

# BILAL SAEED

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## Bilal Saeed

Data Science Professional with a strong passion for leveraging Machine Learning, Artificial Intelligence, and cutting-edge technology to solve complex Real World problems. Expert in building robust, end-to-end machine learning pipelines, encompassing data acquisition, preprocessing, model development, and deployment. Skilled in transforming raw data into predictive models and AI-driven solutions that are empowered to automate processes, uncover hidden insights, and make strategic, data-driven decisions. Continuously advancing expertise through education at top institutions in Pakistan and certifications from industry leaders like 365 Data Science & cognitive AI, staying at the forefront of AI and machine learning innovations. Committed to lifelong learning and pushing the boundaries of AI to shape a smarter, data-powered future.

## EDUCATION & CERTIFICATIONS

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| - <b>BS-Information Technology</b><br>Lahore Leads University<br>CGPA : 3.42/4 , Transcript Attached Here | Sep 2013 - Jul 2017 |
| - <b>365 Data Science Career Track Certification</b><br>365datascience.com                                | Nov 2022            |
| - <b>Ethics and Governance of Artificial Intelligence For Health</b><br>WHO (World Health Organization)   | Oct 2024            |

## PROFESSIONAL EXPERIENCE

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**Senior Communication Officer**  
Punjab Safe Cities Authority (2019 - Present)

- **Call Sentiment Analysis :**
  - Developed a sentiment analysis system for Emergency 15 calls using NLP techniques.
  - Implemented Speaker Diarization to differentiate voices, enhancing conversation insights.
  - Improved quality assurance and optimized response strategies by classifying emotional tones.
- **Predictive Policing :**
  - Designed a system to forecast criminal activity and optimize resource allocation.
  - Conducted data cleaning, feature engineering, and hyperparameter tuning for improved model accuracy.
  - Enabled proactive crime prevention, resulting in a measurable reduction in crime rates.
- **Emergency-15 Dashboard :**
  - Created a real-time dashboard for monitoring emergency response times and operational efficiency.
  - Developed APIs with Flask to ensure seamless data integration and continuous monitoring.
  - Visualized key metrics using Matplotlib and Seaborn, empowering data-driven decision-making.

## Additional ML Projects

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- **Audio Classification of Capuchin Birds:** Built a CNN model to classify bird calls, aiding wildlife monitoring and conservation.
- **Medical Chatbot:** Implemented a medical chatbot using Langchain for text extraction and vector search, enabling accurate responses to health-related queries.
- **Customer Segmentation:** Applied clustering algorithms to segment customers by behaviour and demographics, enabling targeted marketing.
- **Movie Reviews Sentiment Analysis :** Built an LSTM model to classify movie reviews by sentiment, aiding in audience trend analysis and content moderation.
- **Language Detection:** Developed an NLP-based model to accurately classify text in five different languages, trained on a diverse multilingual dataset. This solution enables high-precision content categorization and automated language-based routing.
- **Fraud Detection System:** Built a machine learning pipeline to detect fraudulent transactions using supervised learning techniques. Conducted extensive feature engineering, including time-series analysis and anomaly detection. Achieved a 91% precision score by leveraging ensemble models and hyperparameter tuning, enabling the early identification of fraudulent activity and reducing financial losses.

## SKILLS

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- **Platforms :** Jupyter Notebook, Google Colab, AWS (EC2, S3, SageMaker), Azure ML, Google Cloud Platform (GCP), Docker, Kubernetes, Git, Linux, Hadoop, Spark
- **Tools :** Scikit-Learn, TensorFlow, PyTorch, Keras, Hugging Face Transformers, XGBoost, LightGBM, CatBoost, Prophet, OpenCV, NLTK, SpaCy, Selenium, FastAPI, Flask, Airflow, MLflow, DVC (Data Version Control), Streamlit, Tableau, Power BI
- **Major Skills :** Data Preprocessing & Feature Engineering, Predictive Analytics & Forecasting, Machine Learning Model Development, Model Evaluation & Hyperparameter Tuning, Deployment & Automation (Flask, Docker), NLP , ETL/ELT.

## INTERESTS

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Reading | Travelling | Sports