

CHRISTINA HAILU



Graduate Student in Computer Science | Software Engineer | Data Engineer

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Education

The University of Texas at Dallas

M.Sc. in Computer Science (Data Science & Intelligent Systems Tracks)

Aug. 2025 – May 2027

Richardson, Texas, USA

Addis Ababa Institute of Technology (CGPA: 3.67/4.00)

B.Sc. in Software Engineering and Computing Technology

Oct. 2019 – Jul. 2024

Addis Ababa, Ethiopia

Technical and Professional Skills

- > **Programming Languages:** Python, JavaScript, TypeScript, Dart, C#, C++, SQL
- > **Cloud & Data Engineering:** AWS (S3, EC2, EKS, Athena, QuickSight, RDS, Aurora, Glue, Lambda), ETL Pipelines (Mage), Data Warehouse Design, Data Lakehouse Architecture, Pandas, NumPy, Redash, PostgreSQL, MongoDB
- > **Machine Learning & AI:** RAG, NLP, TensorFlow, PyTorch, Scikit-learn, NLTK, Prompt Engineering, LLM
- > **Frameworks:** FastAPI, React, Vite, Next.js, Node.js, Flutter
- > **Interests:** Art, Salsa, Violin

Professional & Internship Experience

DATA ENGINEER – KIFIYA FINANCIAL TECHNOLOGY [WORK CERTIFICATE](#)

AI Data Science Team

Oct. 2024 – Oct. 2025

- > **Centralized the company's fragmented fintech data systems** by designing and deploying a **cloud-based data lakehouse architecture** to unify analytics and reporting.
- > **Engineered scalable ETL pipelines** using Mage and AWS (Glue, S3, Aurora) to automate periodic ingestion and ensure reliable data flow across business systems.
- > **Built data-agnostic FastAPI endpoints and an Agentic AI validation system** to verify and enrich incoming datasets, maintaining a unified data entry layer that feeds multiple downstream platforms with clean, ready to use data.
- > **Improved data latency and accuracy**, eliminating discrepancies and reducing reporting time to **under one minute**, enabling a company-wide transition toward data-driven decision making and real-time insights.

RESEARCH ASSISTANT INTERN & DEVELOPER – UNIVERSITY OF MICHIGAN [EVALUATION](#)

Interactive Sensing and Computing Lab (Advisor: Professor Alanson Sample)

Feb. 2023 – Apr. 2024

- > **Project: AI-Enhanced Closed-Loop Communication (AutoCLC) System for Emergency Medicine Training** — developed under the NSF-funded *Multimodal Team Emergency Assessment Measures (mTEAM)* project.
- > **Designed and built AutoCLC, a web-based AI system** integrating data ingestion, automated annotation, and visual analytics to enable real-time detection and evaluation of Closed-Loop Communication (CLC) behaviors in medical team simulations.
- > Developed **Python-based pipelines and multimodal processing modules** to transform audio, textual, and event data into structured communication sequences for downstream analysis by GPT-4.
- > Validated system usability through expert testing, achieving a **76.36 SUS usability score** and demonstrating significant reduction in manual annotation time.

Projects

AI-EMBEDDED CONSTRUCTION EQUIPMENT RENTAL PLATFORM

Capstone Thesis Project – Team Lead & Backend Developer

Oct. 2023 – Jun. 2024

- > Addressed the problem of **inefficient, paper-based machinery rentals** in Ethiopia's construction industry by designing a digital platform that streamlined equipment discovery, bidding, and payments.
- > **Led a 5-member engineering team** to architect and develop a Flutter-based mobile application, and implemented a **modular, microservice-oriented backend** using **Node.js, PostgreSQL, and Render** for scalable deployment and real-time synchronization.
- > Developed a **real-time bidding and secure booking engine** with integrated payments and recommendation and notification module to personalize equipment suggestions and improve engagement.
- > Implemented **Amharic localization**, automated legal contract generation, and **tiered subscription models** to enhance inclusivity and scalability.
- > Strengthened expertise in **system scalability, REST API design, and data-driven personalization** through full-cycle backend development and production deployment.

IMAGE-TO-TEXT MEDICAL TEST ANALYZER

Safaricom Talent Cloud Capstone Project Competition – Backend Engineer

Dec. 2024 – Jun. 2025

- > Addressed the challenge of **manual and fragmented medical report analysis** by engineering an **OCR backend** that digitizes images and PDFs into structured, queryable medical data.
- > Designed and deployed a **modular backend architecture** using **Node.js, and Sequelize ORM**, enabling secure ingestion, indexing, and search of digitized medical test results.
- > Implemented advanced **OCR and metadata extraction pipelines** using **Tesseract.js, pdf-parse, and the OCR.Space API** to automatically identify patient, doctor, and test details from unstructured text.

