

Zubair Ashfaque

AI Tech Lead

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SUMMARY

🚀 As a **Tech Lead in Machine Learning**, I architect and deliver high-impact AI strategies that accelerate business growth. I lead cross-functional teams in building and deploying sophisticated algorithms, resulting in significant improvements to customer churn prediction, satisfaction scores, and fraud detection systems.

💡 I specialize in designing the technical roadmap for complex AI systems. My expertise includes **architecting end-to-end ML pipelines for real-time data processing** and pioneering the use of **Large Language Models (LLMs)** and **Agentic Retrieval-Augmented Generation (RAG)**. I guide the development of intelligent systems, such as advanced chatbots, that transform raw data into dynamic, actionable insights, automating critical customer interactions and simplifying access to information.

🌐 My leadership philosophy is centered on driving technical excellence and innovation. I am passionate about mentoring engineers and integrating state-of-the-art technologies to ensure our solutions are not only powerful but also scalable and efficient. By fostering a data-driven culture, I empower my team to push the boundaries of AI, delivering strategic value and transforming user engagement.

WORK EXPERIENCE

Medical Guardian, AI Tech Lead

Apr 2025 – Present | Remote

- **AI Leadership & Product Innovation:** Lead cross-functional AI/ML teams to build **LLM-powered, AI-first products** for **patient outreach, wellness, and engagement**. Shape the enterprise AI roadmap, drive **multi-agent ecosystem adoption**, and collaborate with stakeholders to **accelerate innovation** across MG's ecosystem.
- **AI Agent & LLM Solution Architecture:** Architect and deploy **LLM solutions** using **Azure OpenAI, Azure AI Studio**, and **Azure ML**.
- Build **AI agent ecosystems** leveraging **Microsoft AutoGen, LangChain, Semantic Kernel**, and **Azure AI Agents SDK**. Design **RAG pipelines** integrating **Azure Cognitive Search, Azure AI Vector Index, Pinecone, FAISS, and Chroma** for **knowledge-grounded patient interactions**.
- **Azure AI Ecosystem & Emerging Tech:** Deliver enterprise GenAI workloads using **Azure ML Pipelines, AI Search, AI Foundry**, and **Cognitive Services** (STT, TTS, OCR, Translation). Innovate in **multi-modal patient engagement, predictive care-gap management**, and **intelligent orchestration** of outbound campaigns and reminders.
- **Responsible AI & Governance:** Implement **AI governance frameworks** ensuring **fairness, explainability, and compliance** with **HIPAA, SOC2, and GDPR**. Integrate **Azure AI Content Safety, prompt moderation**, and **human-in-the-loop controls** for secure, **regulated deployments**.

- **Data, Insights & Predictive Intelligence:** Build **data-driven AI solutions** leveraging Engage360 CDM datasets. Develop **real-time predictive analytics pipelines** for **churn detection, risk stratification, and personalized interventions**. Drive **advanced feature engineering and model deployment strategies** with Azure ML for **explainable and compliant solutions**.

Core Expertise:

LLM Engineering • AI Agent Orchestration • Multi-Agent Systems • RAG Pipelines • Azure AI/OpenAI • LangChain • Semantic Kernel • AutoGen • Predictive Analytics • AI Governance • Healthcare AI

Healthrecoverysolutions,

Nov 2024 – Mar 2025 | Remote

Senior Machine Learning Engineer & Data Scientist ☀

- **Built an advanced Agent Nurse Bot** that goes beyond **text-to-SQL queries** by not only fetching results from **Redshift** but also formulating answers using a **knowledge base integrated with a Retrieval-Augmented Generation (RAG) system**. This **Agentic approach** ensures seamless access to diverse information sources, empowering clinical staff with **accurate and context-aware insights** for better decision-making.
- **Engineered a predictive analytics model** that identified **high-risk patients for readmission**, achieving a **20% decrease in readmission rates**. This model was deployed in a **real-time monitoring dashboard**, empowering healthcare providers to make **timely interventions** and improve patient outcomes.
- **Architected and deployed a cutting-edge Retrieval-Augmented Generation (RAG) solution** utilizing **AWS Bedrock's multimodal capabilities**, seamlessly integrating diverse data sources such as **training videos, research documents, web pages, and internal knowledge bases**. By harnessing AWS Bedrock's robust infrastructure, the system delivered **context-aware, accurate, and secure responses**, improving information accessibility and cutting data lookup times by **50%**. This innovation empowered clinical staff to make **quicker, well-informed decisions** during critical situations, leading to **enhanced patient care and streamlined operational workflows**.
- **Developed a machine learning model for drug interaction predictions**, boosting **patient safety by 15%** and helping clinicians make **more informed prescription decisions**.
- **Implemented NLP techniques** to analyze **patient feedback**, driving a **25% improvement in healthcare service quality** by identifying key areas for enhancement.

