Nicholas Muthoki

Software & Systems Engineer

Technical Research

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PROFESSIONAL SUMMARY

Software and systems engineer working across business systems, automation, backend engineering, applied AI, computer vision, blockchain infrastructure, and data-driven applications. Current work at Ithoka Microsystems spans business systems research, enterprise integration, software engineering, AI, automation, and cryptographic infrastructure. Experienced moving across Python, TypeScript, JavaScript, Go, Rust, and Solidity, with systems ranging from business applications and financial workflows to AI inference, distributed technologies, and cloud-backed services.

TECHNICAL SKILLS

Languages: Python, TypeScript, JavaScript, Go, Rust, Solidity, SQL
Application & Backend: Next.js, React, Django, Django REST Framework, FastAPI, Node.js, Celery, REST APIs
AI & Machine Learning: Large Language Models, Multimodal AI, Computer Vision, YOLO, NLP, RAG, Prompt Engineering, Dataset Preparation, Model Evaluation, Image Processing
Blockchain & Distributed Systems: Solidity, EVM, Solana, Anchor, Smart Contracts, Wallet Infrastructure, Web3 Integrations, Zero-Knowledge / Privacy Systems
Data & Infrastructure: PostgreSQL, Redis, Pandas, NumPy, pgvector, Docker, Docker Compose, Git, Linux
Cloud & Deployment: Google Cloud Platform, Cloud Run, Cloud SQL, Vercel, Render, REST integrations, asynchronous workers
Systems: Business systems, workflow automation, enterprise integration, data processing, auditability, reliability-oriented architecture, technical research

EXPERIENCE

Systems Architect & Enterprise Solutions Consultant Jul 2025 – Present
Ithoka Microsystems Nairobi, Kenya

- Research and engineer business systems, automation, integrations, and technical solutions around real operational requirements.
- Design and develop the Ithoka Business Suite, a business operations system connecting enterprise structure, branches, people, stock, terminals, transactions, and operational records.
- Work across full-stack application architecture using Next.js/TypeScript, Python/Django, PostgreSQL, background services, APIs, and deployment infrastructure.
- Develop financial and AI systems including AutoBooks Finance, combining document processing, accounting logic, structured validation, and workflow automation.
- Work across artificial intelligence, computer vision, blockchain infrastructure, enterprise integration, and systems engineering as required by the problem.

Founder-in-Residence Nov 2025 – Feb 2026
AyaHQ (Techstars '23) × Lisk Incubation Program Accra, Ghana

- Represented HakiChain as its technical lead throughout the incubation program, coordinating technical milestones and keeping engineering work aligned with product and business requirements.
- Designed and implemented decentralized identity and document-management systems for pilot use cases.
- Worked with mentors, investors, and legal-technology practitioners on product strategy, validation, and iteration.
- Combined AI and blockchain capabilities around legal and governance workflows.

Blockchain & Backend Engineer Oct 2025 – Feb 2026
HakiChain Nairobi, Kenya

- Built backend and blockchain infrastructure for HakiChain's legal-technology platform, working across Django, PostgreSQL, Node.js, Ethereum/Lisk, and service-to-service APIs.
- **Juris-Core:** Built the Django REST backend for legal case, document, and legal-corpus workflows, including PostgreSQL/pgvector retrieval, Google Vertex AI integration, asynchronous processing, and blockchain-linked document infrastructure.
- **Node.js Web3 Server:** Built the backend Web3 engine for EVM wallet creation, encrypted key management, Ethereum-to-Lisk bridging, transaction signing, and blockchain RPC operations.

Junior Software Engineer Jan 2024 – Aug 2025
I&M Bank Ltd Nairobi, Kenya

- Designed, implemented, and maintained internal banking applications and services.

- Developed Python and Java microservices for banking operations and internal tooling.
- Assisted with secure API integrations between internal banking systems.
- Improved data-processing pipelines, reducing batch-processing time by 20%.
- Contributed to infrastructure optimization, deployment, migration, and workflow automation initiatives.

SELECTED TECHNICAL WORK

Ithoka Business Suite — Business Systems
Ithoka Microsystems
- Business operations system connecting enterprise structure, branches, people, stock, terminals, and transactions.
- Current work includes architecture, backend services, operational workflows, PostgreSQL data models, integrations, and deployment-oriented engineering.
- View system

AutoBooks Finance — AI & Financial Systems
- Financial system combining multimodal document processing with structured accounting workflows and deterministic financial validation.
- Architecture includes Next.js, Django, PostgreSQL, Google Vertex AI, asynchronous processing, and blockchain integration.
- Repository

Agrosight AI — Computer Vision & Edge AI
- End-to-end agricultural computer-vision platform for crop disease and pest detection with web, API, and messaging delivery.
- Worked across model development, data preparation, inference services, backend APIs, frontend delivery, and deployment.
- Technologies include Python, YOLO, FastAPI, Django, Next.js, PostgreSQL, Redis, Docker, and computer-vision tooling.
- Repository — Model

Nexus Forensic — AI, Data & Compliance Systems
- Forensic and compliance engineering work using constrained retrieval, structured data, and fine-tuned language models to evaluate clinical and procedural events against defined protocols.
- Worked across Python backends, data pipelines, model artifacts, and evidence-oriented system design.
- Model

Camouflage Protocol — Blockchain & Privacy Infrastructure
- Enterprise privacy protocol on Solana using zero-knowledge proofs to protect commercially sensitive blockchain transactions.
- Worked with TypeScript, Solana infrastructure, smart-contract systems, and privacy-preserving architecture.
- Repository

CFO Shield — Secure AI Workflow Infrastructure
- Secure execution layer for AI-enabled business workflows using Go, Next.js, Auth0 Token Vault, and standards-based token exchange.
- Designed to broker access to external business systems while separating workflow automation from privileged credentials.
- Repository

EDUCATION

Egerton University Sep 2019 – Dec 2023
Bachelor's Degree, Entrepreneurial and Small Business Operations

PROFESSIONAL LINKS

Website: nick.ithoka.systems
Ithoka Microsystems: ithoka.systems
GitHub: github.com/Nick-Maximillien
LinkedIn: linkedin.com/in/nicholas-muthoki-5642a7288
Hugging Face: huggingface.co/Nick-Maximillien

ADDITIONAL INFORMATION

- Comfortable working across unfamiliar technical domains and moving between application, backend, data, AI, blockchain, and infrastructure layers.
- Experience working in business, banking, startup, incubation, and independent engineering environments.
- Interested in software engineering, systems architecture, enterprise technology, technical consulting, AI systems, distributed technologies, and automation.