Souvik Deb

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Education

MSc in Big Data Analytics 2024 – Present
Your University Name, City

BSc in Mathematics (Honors) 2021 – 2024
Scottish Church College, Kolkata *CGPA 7.8*

Projects

Movie Rating Prediction Model | *Python, Scikit-learn, Pandas, Matplotlib* 2024

- Built a regression model to predict IMDb ratings using various ML algorithms.
- Explored normalization techniques to improve gradient descent performance.
- Evaluated model using MAE, MSE and R-squared metrics.

Time Signature Detection with ResNet | *PyTorch, Librosa, Torchaudio, Deep Learning* In Progress – Expected May 2025

- Developing a CNN-based classifier using ResNet-18 to detect time signatures in musical audio recordings.
- Extracting multiple audio features including Mel-Spectrograms, Onset Envelopes, Tempograms, Beat Histograms, Chroma STFT, and Tonnetz features.
- Leveraging GPU-accelerated pipelines with `torchaudio` and `librosa` for efficient feature extraction.
- Enhancing generalization using audio data augmentation techniques such as pitch shifting, time stretching, and noise injection.
- Using the METER2800 dataset from Harvard Dataverse, covering diverse time signatures such as 3/4, 4/4, 5/4, and 7/4.
- Organizing features and metadata into reusable formats (`.npy` and `.csv`) for scalable model training and evaluation.

Driver Drowsiness Detection System | *Python, OpenCV, Deep Learning* In Progress – Expected May 2025

- Designed a real-time computer vision system to detect drowsiness based on facial cues.
- Used Haar cascades and CNNs to identify eye closure and yawning in webcam video.

Technical Skills

Languages: Python, C, R, Sagemath
Libraries/Tools: NumPy, pandas, Matplotlib, Scikit-learn, OpenCV, PyTorch, TensorFlow, Seaborn
Technologies: Hadoop, Git, Jupyter Notebook, Google Colab, VS Code
Areas of Interest: Supervised and Unsupervised Learning, Deep Neural Networks, Convolutional Neural Networks (CNNs), Recurrent Neural Networks (RNNs), Natural Language Processing (NLP), Sentiment Analysis, Text Classification, Transfer Learning, Data Preprocessing, Model Evaluation, and Interpretability