Muhammad Ghufran Akbar

ML & Data Engineer

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Profile Overview

A Data Engineer with deep expertise in architecting and automating enterprise scale solutions on GCP. I specialize in building high performance data infrastructure with Terraform and deploying intelligent ML models on Vertex AI that deliver proven business value.

Core Tech Stack: *GCP, Python, JS, Java, Dbt, Airflow, BigQuery, Terraform, Tensorflow, PowerBI, SQL, GraphQL*

Work Experience

Global E-Commerce Engineer
PUMA Group, Working Student
April 2024 to Present (1 year, 6 months)

Technology Stack

Python, Node.JS, GCP, GraphQL, SQL, Dbt, Airflow, VertexAI, BigQuery, Docker Playwright,Flask, CI/CD, Terraform

- Spearheaded the technical unification of the OMS across 5 global regions, integrating core platforms **(SFCC, ERP, WMS)** with payment gateways **(Adyen, Payrails)** to **increase operational efficiency by 40%**.
- Engineered a full migration to **GCP**, implementing **Infrastructure as Code (Terraform)** that **reduced provisioning time by over 70%** and lowered operational costs.
- Solved inaccurate forecasting by developing an **AI-driven order projection tool (Vertex AI, dbt, Airflow)**, significantly **reducing the financial risk of inventory imbalances.**
- Guaranteed high-quality global rollouts by building an automated testing suite **(Playwright/Python) achieving a 98% UAT success rate**.
- Developed a full-stack global reporting tool on **GCP**, automating data aggregation to provide regional leadership with a **single source of truth for real time decision making**.

Analyst - Software and Information Systems
Bank AL Habib Limited
August 2022 to September 2023 (1 year, 2 months)

Technology Stack

Java Quarkus, Docker, Typescript, Javascript, APIs, mySQL, IBM Watson Studio

- Transformed a monolithic legacy system into a scalable microservices architecture **(Java Quarkus, Docker), reducing deployment time by 30%** and increasing system agility.
- Delivered robust full-stack applications by developing secure **APIs** and responsive front-ends **(TypeScript/JavaScript)** connected to **SQL** databases.
- Enabled data-driven decision-making by delivering advanced analytics with **IBM Watson Studio, improving reporting efficiency by 50%.**

Specialist - Platform Development
Thrifle Technologies, Startup Based in USA
September 2021 to July 2022 (11 months)

Technology Stack

Google Analystics 4, Adobe XD, Figma, Web Scrapping, PowerBI

- Enabled data-informed product decisions by analyzing user behavior with **Google Analytics 4** and creating actionable dashboards in **PowerBI**.
- Translated business requirements into a clear development roadmap by designing user centric wireframes and prototypes in **Figma** and **Adobe XD**.
- Supported go-to-market readiness by using **web scraping** techniques to gather competitive intelligence and inform product strategy.

Projects

Core Technology

Python (Pandas, NumPy, Scikit-learn), Machine Learning, ELT Pipelines, Data Analysis

IoT Logistics Analytics Platform (with Munich Airport - EuroTrade)

- **Architected** a modular Python data pipeline, **scalable to real time data**, to solve the core business problem of untraceable assets, transforming over 500,000 chaotic IoT log entries into a structured dataset that provided complete operational transparency.
- Developed predictive **machine learning models** that analyzed journey data, successfully identifying **potential disruptions**, enabling a proactive shift from reactive fixes to **predictive maintenance**.
- **Pinpointed** the root cause of acute system failures by analyzing path anomalies, flagging 56 broken journeys that led directly to a recurring bottleneck and providing Eurotrade with the **actionable data needed to solve the "lost box" problem**.

Core Technology

Deep Learning (Attention-based CNNs), Python, TensorFlow, MATLAB

Super Resolution of Hyperspectral Images (with TerraCore Imaging)

- **Architected** a novel **attention-based Convolutional Neural Network (CNN)** in **TensorFlow** to solve the problem of low-resolution sensor data, successfully fusing hyperspectral and multispectral images for enhanced analysis.
- **Achieved** a **2x spatial resolution enhancement** that outperformed standard interpolation methods, boosting image PSNR by nearly **4 dB** while critically maintaining over **90% spectral similarity** for accurate ore classification.
- **Secured 2nd place** among more than 20 competing projects by delivering a validated, low cost deep learning prototype with direct application for **TerraCore imaging's** mining operations.

Education History

Master of Science in International Information Systems
Institution: *Friedrich-Alexander-Universität Erlangen-Nürnberg*
Year of Graduation: 2026

Bachelor of Science in Engineering Science
Institution: *Ghulam Ishaq Khan Institute of Engineering Sciences & Technology*
Year of Graduation: 2018

- Gold Medallist
- Dean's Honor Role in 5 out of 8 Semesters

Certifications

- **Data Science Professional Certificate**, *IBM*
- **Elements of Artificial Intelligence**, *University of Helsinki*
- **DevOps Fundamental**, *EdYoda Digital University*
- **Transforming Data into Information using Power BI**, *Supply Chain Talks*

Languages

- **English** *(C1)*
- **German** *(A2)*
- **Urdu** *(Native)*

Digital Signature:

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