Mohamad Dbouk

Mid-level AI Engineer

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Summary

AI Engineer specializing in agentic systems and multi-agent architectures, focused on building intelligent agents that reason, plan, and interact with external tools and APIs. Experienced with LangChain, LangGraph, and RAG pipelines to automate complex workflows end to end. Skilled in deep learning, Docker-based deployment, and delivering real-world AI solutions across the full development lifecycle.

Education

Bachelor's Degree in Computer Science (2024)
Lebanese International University, Beirut Salim Slem

Professional Experience

Project Development Specialist | Groupe Carré d'Or, Côte d'Ivoire | Oct 2024 – Aug 2025
Reactjs | TypeScript |Firebase| Adonisjs | Nodejs | Tailwind CSS

- Designed and maintained the official company website www.carredor.org using React.js and AdonisJS, showcasing companies, brands, events, and enabling direct communication.
- Delivered responsive, user-friendly web solutions that improved client accessibility and brand visibility.
- Provided IT support and troubleshooting to ensure smooth technical operations.
- Collaborated with teams to implement innovative digital solutions aligned with business needs.
- Strengthened expertise in software engineering, project management, and full-stack web development.

Customer Service Representative | Magic Planet | City Center, Lebanon Dec 2022 – Apr 2023
Client Experience Management | Problem Solving & Conflict Resolution | Customer Satisfaction & Retention

- Excelled in creating a delightful and memorable experience for every client.
- Maintained a high standard of customer service, consistently exceeding expectations.
- Served as a role model for the team, providing daily motivation and energy.
- Demonstrated exceptional communication skills, ensuring clear and effective interactions with clients.

Projects

HR-Assistant

Agentic System Design| Tool Calling & Function Execution|Structured Reasoning & Decision Making | Context Management (Memory & State)| Natural Language Understanding (NLU)| Task Automation| Modular AI Architecture | Error Handling & Validation | Debugging LLM Workflows | API Integration

- Designed and implemented an HR Assistant AI using agentic workflows and tool-calling to automate employee data retrieval, leave balance checks, and interview question generation.
- Orchestrated multi-step reasoning with structured inputs and outputs, ensuring reliable task execution and seamless integration with external HR tools and APIs.

Google Calendar Assistant

LangChain Agent Development | Tool Calling & Function Execution | API Integration (Google Calendar API) | Multi-Step Agent Reasoning | Task Planning & Decision-Making Agents

- Built an AI-powered Google Calendar Assistant using LangChain that autonomously schedules, checks availability, cancels events, and generates daily calendar reports through secure API integration.
- Designed an agentic workflow with multi-step reasoning and tool calling to translate natural language requests into reliable calendar operations, ensuring accuracy and automation efficiency.

RAG PDF Chat

Retrieval-Augmented Generation | LLM Integration | Context Management | Embedding Generation | Similarity Search | Modular Pipeline Design | Error Handling & Performance Optimization

- Built a Retrieval-Augmented Generation (RAG) PDF Chat system that enables users to query and extract accurate, context-aware answers from large PDF documents using vector search and LLM reasoning.
- Designed an end-to-end pipeline for document ingestion, embedding, retrieval, and response generation, ensuring scalable and reliable information retrieval from unstructured data.

Teacher Assistant

Multi-Agent System Design | Agent Collaboration & Task Delegation | CrewAI Framework | Role-Based Agent Architecture | Modular Code Architecture | Tool Integration for Content Generation

- Developed an assistant-driven classroom toolkit using CrewAI to automate the creation of lesson plans, quizzes, and teaching resources through collaborative multi-agent workflows.
- Designed modular Python utilities and role-based agents to support instructors in content preparation, improving efficiency and consistency in educational material generation.

Content Creator Assistant

CrewAI Multi-Agent Architecture | Role-Based Agent Design | Agent Collaboration & Task Coordination | Autonomous Content Generation | Output Validation & Quality Control

- Built a CrewAI-powered multi-agent content creation system that generates blog drafts, reports, and SEO-optimized materials through collaborative agent workflows.
- Designed role-based agents and structured pipelines to improve content quality, consistency, and scalability for automated content production.

Technical Skills

Languages: Python, JavaScript, TypeScript, Java (Object-Oriented Programming), SQL

AI, Machine Learning & Agentic Systems: Large Language Models (LLMs), Agentic AI, Multi-Agent Systems, LangChain, LangGraph, Retrieval-Augmented Generation (RAG), Prompt Engineering, Tool Calling, Function Calling, Autonomous Agents, Workflow Orchestration, Context & State Management

Frameworks & Libraries: NumPy, Pandas, Scikit-learn, TensorFlow, Hugging Face Transformers, FastAPI, Flask.

Databases & Data Technologies: PostgreSQL, MongoDB, Astra DB, SQLAlchemy, NoSQL Databases,Pinecone(vector db).

Tools & Platforms: Docker, Git, GitHub, Google Calendar API, OAuth 2.0, Firebase, REST APIs, API Integration.

MLOps & Development: Model Training & Evaluation, ML Pipelines, Experiment Tracking, MLflow, Jupyter Notebook, Deployment Automation, Production AI Systems.

LANGUAGES

- Arabic(Fluent), English(Excellent in technical) , French (Good)

Certifications & Ongoing Learning

- "Machine Learning – Supervised Learning: Theory and Practice" (Fakker.AI & TheAIEngineers, 2025)
- "Machine Learning – Unsupervised Learning: Theory and Practice" (Fakker.AI & TheAIEngineers, 2025)
-"Deep Learning (Fakker.AI & TheAIEngineers, 2025)
-Introduction to Large language models (Fakker.AI & TheAIEngineers, 2025)
-Advanced LLMs (Fakker.AI & TheAIEngineers, 2025)
-Advanced MLops (in progress)