PRINCE MAWUKO DZORKPE

Software and AI/ML Engineer | Forward Deployed and Client-Facing Engineering

+233 246 870 679 | Email | LinkedIn | GitHub | Portfolio

Ghana | Open to remote roles

PROFESSIONAL SUMMARY

Software and AI/ML engineer with 7+ years of hands-on experience, from Python automation and system administration in 2019 to production backends, published mobile apps and LLM-powered products. Recent work includes a multi-tenant microservices backend and an ecosystem of 8 native mobile apps published on Google Play and the App Store for a food-delivery platform, Node.js transaction pipelines that processed 100,000+ payments with zero recorded security incidents, and a multi-model gold-trading engine built as the sole ML engineer.

I work directly with clients and their teams: freelance and consulting engagements for organisations in Ghana, Canada and Equatorial Guinea, covering requirements, build, deployment, handover and ongoing support. That work is backed by startup and entrepreneurship training (KIC, Duapa Werkspace) and by hands-on incident response, including containing a live security breach on a platform I ran alone. I am interested in forward deployed engineering roles and in responsible AI for healthcare, research, environmental intelligence and financial systems.

TECHNICAL SKILLS

Languages: Python, TypeScript, JavaScript, Kotlin, Go, Java, C++, C#, VB.NET, PHP

Backend and APIs: FastAPI, Django, Node.js, Express, REST APIs, GraphQL, gRPC, microservices, API architecture, distributed systems, access control

Data and databases: SQL, PostgreSQL, MySQL, MongoDB, SQLite, Pandas, NumPy, ETL pipelines, data cleaning, validation and quality, data lineage

Mobile: Kotlin, Android Studio, React Native, Expo, Ionic, iOS and Android, cross-platform mobile applications

Web and desktop: React, Tailwind CSS, web applications, CMS development (custom CMS, Joomla), Electron.js, PyQt, Tkinter, VB.NET, C#.NET, internal tools

AI and machine learning: machine learning, deep learning, generative AI, LLMs, NLP, RAG, agentic AI, model and LLM evaluation, AI red teaming, hallucination resistance, MLOps, AI data engineering, human-in-the-loop AI, AI experimentation, time-series and predictive modelling, pattern recognition, CNNs, LSTMs, HMMs

ML libraries: PyTorch, TensorFlow, Hugging Face, scikit-learn, CatBoost, XGBoost

Infrastructure and DevOps: Kafka, Redis, Docker, Docker Compose, Kubernetes, NGINX, AWS, GCP, Linux, VPS and hosting control panel management, CI/CD, GitHub Actions, Git, production deployment, monitoring and automated alerting

Security: cybersecurity incident response, application security, breach containment and recovery, IP-based and geographic access restrictions, honeypot-based threat detection, login monitoring, user authentication and access control, secure coding

Forward deployed and client-facing: requirements gathering, client onboarding and handover, technical consulting, system integration, API contract definition, production deployment and

support, troubleshooting under live conditions, stakeholder and non-technical communication, startup and product thinking

AI evaluation and quality: data annotation, annotation QA, evaluation methodology, error analysis, calibration and review, prompt evaluation, SOP documentation

Tools: Postman, Figma, Jira, Trello, Slack, VS Code, Microsoft 365, Microsoft Access, Visio, Excel, Google Workspace

Professional: technical ownership, remote-first collaboration, technical training and mentoring, cross-functional communication, structured troubleshooting, strategic problem solving, technical documentation, independent work

MOBILE APPLICATIONS

Published on Google Play and the App Store (AhotoEats food-delivery platform, 4 apps on each store):

AhotoEats (customer): Google Play | App Store

Ahoto Riders: Google Play | App Store

AhotoEats Vendors: Google Play | App Store

Ahoto Agents: Google Play | App Store

Demo videos:

Afromart: Customer app | Merchant app | Rider app

Jola: App demo

SOFTWARE AND AI ENGINEERING EXPERIENCE

Senior Machine Learning / AI Engineer (Sole ML/AI Engineer) | SolarAFX AI, Ghana (Remote, Freelance) | Aug 2024 – Present

- Architected and led NEXTMIND, a multi-model trading engine combining CNNs, LSTMs, HMMs and other ML approaches for gold-market analysis, regime detection and trading decisions.
- Designed ML pipelines for financial time-series modelling, pattern recognition, market-regime analysis and prediction, and investigated model degradation and non-stationarity through experimentation and evaluation.
- Researched LLM and agentic AI architectures that combine tools, market context, reasoning and adaptive decision-making instead of relying only on fixed predictive models.
- Designed a conceptual black-box intelligence and deterministic risk-control architecture that separates model reasoning from hard execution policies, risk limits, monitoring and kill-switch mechanisms.
- Led ongoing AI and quantitative research across deep learning, probabilistic modelling, financial markets, autonomous agents and quantitative decision systems.
- Contributed to the technology of a Ghanaian startup that secured $20K+ in investment and banking-related opportunities.

