DEEP LEARNING APPLICATIONS IN MUSIC GENRE RECOGNITION

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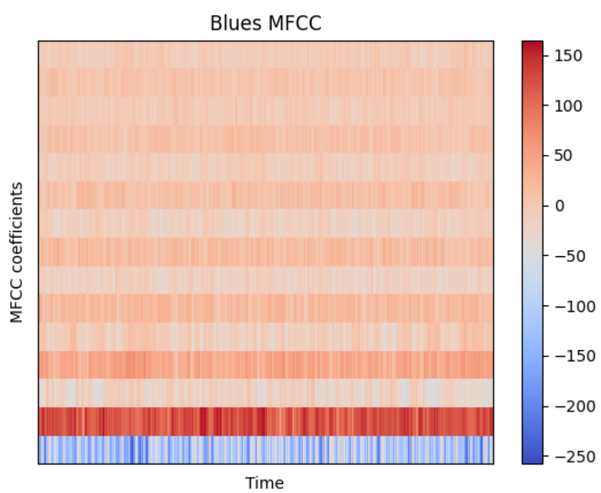
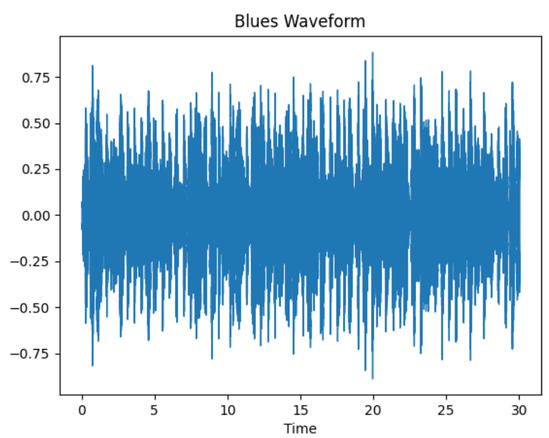
MOTIVATION

- Current era songs take features from multiple genres, making classification a real issue.
- Large music datasets are almost impossible to classify without automatization.
- The ability to classify songs can help big streaming companies perfect their music recommendation systems.



REPRESENTATION AND DATASET

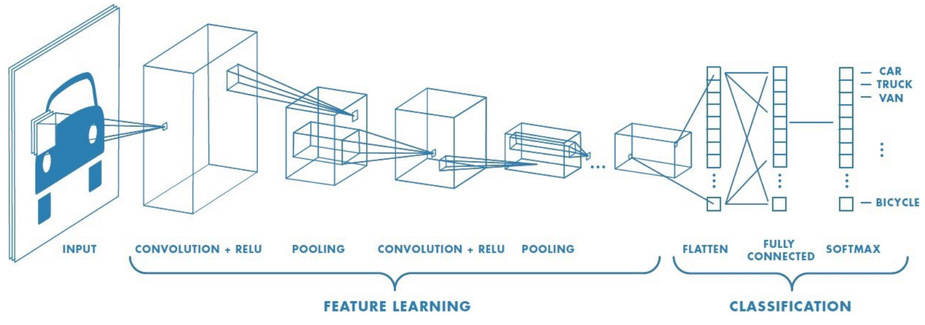
- Because the waveforms represent an inaccurate way of classifying songs, the Neural Network uses the MFCC (Mel-Frequency Cepstral Coefficients) as data.
- The proposed model makes use of the GTZAN dataset.



PROPOSED MODEL

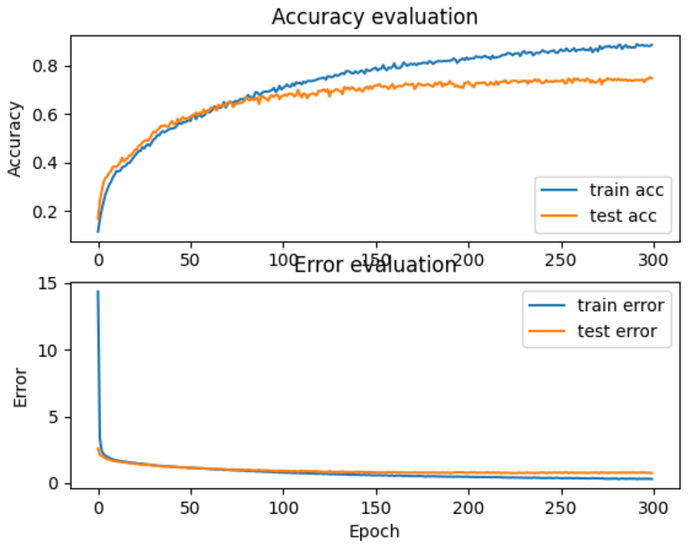
The proposed model uses a Convolutional Neural Network with the following layout:

- 3 Convolutional Layers, each having 32 units.
- For each Convolutional Layer, a Max-Pooling Layer is added.
- Last two Conv. Layers also have a Dropout Layer (0.3 probability) in order to prevent overfitting.
- The output of the Conv. Layers is flattened and fed into a Dense Layer with 64 units and ReLU activation.
- Fully Connected final layer with 10 units and Soft-Max activation.



OBTAINED RESULTS

- The proposed model has achieved a maximum accuracy of 80%, a satisfactory result given the relatively small size of the dataset



The implementation using TensorFlow, Keras and NumPy is available on **GitHub:**
https://github.com/911AstalusAdrian/CVDL_Project