Abdelrahman Eslam

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Professional Summary

Computer and Data Science undergraduate focused on **AI Engineering, Machine Learning, and LLM-based systems**. Experienced in building AI applications, including secure MCP servers, persistent multi-agent workflows, and bilingual Retrieval-Augmented Generation (RAG) pipelines using Python, LangGraph, and FastAPI. Strong foundation in machine learning, NLP, software engineering, and AI system architecture. Seeking an **AI/ML Engineering Internship** to develop reliable and measurable AI systems.

Education

Alexandria University Alexandria, Egypt
Bachelor of Science in Computer and Data Science *Sep. 2024 – June 2028*

- **Relevant Coursework:** Machine Learning, Data Mining, Regression Analysis, Cloud Computing, Operating Systems, Data Science, Database Systems, and Algorithms.

Technical Skills

Programming Languages: Python, Java, SQL, R
Machine Learning & AI: Machine Learning, Deep Learning, NLP, Transformers, Scikit-learn, PyTorch, Embeddings, Model Evaluation
LLM Engineering: RAG, AI Agents, Model Context Protocol (MCP), LangChain, LangGraph, Agentic Workflows, Tool Calling, Memory Systems
Backend & Databases: FastAPI, REST APIs, MySQL, SQLite
Data Analysis: Pandas, NumPy, Matplotlib, Tableau, Power BI, Excel, Power Query
Developer Tools: Git, GitHub, Docker, Linux, VS Code, Jupyter Notebook, uv
Computer Science: Object-Oriented Programming, Data Structures, Algorithms, Database Systems, System Design
Cloud Computing & Security: AWS, Amazon EC2, IAM, Cloud Security

Projects

WanderPath Travel Agency – Secure MCP Server | *Python, MCP, MySQL, LangChain, Gemini* 2026

- Built a secure **Model Context Protocol (MCP) server** enabling AI agents to interact with enterprise travel data through controlled tools rather than direct database access.
- Implemented **role-based authorization, JSON Schema validation, server-side validation, and business-rule enforcement** to secure tool execution.
- Designed MCP tools, resources, prompts, notifications, progress tracking, and elicitation for flight booking, refunds, customer support, and travel operations.
- Integrated an AI agent using **LangChain and Gemini**, connecting it securely to a MySQL relational database.

Greenfield Autonomous Multi-Agent Platform | *Python, MCP, LangGraph, RAG, FastAPI, SQLite, Docker* 2026

- Developed a **persistent multi-agent platform** coordinating specialized agents for agricultural operations through dynamic handoffs and shared orchestration.
- Implemented **MCP-based tool integration** with gated tool access, dynamic tool coordination, and least-privilege boundaries across specialized agents.
- Developed stateful workflows using **LangGraph**, durable SQLite checkpoints, multi-turn execution, Human-in-the-Loop (HITL) approvals, and failure recovery.
- Integrated **RAG and Self-RAG** for domain knowledge grounding, alongside planning approaches including ReAct, Tree of Thoughts, LATS, and task decomposition.
- Built a **FastAPI full-stack platform** and containerized services using Docker for reproducible deployment and multi-service execution.

Terms – AI-Powered Legal Document Analysis | *Python, FastAPI, LangGraph, RAG, Transformers, PyTorch* 2026

- Developed an **AI-powered legal document analysis platform** combining NLP, Transformer models, and Retrieval-Augmented Generation to analyze legal documents.

- Built a **hybrid retrieval pipeline** combining semantic search, keyword search, and cross-encoder reranking for document retrieval and grounding.
- Integrated specialized NLP models for clause classification, risk assessment, Named Entity Recognition (NER), Personally Identifiable Information (PII) detection, compliance analysis, and obligation extraction.
- Implemented document-grounded question answering using **LangGraph and FastAPI**, supporting Arabic and English legal documents.

Experience & Extracurricular Activities

Argus Team – Alexandria University Alexandria, Egypt
AI / Data Science Research Team Member *2026 – Present*

- Participate in research paper reading, technical discussion, and summarization across Artificial Intelligence and Data Science topics.
- Produce structured technical summaries to communicate research methodologies, key findings, and limitations.
- Contribute to a collaborative research shared task involving experimentation and implementation.

Material Team – Alexandria University Alexandria, Egypt
Student Academic Materials Team Member *2024 – Present*

- Collect, organize, and maintain course summaries, lecture notes, and academic resources for university students.
- Help centralize and structure academic materials to improve accessibility and knowledge sharing.

Training

Digital Egypt Pioneers Initiative (DEPI) Egypt
Data Analyst Specialist Track *Alexandria, Egypt*

- Worked with **Python, SQL, Tableau, Power BI, and Excel** for data preparation, analysis, visualization, and data-driven decision-making.
- Applied data cleaning, exploratory data analysis, data visualization, and data governance concepts to analytical workflows.

National Telecommunication Institute (NTI) Alexandria, Egypt
Natural Language Processing Training *Jul. 2026*

- Studied core Natural Language Processing concepts, including modern language-model-based systems.
- Applied NLP concepts using Python and machine learning workflows.

Alexandria University Alexandria, Egypt
AI Engineering Training – Autonomous Agents *Jul. – Aug. 2026*

- Studied AI Engineering concepts with a focus on **Autonomous Agents, LLM-based systems, and agentic architectures**.
- Explored agent orchestration, tool integration, decision-making, and multi-step reasoning in autonomous AI systems.
- Practiced building LLM-powered agent workflows and integrating external tools for task execution.