Dawit Andargachew Asmare

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MSc Computer Science (AI) student building LLM systems, from hybrid retrieval to self-hosted inference; thesis on LLM safety. Projects in computer vision, speech and robotics. Seeking AI/ML engineering and research roles from April 2027.

Professional Experience

Research Assistant — Padova, Italy
SPRITZ Security & Privacy Research Group — Nov 2025 – Jul 2026
- Designed an LLM pipeline that finds bugs and security vulnerabilities in RFC protocol specifications.
- Benchmarked retrieval-based and reasoning-based LLMs on long technical documents that change over time.

AI/ML Engineer Intern — Padova, Italy
Var Group — Mar 2026 – Jun 2026
- Built a debugging assistant that finds root causes and suggests fixes, on self-hosted GPT-OSS-120B with LangGraph.
- Designed hybrid search combining keyword, semantic and code-structure retrieval to find the context for each issue.
- Cut issue analysis to under 12 minutes per issue and replaced paid LLM APIs with self-hosted inference.

Software Engineer — Addis Ababa, Ethiopia
Africa to Silicon Valley (A2SV) — Jun 2023 – Oct 2024
- Led frontend development for hakimhub.app, a healthcare platform connecting patients, hospitals and doctors.
- Built sign-in, profiles and a real-time symptom chatbot with Next.js, TypeScript, Redux Toolkit and Tailwind CSS.
- Automated end-to-end and unit testing with Cypress and Jest, reducing manual QA.

Software Developer — Addis Ababa, Ethiopia
Addis Finder Trading — Nov 2023 – Feb 2024
- Built a system that automatically detects ads in long audio and video recordings, replacing manual review.
- Used audio fingerprinting to cut several minutes of manual work per recording to about a minute.

Education

MSc Computer Science (Artificial Intelligence), GPA 27/30 — Padova, Italy
University of Padova — Oct 2024 – Apr 2027
- Thesis: Safety control for LLMs with probabilistic circuits

BSc Computer Science, GPA 3.79/4.0 (Very Great Distinction) — Addis Ababa, Ethiopia
Addis Ababa University — Oct 2019 – Jul 2023

Competitive Programming and Problem-Solving — Addis Ababa, Ethiopia
Africa to Silicon Valley (A2SV), Google-backed software engineering academy — Feb 2023 – Oct 2023
- Solved 620+ LeetCode and 100+ Codeforces problems – *LeetCode profile*

Research and Projects

3D Ear Landmark Extraction, Huawei Munich Tech Arena — Aug 2026 – Sep 2026
- Built a system that finds 85 ear landmarks on 3D head scans, to personalise spatial audio.
- Located 15 key points with an ensemble of three deep learning models, then traced 70 more along the ear's curves.
- Reached 1.25 mm mean error and ranked 12th of 38 teams in a challenge aimed at PhD-level researchers.

Speaker-Aware Meeting Transcription — Jul 2026 – Present
- Building, from scratch, a system that turns meeting recordings into transcripts showing who said what.
- Chose each part (speech detection, speaker recognition, clustering, transcription) through experiments.
- Reached 28.4% DER and about 26% dev WER on meetings with speakers never seen in training.

Autonomous Pick-and-Place on a UR5 Arm — Jan 2026
- Built a system where a simulated UR5 arm finds two cubes by their AprilTags and swaps them between tables.
- Split the task into pick, place and return-home steps, with a behaviour tree deciding what runs next.
- Reached a 75% task completion rate, with failed picks and places retried automatically.

Depth-Only Image Classification for Privacy — Mar 2025 – Jun 2025
- Tested whether networks can classify objects from depth images alone, which hide faces, colours and textures.
- Adapted four pretrained networks (AlexNet, VGG19, ResNet50, Inception-v3) to real and estimated depth.
- Reached 92% accuracy on real depth scans of 51 object types and 49% on 1,000 ImageNet classes.

Skills

- **Languages**: Python, C++, Java, JavaScript/TypeScript, SQL, C#
- **AI / ML**: PyTorch, TensorFlow, scikit-learn, Hugging Face, OpenCV, LLMs, NumPy, pandas, LangGraph, LangChain, RAG, Ollama, Sentence-Transformers
- **Backend & Databases**: Node.js, Express.js, NestJS, Flask, FastAPI, GraphQL, MongoDB, MySQL
- **Frontend**: React, Next.js, Angular, Vue.js, Redux, Tailwind CSS, MUI, Jest, Cypress
- **DevOps & Cloud**: Docker, Jenkins, GitHub Actions, GCP, Linux, Git
- **Robotics**: ROS 2, MoveIt 2, Nav2, Gazebo, Behavior Trees