Cmput414 Lab8

Qingyang Zhang, Bowei Wang

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1 Tasks:

1.1 Find an approparite video as the input(finished)

A free personal use video is downloaded from:
https://videos.pexels.com/videos/beach-aerial-footage-taken-by-a-drone-854218.

1.2 Implement the original content-based video segmentation method(processing)

1.Accessing the video by frames.Then transfer the frame into matrixes.(finished)

2.Progressing the algorithm to compare the matrixes. As Figure.3 shows, the frame number 280, 672, 760 and 1161 are the sharply changed frames. That representating the contetnt change. This can also be detected from the plot Figure.1.Our next step is to divide the video based on the information collected from the plot.
We also made some similar processes on grayscale image, the plot is looks like this Figure.2. This one is very similar to the original one. Therefore we decide not using this factor as a feature of difference detect.

3.Histgram comparison: Since only comparing the rgb difference and sum values are not reliable enough to detect content different. We are planning to add more features to detect the difference. One possible access is to transfer the image into Histgram and compare the Histgram.

4.Detect different content: Currrently we planning to use the corner point method to detect the different content. The corner point shall represent the change of the content.

5.Output different contents.
(There are many different methods for output, it can be segment of videos or single frames)

6.github page for work tracking. [1]

[1] https://github.com/cmput414-content-video-segmentation/content-based-video-segmentation