Independent Software Engineer | Boten Ltd, Takoradi, Ghana (Remote) | Feb 2025 – Present

Website: botenltd.com

- Built a responsive web application with a custom CMS and self-service publishing for non-technical editorial staff.

- Achieved 100% direct publishing autonomy for editorial staff and cut content-update turnaround from days to minutes.

Independent Software Engineer / Technical Consultant | AfromartPlus / Afromart, Canada (Remote) | Jan 2026 – Apr 2026

- Designed service schemas, backend data models and API integration patterns for a distributed diaspora marketplace covering merchants, inventory, payments and fulfilment.
- Defined API contracts, data-integrity constraints and integration standards for a fully remote engineering team.
- Standardized core system protocols to reduce data-consistency risk across international payment and fulfilment channels, and contributed to the architecture of the distributed marketplace services.

Lead Software / AI Systems Engineer (Part-Time Startup) | Mpontuo Health Technologies Ltd, Ghana (Hybrid) | 2025 – 2026

Led software and AI systems engineering across healthcare, food-delivery and pharmacy technology platforms.

- Supported an ecosystem of 8 native mobile apps published on Google Play (4) and the App Store (4), plus an Electron-based pharmacy application.
- Engineered a multi-tenant microservices backend (PostgreSQL, Kafka, Redis, NGINX, Docker) that unifies infrastructure across products, with backend services and data flows for multiple tenants and operational workflows.
- Built Bufalo AI (FastAPI, SQL, LLM orchestration) for data extraction, lineage tracking, automated retries and quarantine reprocessing, designed for traceability and failed-data recovery. Contributed to cutting weekly market-research turnaround from about 4 days to real time and to a 4× increase in sales and marketing output.
- Built internal software and desktop tools for different operational use cases with Electron.js, PyQt, Tkinter, VB.NET and C#.NET.

Independent Backend Engineer | Sawtel Ghana / AT Ghana Integration, Ghana (Remote) | 2024 – 2025

- Processed 100,000+ financial and distribution transactions with zero recorded security incidents on high-throughput pipelines connecting airtime and data-distribution platforms with telecom providers.
- Developed Node.js backend services for telecom and digital-distribution integrations, including XML-to-JSON transformation engines for external systems.
- Implemented strict access-control mechanisms and managed VPS production infrastructure.

Independent Software Engineer | EBEYE, Equatorial Guinea (Remote) | 2024 – 2025

Website: ebeye.org

- Engineered and deployed a responsive web application and custom CMS, replacing a developer-dependent publishing workflow with self-service content management.
- Achieved 100% direct publishing autonomy for non-technical staff and cut content-update turnaround from days to minutes.

Junior Software Engineer, CS Department | Takoradi Technical University, On-site | Aug 2024 – Oct 2024

- Contributed to departmental software projects, covering implementation and technical problem-solving.

TRAINING, TEACHING AND TECHNICAL SUPPORT EXPERIENCE

CUA Data Annotation Trainer (Independent Contractor) | Turing.com, Remote | 2026

- Trained and mentored data annotators on CUA guidelines, workflows, annotation standards and quality expectations, through onboarding and continuous training.
- Reviewed annotated data and gave feedback to improve accuracy, consistency and adherence to guidelines.
- Supported annotation QA by finding errors, edge cases, ambiguities and inconsistent interpretations, and worked with QA and project teams to resolve them.
- Created and maintained training materials, SOPs, annotation guidelines and workflow documentation.
- Monitored annotator performance, supported quality evaluations and calibration exercises, and helped with pilot runs and workflow improvements in human-in-the-loop AI data workflows.

React Native Developer and Instructor / Mobile Development and Cybersecurity Mentor | Coding Ladies Academy Ghana, Remote | 2025

- Taught React Native, mobile application development, software engineering principles and secure coding.
- Reviewed learner projects, gave technical code feedback, and mentored students in project implementation and cybersecurity.
- Supported practical workshops and cybersecurity training and awareness activities.

National Service Personnel | IT Support Specialist | Ghana Armed Forces (Ghana Navy), Ghana (On-site) | Oct 2024 – Sep 2025

- Supported workstations, Windows systems, printers, networks, user accounts and business applications, and resolved technical problems to keep operations running.
- Performed system maintenance, backups, access-control procedures and software updates.
- Supported IT equipment inventory, device configuration and deployment.
- Documented technical incidents and resolutions in a structured, security-conscious environment.

System Administrator and Application Developer (Part-Time) | Glory Life Ministry International | Jan 2019 – Dec 2022

- Managed Linux and Windows systems, user accounts, access control, networks, backups and production systems.
- Automated operational tasks with Python and implemented backup and recovery controls.
- Diagnosed and resolved system, network, application and user-access issues.
- Built and ran **Herrnhut MSG**, an internet-based social networking and messaging web solution for the church community, with member communication, group discussions and information sharing, plus an Android app. Sole developer and administrator for over a year, covering

application setup, MySQL databases, hosting, file storage, user accounts and support (PHP, MySQL, Dolphin, JavaScript, HTML; Ionic for the Android app).

