Bemnet Mussa

Research Engineer & Product Engineer

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EDUCATION

Bachelor of Science in Software Engineering, **March 2023 – July 2027** | **Adama, Ethiopia**

Adama Science and Technology University

- Ranked in the top **3.3%** nationwide among **950,000+** students on the Ethiopian University Entrance Exam.
- Africa to Silicon Valley (A2SV — Google-Backed): Completed **1,000+** hours of intensive training in data structures, algorithms, and system design, solving **1,000+** problems across LeetCode and Codeforces.
- Coursework: Operating Systems, Database Systems, Computer Networks, Distributed Systems, Machine Learning.

PROFESSIONAL EXPERIENCE

AI Research Intern, Synheart AI **June 2026 – Present** | **Hybrid**

- Shipped the production kinematic motion axis for Synheart's human-state engine in **Python**, engineering deterministic threshold rules and an on-device classifier across **4** physical states (sitting, walking, running, cycling) from **50 Hz** mobile accelerometer streams.
- Decoupled physical motion artifacts from emotional heart-rate fluctuations by synchronizing continuous **50 Hz** smartphone IMU telemetry against ground-truth physiological streams, preventing metabolic movement from triggering false affective state transitions.
- Designed and executed user sessions across **60** participants, building automated signal-validation pipelines to collect and clean synchronized physiological and motion data for behavioral heart-rate research.

Head of Education, Africa to Silicon Valley (A2SV) | **Google-Backed** **January 2026 – October 2026** | **Adama, Ethiopia**

- Architected backend system designs, REST API contracts, and **PostgreSQL** schemas across **30** engineers during A2SV's incubation phase, shipping **2** production platforms (SraHub job board and AfyaMind clinic monitoring system) from specification to release.
- Selected from top cohort performers to lead data structures, algorithms, and distributed systems instruction for **30** trainees, conducting **100+** hours of live code reviews, complexity analysis, and technical interview evaluations.

Software Engineering Trainee, **July 2025 – December 2025** | **Adama, Ethiopia**

Africa to Silicon Valley (A2SV) | Google-Backed

- Shipped Lissan AI to production as engineering lead of a **15**-person cross-functional team, directing web, mobile, and backend sub-teams from concept through release.
- Built a real-time voice WebSocket streaming pipeline and concurrent **Go** microservices, automating Docker CI/CD deployments to sustain **98%** uptime and enforcing REST API contracts.

PROJECTS

AI Chronic Disease Management Platform, **July 2026**

Cursor AI Hackathon Ethiopia

- Won **1st** place overall and **1st** in Health & Lifestyle among **55** teams in 24 hours, leading a **5**-person team to ship an end-to-end chronic care platform for diabetes and hypertension management.
- Engineered backend services and LLM integration pipelines in **Python** and **FastAPI** to process longitudinal patient vitals, generating automated clinical views and personalized care recommendations.

Amharic Character Recognition & 3D Model Visualization, **December 2025 – January 2026**

PyTorch, React, Three.js

- Achieved **89%** classification accuracy across **237** handwritten Amharic characters by training a custom Computer Vision Convolutional Neural Network (CNN) in **PyTorch** and shipping it from raw data curation to live web inference.
- Built an interactive 3D activation-map visualizer in JavaScript (**React**, **Three.js**) to render real-time layer-by-layer feature extraction in the browser.

Green Circle, Co-Founder & Lead Engineer **September 2025**

- Placed **2nd** nationally among **300+** teams (and runner-up in the university Data Science competition) by architecting and shipping a full-stack collaboration platform in 7 days.
- Built **30+** REST APIs across **5** concurrent **Go** microservices backed by **MongoDB** and Docker, handling multi-user state synchronization and role-based access control.

SKILLS

Languages: Python, Go, C++, SQL, JavaScript

AI / Machine Learning: PyTorch, Convolutional Neural Networks (CNNs), Computer Vision, On-Device Inference, Signal Processing, LLM Integration

Backend & Frontend: FastAPI, Microservices, Concurrency (Goroutines), WebSockets, REST APIs, React, Three.js

Databases & Infrastructure: PostgreSQL, MongoDB, Docker, CI/CD Pipelines, Git