

Mostafa Abla

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SUMMARY

Senior AI Engineer with 10 years of experience in software development and AI within Germany's tech industry, combining hands-on leadership with cross-functional collaboration. Skilled in designing and deploying end-to-end AI solutions — including Generative AI (LLMs, RAG) and predictive models — to solve complex business challenges. Proficient across modeling, MLOps, and cloud infrastructure (Azure, AWS).

EXPERIENCE

Quest One, Hamburg, Germany

Nov 2022 – July 2025

Machine Learning Engineer

- Led the “Data Intelligence and Software” group of 6 members, implementing efficient task scheduling, enhancing cross-team coordination, resulting in improved team productivity.
- Led the collection and processing of customer Machine Data and managed its migration to Azure Cloud by coordinating data engineers and stakeholders, resulting in enhanced data accessibility and scalability.
- Designed and implemented an AI predictive maintenance model for replacing hydrogen stacks, which optimized the maintenance schedule and reduced unplanned service deployments by 20%.
- Implemented a Fingerprint Evaluation Model to automatically evaluate the performance of different designs of customer hydrogen stacks, which led to 3 design improvements.
- Developed a chatbot leveraging Large Language Models and RAG to efficiently answer employee questions using company documents, enhancing knowledge accessibility and operational efficiency.

KUKA Robotics, Augsburg, Germany

Oct 2017 – Oct 2022

Software Developer

- Led a software team to deliver 2 key autonomous mobile robot projects for the companies Continental and Heller.
- Executed end-to-end client communication, from requirements gathering and software architecture design to factory acceptance tests, achieving over 90% client satisfaction.
- Built mobile robots applications in Java for over 6 completed projects for customers in Germany, Taiwan and Denmark.
- Managed the release process for new software and updates, ensuring high-quality standards for each release, resulting in a reduction of bugs in new releases by over 60%.

Bertrandt Group, Munich, Germany

Oct 2016 – Sep 2017

Software Developer

- Developed software for the parking module of BMW's 7th-generation driving assistance system using an agile approach in Simulink and C.
- Performed comprehensive testing, including test case creation, code coverage optimization (exceeding 98%), and static code analysis, ensuring the reliability and safety of the parking module.

German University in Cairo, Cairo, Egypt

Sep 2012 – Aug 2013

Lab Instructor

- Designed and instructed PLC programming labs and mentored 3 bachelor's projects.

EDUCATION

Hamburg University of Technology, Hamburg, Germany

Sep 2013 – Nov 2016

Master of Science; Mechatronics

German University in Cairo, Cairo, Egypt

Oct 2007 – Jul 2012

Bachelor of Science in Engineering; Major in Mechatronics

SKILLS

- **Generative AI:** LLMs, RAG, Agentic AI, LangChain, LangGraph, LlamaIndex, Ollama
- **LLM Evaluation and Vector Search:** LangSmith, Chatbot Evaluation, FAISS, Chroma
- **Machine Learning & Deep Learning:** PyTorch, TensorFlow; NLP, Computer Vision
- **Cloud & Data:** AWS, Azure, Databricks, SQL
- **MLOps & Pipelines:** MLflow, ETL, Docker, Azure ML, AWS SageMaker Pipelines, CI/CD
- **Programming Languages:** Python, Java, R, C/C++
- **Tools & Platforms:** Power BI, Azure DevOps, Gradio, Git, JIRA, Data Visualization
- **Software Engineering & Methodologies:** Agile (SCRUM), Software Architecture

PROJECTS

Interactive apps and code repositories are available at: mostafaabla.com

Car Advisor Chatbot – LLM Agent:

- Built a chatbot that recommends new cars based on user preferences and budget.
- Web-scraped and preprocessed car specifications and pricing data to build a custom SQLite database covering 500+ new cars in the Egyptian market.
- Implemented an LLM agent using LangChain and LangGraph with tool calling to query the database and combine retrieved facts with the model's knowledge for accurate, personalized recommendations.

RAG Research Papers Chatbot:

- Developed a research assistant chatbot using a Retrieval-Augmented Generation (RAG) pipeline to answer complex questions over a curated corpus of RAG research papers.
- Designed and implemented a vector database and retrieval layer using Chroma, including document chunking, embedding generation, and retriever configuration to improve answer relevance.
- Implemented a chatbot evaluation framework using LLM-as-a-Judge, LangSmith, and MLflow, enabling systematic response quality evaluation and hyperparameter tuning.

TRAINING & CERTIFICATIONS

- **RAG for Generative AI Applications Specialization (4 courses)** – Coursera, 2025
RAG application development, Vector Databases, LangChain, LlamaIndex, FAISS
- **Deep Learning Specialization (5 courses)** – Coursera, 2020
Neural Networks, CNNs, RNNs, Sequence Models, LSTM, Hyperparameter Tuning, Transfer Learning
- **Statistics with Python Specialization (3 courses)** – Coursera, 2021
Statistical Modeling, Hypothesis Testing, Inferential Statistics, Statsmodels

LANGUAGES

- **Arabic:** Native
- **English:** Fluent
- **German:** Fluent

VOLUNTEERING

- Performed translation for refugees during job interviews and government appointments in Germany (1 year).
- Volunteer teacher in an adult literacy program in Egypt (6 months).

PERSONAL DETAILS

- **Nationality:** German
- **Date of Birth:** April 1, 1990
- **Marital Status:** Married