CONTENT BASED VIDEO SEGMENTATION

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Contents

Introduction

- ***Video*** media is a sequence of images called ***frames.***
- Each frame consists of hundreds of rows and columns. Hence, the main challenge in using video is its ***huge size***.
- ***Video Coding*** refers to the methods used for ***compressing*** video.
- These methods try to reduce or eliminate redundancy in video.

Problem

- Video segmentation is a process for dividing a video sequence into shots.

- Content Based Video Segmentation Project aims to divide the video into meaningful shots.

Problem

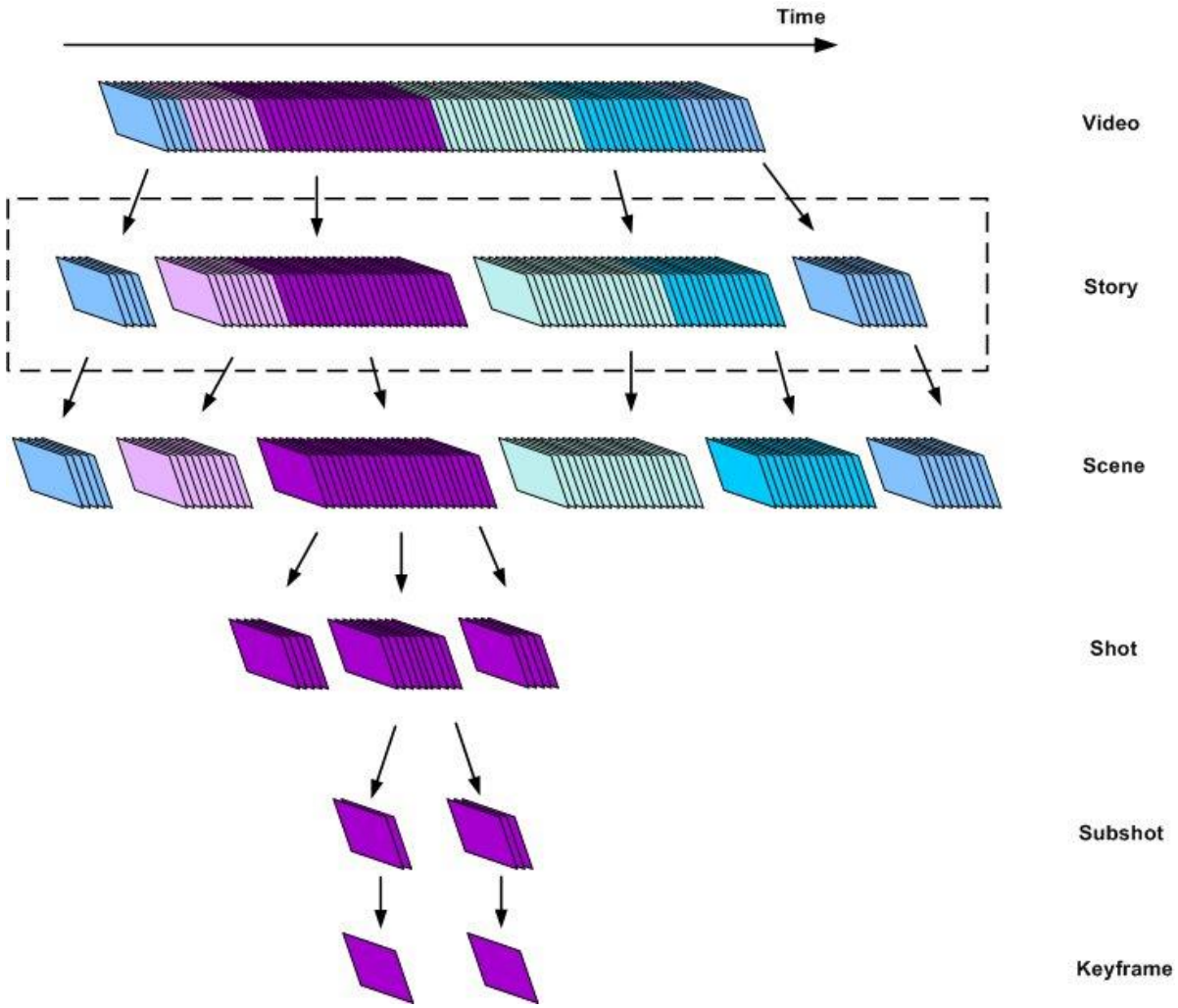
- Video is segmented into shots where each shot is automatically labeled. These labels are later used for retrieving the videos.

