

SOFTWARE & AI/ML ENGINEER

PRINCE MAWUKO DZORKPE

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PROFESSIONAL SUMMARY

Software & AI/ML Engineer with 6+ years of hands-on experience building machine learning models, generative AI platforms, agentic systems, data engineering pipelines, and production backend architecture. Experienced delivering end-to-end technical initiatives across Ghana, Canada, and Equatorial Guinea, transforming ambiguous requirements into scalable software systems.

Specialized in Python, ML/AI data engineering, LLM-powered applications, RAG, NLP, model evaluation, AI experimentation, and production systems. Experienced designing data pipelines, evaluation workflows, retrieval systems, and AI applications, with additional experience in AI data annotation, quality assurance, and human-in-the-loop workflows. Strong interest in responsible AI and applying technology to healthcare, research, environmental intelligence, and other socially beneficial applications.

WORK EXPERIENCE

Turing.com | Remote

CUA Data Annotation Trainer — Independent Contractor (Freelancer)

2026 – Present

- Train and mentor data annotators on CUA project guidelines, workflows, and annotation standards.
- Conduct onboarding and continuous training sessions to ensure annotators understand project requirements and quality expectations.
- Review annotated data and provide actionable feedback to improve accuracy, consistency, and adherence to guidelines.

- Support annotation quality assurance by identifying errors, edge cases, and ambiguities and working with QA/project teams on resolution.
- Create and maintain training materials, SOPs, annotation guidelines, and workflow documentation.
- Monitor annotator performance and support periodic quality evaluations and calibration exercises.
- Assist with pilot runs and workflow improvements, identifying process gaps and recommending operational enhancements.
- Work within human-in-the-loop AI data workflows to support the development and improvement of AI systems.

Mpontuo Health Technologies LTD | Ghana (Hybrid)

Lead Software / AI Systems Engineer (Part-Time Startup)

2025 – 2026

- Engineered a multi-tenant microservices core using PostgreSQL, Kafka, Redis, NGINX, and Docker to unify the backend infrastructure for healthcare, food delivery, and pharmacy platforms.
- Built Bufalo AI using FastAPI, SQL, and LLM orchestration to handle data extraction, lineage tracking, automated retries, and quarantine reprocessing for research teams.
- Designed data processing workflows with emphasis on traceability, reliability, and recovery of failed or quarantined data.
- Supported 8 native mobile apps (4 iOS / 4 Android) and an Electron pharmacy app while reducing weekly market research time from 4 days to real-time, achieving a 4x increase in sales and marketing output.

SolarAFX AI | Ghana (Remote-Freelance)

Senior Machine Learning / AI Engineer

August 2024 – Present

- Sole ML/AI Engineer responsible for the research and development of AI-driven systems for algorithmic Gold trading.

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

Ghana Armed Forces | Ghana (On-site)

National Service Personnel | IT Support Specialist

Oct 2024 – Sep 2025

- Supported workstations, Windows systems, printers, networks, accounts, and business applications.
- Diagnosed and resolved technical problems to maintain operational continuity.
- Performed system maintenance, backups, access-control procedures, and software updates.
- Supported IT equipment inventory, device configuration, and troubleshooting.
- Documented technical incidents and resolutions.
- Worked within a structured and security-conscious environment.

EBEYE | Equatorial Guinea (Remote)

Independent Software Engineer

2024 – 2025

- Engineered and deployed a responsive web application and custom Content Management System (CMS) tailored for non-technical editorial staff.
- Replaced a developer-dependent publishing workflow with direct self-service content management tools.
- Achieved 100% direct publishing autonomy for non-technical staff and reduced content update turnaround time from days to minutes.

AfromartPlus / Afromart | Canada (Remote)

Independent Software Engineer / Technical Consultant

Jan 2026 – Apr 2026

- Designed service schemas, backend data models, and API integration patterns for a distributed diaspora marketplace covering merchants, inventory, payments, and fulfillment.
- Defined API contracts, data-integrity constraints, and integration standards for a fully remote engineering team.
- Standardized core system protocols to prevent data-consistency risks across international payment and fulfillment channels.

Sawtel Ghana / AT Ghana Integration | Ghana (Remote)

Independent Backend Engineer

2024 – 2025

- Developed Node.js backend services featuring XML-to-JSON transformation engines, strict access control, and VPS production infrastructure management.
- Engineered high-throughput transaction pipelines to integrate airtime and data distribution platforms with telecom providers.
- Processed over 100,000+ secure financial and distribution transactions with zero recorded security incidents.

