs, RAG (Retrieval-Augmented Generation), FAISS, pgvector (familiarity), MCP.
* **Cloud & Infrastructure:** Google Cloud (Cloud Run, Pub/Sub, Storage), AWS (ECS, RDS, S3), Azure (App Service), Terraform, Docker, Docker Compose
* **CI/CD & DevOps:** GitHub Actions, Jenkins, Nginx, Systemd, Git
* **APIs & Security:** RESTful APIs, JWT/OAuth, RBAC, GDPR-aligned audit logging, API documentation/testing (Swagger, Postman, OpenAPI)
* **Monitoring & Observability:** Prometheus, Grafana, Sentry, Datadog (familiarity)