Mohammed Pathariya

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Education

Master of Science in Data Science, Indiana University — Bloomington, IN, USA
Coursework: Applied ML, Cloud Computing, Statistics, Data Viz, Database Tech — Aug. 2024 – Exp. May 2026

BE in Artificial Intelligence & Data Science, Pune University — Pune, MH, India
Coursework: Machine Learning, Data Science, Artificial Neural Networks, Data Structures — Aug. 2020 – May 2024

Projects

AudioGroove: AI-Based Music Generation | *Generative AI & Data Science* — Oct. 2023 – Apr. 2024
- Built a platform for generating genre-specific music using AI, with over 100 users customizing tracks via an interactive interface.
- Led data collection and analysis for evaluating DCGAN vs. LSTM models using TensorFlow and Keras, comparing output quality and efficiency.
- Enabled model tuning and customization based on user feedback, achieving 85% satisfaction with audio output.
- Analyzed waveform and spectrogram data distributions to identify feature patterns influencing music quality across genres.

Sign Language Recognition System | *Computer Vision & Data Science* — Oct. 2022 – Mar. 2023
- Developed a real-time sign language detection system to convert gestures into text, enhancing communication accessibility.
- Collected and preprocessed gesture data using OpenCV and MediaPipe, achieving 78% classification accuracy.
- Performed model evaluation and iterative refinement using TensorFlow to support up to 20 translations / minute.
- Performed data augmentation and statistical analysis to enhance dataset diversity and improve model generalization.

VAYU: Air Quality Forecasting | *Time Series Forecasting & Data Science* — Jun. 2023 – Sept. 2023
- Analyzed historical air quality data from OpenAQ to predict AQI trends using LSTM models for city-level environmental planning.
- Optimized hyperparameters using Adam optimizer, improving prediction accuracy by 30% and achieving 74% model accuracy.
- Used RMSE to evaluate model performance, achieving 3.58 (train) and 5.23 (test) RMSE.

Experience

Sparkwood IT Solutions — Feb. 2022 – Jul. 2022
Data Engineering Intern — *Pune, India*
- Built automated data pipelines using Python and SQL to deliver structured datasets for sales and product performance analysis.
- Designed and optimized SQL schemas, enhancing data accessibility and reducing query times by 40%.
- Developed ETL workflows for ingesting and transforming raw data, boosting reliability for downstream analytics and modeling.
- Partnered with data and full-stack teams to ensure data readiness for exploratory analysis and reporting.

Technical Skills

Programming Languages: Python, R, SQL, MongoDB, Bash
Data Analysis Tools: Pandas, NumPy, Matplotlib, Seaborn, Tableau, PowerBI, BigQuery, Excel
Statistical & ML Methods: Regression, Hypothesis Testing, Classification, Clustering, Time Series Forecasting
Machine Learning Libraries: Scikit-learn, TensorFlow, Keras, XGBoost
Version Control & Collaboration: Git, GitHub, Jupyter Notebooks, VS Code
Professional Skills: Data Storytelling, Communication, Cross-Functional Collaboration, Problem Solving

Publications

Tunes by Technology: Comprehensive Survey of Music Generation Models — Apr. 2024
ICC Robins, (DOI - 10.1109/ICC-ROBINS60238.2024.10534029) — *Pune, India*
- Published research on AI-based music generation, analyzing GANs and RNNs for automated composition.