- Contained a security breach about three months in, when unauthorized users began posting adult content. Put the platform in maintenance mode for roughly two days, removed the content, reviewed and restricted the affected accounts, and traced the cause to an outdated Dolphin version.
- Hardened the platform after the incident with IP-based and geographic access restrictions, a honeypot to divert suspicious traffic from production, tighter login monitoring and automated alerts for suspicious activity and system faults. Told users about the shutdown and again when service was restored.

Mathematics, Science and Computing Teacher | Joy Academy School | 2020 – 2023

- Taught Mathematics, Integrated Science and Computing to Primary and JHS students and prepared them for the BECE.
- Developed interactive teaching materials and adapted teaching to different learning paces.
- Students achieved Grade 1 results in Computing (95%, 90%) and Mathematics (80%), alongside strong Science performance at BECE.

Information Technology Support Specialist | Duapa Werkspace, Takoradi | Aug 2021 – Oct 2021

- Provided frontline IT support across hardware, software and user systems, and diagnosed technical problems.

LEADERSHIP AND COMPETITIONS

Programming Lead | Google Developer Student Club, Takoradi Technical University | 2023

- Owned the technical direction of the club's programming activities and delivered C++ and Python curricula.
- Led engineering projects, open-source workshops and software architecture tutorials, and mentored student teams through builds and competitions.

Team IT Lead and PR Officer | Kosmos Innovation Center AgriTech Classic, Ghana | 2023

- Coordinated IT logistics, set up the technical infrastructure and provided on-site troubleshooting for the competition.
- Managed team communications, PR, media handling and stakeholder correspondence.

Team Lead, First Place | Takoradi Annual Startup Summit, Takoradi, Ghana | 2022

- Led development of a security application to support emergency response, drove its technical design and pitch, and won first place.

Entrepreneurship Training Participant | KIC (2022, 2024) and Duapa Werkspace (2021)

- Completed programmes on innovation, startup development and practical business problem solving.

SELECTED PROJECTS

- **Koral AI**, interview-preparation agent and job-search assistant (FastAPI, React, TypeScript, MongoDB, RAG): automated interview-intelligence platform with multi-model orchestration, context-aware retrieval and evaluation workflows that give real-time feedback across multi-turn coaching sessions. koralai.online

- **Kejetia.shop**, RAG shopping assistant: conversational e-commerce search using RAG and vector retrieval grounded strictly in live database inventory, built to fix query misunderstandings in keyword search and reduce hallucinated recommendations. kejetia.shop
- **EMITAL**, environmental intelligence, Ghana Statistical Service (CatBoost, IoT sensor feeds): trained by the GSS team on acquiring, cleaning and analysing Statsbank data, then combined GSS national datasets with real-time sensor feeds to produce climate intelligence. Regional Second Place, Ghana Statistical Service Data Hackathon 2024.
- **Predictive Venture Assessment**, PhD research assistance (Python, Pandas, scikit-learn, SQL, NLP, RAG): built a system that combines NLP narrative extraction, RAG pipelines and predictive models to automate risk evaluation and pitch-deck analysis for early-stage startup investments.
- **Biometric fingerprint systems** (ESP32, NodeMCU, C++, PHP, MySQL): built access-control firmware with encrypted communication between components, plus the PHP/MySQL backend and admin tools. Deployed for more than one organisation.

INDEPENDENT RESEARCH

- **CoNET / Colony Network**, agentic AI systems (Python, gRPC): designed a modular protocol for distributed multi-agent ecosystems covering capability discovery, gRPC task delegation, RAG memory and vector search. Published the official CoNET package on PyPI as open-source agent infrastructure. pypi.org/project/colonynet/
- **Native Query Transformation (NQT)**: researched query routing and semantic translation from natural language to optimized database queries, and the token-inefficiency and latency bottlenecks of LLM-to-database interfaces. Documented low-latency query-execution frameworks and published the findings on ResearchGate.
- **AI red teaming, multi-turn truth anchoring**: designed multi-turn stress tests and automated evaluation to measure LLM truth retention and hallucination resistance, investigated the structural causes of conversational drift, and built a repeatable red-teaming framework. Published on LinkedIn: LinkedIn article

EDUCATION

Bachelor of Technology (BTech), Software Engineering | Takoradi Technical University, Ghana

- 2026. Second Class Upper. Coursework and academic requirements completed; formal award pending, expected 2027.

Higher National Diploma (HND), Information Technology | Takoradi Technical University, Ghana

- 2024. First Class (CGPA 4.2/5.00).

Occupational Health and Safety | Jubilee Technical Training Centre, May 2022

RECOGNITION

- COSA Agile Data Hackathon Ghana 2025: Winning Team.
- Ghana Statistical Service Data Hackathon 2024: Regional Second Place (EMITAL).
- Kosmos Innovation Center AgriTech Classic Challenge 2023: IT Lead and Public Relations Officer.
- Takoradi Annual Startup Summit 2022: First Place, Team Lead.

LANGUAGES

English (fluent), Twi (native), Fante (native)