+36 30 371 9730
Budapest, Hungary
ahmedaffan72@gmail.com

Ahmed Affan

Machine Learning Engineer | Gen AI

github.com/AhmedAffan786
linkedin.com/in/ahmed-affan

I am an experienced AI Engineer with a Master's degree in Data Science and hands-on experience developing Generative AI, Machine Learning, and LLM-powered solutions for enterprise use cases. Experienced in Python, LLMs, RAG, LangChain, LlamaIndex, OpenAI, Azure, AWS, AI agents, semantic search, and AI/ML data pipelines. I have developed AI-powered drafting, search, document intelligence, natural-language querying, and question-answering systems, with a strong focus on production-oriented AI applications, LLM evaluation, and reliable information retrieval.
My experience spans the design and development of end-to-end AI solutions, from data ingestion and retrieval pipelines to cloud-based deployment and stakeholder collaboration. I hold an MS in Data Science and have published research in deep learning, while continuing to apply modern Generative AI and NLP techniques to solve real-world business problems.

Skills

Programming and Cloud	Python, SQL, Git, Azure, AWS, Amazon EC2, Azure Cosmos DB, Jupyter Notebook
Generative AI	Generative AI, MLOps,LLMs, OpenAI, ChatGPT, Prompt Engineering, LLM Evaluation, AI Agents, Chatbot Development
AI Frameworks	LangChain, LlamaIndex, RAG, NLP, NLG, Semantic Search, Elasticsearch
Data and ML	Machine Learning, PyTorch, Data Pipelines, Data Cleaning, Exploratory Data Analysis, Data Mining
Data Visualization	Tableau, Matplotlib, Seaborn, Plotly, Data Visualization Techniques

Technical Experience

Senior Software Engineer **Sep 2024 — Present**
NorthBay Solutions *USA , (Remote)*

- Designed and developed scalable Generative AI and Machine Learning solutions using Python, LLMs, RAG, and modern AI frameworks for enterprise use cases.
- Led the development of AI-powered drafting, search, and document intelligence systems using LLMs to automate content generation, information retrieval, and knowledge-intensive workflows.
- Built and deployed production-oriented AI/ML applications using Azure AI services, vector databases, and cloud-based technologies for enterprise workloads.
- Developed AI/ML data ingestion, retrieval, and knowledge management pipelines supporting question-answering, document analysis, and Retrieval-Augmented Generation (RAG) solutions.
- Implemented retrieval pipelines involving document chunking, embeddings, vector search, metadata filtering, and LLM-based response generation for enterprise knowledge retrieval.
- Evaluated and improved LLM and retrieval outputs using quality benchmarks and evaluation frameworks to improve accuracy, relevance, reliability, and consistency.
- Collaborated with product teams, engineers, and stakeholders to translate business requirements into scalable, production-ready Generative AI solutions.
- Provided technical leadership through architecture reviews, mentoring engineers, and driving engineering best practices across AI/ML projects.
- Skills: Python, Machine Learning, Generative AI, Git, LLMs, RAG, Azure OpenAI, LangChain, LlamaIndex, Vector Databases, Semantic Search, Embeddings, LLM Evaluation, MLOps, Prompt Engineering

Consultant Data Scientist **Feb 2024 — Sep 2024**
Systems Limited *Lahore, Pakistan*

- Built end-to-end Generative AI and data pipelines integrating SQL databases and multiple unstructured data sources to support retail pricing analysis and product portfolio decisions.
- Extracted, transformed, and consolidated large and complex SQL datasets into structured analytical and graph models using Python, enabling richer and more actionable business insights.
- Developed natural-language querying interfaces powered by LLMs and LangChain over large retail datasets, enabling non-technical stakeholders to interact with enterprise data through conversational workflows.
- Deployed and managed cloud-based analytical data models on Azure Cosmos, integrating Python, LangChain, agents, SQL, and Gremlin for AI-powered data analysis workflows.
- Skills: Python, SQL, Azure, Azure Cosmos DB, LangChain, LLMs, Generative AI, Data Pipelines, Machine Learning, MLOps, AI Agents, Gremlin, PyTorch