- › Built robust **authentication and admin management modules** supporting OTP verification, password reset, and access control to maintain privacy and integrity of sensitive health data.
- › Integrated a **Google Maps-based geolocation engine** allowing users to discover nearby diagnostic centers offering specific medical tests in real time.
- › Strengthened skills in **OCR optimization, data modeling, and backend scalability**, applying clean architecture principles to improve performance and maintainability.

AGENTIC INTERACTIVE DATA DASHBOARD

Research Project — Developer

Seasonal

- › Developed an **LLM-powered data dashboard** enabling users to query and visualize structured CSV data through natural language.
- › Built a **FastAPI backend** integrating Groq's Llama-3-70B and **SentenceTransformers (MiniLM-L6-v2)** for semantic search with a **Chroma vector database**.
- › Automated **pandas-based code generation and execution** to extract insights, perform aggregations, and output chart-ready results.
- › Implemented a **survey insight recommender** leveraging LLM reasoning and statistical summaries for patient and clinician datasets.
- › Delivered a fully **agentic system** capable of autonomous reasoning over tabular data, demonstrating expertise in **data pipelines, vector search, and applied GenAI**.

Leadership & Extracurricular Activities

Graduate Student Assembly (GSA) – ECS Liaison

Oct. 2025 – Present

Advocate for ECS graduate students, collaborating with GSA to improve campus-wide graduate engagement and student experience.

Young Leaders Program East Africa – Participant

Apr. 2024 – Jun. 2024

Completed McKinsey's leadership program designed to develop high-potential Ethiopian talent into future leaders.

Assistant Lecturer (Addis Ababa University) [🔗](#) Experience Letter

Feb. 2025 – Jun. 2025

Taught Data Structures & Algorithms and Database to undergrad students.

Online Mathematics Tutor [🔗](#) YouTube [🔗](#) TikTok

Seasonal

Created educational content on YouTube and TikTok, helping 3,000+ students prepare for national math exams.

Community Engagement & Memberships

- › **iFriend Cultural Program, UT Dallas | Sept. 2025 – Present** – Cross-cultural student collaboration and mentorship.
- › **Africa to Silicon Valley (A2SV) | Nov. 2022 – Dec. 2023** – SWE trainee; solved 430+ algorithmic problems on LeetCode, Codeforces, and HackerRank.
- › **Black in AI (BAI) | Mar. 2024 – Present** – Member, Emerging Leader in AI 2024 participant.
- › **SIGCHI (ACM Special Interest Group on HCI) | May 2024 – Present** – Member focused on human-centered AI research.
- › **ALX Africa | Feb. 2022 – Mar. 2023** – Participant in Full Stack Engineering, AI Career Essentials, and ALX Pathway 2024 program.

Poster Presentations

- › **African Undergraduate Research Adventure (AURA) | Jul. 27, 2023** – Presented a poster on the **AI-Enhanced Medical Training Closed-Loop Communication Annotation Tool** at the University of Michigan College of Engineering. [🔗](#) Poster | [🔗](#) Video
- › **E-Health & Artificial Intelligence Symposium (e-HAIL) | Sept. 2023** – Presented research findings on AI-driven medical communication and participated in discussions on Explainable AI. [🔗](#) Poster
- › **AAU 5th Research and Fair Week | May 13–17, 2024** – Presented a capstone project poster on emerging technologies for sustainable socioeconomic development. [🔗](#) Poster

Achievements & Awards

AWS re:Invent 2025 – All Builders Welcome Grant Recipient, Amazon Web Services (AWS)

Dec. 1 – 5, 2025

Eurographics 2025 Widening Participation Scholarship

May 12 – 16, 2025

Awarded by the European Association for Computer Graphics to attend the Eurographics 2025 Conference.

Gary Marsden Travel Awards

Jan. 12 – 15, 2025

The ACM International Conference on Supporting Group Work award.

Cloud Engineering Scholar | Safaricom Talent Cloud Program

Dec. 2024 – Jun. 2025

Selected for a full scholarship to participate in the Safaricom Talent Cloud Program, focusing on cloud computing, AI, and big data solutions.

A2SV AI for Impact Hackathon

Jul. 2024 – Oct. 2024

Selected as one of the top 32 semifinalists, chosen from over 1,110 teams & 4,928 participants.

CVPR'24 Diversity, Equity, Inclusion (DEI) Award

Jun. 17 – 21, 2024

IEEE VR 2024 Diversity, Equity, Inclusion, and Accessibility (DEIA) Grant Awardee

Mar. 16 – 21, 2024

USENIX OSDI'23 Conference Black Computer Science Students Grant Awardee

Jul. 10 – 12, 2023

African Undergraduate Research Adventure (AURA), program participant at the University of Michigan

May 2023 – Sept. 2023

Selected from 194 applications for a total of 16 positions.