

ABEMELEK SAMSON ABDUKE

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[LinkedIn](#) | [Portfolio](#) | [GitHub](#) | [Tablo Study](#)

PROFESSIONAL SUMMARY

Software Engineering student focused on building AI-powered products and intelligent systems. Experienced in developing end-to-end applications using Python, FastAPI, Next.js, and PyTorch, from AI research and model experimentation to production deployment. Built multimodal AI applications, agent-based workflows, and machine learning systems while exploring practical applications of artificial intelligence. Seeking Software Engineering or AI Engineering internship opportunities.

TECHNICAL SKILLS

Languages & Frameworks: Python, TypeScript, JavaScript, SQL, FastAPI, Next.js, React, REST APIs

AI & Machine Learning: PyTorch, Transformers, LangGraph, AI Agents, Retrieval-Augmented Generation (RAG), Prompt Engineering, Scikit-learn, LightGBM

Databases & Infrastructure: PostgreSQL, Redis, Qdrant, Docker, Git, GitHub Actions, Google Cloud Platform (GCP), AWS

EXPERIENCE

Founder & AI Engineer | Tablo Study — Addis Ababa, Ethiopia (Jan 2026 – Present)

- Built an AI-powered collaborative learning platform combining real-time voice interaction, visual reasoning, and Socratic tutoring.
- Designed and implemented full-stack architecture using Next.js, FastAPI, LangGraph, PostgreSQL, Redis, and vector databases.
- Developed AI workflows integrating real-time communication, authentication, cloud infrastructure, and intelligent tutoring capabilities.
- Led product development from identifying the problem and designing architecture to deployment, testing, and iteration.

PROJECTS

Cross-Lingual Representation Analysis (Research Project)

Technologies: PyTorch, Transformers, mBERT, NumPy, Pandas

- Investigated how multilingual transformer models represent meaning across languages using mBERT embeddings and representational similarity analysis.
- Built research pipelines to analyze internal model representations using PyTorch, Transformers, NumPy, and visualization tools.

StepIn — AI Career Exploration Platform

Technologies: Next.js, TypeScript, FastAPI, LangGraph, Gemini, PostgreSQL, Redis

- Built an AI-powered platform connecting professionals and students through interactive career exploration experiences.
- Developed multi-agent workflows for journaling, story generation, career profiling, and recommendations.

Exoplanet Classification System

Technologies: Python, FastAPI, LightGBM, Scikit-learn, Pandas, REST APIs

- Built a machine learning API that classifies astronomical signals from NASA Kepler and TESS missions into confirmed planets, candidates, and false positives.
- Developed a FastAPI backend serving predictions from a LightGBM classification model.

EDUCATION

Bachelor of Science in Software Engineering — Sep 2024 – Present

Addis Ababa Science and Technology University — Addis Ababa, Ethiopia

CERTIFICATIONS

Neuromatch Academy — Deep Learning (2026)

Completed advanced deep learning training and conducted research investigating cross-lingual representations in multilingual transformer models.

Power Learn Project — Software Engineering (2025 – 2026)

Completed an intensive software engineering program covering full-stack development, databases, Python, JavaScript, and AI-assisted software development.