Machine Learning Engineer **Feb 2023 — Feb 2024**
Senarios *Lahore, Pakistan*

- Led AI/ML and data-driven projects for international clients, overseeing data collection, model development, deployment, and end-to-end delivery.
- Developed semantic search, Retrieval-Augmented Generation (RAG), summarization, and Question and Answer systems over large-scale document repositories to improve information retrieval and enterprise knowledge discovery.
- Developed and integrated LLM-powered applications using OpenAI, LlamaIndex, and NLP techniques, improving contextual relevance and overall solution quality.
- Deployed and maintained AI/ML and NLP solutions on Azure and AWS, managing cloud infrastructure, monitoring, and optimisation across AI workloads.
- Produced analytical reports and actionable insights for stakeholders, translating complex AI and data findings into clear business recommendations.
- Skills: Python, Machine Learning, PyTorch, NLP, OpenAI, LlamaIndex, RAG, Prompt Engineering, Elasticsearch, Azure, AWS, Semantic Search

Research Assistant **Feb 2022 — Feb 2023**
NUCES *Islamabad, Pakistan*

- Collected, pre-processed, and curated large parallel NLP corpora, ensuring consistently high data quality and completeness for downstream machine learning and NLP research tasks.
- Conducted quantitative analysis of NLP experiment results, producing detailed research reports, structured summaries, and comprehensive literature reviews for publication.
- Performed large-scale sentiment analysis using LSTM, GRU, and RNN deep learning models across diverse text datasets to support ongoing academic research objectives.
- Skills: Python, NLP, PyTorch, Transformers , Machine Learning, LSTM, RNN, GRU, Sentiment Analysis, Technical Writing

Associate Data Analyst **Feb 2021 — Jan 2022**
Developers Hub (Pvt.) Ltd *Islamabad, Pakistan*

- Cleaned, standardised, and preprocessed complex business datasets, establishing reliable and accurate data foundations for pricing, forecasting, and market trend analysis.
- Built and maintained Tableau dashboards and Python-based analytical reports, tracking critical KPIs and surfacing actionable insights for senior management review.
- Analysed evolving market trends and delivered data-backed strategic recommendations that informed internal business planning and operational decision-making.
- Supported multiple Shopify clients with tailored data visualisation and e-commerce analytics, translating raw business data into clear, decision-ready insights.
- Skills: Python, SQL, Tableau, Data Visualisation, Business Analytics, EDA, Data Analysis

Junior Data Analyst **Oct 2019 — Jan 2021**
Developers Hub (Pvt.) Ltd *Islamabad, Pakistan*

- Assisted in data cleaning, standardisation, and exploratory analysis across multiple business datasets to ensure accuracy, integrity, and completeness.
- Created structured visualisations and analytical reports using Tableau and Python to communicate trends, patterns, and findings to non-technical stakeholders.
- Contributed to data storytelling initiatives, translating complex analytical outputs into accessible business insights for leadership and management review.
- Skills: Python, Tableau, Data Visualisation, Data Storytelling, Business Analytics

Education

MS in Data Science, *National University of Computer and Emerging Sciences* 2020 - 2022
I have gained the practical knowledge of Data Sciences. Gone through technical courses of Statistics for Data Science, Machine Learning, Deep Learning, Natural Language Processing, Data Visualization.
Skills: Recurrent Neural Networks (RNN)

Bachelor's degree in Computer Software Engineering, *University of Management and Technology - UMT* 2015 - 2019
I have gained practical knowledge of Data Sciences. Gone through technical courses in Data Mining, Big-Data, Artificial Intelligence, Computer Vision, and IoT (Internet of Things).

PUBLICATIONS & PERSONAL PROJECTS

Detecting Multi-class Kidney Abnormalities using Deep Learning (12/2022 - 01/2023)
Using CNN "Res-Net" and "VGG-16" to classify abnormalities in CT-scan kidney slices. Published in IMCOM 2023.
Chatbot Project with OpenAI Langchain (6/2023 - 8/2023) I developed a chatbot using OpenAI's Langchain and deployed it as a live streamlit chatbot. This chatbot provides information related to the student academic calendar, allowing students to query and access course-related data in a user-friendly manner.
Sentiment Analysis for Music Podcast (12/2021)
Detecting emotions from text and its intensity using LSTM, RNN, and Bi-directional LSTM to recommend background music for podcasts.
Pattern Recognition (03/2021)
Finding insights from data using pattern mining algorithms like frequent pattern mining and extracting useful information from social medisa applications.

CERTIFICATES

Deep Learning Specialization by Andrew Ng (07/2021)
Machine Learning from Stanford University (07/2021)

Activities and Skills

Cricket, Hiking, Swimming, Guitar Playing
Skills: Excellent at presentation and communication, strong team player, adept at leadership, and capable of working effectively both in a team and independently.