Application

- Content Based Segmentation is a necessary process in many different applications

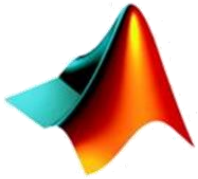
  - ✓ Video Summarization
  - ✓ Video Search
  - ✓ Video Annotation

Application



Application

- Content Based Video Segmentation will run on all operating systems.
- Matlab platform will be used.
- C language will be used.



MATLAB

Mac OS

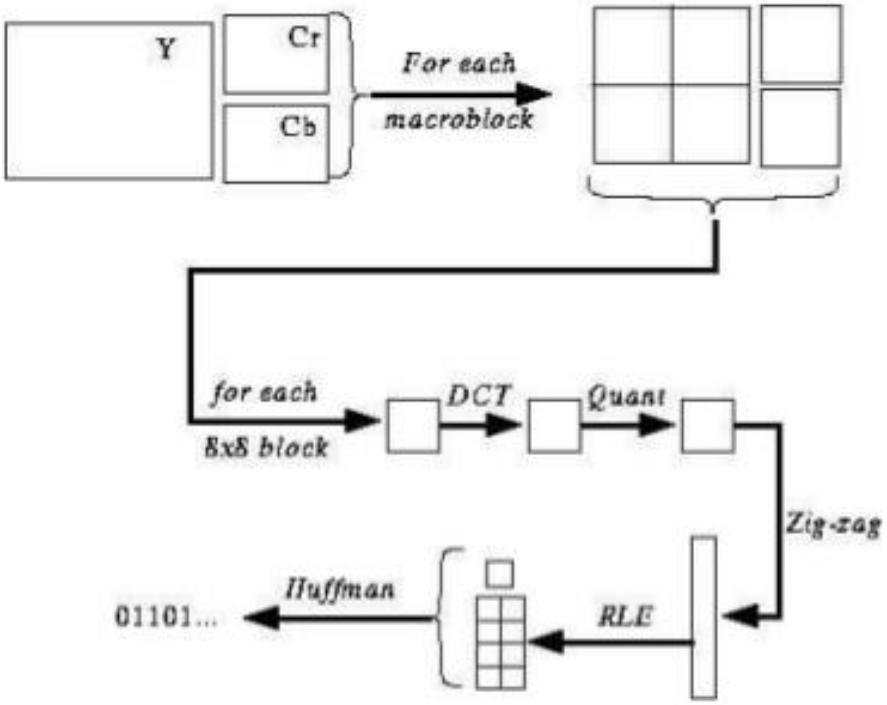
Linux

Previous Work

Group						
Information Used	[1]	[2]	[3]	[4]	[5]	[6]
DCT coefficients	✓			✓		
DC terms		✓	✓			
MB coding mode			✓	✓	✓	✓
MVs			✓	✓	✓	
Bit-rate						✓

