

ABEL MULAT

AI/Software Engineer

+251 911 677 687 | mulatabel0@gmail.com | linkedin.com/in/abel-mulat-517b23297 | Addis Ababa, Ethiopia

PROFESSIONAL PROFILE

AI Engineer with a strong full-stack software engineering foundation, building production-oriented LLM, speech-to-text, and document intelligence applications. Experienced with TypeScript, Next.js, NestJS, Supabase/PostgreSQL, Deepgram, OpenAI, Anthropic Claude, LangGraph, and vector search. Skilled in designing end-to-end AI workflows spanning audio and document ingestion, structured extraction, retrieval-augmented generation (RAG), streaming chat, authentication, and responsive product interfaces.

AI & SOFTWARE ENGINEERING STACK

- **Languages:** TypeScript (Advanced), JavaScript, Python, SQL, C++
- **AI & LLM Engineering:** Deepgram, LangSmith, LangGraph, Vercel AI SDK, RAG, Embeddings, Structured Outputs
- **Frontend:** React 19, Next.js 15, Tailwind CSS, ShadCN UI, Radix UI
- **Backend, Data & Tooling:** NestJS, Node.js, PostgreSQL, Supabase, pgvector, Prisma ORM, Redis/Bull, Clerk, Zod, Git, GitHub, Docker

PROFESSIONAL EXPERIENCE

Addis Ababa Innovation and Technology Development Bureau

Frontend Developer Intern | June 2025 – September 2025

- Developed and deployed responsive frontend architectures for a government-wide social welfare management system using React, Next.js, Tailwind CSS, and ShadCN UI.
- Engineered reusable UI components, complex data-entry forms, and interactive dashboards, significantly improving system maintainability and UI consistency across the platform.
- Integrated frontend modules with backend REST APIs to facilitate secure beneficiary registration, incident reporting, and case management workflows.
- Contributed heavily to critical operational modules including women's affairs, adoption services, disability support, and civic association management.
- Collaborated in an Agile environment using Git/GitHub for version control, strict branch management, and merge conflict resolution within a cross-functional engineering team.

TECHNICAL PROJECTS

Meeting Intelligence System | Next.js, TypeScript, NestJS, Deepgram, Anthropic Claude, Clerk

- Built an AI-powered meeting intelligence platform that converts uploaded meeting audio into searchable transcripts, concise summaries, key decisions, and structured action items.
- Integrated Deepgram speech-to-text with LLM-based post-processing to transform unstructured conversations into actionable meeting outputs.

- Structured action-item extraction into task, owner, due date, and priority fields, with validation for reliable downstream use in the product UI.
- Implemented Clerk authentication and a compact ShadCN-based meeting dashboard with tabbed transcript, summary, and action-item views plus toast-driven feedback.

AI Operations Assistant / *Next.js, TypeScript, Supabase, PostgreSQL, pgvector, OpenAI, Vercel AI SDK*

- Built a bilingual English/Amharic document intelligence assistant for Ethiopian SMEs to work with invoices, receipts, PDFs, images, and expense records through natural-language interaction.
- Developed document ingestion workflows with drag-and-drop uploads, OCR/text extraction, chunking, storage, streaming chat, and persistent conversation history.
- Implemented automated expense summaries covering totals, vendors, date ranges, and categories to turn uploaded business documents into structured financial insights.
- Designed a retrieval-augmented generation architecture using Supabase PostgreSQL, pgvector, and OpenAI embeddings to support grounded document question answering.

Women, Children & Youth Affairs Management System / *Next.js 15, React 19, TypeScript, PostgreSQL*

- Designed and developed a comprehensive, full-stack management platform to support multiple user roles including super admins, bureau heads, and social affairs officers.
- Engineered 7+ specialized modules — including Adoption Management, Complaints, Applicant Portals, and Care Centers — to streamline complex government case handling and service delivery.
- Implemented strict JWT-based authentication, role-based access control (RBAC), secure form validation using Zod and React Hook Form, and full multilingual support via next-intl.
- Built a highly capable Super Admin dashboard featuring audit logs, automated backups, PDF viewing, drag-and-drop file uploads, and real-time operational notifications.

LearnLink: Real-Time Virtual Learning Platform / *Next.js 15, PostgreSQL (NeonDB), Socket.io, LiveKit*

- Engineered a full-stack, collaborative virtual learning platform allowing users to create multi-channel workspaces and virtual classrooms similar to Discord.
- Implemented a high-performance real-time chat system utilizing Socket.io and UploadThing to support seamless file, image, and GIF sharing between students and instructors.
- Integrated the LiveKit SDK to support ultra-low-latency live video and audio streaming, equipping virtual classrooms with complete camera, microphone, and session controls.
- Architected a secure database schema using Prisma ORM and deployed robust authentication and authorization flows utilizing NextAuth v5.
- Designed a polished, mobile-responsive UI with Tailwind CSS and Radix UI, complete with native dark/light theme support.

EDUCATION

Addis Ababa Science and Technology University

Addis Ababa, Ethiopia

Bachelor of Science in Software Engineering / *Graduated: June 2026*

- Select Coursework: Data Structures and Algorithms, Systems Analysis and Modeling, Object Oriented Programming