The Optimum Mel-Frequency Cepstral Coefficients (MFCCs) Contribution to Iranian Traditional Music Genre Classification by Instrumental Features

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Abstract : An approach to find the optimum mel-frequency cepstral coefficients (MFCCs) for the Radif of Mirzâ Ábdollâh, which is the principal emblem and the heart of Persian music, performed by most famous Iranian masters on two Iranian stringed instruments 'Tar' and 'Setar' is proposed. While investigating the variance of MFCC for each record in themusic database of 1500 gushe of the repertoire belonging to 12 modal systems (dastgâh and âvâz), we have applied the Fuzzy C-Mean clustering algorithm on each of the 12 coefficient and different combinations of those coefficients. We have applied the same experiment while increasing the number of coefficients but the clustering accuracy remained the same. Therefore, we can conclude that the first 7 MFCCs (V-7MFCC) are enough for classification of The Radif of Mirzâ Ábdollâh. Classical machine learning algorithms such as MLP neural networks, K-Nearest Neighbors (KNN), Gaussian Mixture Model (GMM), Hidden Markov Model (HMM) and Support Vector Machine (SVM) have been employed. Finally, it can be realized that SVM shows a better performance in this study.