Boten LTD | Takoradi, Ghana (Remote)

Independent Software Engineer

Feb 2025 – Present

- Built a responsive web application with a custom CMS for non-technical editorial workflows.
- Enabled non-technical editorial staff to publish independently.
- Achieved 100% direct publishing autonomy and reduced content update turnaround from days to minutes.

Takoradi Technical University | On-site

Junior Software Engineer — CS Department

Aug – Oct 2024

- Contributed to departmental software projects.
- Worked as a junior software engineer in a practical academic environment.
- Strengthened practical software engineering skills.

Duapa Workspace | Takoradi

Information Technology Support Specialist

Aug 2021 – Oct 2021

- Provided frontline IT support.
- Supported hardware, software, and user systems.
- Diagnosed problems and maintained day-to-day technology operations.

Glory Life Ministry International

System Administrator (Part-Time)

Jan 2019 – Dec 2022

- Managed Linux/Windows, user access, networks, backups, and production systems.
- Automated tasks with Python.
- Implemented backup and recovery controls.

Joy Academy School

Mathematics, Science & Computing Teacher

2020 – 2023

- Taught Mathematics, Integrated Science, and Computing.
- Prepared students for BECE.
- Taught Primary and JHS students using adaptable methods for each learning pace.
- Developed interactive materials.
- Students achieved Grade 1 in Computing (95%, 90%), Maths (80%), and Science at BECE.

Coding Ladies Academy Ghana | Remote

React Native Developer & Instructor / Mobile Development & Cybersecurity Mentor 2025

- Taught React Native and secure coding.
- Reviewed learner work and provided code feedback.
- Supported practical workshops.
- Mentored students in mobile development, software engineering principles, secure coding, project implementation, and cybersecurity.
- Assisted with cybersecurity training and awareness workshops.

Google Developer Student Club, Takoradi Technical University | On-site

Programming Lead

2023

- Owned the technical direction and built a programming curriculum for the club.
- Led engineering projects, open-source workshops, and architecture tutorials.
- Designed a C++ and Python curriculum.
- Mentored student teams through builds and competitions.

Kosmos Innovation Center AgriTech Classic | Ghana

IT Lead & PR Officer

2023

- Coordinated IT logistics and managed team communications and stakeholder updates.
- Set up technical infrastructure and provided on-site troubleshooting.

- Drove PR, media handling, and stakeholder correspondence throughout the competition.

Takoradi Annual Startup Summit | Takoradi, Western Region, Ghana

Team Lead — First Place

2021

- Led the development of a security application aimed at emergency response.
- Drove the design and pitch of the solution.
- Led the team through development of the application.
- Won first place.

Entrepreneurship Training Participant

KIC 2022 / 2024 · Duapa Workspace 2021

- Participated in entrepreneurship development programmes.
- Completed training at KIC (2022, 2024) and Duapa Workspace (2021).

SKILLS

Technical Skills: Machine Learning & Deep Learning, Generative AI & LLMs, NLP, RAG, Model Evaluation, LLM Evaluation, Agentic AI Systems, AI Red Teaming, Hallucination Resistance, MLOps, AI Data Engineering, Human-in-the-Loop AI, Python, Pandas, NumPy, SQL, PostgreSQL, MySQL, MongoDB, SQLite, ETL Pipelines, Data Cleaning, Data Validation, Kafka, Redis, Data Processing, Data Quality, PyTorch, TensorFlow, Hugging Face, Scikit-learn, CatBoost, CNNs, LSTMs, HMMs, XGBoost, TypeScript, JavaScript, Go, Java, C++, C#, PHP, Node.js, FastAPI, Django, Express, REST APIs, GraphQL, gRPC, Microservices, API Architecture, Distributed Systems, Docker, Docker Compose, Kubernetes, NGINX, Cloud & VPS Infrastructure, AWS, GCP, Linux, CI/CD, GitHub Actions, Git, Production Deployment, Monitoring, Data Annotation, Annotation QA, Evaluation Methodology, Error Analysis, Quality Assurance, Calibration & Review, Prompt Evaluation, SOP Documentation, React, React Native, Flutter, Tailwind CSS, Electron.js, Kotlin, Web Applications, Desktop Applications, Mobile Applications, Microsoft 365,

Microsoft Access, Visio, Excel, Google Workspace, Jira, Trello, Slack, Postman, Figma, VS Code.

