Andile Mbele

Senior Software Engineer / AI Systems, Healthcare, Fintech & Data Infrastructure

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SUMMARY

Senior software engineer and engineering lead with 6+ years shipping production systems across fintech, AI, healthcare, and data engineering. I design and own systems end to end, including double-entry accounting engines, RAG-based AI agents, Go and Rust security tooling, and data pipelines at billion-record scale. I've led engineering across a 40+ repository estate on AWS. I started out building COVID-era healthcare systems for the Victoria Falls Municipality. POTRAZ award winner (2022) and grant recipient for healthcare NLP. PyCon Africa speaker (2024, 2025).

TECHNICAL SKILLS

- **Languages:** Go, Python, TypeScript/JavaScript, Rust, SQL, C++, and Java.
- **Backend & Frontend:** FastAPI, Django, Celery, Node.js, React, Next.js, Vue/Nuxt, Tokio, Gin/Chi.
- **AI & Data:** RAG architecture, LLM APIs (Anthropic, OpenAI, AWS Bedrock), Whisper, NLP, ChromaDB, Pinecone, PyTorch, Pandas, Polars, Spark, Delta Lake, ETL pipelines.
- **Cloud & Platform:** AWS ECS, Lambda, RDS, S3, Cognito, CloudFront, WAF, GCP Cloud Run, GCS, Firestore, Terraform, Docker, Kubernetes, ArgoCD, PostgreSQL, Redis, Supabase, OPA/Rego, Prometheus/Grafana.

EXPERIENCE

ZIMWORX **Harare, Zimbabwe**

Senior Software Engineer – Digital Transformation *Aug 2025 – Oct 2026*

- Architected **Sentinel**, a Go DevSecOps governance platform that scans every organisation repository for supply-chain vulnerabilities, leaked secrets, and CI/CD policy violations using OPA/Rego policy-as-code, with PR checks under 2 minutes.
- Delivered DentalXpert, a Bedrock-powered RCM training simulator for the dental revenue cycle team used by 200+ staff; responses constrained/evaluated by Claude Sonnet and custom-made golden evals.
- Built **Buzz AI**, a RAG-powered IT support agent (FastAPI, ChromaDB, LLM APIs) embedded in Freshservice, cutting ticket resolution time by 40–60%;
- Wrote **NetScout-RS** in Rust (Tokio, raw sockets), a network security scanner matching the incumbent vendor's core capabilities, which gave the business leverage to renegotiate a six-figure annual security licence.
- Built **Project Atlas**, a real-time seating platform replacing spreadsheets for 2,000+ staff across 3 countries comprised of interactive floor maps, 23 seat states, and timezone-aware scheduling.
- Shipped **The Grind**, a multi-branch café POS with atomic checkout, race-safe order numbering, and branch-scoped data isolation; the organisation's most frequently deployed service, monitored with CloudWatch and CloudTrail.
- Own the shared Terraform codebase for all production services (ECS, RDS, ElastiCache, CloudFront, WAF) on a Multi-AZ AWS footprint built for GDPR and Zimbabwe Data Protection Act compliance.

FIFE AVENUE PARTNERS **California, USA (Remote Contract)**

Lead Software Engineer *Oct 2025 – June 2026*

- Sole engineer on a fund administration platform (React, TypeScript, Supabase/PostgreSQL) for private equity fund managers: 83K+ lines of TypeScript across 160+ merged PRs.
- Built a double-entry accounting engine (journal entries, general ledger, chart of accounts, reversals) that rejects unbalanced entries and keeps a complete audit trail.

- Integrated **Plaid** (granting access to over 12,000 US, Canada, UK, and EU banking networks) via Supabase Edge Functions for automated bank reconciliation and real-time transaction tracking.
- Delivered institutional reporting: NAV, P&L, cash flow, trial balance, schedule of investments, and partner capital accounts, exportable to PDF, Word, and Excel.
- Engineered lot-based cost-basis tracking with parent-child lot linkage for accurate FIFO/LIFO gain/loss per tax lot.

DISTRICT 4 LABS **Chicago, USA (remote)**

Data Engineer *Sept 2022 – June 2025*

- Built Python ETL pipelines that cleaned, normalized, and structured 40B+ records for ingestion into Darkside, District 4 Labs' OSINT and investigations platform, including PII extraction.
- Led migration of a 4 TB on-premises warehouse to an AWS lakehouse using S3, Spark, and Delta Lake, reducing query latency by 70% and annual compute costs.
- Automated SQL and CSV ingestion at 1M+ records per hour, reducing manual effort by 80% and increasing pipeline capacity by 40%.

VECTRA DYNAMICS **Harare, Zimbabwe**

Lead Engineer *Mar 2023 – Sept 2025*

- Built and scaled a full-stack property marketplace with 99.9% uptime.
- Re-architected the platform to support 200% traffic growth using load balancing, Redis caching, and a CDN.
- Implemented geolocation and pattern-matching search, alongside RAG-based customer service, automated KYC, and user-behaviour analytics.

SOLUGROWTH **Pretoria, South Africa (Remote Contract)**

Software Developer *Aug 2024 – Dec 2024*

- Built a cloud-native vendor decision engine applying the Analytic Hierarchy Process across 14 weighted criteria, cutting bid-evaluation time by 60%.
- Packaged it as a reusable Django app and REST API adopted by three business units in under 2 days each, saving an estimated $85K/year in consulting spend.
- Designed Celery/Redis scoring pipelines ingesting 10K+ supplier records/hour, with a weighting UI and immutable audit logs meeting King IV and POPIA requirements.

FIRST SOURCE TECHNOLOGY **Bulawayo, Zimbabwe**

Software Engineering Intern *Apr 2020 – Oct 2021*

- Built healthcare systems for the Victoria Falls Municipality during COVID-19, used by hundreds of staff and residents.

RECOGNITION & COMMUNITY

- **POTRAZ Award** (2022) and **POTRAZ Grant** (2025) for a healthcare NLP system that routes patient intent to the right information, pharmacy, or specialist.
- **Speaker**, PyCon Africa (2024, 2025), SAYD Graduation Keynote Speaker(2026), Uncommon.org Guest Speaker (2026)
- **Instructor**, Emzini weCode: teaches the CS7 computer science bootcamp and mentors new engineers.

EDUCATION

Bulawayo Polytechnic – Diploma in Information Technology *2018 – 2022*

Emzini weCode – CS7: Computer Science & Programming Bootcamp *2019*