



Abebayehu Alaro Minamo

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● ABOUT ME

I am a Software Engineer and **Gold Medalist** (CGPA 3.94/4.00) from Wolkite University, focused on the critical intersection of **Data Engineering and Artificial Intelligence**. My professional journey at Awash Bank has been defined by building the “plumbing” of national-scale AI: architecting robust data pipelines, harmonizing heterogeneous datasets, and deploying production-grade ML inference systems that serve millions of users.

My vision is to advance sovereign AI infrastructure in Ethiopia by moving beyond experimental models to build reliable, high-throughput data ecosystems. I am particularly interested in **knowledge-driven AI and resource-aware training methods**, ensuring systems remain transparent, efficient, and trustworthy in low-resource environments. The Erasmus Mundus DEAI program is the precise pathway I need to master advanced distributed systems, data governance, and scalable architecture to turn this vision into reality.

● WORK EXPERIENCE

SOFTWARE ENGINEER – AWASH BANK – 14/09/2022 – Current – ADDIS ABABA, ETHIOPIA

- **Data Engineering & Pipelines:** Architected high-volume ETL pipelines to harmonize core banking data with national identity records, establishing a unified “single source of truth” for AI-driven verification.
- **Production AI Systems:** Led deployment of national-scale deep learning models, focusing on model serving infrastructure, latency optimization, and reliability in a regulated financial environment.
- **System Optimization:** Engineered data ingestion workflows that reduced verification errors by **40%** and processing latency by **50%**, directly improving throughput of mission-critical banking services.
- **MLOps & DevOps:** Standardized the development lifecycle by implementing CI/CD pipelines and Dockerized microservices, ensuring reproducible and scalable data products.
- **Leadership:** Directed cross-functional squads and **led development teams for more than four enterprise systems**, bridging the gap between data science prototypes and robust production engineering.
- **Governance & Compliance:** Embedded role-based access controls and audit trails into data pipelines, aligning production AI systems with regulatory standards.
- **Production Scale:** National deployment across all Awash Bank branches, serving **>10,000 daily users** and supporting mission-critical workflows.

SOFTWARE ENGINEERING LECTURER – WOLKITE UNIVERSITY – 01/10/2021 – 01/11/2022 – WOLKITE, ETHIOPIA

- **Academic Delivery:** Taught core courses in Software Engineering and Advanced Computer Science, emphasizing the practical application of theoretical concepts in real-world scenarios.
- **Mentorship & Development:** Mentored undergraduate students in academic research and career planning, helping them navigate the transition from university to the tech industry.
- **Project Supervision:** Guided student teams through the full software development lifecycle in applied capstone projects, fostering innovation and complex problem-solving skills.
- **Community Building:** Organized technical workshops and collaborative coding sessions, cultivating soft skills and teamwork within diverse student groups.

● EDUCATION AND TRAINING

07/11/2017 – 02/09/2021 Wolkite, Ethiopia

BACHELOR OF SCIENCE IN SOFTWARE ENGINEERING Wolkite University

Website <https://www.wku.edu.et/index.php/en> |

Field of study Software and applications development and analysis, Inter-disciplinary programmes and qualifications involving Information and Communication Technologies (ICTs), Database and network design and administration

Final grade 3.94/4.0 | **Thesis** Facial Recognition based Attendance System

● SKILLS

Technical Skills

- **Programming:** Java; Python; JavaScript; TypeScript; SQL; C++
- **Frameworks & Libraries:** Spring Boot; Django; FastAPI; Angular; React; Next.js; NestJS; PyTorch; TensorFlow; OpenCV
- **Data Engineering & MLOps:** ETL design; Data warehousing (SQL/T-SQL); API development; CI/CD (GitLab); Docker; Kubernetes; Microservices; Model serving; monitoring and logging
- **AI & ML:** Computer vision (CNN, Mask R-CNN, MobileViT); OCR; Biometric verification; Transformers; NLP (KenLM, SymSpell); deep-learning optimization
- **Databases & Tools:** Advanced SQL optimization; transactional systems; RBAC; data governance; Jasper Reports; Appwrite; ODOO; cloud-native deployment; GitLab

Professional and Transferable Skills

- **System optimization:** Delivered national-scale systems with **up to 40% improvements** in accuracy and **50% reductions** in processing latency; systems serve **>10,000 daily users**.
- **Leadership & delivery:** Developed and led production of **4+ bank-wide systems**, saving **millions of dollars** and coordinating cross-functional teams in regulated environments.
- **Productization & MLOps:** Built CI/CD pipelines, model serving, monitoring, and rollback procedures to convert prototypes into robust, compliant production services.
- **Compliance & risk management:** Designed solutions that meet regulatory and audit requirements while minimizing operational risk.
- **Teaching & knowledge transfer:** University lecturer with experience mentoring students and running applied workshops to transfer skills to local teams.