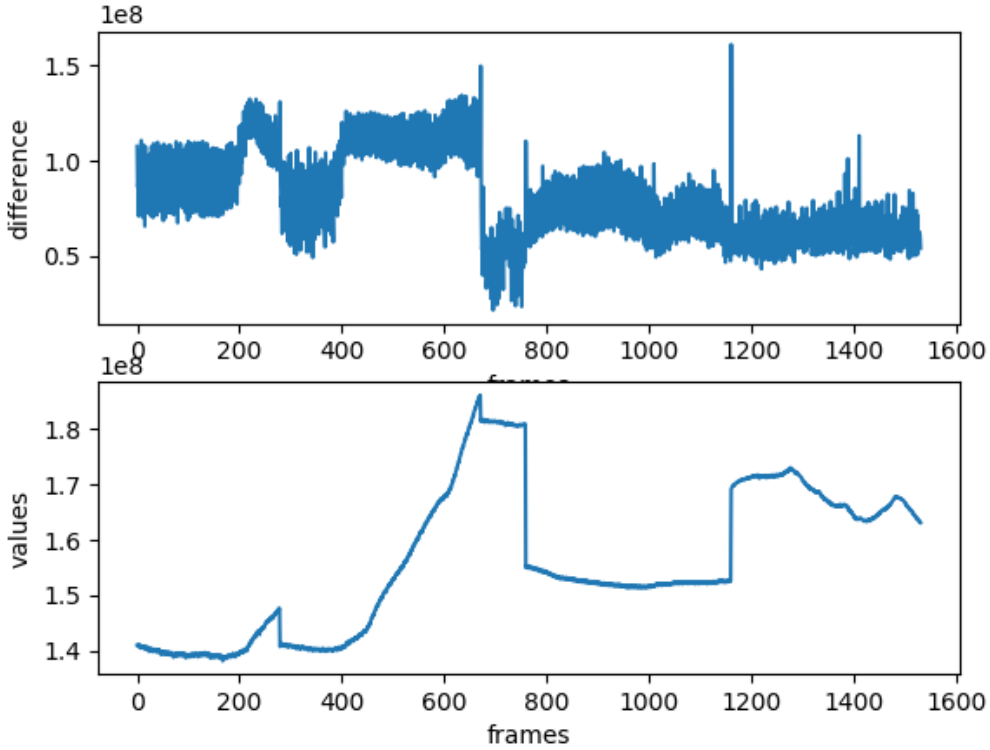


Figure 1: Plot of the difference and values of the frames

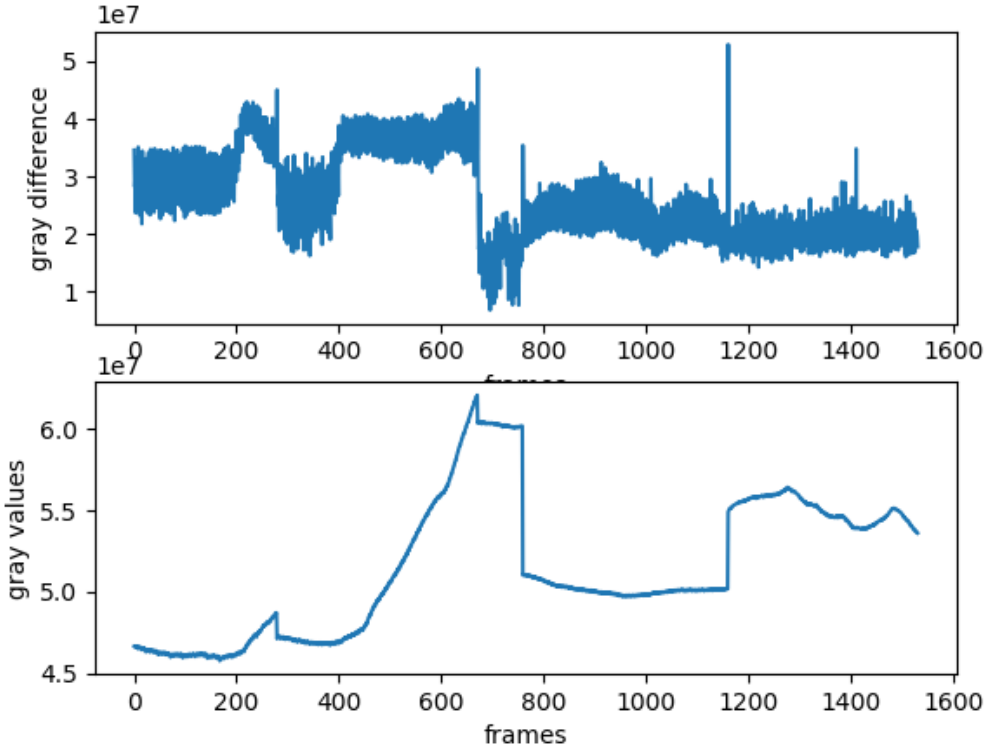
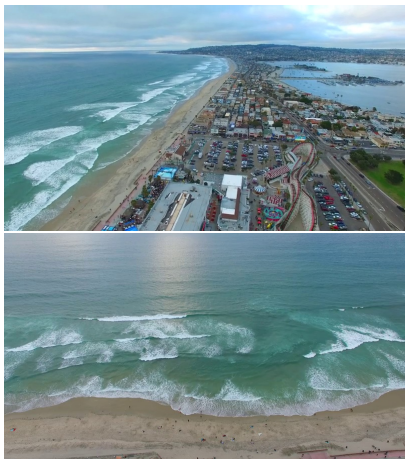
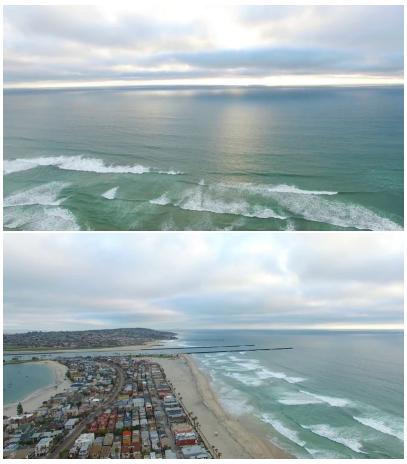


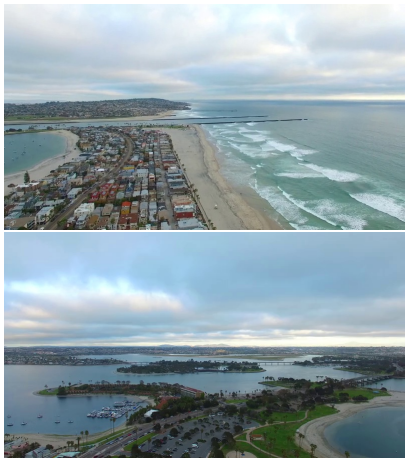
Figure 2: Plot of the difference and values of the frames on grayscale



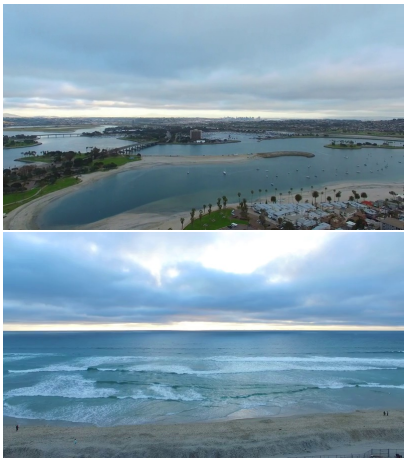
(a) frame 279 and 280



(b) frame 671 and 672



(c) frame 759 and 760



(d) frame 1160 and 1161

Figure 3: frames comparison

1.3 Controller(processing)

Currently we will implement some simple terminal controller to send command to the program.

2 Optional Tasks:

2.1 Pretratment or videos

1.If the video is too large, compress the video into smaller format .
2.Calling an api to cut the video into single frames. It will be easier for program to access the video.

2.2 User interface

User interface is optional, but can make the program looks better.