TOBILOLA OGUNBOWALE

Digital Health Solutions Engineer | Laboratory Informatics Specialist

hello@tobiogunbowale.com | (716) 730-0941 | Buffalo, NY | github.com/tobilola

PROFESSIONAL SUMMARY

CAPM-certified project manager with 10+ years managing digital health implementations and laboratory informatics systems. Build production AI systems currently used by research institutions, including full-stack applications with automated CI/CD pipelines. Combine deep healthcare expertise with modern software engineering, machine learning, and DevOps practices. Scaled COVID-19 testing to process 1 million+ samples while maintaining 95% accuracy.

TECHNICAL PROJECTS

Medical AI Agent | *github.com/tobilola/medical-ai-agent*

- Built autonomous AI agent that reasons through clinical questions using multi-step planning and dynamic tool selection
- Created 5 clinical tools: patient data query, PubMed literature search, drug interaction checker, clinical calculators, and SOAP note generator
- Designed agent reasoning loop that breaks complex medical queries into steps, validates results, and self-corrects errors
- Built RAG system with vector database containing medical guidelines and clinical protocols for evidence-based recommendations
- Technologies: LangChain, OpenAI GPT-4, ChromaDB, FastAPI, Streamlit, PostgreSQL

Patient Health Dashboard | *github.com/tobilola/patient-health-dashboard*

- Built responsive patient health tracking platform with React and Firebase for real-time health monitoring and data visualization
- Implemented automated CI/CD pipeline using GitHub Actions with code quality checks, automated testing, and continuous deployment
- Designed interactive data visualizations with 7-day trend analysis for weight, blood pressure, and glucose tracking using Recharts
- Created medication management system with dosage tracking and lab results viewer with automatic status highlighting
- Technologies: React 18, Vite, Tailwind CSS, Firebase Firestore, Recharts, GitHub Actions, Vitest, ESLint

Requiva Lab Management System | *Production System - Currently in Use*

- Deployed lab order tracking platform currently used by Adelaiye-Ogala Lab at University at Buffalo for managing consumables and procurement workflows
- Integrated 5 machine learning models: predictive reordering using time-series analysis, spending forecasts, anomaly detection, vendor recommendations, and bulk order optimization
- Built grant-based spending tracker with audit-ready reporting for NIH compliance, reducing report generation from 2 hours to 5 minutes
- Technologies: Python, Streamlit, Firebase, Scikit-learn, Pandas, Prophet/ARIMA, Render

LIMS-ELN Integration Platform | *github.com/tobilola/LIMS-ELN_Integration*

- Designed middleware platform for bidirectional data synchronization between Laboratory Information Management Systems and Electronic Laboratory Notebooks
- Trained 3 machine learning models: anomaly detection using Isolation Forest, entity extraction with spaCy NER, and compliance scoring for FDA 21 CFR Part 11 requirements
- Built asynchronous data pipelines processing 1000+ samples daily with complete audit trail documentation
- Technologies: Python, FastAPI, PostgreSQL, MongoDB, Redis, Docker, Scikit-learn, spaCy

Regulatory Compliance Tracker | *github.com/tobilola/compliance-tracker*

- Created automated compliance monitoring system with OCR document processing and NLP analysis for pharmaceutical laboratories
- Developed 5 machine learning models including document classifier achieving 94.5% accuracy, compliance scorer, entity extractor, anomaly detector, and text similarity analyzer
- Built real-time dashboard with gap analysis and document expiration tracking for FDA 21 CFR Part 11, GLP, and ISO 17025 standards
- Technologies: Python, Tesseract OCR, Scikit-learn, spaCy, Transformers, PostgreSQL, React

PROFESSIONAL EXPERIENCE

Research Systems Operations Manager
University at Buffalo, Department of Medicine | 2024 - Present | Buffalo, NY

- Design and implement AI-powered systems for laboratory automation including inventory tracking, equipment scheduling, and workflow optimization across $2M+ research portfolio
- Lead cross-functional teams of 15+ across laboratory operations, IT, and research departments to integrate LIS/LIMS with clinical workflows
- Deployed predictive systems that reduced operational costs by 60% while maintaining compliance with IRB, HIPAA, and IACUC standards
- Built analytics dashboards that improved forecasting accuracy by 20% for portfolio resource planning and budget allocation

Graduate Research Assistant - Bioinformatics & Laboratory Informatics
SUNY Center for Excellence in Bioinformatics | Nov 2022 - Dec 2023 | Buffalo, NY

- Designed bioinformatics pipelines using Snakemake and Nextflow on HPC infrastructure, processing large-scale genomic datasets
- Configured LIMS workflows for automated biospecimen tracking, integrating laboratory automation with computational analysis pipelines
- Established quality control procedures for NGS datasets using Seurat, Cell Ranger, and GATK

Digital Transformation Lead
Afri-Global Medicare Limited | June 2020 - Aug 2021 | Lagos, Nigeria

- Led enterprise laboratory transformation during COVID-19 pandemic, processing 1 million+ diagnostic samples while maintaining 95% accuracy
- Achieved 95% user adoption within 6 months on LIS implementation across multi-site diagnostic operations
- Cut diagnostic turnaround time by 35% through workflow optimization and laboratory automation configuration
- Scaled COVID-19 testing operations 300% while maintaining quality control protocols and CLIA compliance

EDUCATION

Master of Science, Biomedical Informatics | University at Buffalo | Dec 2023

Master of Science, Medical Microbiology | University of Lagos | Dec 2016

Bachelor of Science, Microbiology | Redeemer's University | Aug 2012

CERTIFICATIONS

Certified associate in project management (CAPM) | Project Management Institute

TECHNICAL SKILLS

Programming: Python, JavaScript, SQL, Bash, Git/GitHub

AI & Machine Learning: LangChain, OpenAI GPT-4, Scikit-learn, spaCy, ChromaDB, RAG systems, Time-series forecasting, Anomaly detection, NLP

Frontend Development: React 18, Vite, Tailwind CSS, Recharts, Responsive design

Backend Development: FastAPI, Streamlit, REST APIs, Docker, Microservices

DevOps & CI/CD: GitHub Actions, Automated testing, ESLint, Vitest, Continuous deployment

Laboratory Informatics: LIMS/LIS (EPIC Beaker, Cerner, Meditech, Sunquest), Biospecimen tracking, Laboratory automation

Data & Databases: PostgreSQL, MongoDB, Firebase, Redis, Pandas, NumPy, Data pipelines

Bioinformatics: Snakemake, Nextflow, Seurat, Cell Ranger, GATK, HPC computing

Healthcare Compliance: HIPAA, CLIA, FDA 21 CFR Part 11, GLP, ISO 17025, IRB, IACUC

Project Management: CAPM certified, Agile/Scrum, Lean Six Sigma, Risk assessment, Change management