

A meaningful Compact Key Frames Extraction in Complex Video Shots

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Key frame extraction is an essential technique in the computer vision field. The extracted key frames should brief the salient events with an excellent feasibility, great efficiency, and with a high-level of robustness. Thus, it is not an easy problem to solve because it is attributed to many visual features. This paper intends to solve this problem by investigating the relationship between these features detection and the accuracy of key frames extraction techniques using TRIZ. An improved algorithm for key frame extraction was then proposed based on an accumulative optical flow with a self-adaptive threshold (AOF_ST) as recommended in TRIZ inventive principles. Several video shots including original and forgery videos with complex conditions are used to verify the experimental results. The comparison of our results with the-state-of-the-art algorithms results showed that the proposed extraction algorithm can accurately brief the videos and generated a meaningful compact count number of key frames. On top of that, our proposed algorithm achieves 124.4 and 31.4 for best and worst case in KTH dataset extracted key frames in terms of compression rate, while the-state-of-the-art algorithms achieved 8.90 in the best case.

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