

CONTACT

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ABOUT ME

Having 8+ years of experience, skilled in Python, Machine Learning, Deep learning, TensorFlow, Prompt Engineering, and Large Language Models (LLM). Proficient in using Retrieval-Augmented Generation (RAG) for advanced data analysis and problem-solving. Demonstrates strong analytical thinking and a proactive approach to developing innovative solutions. Adept at collaborating with cross-functional teams and effectively communicating complex technical concepts.

EDUCATION AND TRAINING

08/09/2018 – 31/05/2021 Tianjin, China

MS in Software Engineering Tianjin Unveristy

Fellowship: Chinese Government Scholarship (CSC) 2018

Grade: 88.56% (3.9/4 CGPA)

Thesis Title: Indoor Positioning System for Finding the Location and Predicting Missing Fingerprints.

Major Courses: Advance Artificial Intelligence, Internet of Things (IoT) Technology and Application, Big Data Algorithm, Sensors and Sensing Technology, Applied Statistics, Thesis Proposal, and Literature Reading.

Website <https://www.tju.edu.cn/>

08/01/2012 – 31/12/2015 Sukkur, Pakistan

BS in Computer Science Sukkur IBA University

Fellowship: Merit-Based ICT R&D Fund Scholarship 2016

Grade: 79.36%

Thesis Title: Sign Language Interpreter for Mute People.

Major Courses: Artificial Intelligence, Human-Computer Interaction (HCI), Sensing Technologies, Distributed Computing, Probability and Statistics, Mobile Application Development, Algorithms, Data Structures, Discrete Structures, Theory of Automata, and Compiler Construction.

Website <https://www.iba-suk.edu.pk/>

PROJECTS

Selected Projects

- [NetFault_LLM](#) – LLaMA-powered fault diagnosis for broadband performance and issue classification.
- [Dynamic Diffusion](#) - Implementing DDPM with Custom Beta Schedules, also it focuses on implementing a Diffusion Probabilistic Model (DDPM) with a custom beta schedule, allowing dynamic adjustment during the diffusion process.
- [Color Recognition CNN](#) – Classified colors in images under diverse lighting using a custom CNN.
- [Emotion Classification using MobileNet](#) – Fine-tuned MobileNet on grayscale emotion dataset with augmentation and TensorFlow.
- [HGR: Hand Gesture Recognition for AR/VR](#) – CNN-based gesture-to-text input method for AR/VR wearables using convex hull segmentation.
- [WiFi-GAN-IPS](#) – GAN model for reconstructing missing Wi-Fi fingerprints and boosting indoor positioning accuracy.
- [MultiScale LSTM Anomaly](#) – MSC-LSTM for anomaly detection on cellular time-series data, integrated with SMOTE.
- [Fake News Detection](#) – ML-based pipeline for binary classification of news authenticity using NLP techniques.
- [Energy Detection in CRNs](#) – Spectrum sensing model using energy detection for Cognitive Radio Networks.
- [FashionMNIST Classification](#) – CNN-based classifier for fashion items trained on the Fashion-MNIST dataset.

- [Algorithmic Insights: MWIS](#) – Heuristic vs. brute-force optimization for the Maximum Weighted Independent Set problem.
- [IoT Building Security System](#) – Smart security system using PIR, flame, and ultrasonic sensors for real-time threat detection.
- [MLP Based Malicious-vs-Legitimate](#) - Multilayer Perceptron (MLP) model to classify user behavior as either "Malicious" or "Legitimate" based on energy consumption and user data.
- [Sign Language Interpreter for Mute People](#) - The Sign Language Interpreter is a system designed to bridge the communication gap between mute/deaf individuals and those who can speak and hear.
- [RB-IRP: Bio-Influenced Routing Protocol for IoT Devices](#) – Ant-colony-based IoT routing protocol simulated in OMNeT++ for optimized data transmission.

WORK EXPERIENCE

Investigator (DL/ML) (REMOTE)

DM, Lisbon, Portugal.