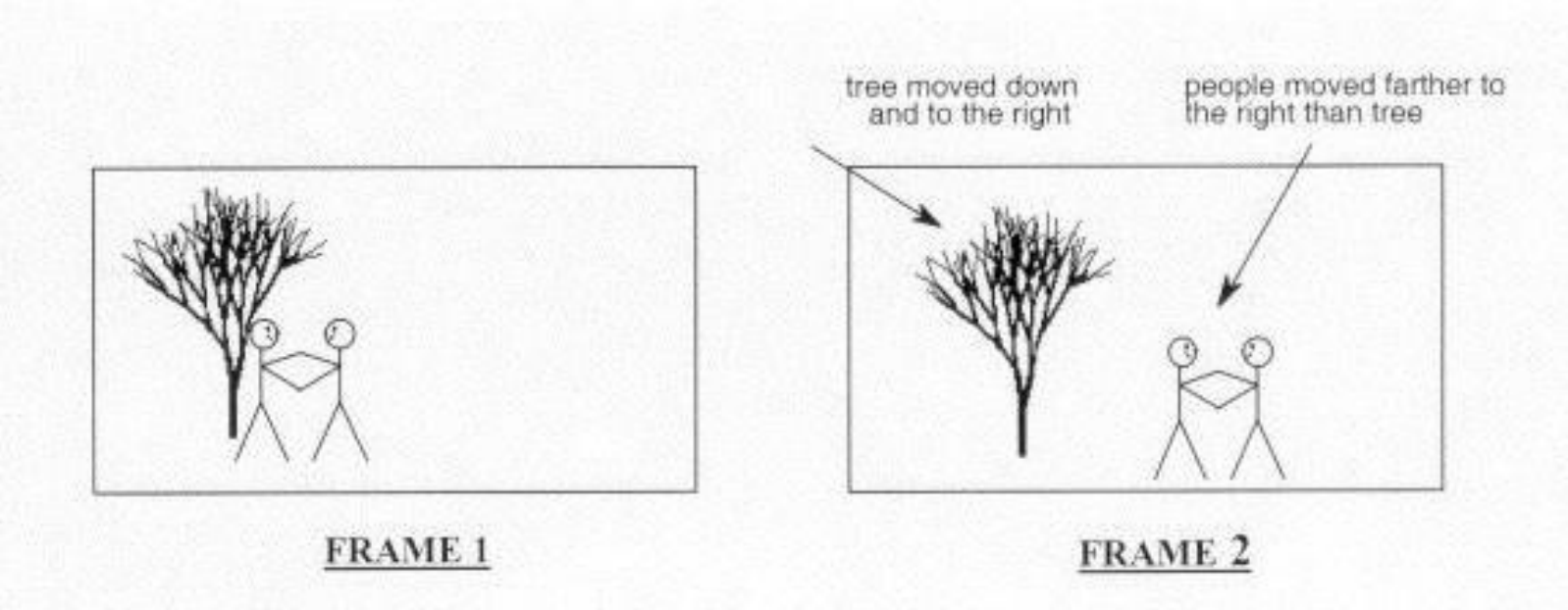
Solution

- Intra frame considers each frame of a video as a still image.



