FRANK DENISH OMONDI
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## PROFESSIONAL SUMMARY

Electronics & Computer Engineer specializing in AI systems, embedded platforms, and scalable backend infrastructure. Led and delivered 4 production-grade, public-sector–ready systems spanning civic safety, healthcare, automation, and IoT, achieving measurable impact including 90% workflow automation, 35% performance gains, and government-aligned compliance. Strong in FastAPI, React Native, embedded C/C++, and ML deployment, with a proven ability to translate complex engineering into real-world outcomes.

## CORE TECHNICAL SKILLS

**AI & Machine Learning**
LLM Integration (LLaMA, Whisper) • On-device Inference • Model Quantization • RAG Pipelines • NLP (spaCy, Transformers) • ML Governance & Evaluation

**Backend & APIs**
FastAPI • Node.js (Express) • GraphQL • REST • WebSockets • Celery • RabbitMQ

**Frontend & Mobile**
React • React Native • Next.js • TypeScript • Tailwind CSS • Expo

**Embedded & IoT**
C/C++ • Arduino • ESP32 • Raspberry Pi • UART/SPI/I2C • MQTT • Real-Time Systems

**Databases & Data**
PostgreSQL • MySQL • SQLite • Redis • Prisma • SQLAlchemy • pandas

**DevOps & Cloud**
Docker • Kubernetes • Terraform • CI/CD (GitHub Actions) • AWS/GCP • Prometheus • Grafana

**Governance & Standards**
Kenya Data Protection Act (2019) • AI Safety • FHIR • DHIS2 • Audit Logging

## PROFESSIONAL EXPERIENCE

**Freelance Software Developer**
Self-Employed | Remote | Jan 2024 – Dec 2024
• Worked in a distributed 7-person team delivering production web, mobile, and backend systems across multiple industries.
• Reduced critical production defects by 40% through structured debugging, test coverage expansion, and root-cause analysis across Python, Node.js, and React systems
• Improved API response latency by 35% by optimizing database queries, introducing Redis caching, and refactoring backend services
• Cut deployment cycles from ~48 hours to under 4 hours by designing CI/CD pipelines with GitHub Actions and automated testing
• Maintained 99.8% uptime across 5+ production systems using proactive monitoring, logging, and incident response workflows
• Collaborated cross-functionally using Agile/Scrum, JIRA, and Git-based workflows
Tech: Python, React, Node.js, PostgreSQL, Docker, GitHub Actions, Redis, Sentry

**Electronics & Computer Engineering Intern**
Kenya Broadcasting Corporation (KBC) — Nairobi | Apr 2023 – Jun 2023

• Built 3 embedded monitoring prototypes for broadcast equipment, reducing manual checks by 60% and enabling predictive maintenance
• Programmed microcontrollers in C/C++ for sensor data acquisition, control logic, and system automation
• Reduced broadcast downtime by 25% through systematic troubleshooting of network, PC, and peripheral infrastructure
• Supported live radio and TV broadcasting systems, ensuring operational continuity
Tech: Embedded C/C++, microcontrollers, networking, broadcast systems

Broadcast Systems Engineer Intern
Arise Communications Network (Arise Radio 89.5FM) — Homa Bay | Sep 2021 – Nov 2021
• Designed RF communication setups achieving ~95% transmission reliability across the coverage area
• Improved audio clarity through acoustic tuning and signal optimization
• Designed and deployed the organization's first website, establishing a digital presence
• Maintained RF and studio equipment through calibration and fault isolation
Tech: RF systems, signal processing, web development, electronics diagnostics

KEY TECHNICAL PROJECTS
SafeWatch Kenya – AI-Powered Civic Safety Platform
Solo Technical Lead & Architect | Feb 2025 – Present
GitHub: github.com/denishomondi00-create/safewatch-kenya
• Architected a national-scale civic safety system enabling incident reporting via SMS, WhatsApp, USSD, and mobile apps
• Achieved 87% incident classification accuracy using NLP (NER, sentiment, language detection) with automated authority routing
• Designed full Kenya Data Protection Act–compliant architecture (consent, erasure, audit logs, lawful access)
• Built an offline-first React Native app enabling zero-connectivity reporting with automatic synchronization
• Implemented multi-county configuration supporting 47 counties via YAML-based control plane
• Deployed full observability stack with defined RTO/RPO and disaster recovery procedures
Stack: FastAPI, PostgreSQL, Redis, Celery, React Native, Docker, Kubernetes, Terraform, spaCy, Transformers

AfyaOS – Offline-First AI Health Decision Support System
Solo Technical Lead & Architect | Feb 2025 – Present
GitHub: github.com/denishomondi00-create/Afya-OS
• Deployed quantized LLaMA 3.2 (3B) on-device for offline clinical reasoning, achieving 82% diagnostic accuracy on local cases
• Integrated Whisper STT for Swahili/English voice-based symptom capture
• Built national health backend with GraphQL/REST APIs, outbreak analytics, and CHW performance metrics
• Implemented encrypted offline storage, conflict resolution, and OTA model updates
• Established ML governance: model cards, bias checks, validation benchmarks, rollback plans
Stack: React Native, Node.js, GraphQL, PostgreSQL, LLaMA, Whisper, DHIS2/FHIR, Kubernetes

Automation Workflows – Reporting & Data Pipelines | Feb 2025 – Present
GitHub: github.com/denishomondi00-create/automation-workflows
• Automated reporting workflows achieving ~90% time savings
• Built robust data cleaning pipelines improving data quality by ~85%
• Implemented resilient API integrations with retries, batching, and validation
Tech: Python, pandas, NumPy, OpenPyXL, REST APIs, pytest

IoT Monitoring System – Embedded Sensing Platform | Feb 2025 – Present
GitHub: github.com/denishomondi00-create/iot-monitoring-system
• Developed embedded firmware for multi-sensor data acquisition with power-efficient sampling

• Implemented MQTT communication with buffering, achieving 99.9% data delivery reliability
• Built real-time dashboards with alerts, trends, and historical analytics
Tech: ESP32, Arduino, C/C++, MQTT, React, PostgreSQL

## EDUCATION
Bachelor of Technology – Electronics & Computer Engineering
Kirinyaga University | 2018 – 2023
Relevant Coursework: Embedded Systems, Microcontrollers, Signal Processing, Communication Systems, Data Structures, Machine Learning, Control Systems, Software Engineering

## CONTINUOUS PROFESSIONAL DEVELOPMENT
AI Systems Engineering • Cybersecurity • FinTech & Quantitative Finance • Blockchain Systems • Digital Transformation • French (Basic Proficiency)

## PROFESSIONAL ATTRIBUTES
• End-to-end systems thinking across hardware, software, and infrastructure
• Strong regulatory and compliance awareness for public-sector deployments
• Metrics-driven problem solving with demonstrable business and operational impact
• Fast learner with proven adaptability across domains
• Clear technical communicator in cross-functional and remote teams

## COMMUNITY & ACTIVITIES
Volunteer: Kianyaga Children's Home, Embu Children's Home

## REFERENCES
Available upon request