

Name : Prashant Giridhar Shambharkar
Supervisor : Prof. M.N.Doja
Department : Department of Computer Engineering, Faculty of
Engineering & Technology
Title of Thesis: Automatic Classification of Movie Trailers using
Data Mining Techniques

Abstract

In this work, we have proposed one classifier to identify the genre of a movie trailer by analyzing its audio and visual features simultaneously. Our Approach decomposes a trailer video into a-frames and audio file and then analyze them based on certain specific features to categorize them into four genres. The proposed classifier was trained on 4 audio, 2 broad visual features extracted from over 900 movie trailers distributed across 4 different genres, namely Drama, Horror, Romance, and Action. The Classifier Model has been trained using Neural Networks and Convolution Neural Networks. After training and conducting Experiments on around 1000 movie trailers, the classifier model showed a maximum accuracy of 81 percent in determining the top 1 genre and 91 percent in determining the top 2 genres of a movie trailer in the test set.

To fulfill another objective, we work on other aspects of a movie trailer that is using the human action-based approach. In the current situation, video classification is one of the important research domains. Since video is a complex media with various components, the classification of the video is normally a complex process. This work presented a human action based movie trailer classification using an optimized deep convolutional neural network in video sequences. Initially, images are converted into grayscale conversion. Using the adaptive median filtering process, the pre-processing stage is accomplished. The threshold-based segmentation approach is utilized for subtracting the background from the

video frames and to extract the foreground portion. In the feature extraction stage, the visual features (color and texture features) and motion features are extracted from the segmented portion. Finally, the mined features are trained and classified with the help of an optimized deep convolutional neural network (DCNN) for the movie trailer classifications. Here, deer hunting optimization (DHO) is introduced to optimize the weight values of DCNN. The proposed (DCNN- DHO) human action based movie trailer classification is executed in the MATLAB environment. The experimental results are evaluated and compared with the existing methods in terms of accuracy, false alarm rate, sensitivity, specificity, precision, F-measure, and false discovery rate. The results of the proposed method are compared with the filtering process and without a filtering process in which 95.23% of accuracy is achieved for the suggested approach with filtering and 90.91% of accuracy is achieved for the suggested approach without filtering process.