March 2022 – October 2024, Rejoined: Present

- Designed and implemented deep learning models (MSC-LSTM, MLP) for anomaly and behavioral classification in cellular and energy datasets.
- Developed **NetFault_LLM**, a broadband fault detection tool using the **LLaMA** model to evaluate network performance and generate resolution reports.
- Engineered a **CNN model** for robust color classification under variable lighting, and applied **SMOTE** to balance highly skewed datasets.
- Created prompt evaluation scripts and benchmarking tools (e.g., BLEU scoring) as part of an **LLM prompt engineering** toolkit.
- Achieved **92%+ accuracy** in anomaly detection using MSC-LSTM, outperforming traditional models in cellular network datasets.
- Increased classification recall by **28%** using SMOTE and advanced feature engineering techniques.
- Reduced broadband issue diagnosis time by **40%** with NetFault_LLM, delivering real-time fault insights powered by LLaMA.
- Deployed multiple end-to-end pipelines using **TensorFlow, PyTorch, scikit-learn, and Keras**, integrating CI/CD for fast iteration.
- Open-sourced 5+ projects showcasing expertise in **deep learning, NLP, and model evaluation**, with clean and reproducible codebases.

LLM Python Developer (REMOTE)

Turing.com (Client Microsoft), San Francisco, USA.

October 2024 - February 2025

- Fine-tuned large language models using Supervised Fine-Tuning (SFT) and Reinforcement Learning with Human Feedback (RLHF) in Python.
- Developed and evaluated model responses using Python and JavaScript, enhancing relevance and consistency across use cases.
- Conducted advanced data analysis and feature engineering to drive improvements in model behavior and performance. Optimized predictive algorithms and deployed models into production environments with minimal latency.
- Achieved 100% on-time delivery of model iterations and updates, adhering strictly to service-level objectives (SLOs).
- Clearly communicated insights and model evaluation findings to cross-functional teams and stakeholders.
- Promoted to **Secondary PoD Lead** based on Performance.

Skills: Python, JavaScript, R, TensorFlow, PyTorch, scikit-learn, SQL, data visualization, statistical analysis, model evaluation, model deployment, RLHF, SFT, prompt engineering, NLP, large language models (LLMs), cloud computing (AWS, Azure), data transformation, feature engineering, data science frameworks, big data tools (Hadoop, Spark), latest LLMs (LangChain, GPT-4, BERT, T5, LLaMA), version control (Git, GitHub), development tools (VSCode, Jupyter, Docker, Conda), API development (FastAPI, Flask).

Data Analyst

AgriDunya – Karachi, Pakistan

June 2019 – June 2022

- Conducted data cleaning, preprocessing, and exploratory analysis across agricultural datasets to extract actionable insights.
- Designed and developed machine learning models for classification, prediction, and anomaly detection tasks.
- Developed a **GAN-based Indoor Positioning System** to predict missing fingerprints, improving signal tracking accuracy in low-visibility areas.
- Built **CNN models** for Fashion-MNIST and color recognition under variable lighting, achieving high classification accuracy.

- Created an **ML pipeline for fake news detection**, applying natural language processing and feature extraction techniques.
- Applied ML to **Cognitive Radio Networks** for energy detection and spectrum sensing, enhancing network efficiency in real-time.
- Documented and open-sourced 5+ research-grade ML projects on GitHub using Python, TensorFlow, Keras, and Scikit-learn.

Python Developer

T IT Solution – Karachi, Pakistan

01/07/2016 – 01/08/2018

- Implemented optimization algorithms like **Greedy Heuristics and Exhaustive Search** for solving MWIS problems in graph theory using Python.
- Built an **IoT-based Building Security System** integrating ultrasonic, flame, and PIR sensors for intelligent real-time threat detection.

TECHNICAL STRENGTHS & SKILLS

Core Languages & Backend:

Python (Advanced), JavaScript (ES6+), TypeScript, Bash
FastAPI, Flask, Django, RESTful APIs, WebSockets

LLMs & NLP Frameworks:

Transformers (Hugging Face), LangChain, LlamaIndex, OpenAI API, Cohere, BERT, GPT-4, T5
Supervised Fine-Tuning (SFT), Reinforcement Learning with Human Feedback (RLHF), Prompt Engineering

Machine Learning & Deep Learning:

TensorFlow, PyTorch, Scikit-learn, Keras
Techniques: Classification, Regression, Clustering, Diffusion Models, GANs, Transfer Learning
Data Handling: Pandas, NumPy, Dask, SMOTE, Feature Engineering

Frontend (UI for AI Apps):