System Limited, Senior Data Science Consultant ☀

Jan 2023 – Oct 2024

- **Created predictive models** to forecast customer attrition, recommending data-driven actions that increased customer retention by **15%** and maximized profits by an estimated **\$0.8 million annually**. Utilized algorithms such as **Logistic Regression** and **Gradient Boosting** to drive results.
- **Built compliance monitoring models** using **Random Forest** and **Time Series Analysis** to track wearable device usage and analyze levels of physical activity, ensuring **95% adherence** to healthcare compliance standards.
- **Developed social media analysis algorithms** using **Text Analytics and Sentiment Classification** to monitor real-time online conversations. Proactively issued **90% of responses within 10 minutes**, significantly improving brand responsiveness.
- **Built competitor monitoring algorithms** for social networks, utilizing **Natural Language Processing (NLP)** and **Graph Analysis** to generate strategic initiatives and advise on targeting, contributing to a **15% increase** in market engagement.

- Developed a Revenue Assurance process using Anomaly Detection and Time Series Analysis to ensure revenue synchronization and prevent fraud. This initiative resulted in a **20% reduction in revenue leakage**.

Philips Lifeline, Data Science Consultant

Jan 2019 – Dec 2022

- Leveraged Amazon Transcribe to generate call transcripts and applied Sentiment Analysis techniques using NLP algorithms (BERT), improving the understanding of customer emotions and leading to a **10% increase** in customer satisfaction.
- Developed behavioral analytics models to analyze customer habits and product usage, employing techniques like Clustering and Association Rule Learning to identify key insights. Proposed design improvements that boosted product adoption rates by **20%**.
- Created CareSage predictive models using XGBoost and Survival Analysis to anticipate patient risk factors and potential hospitalizations. This led to improved patient outcomes and reduced readmission rates by **30%**.
- Applied sensor fusion techniques on pressure sensor and accelerometer data to predict step count with a **95% accuracy rate**, enhancing the reliability of fitness tracking applications.

VEON, Data Engineer

Sep 2017 – Jan 2019

Summary: Data Engineering professional with a proven track record of leading and executing advanced analytics and data science projects in revenue assurance. Skilled at collaborating with key stakeholders to scope, develop, and deploy machine learning models and ETL pipelines to drive organizational insights and efficiency.

- Architected and deployed a machine learning system using XGBoost to predict grey traffic, achieving an **83% accuracy rate**, significantly reducing revenue loss from fraudulent activities.
- Executed comprehensive revenue assurance analyses using Microsoft Excel, Python, and SQL, safeguarding **PKR 1.9 billion** through proactive monitoring and optimization strategies.
- Developed the initial iterations of ETL pipelines using RAID (by WEDO) and Python, incorporating technologies such as SQLAlchemy, Paramiko, Dask, Hadoop, and Hive. Enhanced the system with features like logging, data cataloging, and job status tracking to efficiently process **1M+ text and binary files**.
- Designed efficient data models and schemas, and authored DDL and DML scripts for the Oracle RDBMS Database, ensuring robust data management and streamlined database operations.

SKILLS

Programming Languages: Python, R, SQL, Bash, Rust, Ray

Machine Learning & AI: Pandas, NumPy, TensorFlow, Keras, PyTorch, Scikit-learn, Hugging Face, XGBoost, NLP, Deep Learning, Reinforcement Learning, Neural Networks, SVM, Random Forests, Gradient Boosting, AWS Bedrock, LangChain, LangGraph, RAG, CrewAI, Llamaindex, Whisper, Ray Serve, PromptLayer

Big Data Technologies & Data Management: Hadoop, Spark, Kafka, Hive, Data Warehousing, ETL, AWS (EMR, S3), MongoDB, Cassandra, PostgreSQL, BigQuery, DuckDB, Weaviate, Qdrant

Data Visualization & Tools: Tableau, Power BI, Matplotlib, Seaborn

Development Tools & Platforms: Git, Docker, Kubernetes, Jenkins, JIRA, VS Code, AWS, Azure ML, Google Cloud AI, Terraform, Jupyter, Comet, ZenML

PROFESSIONAL CERTIFICATES

TensorFlow Developer ↗

Tensorflow.org

Google Data Analytics ↗

grow.google/certificates/data-analytics

EDUCATION

Beaconhouse National University, Bachelor in Telecom Systems ↗