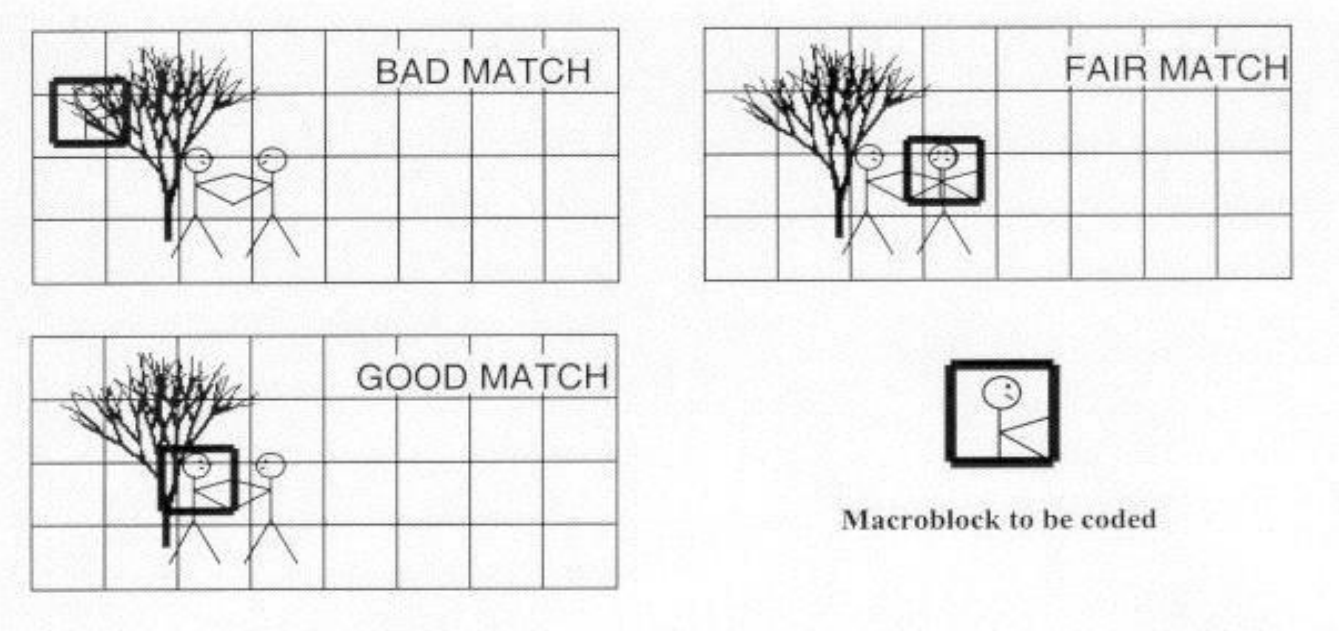
Solution

- Inter-frame coding is the process of video compression using motion estimation.
- The frames of a video are very similar if the time interval between them is short.



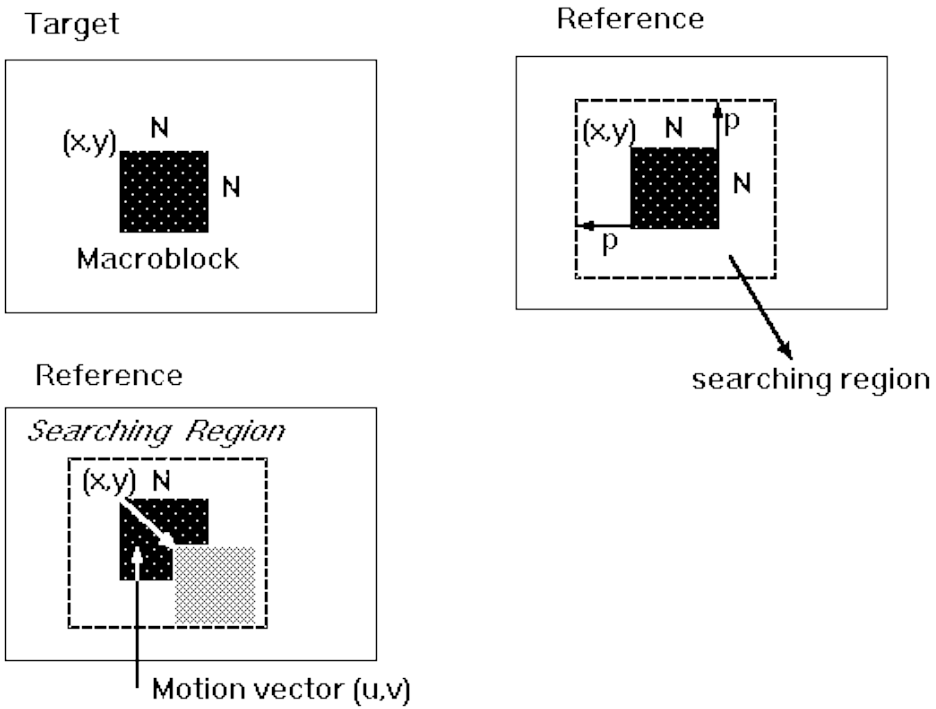
Solution

- The goal of motion estimation is finding the most similar area in the reference frame (previous frame) to a block in the current frame.
- Similarity is generally defined using Sum of Absolute Difference (SAD)



