IMPLEMENTATION OF CONVOLUTIONAL NEURAL NETWORK AND MEL-SPECTROGRAM FOR MOOD CLASSIFICATION CASES BASED ON SONG PIECES

ROY FASTI
Informatics Study Program, Faculty of Science & Technology
University of Technology Yogyakarta
Jl. Ringroad Utara Jombor Sleman Yogyakarta
E-mail : wisemanroy8@gmail.com

ABSTRACT

This research aims to overcome problems in automatically classifying music based on mood. Currently, music classification is done manually by users, which is time-consuming and inefficient. Therefore, this research develops a system that is capable of classifying music using the Convolutional Neural Network (CNN) method and Mel Frequency Cepstrum Coefficient (MFCC) feature extraction. The data in this study was obtained from websites such as Audio Network, Spotify, and YouTube, with a total of 400 audio data categorized into four moods: calm, angry, happy, and sad. The data collection process was carried out for two weeks using the Internet Download Manager (IDM) application to download audio data. The method used in this research includes MFCC feature extraction which works by distinguishing high and low sound signals. The extraction results are then mapped into a Mel-spectrogram, which is then classified using the CNN algorithm. Experiments show that the system built is able to classify music with varying accuracy. From several experiments carried out, the combination of using MFCC and CNN provides the best accuracy results in classifying musical mood. The data used in this research is song data which is then cut into 40 second durations and then classified by the system. This research conducted three experiments and produced the highest accuracy value of 95% for the training accuracy level and 68% for the data validation accuracy level.