Soft Skills: Technical Ownership, Remote-First Collaboration, Technical Training, Mentoring, Clear Cross-Functional Communication, Structured Troubleshooting, Strategic Problem Solving, Technical Documentation, Independent Work

PERSONAL RESEARCH & SELECTED PROJECTS

Independent Research: Native Query Transformation (NQT)

- Researched query routing and semantic translation techniques to transform natural-language inputs directly into optimized downstream database queries.
- Addressed token inefficiency and latency bottlenecks in standard LLM-to-database interfaces.
- Published research findings on ResearchGate, contributing novel frameworks for low-latency LLM query execution.

Independent Research: CoNET / Colony Network — Agentic AI Systems

- Designed a modular protocol for distributed multi-agent ecosystems covering capability discovery, gRPC task delegation, RAG memory, and vector search.
- Addressed the lack of standardized communication and memory-sharing protocols in autonomous multi-agent networks.
- Built and published the official CoNET Python package on PyPI as open-source agent infrastructure.

Independent Research: AI Red Teaming — Multi-Turn Truth Anchoring

- Designed multi-turn stress-testing prompts and automated evaluation models to measure LLM truth retention and hallucination resistance under adversarial stress.
- Investigated structural causes of conversational drift in Large Language Models.
- Documented a repeatable red-teaming framework for benchmarking and mitigating conversational hallucinations.

Ghana Statistical Service: EMITAL — Environmental Intelligence

- Trained directly by the Ghana Statistical Service (GSS) team on acquiring, cleaning, and analyzing data from Statsbank.com.
- Combined GSS national statistical datasets with real-time IoT environmental sensor feeds using CatBoost ML models.
- Awarded Regional Second Place at the Ghana Statistical Service Data Hackathon 2024 for transforming raw statistical data into actionable climate intelligence.

Independent Research: KEJETIA.SHOP — RAG Shopping Assistant

- Built a conversational e-commerce search engine using a RAG architecture and vector retrieval grounded strictly in live database inventory.
- Solved natural language query misunderstanding in traditional keyword-based e-commerce search engines.
- Delivered an accurate product discovery assistant that eliminates hallucinated recommendations.

Independent Research: Assisted a PhD Research — Predictive Venture Assessment

- Built a venture assessment system combining NLP narrative extraction, RAG pipelines, and predictive models using Python, Pandas, Scikit-learn, and SQL.
- Automated data-driven risk evaluation for early-stage startup investments.
- Standardized startup pitch analysis through combined statistical modelling and automated pitch deck evaluation.

Koral AI — Interview Prep Agent | Job Search Assistant

- Constructed an automated interview-intelligence platform using FastAPI, React, TypeScript, MongoDB, and RAG pipelines powered by multi-model orchestration.
- Designed context-aware retrieval and evaluation workflows to provide real-time candidate feedback during technical interview preparation.
- Enabled automated interview coaching and real-time candidate evaluation across multi-turn sessions.

Biometric Fingerprint Systems

Firmware & Backend Developer

ESP32 and NodeMCU access-control solutions with C++ firmware, encrypted transmission and PHP/MySQL administration — deployed live to more than one organisation.

EDUCATION

Takoradi Technical University | Takoradi, Ghana

Bachelor of Technology (BTech), Software Engineering
Second Class Upper (3.8/5.00) | 2026

Takoradi Technical University | Takoradi, Ghana

Higher National Diploma (HND), Information Technology
First Class (CGPA: 4.136 / 5.00) | 2024

Jubilee Technical Training Centre

Occupational Health and Safety
May 2022

Entrepreneurship Training

KIC 2022 / 2024 · Duapa Workspace 2021

ADDITIONAL INFORMATION

Languages

English (Fluent) | Twi (Native) | Fante (Native)

Leadership & Recognition

- COSA Agile Data Hackathon Ghana 2025 — Winning Team
- Ghana Statistical Service Data Hackathon 2024 — Regional Second Place

- Kosmos Innovation Center AgriTech Classic Challenge 2023 — IT Lead & Public Relations Officer
- Takoradi Annual Startup Summit 2022 — First Place, Team Lead
- Programming Lead (2023) — Google Developer Student Club: Coordinated practical software projects and mentored student teams.
- React Native & Cybersecurity Tutor (2025) — Coding Ladies Academy Ghana: Delivered remote technical instruction, project review, and secure coding guidance.