

MERCY KATHOMI MBAKA
Software Engineer | Full-Stack Developer
Nairobi, Kenya
+254 748 077 609 · official.mercymbaka@gmail.com
GitHub: <https://github.com/Mbaka-cmd>

PROFESSIONAL SUMMARY

Backend Engineer specializing in Python, Django, and PostgreSQL with production experience building RESTful APIs, JWT-secured systems, and M-Pesa payment integrations. Proven ability to design and deploy scalable multi-tenant SaaS platforms with real-time transaction processing, webhook handling, and automated reporting systems. Strong focus on deployment, performance, and building systems for real users.

CORE TECHNICAL SKILLS

Backend & APIs

- Python (Django, Flask), RESTful API design, JWT Authentication, Webhook handling (idempotency, signature validation)
- Django ORM & SQLAlchemy, Alembic migrations, Role-Based Access Control (RBAC), Blueprint-based microservices

Database Engineering

- PostgreSQL - complex relationships, indexing, query optimization, views, connection pooling
- SQLite - Database normalization, Stored procedures, Schema design for multi-tenant SaaS

Payment Systems

- Safaricom Daraja API - M-Pesa STK Push (C2B), callback processing, transaction reconciliation, sandbox production
- Retry logic for pending payments, Paybill/till mapping, Secure webhook ingestion

Frontend

- HTML5, CSS3, Vanilla JavaScript - mobile-first, responsive, Low-bandwidth field device optimization

DevOps & Deployment

- Render.com (production deployments) - Nginx, Unicorn, Docker Basics, Git/Github, .env secret management

Libraries & Integrations

- WeasyPrint (server-side PDF generation), Africa's Talking SMS API, Pillow, Requests, SaaS multi-tenant architecture

FEATURED PROJECTS

School Management SaaS System - Sole Architect & Developer

2026

LIVE: <https://school-management-system-final-1.onrender.com/>

- Built a 4-portal multi-tenant SaaS supporting 1,000+ students, JWT RBAC, and real-time data syncing.
- Integrated live M-Pesa STK Push with secure webhooks, idempotent retries, and reconciliation logic reducing payment disputes by 70%.
- Automated generation of hundreds of WeasyPrint PDF report cards per term, including rankings and bulk export.
- Implemented Africa's Talking SMS, enabling 2,000+ automated alerts per batch (fees, attendance, OTPs). Built end-to-end Django/PostgreSQL SaaS platform with 4 isolated role-based portals (Admin, Staff, Student, Parent) and JWT-secured RBAC
- Stack: Python, Django, PostgreSQL, M-Pesa Daraja, Africa's Talking, WeasyPrint, HTML5/CSS3/JS, Render.com

Website Security Audit & Certificate Platform

2025

Personal Project - Python, Flask, PostgreSQL

- Flask/PostgreSQL platform for issuing and managing digital security audit certificates with JWT auth and admin controls

- Server-side PDF certificate generation (WeasyPrint), webhook automation for renewal triggers, full audit trail with timestamp logging

Smart Tap Tots - IoT Device Management

2025

Collaborative Project

- Designed API architecture and PostgreSQL schema for IoT device registration, telemetry ingestion, and data logging pipeline

WORK EXPERIENCE

Software Engineer Attaché - Digital Workflows

Sep 2025 - Dec 2025

Survey of Kenya, Ministry of Lands

- Supported digital workflow implementation and ICT system monitoring for government-scale land survey operations
- Gained exposure to institutional data management systems and government ICT infrastructure

EDUCATION

Diploma in Software Engineering

2024 - 2025

Zetech University

- Data Structures, Database Systems, Web Development, Software Engineering, Networking

Kenya Certificate of Secondary Education (KCSE)

2016 - 2019

St. Bakhita Chuka Girls High School

ACHIEVEMENTS

- Participant, Red Bull Basement - national innovation & entrepreneurship program
- Self-taught M-Pesa Daraja API: sandbox testing through live production migration with full webhook reconciliation

REFERENCES

Calvince Olick | ICT Department, Survey of Kenya | 0728427588 | olickcalvince@gmail.com

Additional references available upon request.