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A NORTH INDIAN RAGA RECOGNITION USING ENSEMBLE CLASSIFIER

Anagha A. Bidkar [(1)] Rajkumar S. Deshpande [(2)] Yogesh H. Dandawate [(3)]

[(1)] Research Scholar, Department of Electronics and Telecommunication, Vishwakarma Institute of Information Technology, And Pune Institute of Computer Technology, Savitribai Phule Pune University, Pune, India.
[(2)] Department of Electronics and Telecommunication, JSPM's Imperial College of Engineering, Savitribai Phule Pune University, Pune, India.
[(3)] Department of Electronics and Telecommunication, Vishwakarma Institute of Computer Technology, Savitribai Phule Pune University, Pune, India.

Abstract

Indian classical music is an ancient art form. Western and Indian music differ in the sequence of musical notes that are present in the melodic segment. Raga recognition in Indian classical music has been an exciting area of music information retrieval system. This can be useful to create a music library, search raga related music, and music education system. Recognition of raga using machine learning algorithms is a very complex task. This paper aims to find a suitable classifier for a dataset of instrumental music of 12 ragas. The music database has audio files of 4 different musical instruments. For this dataset, the ensemble bagged tree classifier outperforms the raga recognition. This approach suits our dataset to gain accuracy of 96.32%. This paper compares the results with the ensemble subspace KNN model which gives an accuracy of 95.83%. From the derived results, it is observed that ensemble classifiers are better for variants of MFCC features extracted for our North Indian Raga Dataset.

Author Keywords

North Indian Raga, Audio Feature Extraction, (MFCC) Mel Frequency Cepstral Coefficients, Ensembel Bagged Tree, Ensemble subspace KNN

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Reference

References (10)

1. Bhat A, Krishna AV, Acharya S
Analytical Comparison of Classification Models for Raga Identification in Carnatic Classical Instrumental Polyphonic Audio

(2020) SN Computer Science, Page No 1-9,

2. Kumar MS, Devi MS
Raga recognition using machine learning

(2020) Science, Technology and Development, Volume 9, Issue 9, Page No 646- 650,

3. K. Praveen kumar, P.Subbarao, Venkata Naresh Mandhala, Debrup Banerjee
Classification of 72 Melakartha ragas using PAM clustering method: Carnatic Music

(2019) International Journal of Engineering and Advanced Technology, Volume 8, Issue 4, Page No 1864-1867,

4. Anand A
Raga Identification Using Convolutional Neural Network

(2019) 2019 Second International Conference on Advanced Computational and Communication Paradigms, Volume 25, Page No 1-6,

5. Sarkar R, Naskar SK, Saha SK
Raga identification from Hindustani classical music signal using compositional properties

(2019) Computing and Visualization in Science, Volume 22, Issue 1, Page No 15-26,

6. Anoop M N, Deepak T S, Shreekanth T
An approach for analysis and identification of Raga of Flute Music using Spectrogram

(2017) 2017 International Conference on Trends in Electronics and Informatics, Page No 261-266,

7. Anitha R, Gunavathi K
NCM-Based Raga Classification using musical features

(2017) International Journal of Fuzzy Systems, Volume 19, Issue 5, Page No 1603-1616,

8. Alekh S
Automatic Raga Recognition in Hindustani Classical Music

(2017)

9. Ranjani H G, Sreenivas TV
Raga identification using repetitive note patterns from prescriptive notations of Carnatic music

(2017)

10. Tian Y, Feng Y. RaSE
Random Subspace Ensemble Classification

(2021) Journal of Machine Learning Research,