

## CSC 872 - Fast Prototype 2 – Mean Shift Algorithm

**Name** – Sudha Mahadik

**SID** – 916429142

**Objective** – Perform fastprototyping of Mean Shift (MS) algorithm in Matlab. Apply MS procedure to grayscale test images and produce the mean shifted convergent image in feature space.

### Process –

Read Paper on Mean shift algorithm .

Understand the significance of bandwidth , kernel density estimation etc and according use It in Matlab code.

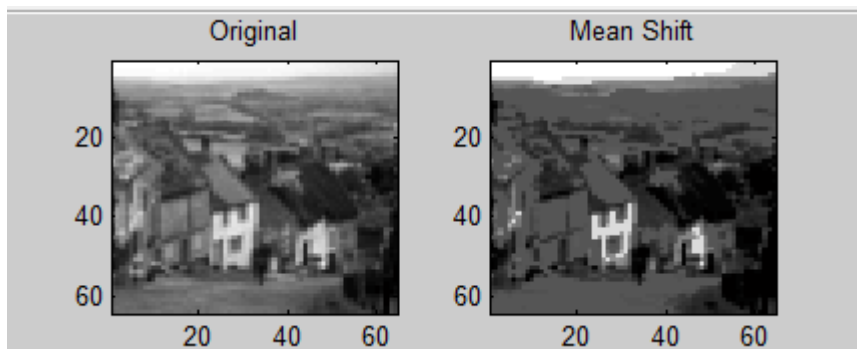
### Challenges –

Understanding the concept and implementing it in code was bit challenging.

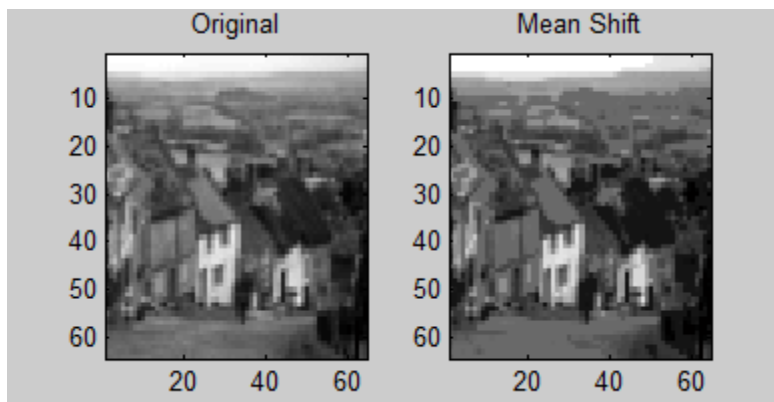
Also,main task was to implement KDE function and set values of k and h , so as to get good results.

