Analyzing the Musical "Genome" With Neural Networks

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Music theory suggests the presence of a cultural and emotional pattern in music that allows for humans to recognize the feelings or origins of a song. This project is a program that takes a collection of imputed music to determine and find any patterns to define the genre and origin of the music. To do this the program begins by taking user inputted music that they have predetermined into a specific musical category. The software then uses an AI of neural networks that takes the audio files and uses a self learning machine learning algorithm to separate each musical instrument in the audio file into its own separate audio file. The program then takes the separated audio files and generates sheet music and determines the bpm of the music. The software then generates an alphanumeric code for each note on the clef and notation (sharp, flat, staccato, ect.). This data is then converted into a binary format for data analysis in python (the binary format is key to use the integer processing in python). After the analysis songs can be inputted into the program and find the emotional or cultural influence of the song. The data collected from the program discovered that all music follows a certain pattern in the appearance of notes, rests, and note length. While the proportionality of each note in the genre isn't equivalent, the data suggests that all musical genres follow a similar curve in the frequency of these variables, this curve having the shape of e^x.

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