

MAJD ALKAYYAL

Nimmerfallstr. 45 · 81245 Munich · Germany
(+49) 174 5166916 · alkayyal.majd@gmail.com · [LinkedIn](#) · [Website](#) · [GitHub](#)

AI Engineer | LLM Systems | Multi-Agent Architectures | RAG Pipelines

SKILLS

Specialty Areas	LLMs, RAG, Multi-Agent Systems, Databases, Backend Systems
Frameworks	.NET, FastAPI, Flutter, NextJS
Programming Languages	C#, C++, Python, TypeScript
Data & Storage	PostgreSQL, MongoDB, Vector Indices, Knowledge Graphs
Infra	AWS, Azure, Docker, CI/CD

WORK EXPERIENCE

KPMG Deutschland

Senior AI/Software Engineer - Assistant Manager

Munich, Germany
Jul. 2024 - Present

- Co-led a global engineering team (25+), delivering a large-scale Transfer Pricing platform and driving feature development, system design, and release management
- Worked directly with clients and stakeholders to translate business requirements into scalable systems, aligning technical solutions with domain-specific needs
- Designed and implemented AI-assisted features for document-heavy workflows, including LLM-based content extraction and report drafting support
- Built a document processing pipeline using LLMs to extract structured information from financial/legal documents and automate report sections
- Developing a context-aware AI assistant that operates within user sessions, guiding workflows and performing actions based on skills similar to Claude Harness.

PwC Deutschland

Associate Software Engineer

Munich, Germany
Apr. 2023 – Jun. 2024

- Built and maintained PwC's internal AuthaaS platform, providing unified SSO for multiple internal applications.
- Implemented version-controlled decision-tree backends for automated workflow systems to improve auditability.
- Developed and executed integration tests to detect regressions in legacy services, reducing post-release incidents.
- Improved observability by integrating Prometheus and creating Grafana dashboards for key service metrics.
- Authored detailed API and backend documentation to streamline onboarding and handovers.

TelyPay

Senior Software Engineer, Project Manager

Muscat, Oman
Feb. 2022 – Nov. 2024

- Rebuilt the company's fintech platform into a unified, scalable architecture, improving stability and performance
- Led a team of 6 engineers, driving system design, code quality, and delivery
- Designed and deployed a financial insights platform on AWS, enabling real-time analytics over aggregated banking data
- Built an LLM-powered chatbot and insights dashboard, allowing natural language querying of financial data
- Implemented an agent workflow with tool use, enabling the LLM to query databases and retrieve structured insights
- Designed a retrieval + context construction pipeline (RAG-style) and a hybrid LLM + rule-based system for reliable transaction classification and insights

Webware

Full-Stack Developer

Muscat, Oman
Feb. 2020 – Apr. 2021

- Designed and deployed the Dar Al Atta'a Charity App, enabling mobile and web donations for local causes.
- Integrated online payments, SMS, and email notifications, improving the efficiency of donation and case management.
- Hosted and managed infrastructure on Oman Data Park IaaS, ensuring secure and stable operations.
- Delivered the project independently from concept to deployment, marking the company's first fully in-house mobile product.

EDUCATION

Technical University of Munich (TUM)

M.Sc. Data Engineering and Analytics

Munich, Germany
Oct. 2022 – Apr. 2025

- cGPA 1.3/1.0
- Graduated in the top 10% of the cohort; recipient of the DAAD Master Scholarship for academic excellence.
- Served as Teaching Assistant for *Foundations in Data Engineering*, teaching C++, SQL, distributed consensus algorithms (Raft), and knowledge graphs to Master's students.
- Relevant coursework: Natural Language Processing (NLP), Advanced NLP, Foundations in Data Analysis, Introduction to Deep Learning, Distributed Systems.

German University of Technology in Oman (GUtech)

B.Sc. Computer Science

Muscat, Oman
Jun. 2016 – Sep. 2021

- Graduated with High Distinction as the top-ranked student in the university, achieving a perfect 4.0/4.0 GPA.
- Awarded the Academic Rector's Medal and a DAAD Bachelor Thesis Scholarship for research at RWTH Aachen.
- Bachelor Thesis (RWTH Aachen): Designed and implemented an open educational resource mobile app (Flutter + .NET Core) adopted by German schools to teach Creative Commons licensing; achieved 80%+ usability satisfaction in pilot studies.
- Served as a Teaching Assistant for C++/Data Structures for one academic year, mentoring first/second-year students.

PUBLICATION

ECML 2025 - Multi-agent LLM system with autonomous role-based collaboration, RAG-grounded reasoning, and dynamic tool use. The system outperformed GPT-4o on structured decision benchmarks across all evaluated metrics

Alkayyal, M., Malberg, S., & Groh, G. (2025, September). An LLM-Based Decision Support System for Strategic Decision-Making. In Joint European Conference on Machine Learning and Knowledge Discovery in Databases (pp. 460-464). Cham: Springer Nature Switzerland.

RESEARCH EXPERIENCE

McKinsey & Company / Technical University of Munich (TUM)

LLM Research Engineer (Master's Thesis)

Munich, Germany
Oct. 2024 – Apr. 2025

- Built a multi-agent LLM system with autonomous role-based collaboration, tool use, and memory
- Designed RAG pipelines with dynamic retrieval + grounding for decision reasoning
- Developed agent orchestration framework (task decomposition, planning, tool routing)
- Achieved performance surpassing GPT-4o on structured decision benchmarks (ECML 2025)

Fusionbase / Technical University of Munich (TUM)

AI Systems Engineer – Project Lead (Industry-Academia Collaboration)

Munich, Germany
Oct. 2023 – Jun. 2024

- Led a 4-member team to design and build CreateData4AI, a collaborative annotation platform for data-centric AI.
- Developed the full-stack web platform (Next.js + FastAPI + MongoDB) enabling distributed labeling.
- Engineered the GPU/CPU-optimized pipeline using Ray for distributed embedding computation.
- Implemented real-time collaboration features, enabling multiple users to jointly perform annotation refinement tasks.

TEACHING EXPERIENCE

Technical University of Munich (TUM)

Teaching Assistant — Foundations in Data Engineering

Munich, Germany
Oct. 2023 – Feb. 2024

- Taught C++, SQL, distributed consensus algorithms (Raft), and knowledge graphs to Master's students.
- Supported course instruction with tutorials, problem-solving sessions, and guidance on advanced data engineering concepts.

German University of Technology in Oman (GUtech)

Teaching Assistant — C++ / Data Structures

Muscat, Oman
Jun. 2021 – Apr. 2022

- Mentored first- and second-year undergraduate students in foundational programming and data structures.
- Led lab sessions, graded submissions, and provided hands-on support to improve student understanding.

HONORS & AWARDS

DAAD Master Scholarship

- Awarded for top 5% academic excellence and research potential.

Munich, Germany
Oct. 2022 – Jul. 2024

Academic Rector's Medal

- Conferred to the top graduating student across all majors at GUTech.

Muscat, Oman
Mar. 2022

DAAD Bachelor Thesis Scholarship

- Secured one of two GUTech–RWTH scholarship seats to conduct thesis research in Germany on Open Educational Resources.

Aachen, Germany
Apr. 2021 – Sep. 2021

Oman Education Services (OES) Scholarship

- Full merit-based scholarship; first and only recipient in the university's history that year.

Muscat, Oman
Jun. 2016 – Sep. 2021

ICPC Oman Champion – International Collegiate Programming Contest

- First place nationally, qualified for the Egypt regional.

Muscat, Oman
2019

LANGUAGES

English – C2

German – A2

Arabic – Native