

# Mostafa Dawi

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## Skills

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- Back-End: FastAPI, Express.js, Flask, Spring Boot, Supabase
- Database: SQL Server, MySQL, PostgreSQL, MongoDB
- AI & Computer Vision: GroundingDINO, SAM, CLIP, Scikit-Learn, TensorFlow, Sentence Transformers, Qdrant
- Front-End: React.js, Tailwind CSS, TanStack Query, Recharts.js
- DevOps & Tools: VSCode, Cursor, Docker Compose, Git, Jira

## Experience

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### **AI/Software Engineer – Freelance AI Project | October 2025 – Present**

*Object-Level Image Retrieval & Matching System | GroundingDINO, SAM, CLIP, Qdrant, FastAPI, Cursor, Docker*

- Built a scalable object-level, view-invariant image embedding and retrieval system inspired by Google Lens.
- Used GroundingDINO + SAM for region-level object extraction and segmentation with high accuracy.
- Designed a hybrid global + local embedding pipeline using CLIP for scene-level similarity and patch-level similarity.
- Implemented rotation-, scale-, and perspective-invariant matching through multi-view augmentations and CLIP normalization.
- Indexed object embeddings in Qdrant with payload metadata, enabling fast vector search and object-specific retrieval.
- Used Cursor with advanced AI models to accelerate development, autogenerate API scaffolding, and assist with model experimentation.
- Created a FastAPI inference service for object detection, embedding generation, and vector search.
- Benchmarked different similarity strategies (cosine, HNSW, filtered search), improving retrieval accuracy across varying angles and lighting conditions.

### **AI/Software Engineering Intern – UniMade Solutions (Beirut, Lebanon) | August 2025 – October 2025**

*Building Financial Conversational AI System | OpenAI, LLM, React, FastAPI, MySQL, SQLAlchemy*

- Fine-tuned a DistilBERT transformer for domain-specific intent classification with high accuracy.
- Designed intent mapping system to structure schemas, filters, and rules for LLM prompting.
- Created LLM agents for SQL generation and data summarization, reducing manual query effort.
- Implemented a hybrid chatbot pipeline handling both MySQL queries and API integrations based on user intent.
- Developed a full-stack conversational app (React frontend, FastAPI backend) with real-time streaming UI.

### **Software Engineer & Team Lead – TechTalks Community Internship (Remote) | June 2025 – August 2025**

*AI-Powered Career Recommendation Platform | FastAPI, PostgreSQL, Qdrant, Docker, JWT, OAuth2, SQLAlchemy*

- Led team of 5 to develop a microservices-based career matching platform using FastAPI and Docker Compose
- Managed, tracked and planned team work using Jira, resulting in 50% more effective collaboration and productivity
- Integrated five core services: user and auth (JWT/OAuth2), embedding (all-MiniLM-L6-v2), job data, and vector search with Qdrant
- Boosted recommendation relevance by 25% through semantic job-user matching using sentence-transformer embeddings and Qdrant vector search
- Secured API with OAuth2-protected routes and bcrypt-authenticated user management
- Designed async, production-ready backend with PostgreSQL and SQLAlchemy for scalability and responsiveness
- Implemented and improved UI responsiveness in React with TanStack Query and Tailwind CSS

## Education

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### **Master's Degree in Information System and Data Intelligence | Oct 2024 – Oct 2025**

Lebanese University | Hadath, Lebanon

### **Bachelor's Degree in Computer Science | Oct 2019 – Sep 2023**

Lebanese University | Hadath, Lebanon