MUSIC GENRE CLASSIFICATION USING MACHINE LEARNING

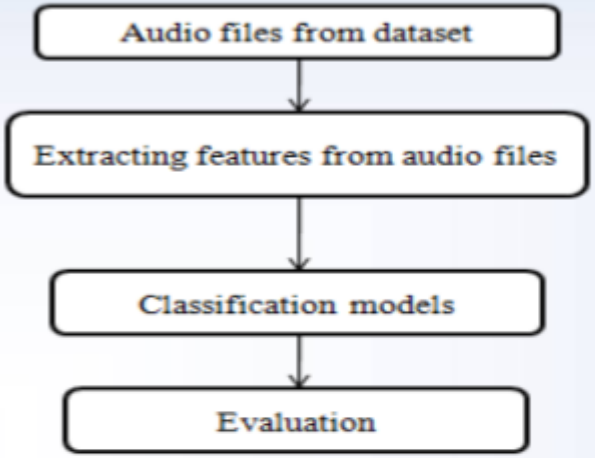
Aim

The aim of this project is to classify the music clips into music genres by comparing with 5 different classification algorithms along with Convolutional Neural Networks

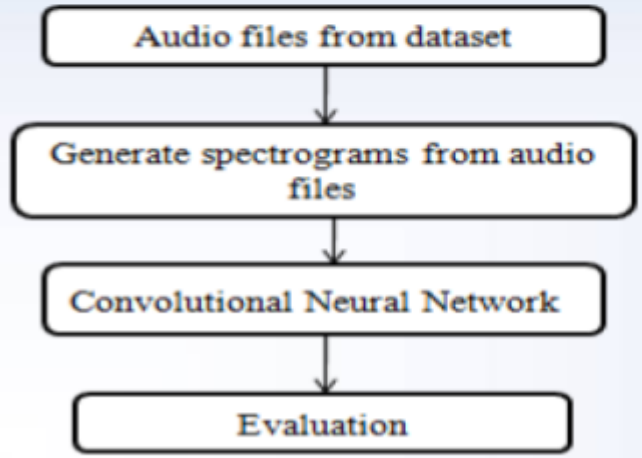
Introduction

Classifying music files is a challenging task and cannot be done manually. This project automates the classification of audio files by extracting spectral features such as spectral centroid, spectral contrast, spectral rolloff, spectral bandwidth, etc, classifying the audio files based on the extracted features. Classification methods like K Nearest Neighbours, Naïve Bayes, Decision Tree, Random Forest, Support Vector Machines were employed. Convolutional Neural Network – CNN is also used to classify music genres by generating spectrograms of each audio file.

Architecture



Architecture for CNN



Result

Classifier	Accuracy
K Nearesr Neighbours	0.67
Random Forest	0.65
Naive Bayes	0.45
Decision Tree	0.465
Support Vector Machine	0.69

Conclusion

Support vector machines generated 70 percent accurate results compared to other classification models.

References

[1] Elbir, A. Bilal Cam, H, Emrelyican, M., Ozturk, B., &Aydin, N. (2018). Music Genre Classification and Recommendation by Using Machine Learning Techniques. 2018 Innovations in Intelligent Systems and Applications Conference.

[2] A. Tzanetakis, G. and Cook, P. “Musical genre classification of audio signal”, IEEE Transactions on Speech and Audio Processing, Vol. 10, No. 3, pp. 293-302, July 2002

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