

Muhammad Ali Khan

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TECHNICAL SKILLS

Languages: Python, C/C++, Java, SQL, HTML/CSS, JavaScript

Frameworks: PyTorch, TensorFlow, Keras, Flask, Scikit-learn

Libraries & Tools: NumPy, Pandas, OpenCV, Matplotlib, Whisper, HuggingFace Transformers, TTS, SST, Prometheus, Grafana, MLflow

Developer Tools: Git, GitHub, DVC, Docker, Google Cloud Platform, Cursor, GitHub Copilot, IntelliJ, Visual Studio

EXPERIENCE

Teaching Assistant – Statistical Modelling

February 2025 – June 2025

FAST National University

Islamabad, Pakistan

- Assisted in course delivery, grading and supporting students in understanding statistical modeling concepts.

Research Intern – Artificial Intelligence and Machine Learning Lab

June 2023 – August 2023

FAST National University

Islamabad, Pakistan

- Explored and fine-tuned open-source **Large Language Models** (LLMs) such as **Falcon** and **LLaMA 2** for customer query datasets.
- Applied **NLP** techniques like **cosine similarity** to enhance data retrieval and semantic matching.
- Gained hands-on experience in model training, evaluation, and deployment pipelines for language tasks.

FINAL YEAR PROJECT

Palantir360 | Python, Colmap, Flask, Gaussian Splatting, Unity, GitHub, Oculus Link

August 2024 – June 2025

- Developed an innovative virtual reality experience that turns standard real estate walkthrough videos into fully interactive, **3D property tours**.
- Designed a smart **video-to-3D pipeline** that captures detailed spatial data to recreate stunningly lifelike environments.
- Seamlessly connected the **3D models** with **VR headsets**, allowing potential buyers to explore every corner of a property as if they were actually there.

PROJECTS

PureWeather AI | Python, Flask, Docker

December 2024 – January 2025

- Developed an **LSTM-based** time series model to predict air pollution levels with high accuracy.
- Integrated the model with **Prometheus** and **Grafana** for real-time monitoring and visual pollution alerts.

Agentic AI Psychiatrist | Python, LangChain, LangGraph, Streamlit, LangSmith

October 2025 – November 2025

- Developed an interactive **agentic psychiatrist system** utilizing LangChain and LangGraph for multi-turn dialogue management and reasoning.
- Designed and deployed a **Streamlit frontend** for real-time user engagement, enabling dynamic assessment and personalized therapeutic suggestions.

Agentic AI Travel Planner | Python, LangChain, LangGraph, LangSmith

October 2025 – November 2025

- Created an **agentic travel planning assistant** using LangGraph to coordinate agentic workflows for trip.
- Leveraged **LangSmith** to refine agent behaviors, monitor chain outputs, and end-to-end evaluation.
- Developed a **Streamlit dashboard** enabling seamless input of travel preferences, real-time suggestions.

PDF-to-Audio TTS Microservice | Flask, Coqui TTS, Docker, Locust, Postman

March 2025 – April 2025

- Built a **Flask-based microservice** that extracts text from PDFs, segments it with spaCy, and generates expressive multilingual audio using **Coqui XTTS**.
- Features: PDF upload, page range extraction, WAV/MP3 output, streaming, **Postman testing**, **Dockerization**, **gRPC-ready API**, and **Locust-based** performance testing.

EDUCATION

FAST National University of Computer and Emerging Sciences

Islamabad, Pakistan

Bachelor of Computer Science, Major in Artificial Intelligence

September 2021 – June 2025

Cadet College Hasanabdal

Hasanabdal, Punjab

Intermediate in Pre-Engineering

April 2016 – June 2021