● LANGUAGE SKILLS

Mother tongue(s): **WOLATIC** | **AMHARIC**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	B2	B2	B2	B2	B2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

● PROJECTS

01/10/2025 – 15/12/2025

Identity Data Harmonization System — Awash Bank

- Designed a high-throughput data harmonization pipeline to merge disparate datasets — Core Banking KYC (structured) and National ID records (unstructured/biometric) — into a unified identity graph.
- Operationalized a hybrid inference engine using Transformers for semantic text matching and CNNs for biometric verification.
- Optimized SQL queries and API response times, achieving a **50% reduction in processing latency** and a **40% decrease in verification errors**.
- **Technologies:** Next.js, Spring Boot, Kubernetes, Docker, Transformers, CNN, Python, FastAPI, SQL

30/07/2025 – 30/11/2025

PharmAssist — Intelligent Prescription Digitization

- Engineered an end-to-end “OCR-to-Database” pipeline to convert unstructured handwritten prescriptions into structured, queryable healthcare data with **90% accuracy**.
- Built a low-latency FastAPI inference service chaining Mask R-CNN (segmentation) and MobileViT (recognition) for real-time image stream processing.
- Implemented NLP post-processing (KenLM, SymSpell) to clean and validate extracted text against medical dictionaries before storage.
- **Technologies:** PyTorch, Mask R-CNN, MobileViT, OpenCV, KenLM, SymSpell, FastAPI, Python, NLP

01/04/2024 – 30/11/2024

Forex Requisition and Approval System — Awash Bank

- Developed automated connectors to ingest real-time deposit and credit turnover data from the Core Banking System.
- Integrated AI-driven document verification to validate uploaded files at ingestion.
- Streamlined requisition-to-disbursement workflows, achieving a **50% faster turnaround time** for foreign exchange transactions.
- **Technologies:** Spring Boot, Next.js, FastAPI, OpenCV, TensorFlow, Docker, SQL

01/08/2023 – 30/03/2024

Audit Finding Reporting & Management System — Awash Bank

- Centralized fragmented audit data into a single repository covering over **40 audit types**.
- Designed event-driven notification pipelines (SMS/Email) triggered by discrepancies, improving rectification rates by **45%**.
- Implemented granular RBAC to ensure strict data governance and compliance.
- **Technologies:** PrimeNG, Spring Framework, Angular, SQL, GitLab, API Development, Spring Security

10/12/2022 – 20/07/2023

Loan Management System (LMS) — Awash Bank

- Built a loan management system for NGO staff, integrated with core banking systems.
- Implemented real-time notifications, efficient data processing, and advanced role/permission management.
- Delivered advanced reporting capabilities for comprehensive analysis.
- **Technologies:** Spring Framework, Angular, SQL, T-SQL, Bootstrap, GitLab, API Development, Spring Security

Facial Recognition Attendance System (FRAS) — Wolkite University

- Developed a streaming data pipeline using OpenCV and CNNs to detect and recognize multiple faces simultaneously in video feeds.
- Optimized frame processing logic to handle high-velocity video streams, enabling efficient real-time attendance logging.
- **Technologies:** Python, OpenCV, TensorFlow, Django, Deep Learning

● CERTIFICATIONS

Coursera, 07/2021

Neural Networks and Deep Learning

An online course authorized by DeepLearning.AI and offered through Coursera.

Link: <https://www.coursera.org/account/accomplishments/verify/65TXJB5AVHWQ>

Mode of learning: Online

Udacity, 09/2024

Data Analysis Fundamentals

Verified Nanodegree Program Certificate issued by Udacity.

Mode of learning: Online

ICPC, 06/10/2018

International Collegiate Programming Contest (ICPC)

Certificate of Achievement awarded by the Director of ICPC for competitive programming excellence.

● HONOURS AND AWARDS

09/2021

Best Student of the College (Gold Medalist) – Wolkite University

Awarded the Gold Medal as the Best Student of the College of Computing and Informatics with a GPA of **3.94/4.00**.

Recognized for developing the award-winning AI-based web application *Facial Recognition-Based Attendance System*.

● **HOBBIES AND INTERESTS**

HOBBIES AND INTERESTS

- **AI and Data Engineering:** Designing scalable data pipelines, distributed systems, and AI solutions that strengthen national infrastructure and compliance.
- **Knowledge Graphs and NLP Research:** Transforming unstructured data into structured knowledge for transparency, governance, and semantic integration.
- **Productive Sports and Fitness:** Regular tennis, football, and long walks to maintain resilience, teamwork, and focus.
- **Language Learning for Mobility:** Studying French and Spanish to enhance multicultural collaboration during Erasmus mobility and academic exchange.
- **Collaborative Innovation:** Active member of innovation clubs and interdisciplinary forums that generate applied solutions and case studies.
- **Coding and Problem Solving:** Building efficient algorithms and prototypes in Python, C++, and Java; enjoy competitive programming and hackathons.
- **Leadership and Mentorship:** Mentoring students, organizing programming sessions, and running workshops to transfer practical skills.
- **Technology for Social Impact:** Committed to building sovereign, transparent AI ecosystems tailored to Ethiopia's public sector needs.