### Results --

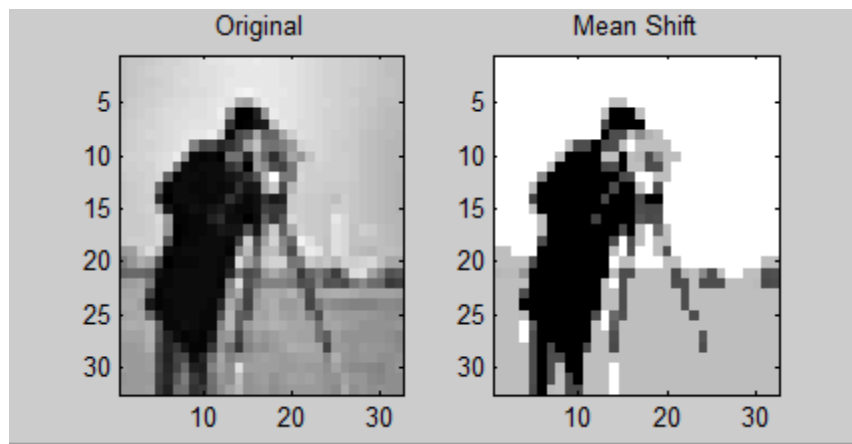
H = 10, k=20



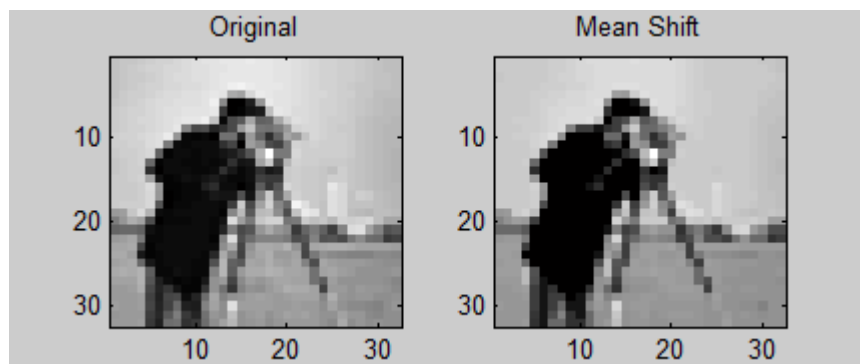
H = 5, k =20



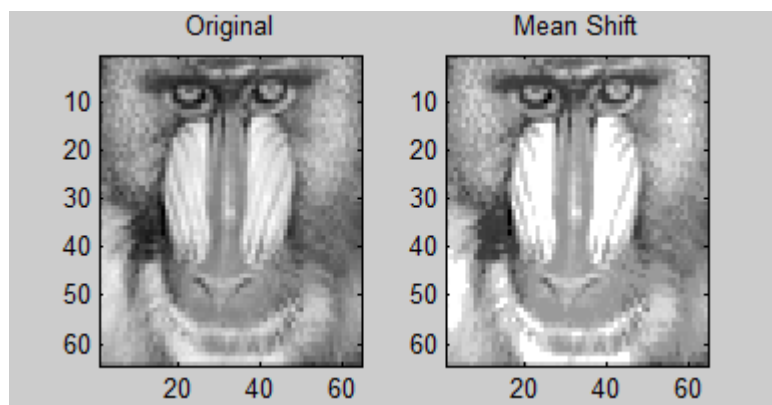
$H = 10, k = 20$

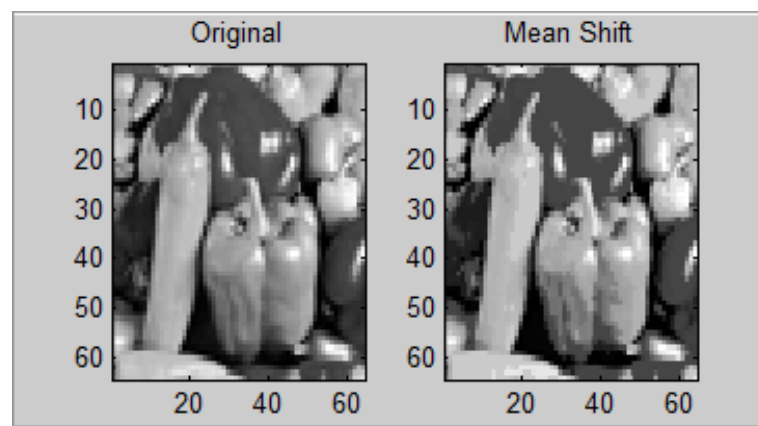
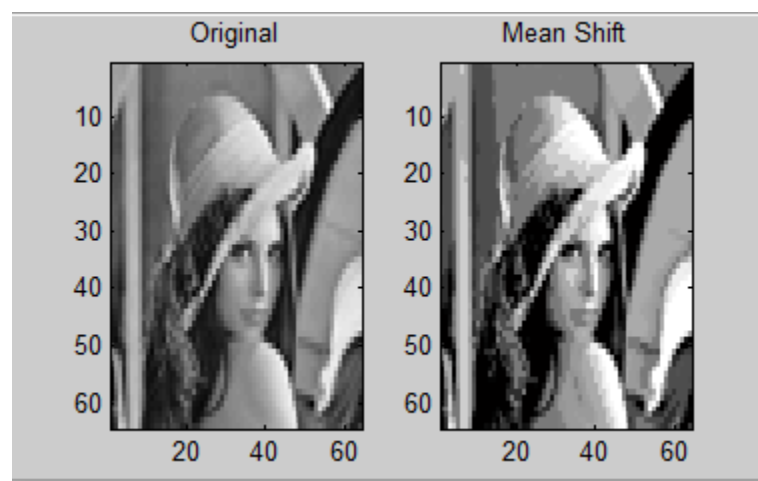
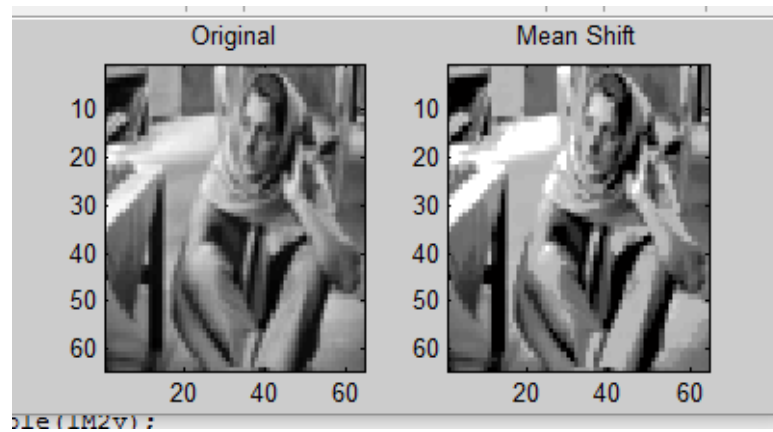


$H = 5, k = 20$



With  $h = 5, k = 20$





### Conclusion –

Above figures are the result of the MS algorithm implemented in Matlab. The left image is test image and right image shows the segmented images using mean shift algorithm. From the snapshot, we can see that the algorithm is working as expected. Pixels are clustered by similar color forming different groups generated by mean shift. Also, from initial figures, I can see that as bandwidth is changed, different

clusters get formed giving slightly different intensity merged image from previous one. This proves the algorithm.