

MALAK HUDROJ

Junior Software Engineer | AI & Backend Systems

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PROFESSIONAL SUMMARY

Computer Science graduate focused on AI, backend engineering, and production-style full-stack systems. Built end-to-end projects using FastAPI, Django REST Framework, Next.js, Celery, Redis, PostgreSQL, Docker, RAG, Whisper, embeddings, and LLM APIs. Strong hands-on experience with asynchronous job pipelines, vector search, role-based access control, authentication, cloud deployment workflows, and AI automation concepts.

PROJECT EXPERIENCE

Verified Care Platform

Deployed Project | Vercel Frontend

Next.js, TypeScript, Django REST Framework, PostgreSQL, Celery, Redis, Docker, Nginx, Gunicorn, Sentry, Scikit-learn

- Built a production-oriented healthcare platform for secure doctor verification, patient consultation workflows, and symptom-based specialty routing.
- Implemented role-based access for Admin, Doctor, and Patient users, including onboarding, verification approval/rejection, consultations, notifications, and audit logs.
- Developed REST APIs, PostgreSQL data models, JWT authentication flows, async background tasks with Celery/Redis, and a Next.js dashboard UI.
- Prepared production deployment structure with Docker Compose, Nginx reverse proxy/SSL setup, Gunicorn, environment-based settings, structured logging, and Sentry monitoring.
- Configured SMTP-based email verification/reset workflows; production email confirmation is implementation-ready pending a verified sending domain.

AI Video Note Extractor & Ask-Video RAG System

Personal AI Product

FastAPI, Celery, Redis, PostgreSQL, pgvector, Next.js, faster-whisper, yt-dlp, OpenAI/Ollama, text-embedding-3-small

- Built an AI pipeline that accepts a YouTube URL, downloads audio, transcribes with Whisper, chunks the transcript, summarizes content, and extracts chapters/action items.
- Separated API request handling from heavy processing using Celery workers and Redis queues, with progress tracking, retries, and clear job lifecycle states.
- Implemented idempotency using a video fingerprint and processing parameters to prevent duplicate jobs and wasted compute when users submit the same video twice.
- Built lightweight RAG for ask-video Q&A by embedding transcript chunks, storing them in pgvector, retrieving relevant context, and generating grounded answers.

Logic-Augmented AI Chatbot & Domain Assistant

Personal AI Project

Python, Hugging Face Transformers, PyTorch, LangChain, Gradio, Embeddings, OpenAI APIs

- Built a hybrid chatbot that routes messages through memory, deterministic rules, semantic intent matching, and LLM fallback instead of sending every request directly to an LLM.
- Fine-tuned a pre-trained language model on cleaned domain data and added rule-based logic for exact answers such as contact information, hours, and location.
- Created modular components for routing, memory, rules, intent matching, LLM fallback, UI, and logging to improve reliability, explainability, and maintainability.

TECHNICAL SKILLS

Languages: Python, Java, C, C#, C++, JavaScript, TypeScript, PHP, SQL

Backend/Web: FastAPI, Django REST Framework, Node.js, Express.js, Next.js, React, REST APIs, JWT, Gradio

AI/Automation: RAG, embeddings, vector search, Whisper/faster-whisper, OpenAI/Ollama APIs, Hugging Face, PyTorch, LangChain, Scikit-learn, prompt engineering, n8n, Retell AI

Databases/Cloud: PostgreSQL, pgvector, MySQL, MongoDB, Redis, Celery, Supabase, Docker, Docker Compose, Vercel, Render, Nginx, Gunicorn, Sentry

Integrations/Tools: Git, GitHub Actions, SMTP, Brevo, Postmark transactional email concepts, API integrations, Linux basics

ADDITIONAL PROJECTS

Smoking Prediction System: Built and evaluated ML classification models using Python, Scikit-learn, Pandas, NumPy, accuracy, precision, recall, and confusion matrix analysis. **Online Shopping System:** Developed PHP/MySQL e-commerce features including authentication, sessions, cart, checkout, order storage, and admin CRUD.

Airline DB / Hotel Management: Designed ERDs, relational schemas, constraints, SQL queries, UML diagrams, and technical documentation.

EDUCATION

Lebanese International University (LIU) - Bachelor of Science in Computer Science | Graduation: June 2026

LANGUAGES

Arabic: Native | English: Proficient