Ephrem Alemayehu

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Home: Addis Ababa (Ethiopia)

ABOUT ME

Highly motivated and dedicated software engineer specializing in the AI stream with a strong foundation in robotics. Demonstrated expertise as an intern and research assistant in the Robotics Department at the University of Michigan. Proficient in both front-end and back-end development for mobile and website applications, leveraging skills in data structure, algorithms, and problem solving. Adept in machine learning and experienced in building models. Striving to become a collaborative team player, able to effectively communicate and collaborate with colleagues to achieve project goals. Passionate, dedicated, and consistently driven to excel in the field of AI and software engineering.

WORK EXPERIENCE

Co-founder/ Web developer

Addis Ababa University [01/01/2024 – Current]

City: Bishoftu | **Country:** Ethiopia

Link: https://github.com/Ephrem758/Cowsville

• Co-Founder & Full-Stack Developer of Cowsville: spearheaded product vision and technical execution for a precision dairy-management platform.

• Designed and developed a Django back-end and a React.js front-end that communicate via RESTful APIs to optimize dairy production and herd management by analyzing cow behavior and external factors.

• Implemented predictive analytics for fertility tracking, reproduction optimization, and efficient resource allocation, boosting overall farm productivity.

• Integrated a real-time alert system (via WebSockets and SMS APIs) to notify farmers and veterinarians about critical events ensuring timely interventions in health, reproduction, and feeding schedules

• Developed and deployed ODK forms for bi-weekly and monthly data collection, allowing farmers and veterinarians to input and track details on heat signs, pregnancy, calving, health status, daily feed, housing, and external influences.

• Built a responsive React dashboard for real-time tracking of farm data, cow population, reproduction cycles, feed metrics and visualized insights through charts and interactive components.

• Created a fertility-window graph component in React, visualizing probability zones for breeding success based on cow heat cycles.

• Engineered dynamic search functionality in React to filter farms and animals, fetching data from external APIs (e.g., KoboToolbox) and Django API, improving accessibility and operational efficiency.

• Infrastructure Prepared: Procured and configured a Linux server on Yegara Host in anticipation of production deployment.

Software Engineer/ Research Assistant Intern

University of Michigan [14/05/2023 – 01/09/2023]

City: Ann Arbor | **Country:** United States | **Website:** https://aura.engin.umich.edu/ | **Email address:** AURA-info@umich.edu | **Name of unit or department:** Robotics Department

Link: https://drive.google.com/file/d/1PVKLt-hj8SRWoCN33Xq4FkgVtOz4dP0C/view , https://youtu.be/ggjM2SJpuxI?si=3ZgMt70zziAdFvrQ

• Worked as research assistant on Automated planning and acting project led by prof. Dawn Tilbury and prof. Kira Barton with the help of PHD students Tyler Toner and Abigail Rafter in robotics department, university of Michigan.

• Used AIMA python library to devise and write a Graph Plan algorithm that is to be used in the research process

• Developed algorithms to find optimal paths, states, and actions for robots, integrating data from camera sensors, environmental factors, and other sources to create efficient autonomous manufacturing processes

• Developed multiple algorithm, tested and created a benchmark to identify the best possible path, state and action that result to increased efficiency and reduced time and cost.

• conducted collaborative research on the use of Computing and networking technologies in manufacturing systems, to help determine how to best leverage the vast amounts of data coming from the factory floor, build models of the system operation, predict future outcomes, and adapt the system to disruptions, improving productivity and quality, thereby reducing costs for consumers.

• worked in lab with both additive (3D printing) and subtractive (CNC machining) processes, several collaborative robots, and high-performance simulations.

• Collected data from machines and robots that will be used to build models that can be encapsulated in "digital twins" which can improve overall system operations.

• Had a first hand experience on how a research is conducted and assisted and conducted an ongoing research and ultimately got the opportunity to present my work at The African Undergraduate Research Adventure (AURA) program seminar with the presence of different pioneers and professors from multiple fields.

Full-Stack Developer

Sona Techno [01/02/2023 – 04/02/2024]

City: Addis Ababa | **Country:** Ethiopia

• Django-based college management system featuring both server-rendered UIs and RESTful APIs to facilitate seamless student–teacher interactions.

• Implemented role-based authentication with a unified login portal for students, teachers and admins using Django's built-in auth system.

• Built core modules for attendance tracking, marks management and timetable scheduling—complete with a custom Django Admin action that resets attendance records over any specified date range.

• Exposed CRUD operations on Students, Teachers, Departments, Courses and Classes via Django REST Framework, laying the foundation for future integrations.

• Designed responsive front-end interfaces with Django templates, SCSS and vanilla JavaScript—delivering intuitive dashboards for marking attendance, entering grades and viewing timetables.

Web developer

Free Lancer (Djinni) [01/03/2022 – 10/08/2022]

City: Addis Ababa | **Country:** Ethiopia

• Built a simple, ready-to-go e-commerce site using Django, SQLite and Bootstrap.

• Designed Product and Offer models and tweaked the Django Admin so store owners can add products, set discounts and run promotions without touching code.

• Created a mobile-friendly storefront with Bootstrap cards and grids—complete “All Products” and “New Arrivals” pages showing images, prices and “Add to Cart” buttons.

• Built a session-based shopping cart and order summary pages, with placeholder checkout endpoints that can be hooked up to Stripe, PayPal or any payment gateway.

• Kept deployment simple by sticking to Django defaults and using SQLite, letting you launch the app on any Linux server or PaaS with zero extra setup.

Software Engineer

African to Silicon Valley [01/12/2022 – 30/12/2023]

City: Addis Ababa | **Country:** Ethiopia | **Name of unit or department:** Software Engineering

Link: https://leetcode.com/u/Ephrem_alemayehu/

• worked as an intern and student in A2SV Improved my data structure and algorithm skills and my soft skills through sedulous training.

• Worked on multiple projects including mobile development and website design development

• Worked on increasing my problem solving skill with A2SV's education system that involves solving Leetcode, Codeforce, Hackerrank and other platform's problems.

EDUCATION AND TRAINING

Bachelor of Science in Software Engineering and Computing Technology (Artificial Intelligence stream)

Addis Ababa University [01/09/2019 – 05/07/2024]

City: Addis Ababa | **Country:** Ethiopia | **Website:** https://aau.edu.et/ | **Level in EQF:** EQF level 6

LANGUAGE SKILLS

Mother tongue(s): Amharic

Other language(s):

English

LISTENING C2 **READING** C2 **WRITING** C1

SPOKEN PRODUCTION C1 **SPOKEN INTERACTION** C1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

SKILLS

Python, Django, Django Restful api / React JS/ React Native / Algorithm and DataStructure / FrontEnd: HTML, CSS, JavaScript / mobile application developer / flutter Developer / ROS(robot operating system) / Machine Learning / Deep Learning