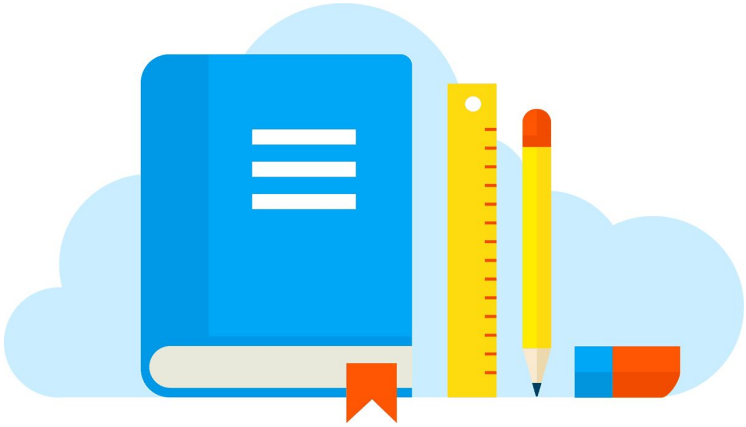

CSE 573

Programming Assignment 2

Problem (1) - Stereo Vision
Problem (2) - Image Segmentation

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Stereo Vision

1.1 Disparity estimation using block matching

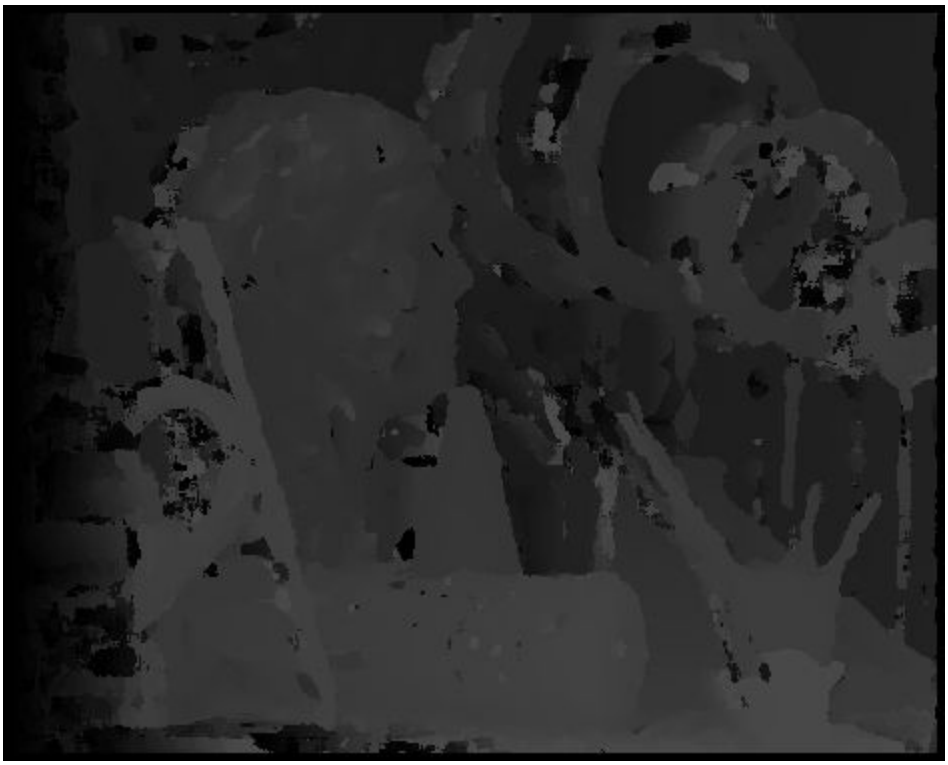
- 3X3 Left Image

- 3X3 Right Image

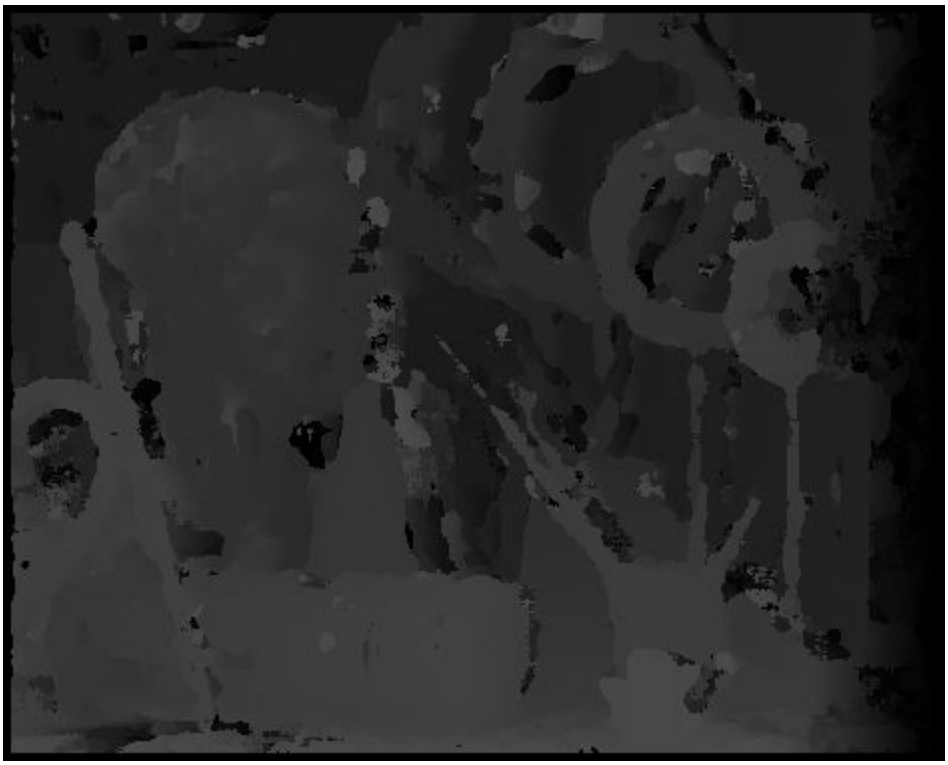
- MSE Values :

```
MSE with respect to Left Image when the block is 3X3 374.493924153
MSE with respect to Right Image when the block is 3X3 255.616036536
```

- 9X9 Left Image



- 9X9 Right Image



- MSE Values:

```
MSE with respect to Left Image when the block is 9X9: 292.473797729
MSE with respect to Right Image when the block is 9X9: 175.168452802
```

1.2 Consistency check

- 3X3 Left Image

- 3X3 Right Image

- MSE Values

```
MSE with respect to Leftt Image when the block is 3X3 after Consistency check 47.8933344895

MSE with respect to Right Image when the block is 3X3 after Consistency check 45.4212972598
```

- 9X9 Left Image

- 9X9 Right Image

- MSE Values

```
  pixel_value_r=disparity_map3[i,j-pixel_value_1]
MSE with respect to Leftt Image when the block is 9X9 after Consistency check 21.1094429279
  pixel_value_1=disparity_map1[i,j-pixel_value_1]
MSE with respect to Right Image when the block is 9X9 after Consistency check 21.5969961469
```

1.3 Disparity estimation using Dynamic Programming

- Left Image

- Right Image

1.4 View Synthesis

- Here the aim is to obtain a View3 which is what you would see if you place a camera exactly at the midpoint of the baseline of cameras that captured view1 and view5.
- The below Image is when the View is obtained using the left image only (view1.png).

- This below image is obtained when the missing pixels of the above image were filled by the right image(view5.png) in order to obtain a synthesized view.

Image Segmentation

The Images obtained when

- h=60, iter=10

- h=155 , iter=30

- h=140, iter=20

After applying various values of h and iter, it was inferred that the best Mean Shift Segmentation is obtained for **h=155 and iter=30**