

LIONEL MUSKWE

Applied AI Software Engineer | Full-Stack Developer | Agentic Systems Engineer

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PROFILE

First-Class Computer Science graduate and full-stack software engineer specialising in applied AI, agentic systems, and SaaS platforms. Builds scalable, well-orchestrated production systems with distributed task processing, containerised deployments, and observability built in. Commercial experience across care compliance, clinical communication training, and dealership software, with a record of bridging architecture, AI engineering, client delivery, and developer leadership.

TECHNICAL SKILLS

AI & Automation Harness engineering, context engineering, prompt engineering, LLM workflow design, RAG, tool calling, human-in-the-loop systems, evaluation rubrics; OpenAI, Claude Code

Backend Python, Django, Celery, Redis, PostgreSQL, REST APIs

Frontend React, Next.js, TypeScript, Material UI, shadcn/ui, Tailwind CSS

DevOps & Cloud Docker, GitHub Actions, AWS EC2/S3, VPS deployment, CI/CD pipelines

Additional C#, ASP.NET Core, Java, PHP, SQL, Postman, Prometheus, Sentry, Grafana, Git

EXPERIENCE

AI Software Engineer & Full-Stack Developer

Nov 2025 – Present

DialogicAI — Aston University-funded medical communication training platform

- Contributing to an AI medical-training tool that simulates patients with complex health conditions, helping medical students prepare for their licensing examinations; now used by 500 enrolled medical students, with a target of 1,200 for year-two deployment following the pilot phase.
- Designed rubric-based evaluation structures covering communication, clinical reasoning, learner reflection, and coaching-style feedback.
- Built backend workflows for reusable rubric packs, scoring logic, and learner performance review, with dynamic prompt construction, prompt versioning, and model-agnostic implementation.
- Engineered safety guardrails that detect, flag, and propagate problematic interactions to administrators, including surfacing learner behaviour requiring educator attention.
- Worked across Django, Next.js, REST API design, LLM-driven feedback workflows, and learner-facing UI.
- Entrusted with a £5,000 infrastructure budget to architect and deploy the platform's DevOps stack, taking the commercial application from development to live production.
- Designed and provisioned the production server infrastructure, including a primary PostgreSQL database with a read-only replica configured for automatic failover to maintain availability if the primary goes down.
- Built the full CI/CD deployment pipeline from pull request through code review to automated build, test, and deployment, and designed stress tests to validate performance and stability under load.

Freelance Software Engineer & Technical Lead

Feb 2024 – Feb 2026

Lead Engineer — Care Compliance SaaS Platform (CCP), multi-tenant production system

- Led development and delivery of a multi-tenant SaaS platform serving 5 UK care agencies, automating onboarding, document processing, audit logging, and reporting, removing manual onboarding processes.
- Improved agencies' CQC inspection readiness by codifying regulatory requirements as enforced business constraints and automatically computing and flagging expiring documents and compliance gaps, replacing reliance on manual tracking and human memory.
- Designed and operated containerised production and staging environments with automated CI/CD, reverse-proxy routing, and environment-isolated configuration, sustaining 99.5% uptime across production.
- Acted as technical lead across architecture decisions, client onboarding, and demos, with direct responsibility for three junior developers.

Software Engineer (Industrial Placement)

Aug 2023 – Aug 2024

Pinewood Technologies — International dealer management software (DMS) provider

- 12-month placement as a junior developer at Pinewood Technologies, a dealer management software (DMS) provider whose platform is used by automotive dealerships all over the world.
- Built and maintained features using ASP.NET, C#, JavaScript, SASS, REST APIs, and internal tooling across multi-module systems including finance-critical workflows.
- Worked across the full software lifecycle: requirement discovery, Agile ceremonies, pair programming, post-deployment testing, and stakeholder collaboration.
- Delivered high-severity solo tickets with increasing autonomy across business-critical modules in the final months of the placement.

SELECTED AI & AUTOMATION PROJECTS

Articulate AI — AI Speech Feedback Platform

React • Django • GPT-4 • Deepgram • Docker

- Built a full-stack AI speech feedback platform integrating Deepgram transcription and GPT-4 rubric evaluation to analyse pacing, clarity, tone, structure, vocabulary, sentiment, and audience engagement.
- Designed persona-based feedback and rubric scoring workflows to help users adapt communication for different audiences.
- Produced structured reports combining objective speech metrics with LLM-generated qualitative improvement recommendations.

Agentic & Automation Systems — R&D Prototypes

Harness engineering • Context engineering • Prompt engineering • Vector databases • LLM tool calling

- Prototyped agentic email triage and document routing applying harness engineering principles: structured tool interfaces, retrieval-augmented context from vector databases, and tool-calling patterns over real operational data. Researched and developed reusable human-in-the-loop integrations.
- Applied LLM model abstraction layers, tool-style interfaces, and guardrail-aware workflows to reduce vendor lock-in and contain LLM behaviour within safe operating envelopes.

EDUCATION

BSc (Hons) Computer Science — First Class

Sept 2021 – July 2025

Aston University, Birmingham

- Key modules: Applied AI, Advanced Databases, Advanced System Security, System Administration, Software Project Management, Full-Stack Web Development, Data Structures and Algorithms.

PUBLICATIONS

Contributing author, *research paper on AI-driven medical communication training (DialogicAI)*. Accepted by the International Conference on AI in Healthcare and scheduled for presentation at Imperial College London, 26–28 August 2026.

LEADERSHIP & COMMUNICATION

- Supported 300+ Computer Science students as an Aston University Teaching Assistant (Sept 2024 – Nov 2025), using live demos, tailored explanations, and feedback across mixed ability levels.
- Held sole responsibility for three junior developers across SaaS delivery work: directing implementation, reviewing code, and owning their performance and progression.
- Led client demos, onboarding conversations, and architectural walkthroughs for SaaS and automation delivery.
- President, Aston University Computer Science Society; previously Captain, Aston Men's First Team Volleyball.

INTERESTS & HOBBIES

Competitive rugby, Sunday football, and strength training 3 times a week. Outside of sport, I enjoy reading up on the latest advancements in applied AI and replicating the solutions in my home lab.