NISCHAL MANDAL

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PROFILE

MSc in Data Science with a background in Electronics and Communication, experienced in machine learning, statistical modelling, and cloud optimization. Led a team to improve system efficiency and reduce costs, while mentoring projects in IoT and data analysis. Skilled in Python, Django, AWS, SQL, and statistical techniques, with experience in data preprocessing, hypothesis testing, and predictive modelling. Seeking to apply knowledge in data analysis and model development.

EDUCATION

University of East London London, United Kingdom
Msc. Data Science 2023-2024
Grade: Distinction
Dissertation: Cross model Sentiment Analysis: Unifying Audio and Text model

Tribhuvan University Sunsari, Nepal
B.E in Electronics and Communication 2013-2018
Grade: First
Final Year Project: Emotion recognition using biosensors

WORK EXPERIENCE

Meowork IT Solution Kathmandu, Nepal
Full-Stack Developer 2020-2022

- Led a team of five to develop scalable data applications using **Python and Django**, integrating machine learning models to enhance predictive accuracy by **14%.**
- Designed and optimized **20+** data pipelines with Pandas and AWS, lowering computational costs by **20%** through efficient cloud resource management.
- Created **50+** pages of technical documentation and automated 10+ workflows for data preprocessing, model training, and deployment, increasing team efficiency **by 25%.**
- Strengthened system reliability by reducing **ETL pipeline errors** by 8% and maximizing uptime for real-time predictions.

Itahari International College Itahari, Morang, Nepal
Lecturer (IoT and Cloud Computing) 2019-2020

- Conducted hands-on workshops on machine learning, data analytics, IoT, and cloud computing (AWS, GCP), enhancing technical proficiency for **100+ students**.
- Supervised **50+ projects**, assisting teams in developing predictive models, IoT systems, and AI solutions, resulting in 5+ national competition qualifications.
- Created course materials and conducted research on data security, model optimization, and cloud performance, improving system reliability **by 30%.**

PROJECTS

Cross-Domain Sentiment Analysis: Unifying Text and Audio Modalities
Msc Dissertation

- Trained a deep learning model using LSTM and CNN on the IEMOCAP dataset, achieving **75%** classification accuracy for sentiment analysis.
- Applied NLP techniques to extract features from speech and text, enhancing recognition of emotional cues.

Heart disease prediction and comparative study
Msc Coursework

- Evaluated **Random forests, SVMs, and neural networks** to assess cardiovascular risk factors.
- Engineered an ML-powered **predictive model** for early heart disease detection, achieving higher accuracy than traditional statistical approaches.

Movie recommendation system based on Netflix data
Msc Coursework

- Designed a recommendation engine utilizing **Matrix Factorization and K-NN**, optimizing content suggestions based on user behaviour. ·
- Processed **10M+ Netflix records**, refining collaborative filtering algorithms to enhance user engagement.

Emotion recognition using biosensors
B.E Final Year Project

- Developed a **real-time** recognition system using sensor data (heart rate, temperature, skin conductance) for emotion detection. ·
- Implemented **K-Means clustering** to categorize anger, happiness, and neutrality, achieving **85%** precision.
- Engineered a monitoring system to assist individuals with **intellectual disabilities** in real-time emotion tracking.

IoT based Office Assistant robot
B.E Minor Project

- Developed an **AI-powered voice assistant** using **Raspberry Pi and NLP**, showcased at CAN Info-Tech 2020.
- Integrated **computer vision and speech processing** for automation in office environments.

PUBLICATIONS

Rethinking Multimodal Sentiment Analysis: A High-Accuracy, Simplified Fusion Architecture
Status: Manuscript Under Review

- Developed a **fusion-based sentiment analysis model** integrating **text, audio, and video modalities**, achieving **92% accuracy**.
- Designed a **simplified yet effective architecture** that **reduces computational complexity** while maintaining **state-of-the-art performance**.
- Currently under **faculty review** before submission to a **peer-reviewed journal**.

KEY SKILLS

- **Basic Skills**: robotics · ability to work with diverse groups · collaborate · communication · operations research · solving business problems · statistics
- **Programming**: C · C++ · MySQL · NumPy · Pandas · Python · R · Spark SQL · SQL · SQLite
- **Machine Learning & AI**: algorithms · computer vision · deep learning · implementing algorithms · LLMs · NLP · Predictive Modelling · PyTorch · Scikit-Learn · TensorFlow
- **Big Data & Cloud Computing**: AWS · data mining · Data Pipelines · ELT · ETL · Hugging Face Transformers · PySpark
- **Full-Stack Development**: Django · Git · Github · REST APIs
- **Data Engineering**: Data Wrangling · Feature Engineering · Statistical Analysis