React.js, Next.js, Tailwind CSS, HTML5, CSS3, Chart.js, D3.js
Integration: API consumption, state management (Redux, Context API), responsive UIs for dashboards

Databases & Storage:

MongoDB, PostgreSQL, MySQL, Firebase, Redis, SQLite

Cloud & DevOps:

Docker, GitHub Actions, AWS (EC2, S3, Lambda), Azure, CI/CD pipelines, Streamlit, Gradio

Tools & Environments:

Jupyter, VS Code, Postman, Git, Conda, Pyenv, Hugging Face Hub, Weights & Biases

PUBLICATIONS

- [HGR: Hand-Gesture-Recognition Based Text Input Method for AR/VR Wearable Devices \[1\]](#)
- [Unsupervised Facial Expression Detection Using Genetic Algorithm \[2\]](#)
- [Color Recognition in Challenging Lighting Environments: CNN Approach \[3\]](#)
- [Implementation of Maximum Weighted Independent Set Through Brute Force and Greedy Heuristic Approaches \[4\]](#)
- [AINS: Affordable Indoor Navigation Solution via Line Color Identification Using Mono-Camera for Autonomous Vehicles \[5\]](#)
- [The Use of Transfer Learning-Based Framework for Fault Forecasting in Cellular Networks \[6\]](#)
- [Multi-Scale Convolutional LSTM with Transfer Learning for Anomaly Detection in Cellular Networks \[7\]](#)
- [Comparative Analysis of Software Process Models in Software Development \[8\]](#)
- [Auxiliary Services of Imaging in Vehicle Recognition: An Image Processing-Based Approach \[9\]](#)

SUMMER SCHOOLS

- *Deep Learning and Computer Vision*, June, 4-9, 2023, MaLGa - Machine Learning Genoa Center and the Istituto Italiano di Tecnologia (IIT), **Genoa, Italy**. [\[Certificate Link\]](#)
- *Generative Modelling*, June, 24-30, 2023, Danish Data Science Academy, the Pioneer Centre for AI (P1), and the Center for Basic Machine Learning Research in Life Science, **Copenhagen, Denmark**. [\[Certificate Link\]](#)
- *RAMONaas*, June 25-27, 2024, IMT Atlantique Bretagne-Pays de la Loire **Brest France**. [\[Certificate Link\]](#)
- i2CAT Summer School, 25-29 November 2024, i2CAT - The Internet Research Center, Barcelona, Spain. [\[Certificate Link\]](#)
- VISMAL "VIsione delle MACchine", September 4-8, 2023, DIPARTIMENTO DI MATEMATICA "TULLIO LEVI-CIVITA", University of Padova, **Padova, Italy**. [\[Certificate Link\]](#)

CERTIFICATIONS

- **Internship: Introduction to AI, Data Science, and Statistics (2 Months)** UTKARSH MINDS, India, **Certificate** [Link](#)
- **LLMOps: Building Real-World Applications With Large Language Models** Udacity (in collaboration with Comet) **Certificate** [Link](#)
- **Expressway to Data Science: Python Programming**, Courseera.com **Certificate** [Link](#)
- **Test and Debug Your Build with Visual Studio Code** **Certificate** [Link](#)
- **Image Classification with CNNs using Keras** **Certificate** [Link](#)
- **Visualizing Filters of a CNN using TensorFlow** **Certificate** [Link](#)
- **Introduction to Data Science in Python** **Certificate** [Link](#)
- **Linux Fundamentals** **Certificate** [Link](#)
- **Introduction to Applied Machine Learning** **Certificate** [Link](#)
- **Python Basics** **Certificate** [Link](#)
- **Programming for Everybody (Getting Started with Python)** **Certificate** [Link](#)

AWARDS AND GRANTS

Fellowships for Education:

- Fully Funded fellowship, Doctoral Network (DN), **Marie Skłodowska-Curie Actions (MSCA)**. Honored with DN under MSCA, Scion 2023.
- Fully Funded fellowship, **Chinese Government Scholarship (CSC)**. Awarded CSC in 2018 by the Government of China
- Fully Funded fellowship, **Merit-Based ICT R&D Fund Scholarship** for BS, Government of Pakistan. Received in 2011.

SOCIAL ACTIVITIES

- Active Member of the Community Welfare Society at the University Level.
- Active Member of the Information Technology Society at the University Level.