AAI-511 – Team Project Status Update Form

Fill out this form and submit it by the end of Module 4 in Canvas.

Team Number: group6

Team Leader/Representative: Swathi Subramanyam Pabbathi

Full Names of Team Members:

1. Carlos Alberto Ortiz Montes De Oca

2. Omar Sagoo

3. Swathi Subramanyam Pabbathi

Title of Your Project: Music Genre and Composer Classification Using Deep Learning

Short Description of Your Project and Objectives: Music is a universal language that transcends cultures and generations. Classical composers such as Bach, Beethoven, Mozart, and Chopin are known for their distinct styles, yet their compositions often share structural and melodic similarities that make it difficult even for trained musicians to distinguish between them by ear or by score alone.

This project aims to explore whether computational techniques, specifically deep learning, can learn to distinguish between these composers based on their musical characteristics. By analyzing patterns in musical structure, dynamics, tempo, pitch, and harmony extracted from MIDI files, we seek to develop a system that can predict the composer of a given musical piece.

Using a dataset of MIDI files collected from classical composers, we preprocess the data by extracting chunks of 200 notes and computing a range of statistical and musical features. We then train deep learning models including Long Short-Term Memory (LSTM) networks and Convolutional Neural Networks (CNNs) to learn and classify the compositional styles of the selected composers. The objective is to build and evaluate deep learning models Long Short-Term Memory (LSTM) and Convolutional Neural Networks (CNN) to classify each musical chunk by composer. We perform extensive exploratory data analysis to understand feature distributions and stylistic differences, followed by training and evaluation using accuracy, classification metrics, and confusion matrices. The final models are intended to support music classification tasks and provide insights into composer-specific patterns in classical music.

Description of Your Selected Dataset (data source, number of variables, size of dataset, etc.):

The dataset used in this project consists of MIDI files representing classical music compositions by four renowned composers: Johann Sebastian Bach, Ludwig van Beethoven, Frédéric Chopin, and Wolfgang Amadeus Mozart. The dataset was sourced from a publicly available collection on Kaggle, containing hundreds of MIDI files organized by composer.

After filtering for the selected composers and segmenting each piece into chunks of 200 notes, the final dataset contains approximately 23,674 rows (or segments), with each row representing a distinct 200-note chunk. Each row includes 15 variables, such as composer label, filename, and 12 numerical musical features like tempo, average pitch, pitch range, note duration statistics, velocity, and chord density. The dataset is approximately 40–50 MB in memory size after processing and provides a rich foundation for learning stylistic differences between composers through statistical and temporal patterns in music.

Are you using and practicing GitHub as a code hosting platform for version control and collaboration? If yes, provide the link here:

https://github.com/PSswathi/music-genre-and-composer-classification

How many times have your members met in the last two weeks? twice

List the specific contributions that each team member is providing for the Final Team Project in the table below.

- **NOTE:** ALL students on the team should contribute equally to the Final Team Project.

Swathi Subramanyam Pabbathi	**Omar Sagoo**	**Carlos Alberto Ortiz Montes De Oca**
List of contributions Data Preparation EDA LSTM modelling and evaluation	List of contributions CNN modelling and evaluation Model Deployment	List of contributions Report writing of every week analysis Update ReadMe

Comments/ Roadblocks: There are no any roadblocks found yet.