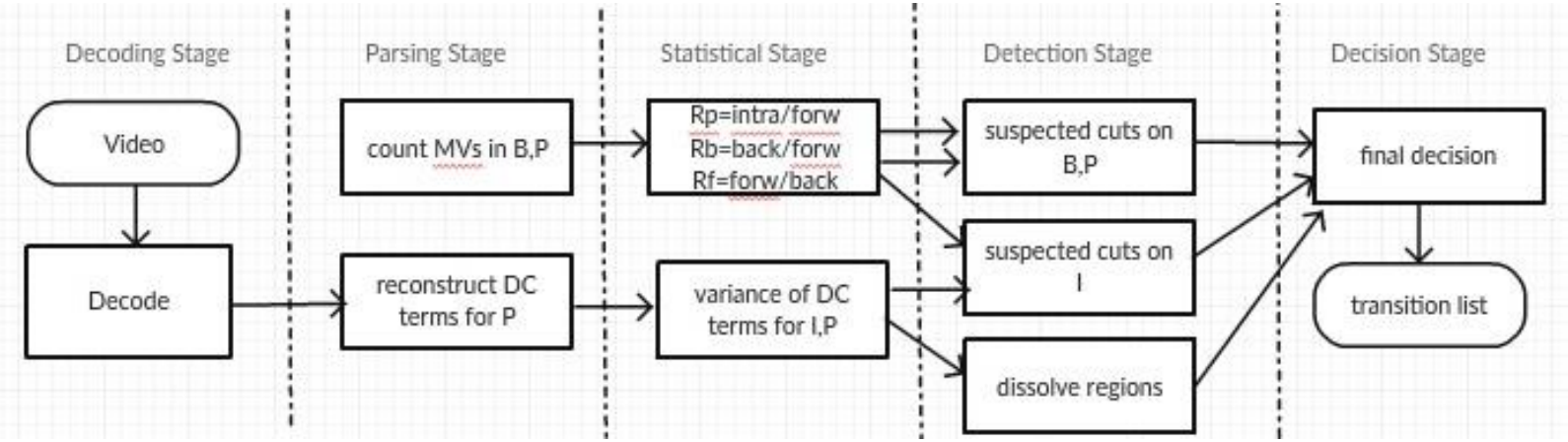
Solution

- Motion Estimation gives a motion vector.
- Motion vector is used to find the most similar area in the reference frame.
- The most similar area is subtracted from the current block.



Solution

- Temporal Video Segmentation based on DC Terms and MB coding mode algorithm is used.



References

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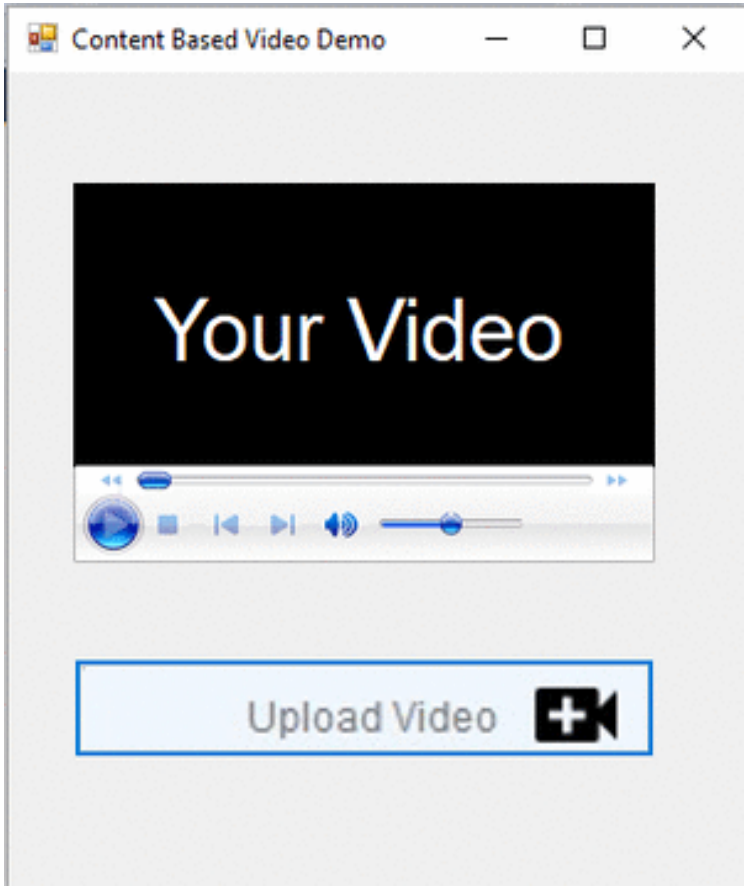
Demo



Thank you for listening