

Ayda Sultan

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EDUCATION

Addis Ababa University

Bachelor of Science in Software Engineering

Addis Ababa, Ethiopia

Sept. 2018 – July 2023

EXPERIENCE

Software Engineer

Gebeya Talent

May 2024 - Ongoing

Addis Ababa, Ethiopia

- Write complex SQL queries to extract, analyze, and transform large datasets for client's business intelligence and application functionality
- Collaborate with UX designers and front-end developers to translate user-centered designs into functional interfaces

Research Intern

KAUST (King Abdullah University of Science and Technology — PRADA Lab)

Oct. 2023 – March 2024

Thuwal, Saudi Arabia

- Implemented and trained concept bottleneck models on the CUB dataset and analysed the robustness of concepts learned
- Tested the interpretability of sparse representations created from the continuous hidden states of transformer models by mapping them to annotated concept sets
- Studied methods for removing harmful concepts or biases from models while maintaining model performance

Research Assistant

University of Michigan — FAIL Lab

May 2022 – May 2023

Ann Arbor, MI, United States

- Implemented and trained UNet and HRNet models for hand and object segmentation using PyTorch and NumPy
- Improved model generalization across datasets with different data distributions
- Analyzed around 700K images and masks from egocentric and exocentric datasets, identified hidden model biases and used image augmentation techniques to mitigate these biases
- Achieved comparable hand and object segmentation performance to Meta's Segment-Anything Model (SAM) using less than 90% data

Software Engineering Intern

Ministry of Innovation and Technology

March 2022 – May 2022

Addis Ababa, Ethiopia

- Developed an application to collect data of 500 various Amharic letter hand writings
- Implemented simple MLPs to train models to recognize handwritten Amharic letters
- Built a web application that takes users handwriting and converts them to a printed format using Flask and Python

PUBLICATIONS

Reasoning-Driven Jury System for LLM Evaluation — *Extended Abstract*

NeurIPS Workshops 2024

Towards A Richer 2D Understanding of Hands at Scale

NeurIPS 2023

PROJECTS

LLM Diversity Evaluation — Cohere for AI Community Research

November 2024 – Ongoing

- Investigating the diversity of outputs generated by different LLMs
- Exploring methods to enhance lexical and semantic diversity in creative writing generated by LLMs

Revisiting Historical AI Algorithms — Personal Project

August 2024 – Ongoing

- Wrote and open-sourced the first implementation of the Georgetown experiment
- Wrote a blog post about implementation details and the motivation for the experiment
- Open-sourced a Python implementation of the first chatbot — ELIZA

Modernizing Public Security Systems — Bachelor's Project

January 2023 – July 2023

- Conducted extensive literature review concerning effective and efficient strategies to identify anomalies from real-time video data
- Implemented convolutional auto encoders and LSTMs for video anomaly detection and achieved < 1 AP false negatives when detecting anomalies
- Created a web application to display live detections of anomalous behaviour from incoming video data

AWARDS

NeurIPS 2024 WiML Travel Grant	September 2024
AURA program scholar (8% selection rate) — Awarded \$7,500 to participate in a research program sponsored by Google, Arm and Intel	March 2022

SKILLS

Languages/Libraries: Python, Flask, PyTorch, NumPy, Matplotlib, SQL
Soft Skills: Academic Writing, Attention to detail, Critical Thinking

VOLUNTEER EXPERIENCE

Served as a reviewer for WiML workshop collocated with NeurIPS 2024	September 2024
Conducted a workshop on the historical development of AI algorithms for ALX students	March 2024