

Video Shot Detection and Key Frame Extraction Using Faber-Shauder DWT and SVD

Authors : Assma Azeroual, Karim Afdel, Mohamed El Hajji, Hassan Douzi

Abstract : Key frame extraction methods select the most representative frames of a video, which can be used in different areas of video processing such as video retrieval, video summary, and video indexing. In this paper we present a novel approach for extracting key frames from video sequences. The frame is characterized uniquely by his contours which are represented by the dominant blocks. These dominant blocks are located on the contours and its near textures. When the video frames have a noticeable changement, its dominant blocks changed, then we can extracte a key frame. The dominant blocks of every frame is computed, and then feature vectors are extracted from the dominant blocks image of each frame and arranged in a feature matrix. Singular Value Decomposition is used to calculate sliding windows ranks of those matrices. Finally the computed ranks are traced and then we are able to extract key frames of a video. Experimental results show that the proposed approach is robust against a large range of digital effects used during shot transition.

Keywords : FSDWT, key frame extraction, shot detection, singular value decomposition

Conference Title : ICCSEE 2014 : International Conference on Computer Science and Electronics Engineering

Conference Location : Istanbul, Turkey

Conference Dates : December 22-23, 2014