
Muhammad Afaq Jamshaid

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[LinkedIn](#) | [Portfolio](#) | [github](#)

Dear Adrian and the Syntwin Team,

I'm an M.Sc. Artificial Intelligence student, currently working as a research assistant at Fraunhofer where I contribute to the open-source **pandapipes** project. My work there involves implementing new features, finding and fixing bugs, making improvements, and creating documentation for **pandapipes**. This has given me practical experience in writing structured, maintainable Python code and contributing effectively to a large open-source project used by real-world engineers.

Previously, during my internship at **LOGEsoft**, I built hybrid AI pipelines by combining TensorFlow neural networks with PyTorch reinforcement-learning agents to optimize fuel-blend simulations. I containerized these workflows with Docker, automated the training pipelines, and integrated external simulations, which helped me learn how to bring experimental models into a production-ready environment.

Alongside these roles, I've been exploring LLMs in my own projects. Most recently, I built a small **LangChain-based RAG chatbot** that ingests documents (PDF/TXT), indexes them with Chroma DB, and supports multi-turn queries against a Mistral model. While a personal project, it gave me hands-on practice with retrieval workflows and LLM integration.

I'm comfortable working in a new environment and I value iterative development with close collaboration between engineers and founders. I'd welcome the chance to contribute these skills to Syntwin.

Best regards,

Muhammad Afaq Jamshaid



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ABOUT ME

MS AI student with experience in AI and software development. Having worked in AI chemical solutions, computational fluid dynamics, and prompt engineering, I bring my expertise and adaptability to excel in any environment.

SKILLS

Python | R | MATLAB | JavaScript | C++ | Dart | Pytest | Streamlit | Node.js | FastAPI | React.js | Flutter | OpenCV | Pandas | Keras | Numpy | PyTorch | Pandapipes | Docker | Git | Firebase | SQLite | PostgreSQL | Prompt Engineering | Machine Learning | LLMs | Agentic AI | GenAI | Langchain

WORK EXPERIENCE

 **BRANDENBURGISCHE TECHNISCHE UNIVERSITAT COTTBUS** – COTTBUS, GERMANY

RESEARCH ASSISTANT (HIWI) – 06/2024 – CURRENT

- Contributing to the development of the open-source pandapipes library, a Fraunhofer project, by adding new features and improving usability.
- Authored clear, beginner-focused documentation that accelerated onboarding and increased user adoption of the pandapipes library.
- Exploring agent-based techniques to autonomously generate domain-specific pandapipes code, embedding CFD expertise to improve code

 **LOGESOFT** – COTTBUS, GERMANY

ARTIFICIAL INTELLIGENCE INTERN – 12/2024 – 03/2025

- Independently built a hybrid AI pipeline combining neural networks (TensorFlow) and reinforcement learning (PyTorch) to predict fuel compositions based on target properties.
- Developed a modular training system with iterative learning, conditional retraining, early stopping, and dynamic hyperparameter tuning for black-box simulations via Python and Perl.
- Integrated an RL agent with external .exe simulation software using a reward function based on feature similarity.

 **INDEPENDENT COLLABORATION WITH INDUSTRY PROFESSIONAL** – REMOTE

LLM PROMPT ENGINEER – 11/2023 – 12/2024

- Created and refined over 1000 natural language prompts for goal-oriented interactions with LLMs, optimizing model performance through SFT and data post-processing.
- Crafted scenario-based prompts for LLM evaluation and developed test cases to systematically assess model responses, verifying whether they met the defined requirements.

EDUCATION AND TRAINING

10/2023 – CURRENT

MASTER OF SCIENCE IN ARTIFICIAL INTELLIGENCE Brandenburgische Technische Universität Cottbus

08/2019 – 06/2023

BACHELOR OF SCIENCE IN COMPUTER SCIENCE FAST NUCES

HONOURS AND AWARDS

Dean's List of Honor Academic Achievement Award – National University of Computer and Emerging Sciences

● RECOMMENDATIONS

Samir Jehia Software Engineer

"Muhammad Afaq Jamshaid worked under my supervision during his AI internship at LOGEsoft, where he showed excellent technical expertise in developing hybrid AI pipelines. He is dedicated, quick to learn, and delivers high-quality work. I strongly recommend him for research and AI development roles."

Email samir.jehia@logesoft.com

Link https://afaqjamshaid.netlify.app/LOR_EN.pdf

● PROJECTS

Hybrid AI Pipeline for Fuel Composition Prediction (TensorFlow, PyTorch, Perl)

- Built an iterative AI pipeline combining supervised and reinforcement learning to optimize multi-component fuel blends against multiple user-defined targets, reducing costly simulations.
- Developed a modular training system with feature-weighted scoring, conditional retraining, and zoom-in data generation to efficiently explore millions of combinations and avoid local minima.
- Implemented full data workflow including preprocessing, model training, post-processing, and automation using Python, delivering a fully functional end-to-end solution.

ClarityQA Chat App (Streamlit, Chroma DB, Mistral LLM, Langchain)

- Built a Streamlit web app with multi-document upload (PDF/TXT), automatic chunking, and vector indexing using Chroma DB for fast, accurate retrieval.
- Implemented a multi-turn chat interface with conversation context memory, leveraging Retrieval-Augmented Generation (RAG) with Mistral LLM via Ollama and advanced vector embeddings.
- Managed session lifecycle with resource cleanup and persistent vector database to ensure smooth user experience and efficient resource use.

German Text Classification with DistilBERT: Fast API Deployment and Dockerization (PyTorch, Python)

- Developed a robust text classification solution using DistilBERT, categorizing German phrases within a given dataset. Deployed the model using FAST API, with the entire project containerized using Docker