

all ImageSegmentation.java methods applied to a few pairs of images that are panoramic sets or stereo image sets with the goal of finding best segmentation for finding blobs to make matchable contours.

summary of next pages:

for brown & lowe 2003, best was KMPP w/ k=2

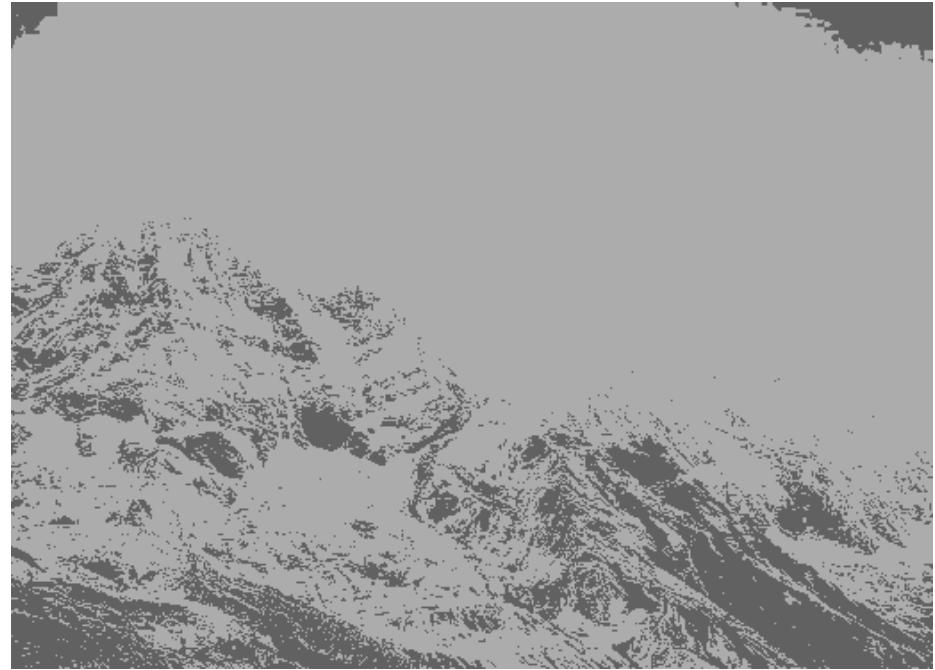
for Venturi, best was PolarCIEXYAndFrequency

for books, best was KMPP w/ k=2, 3 or 8

Venturi has lots of texture, so attempting a low resolution segmentation first is faster (the polar ciexy and frequency segmentation is $O(N)$... check that).

Books best matchable features w/o illumination and projection differences are the text. The text needs further processing such as adaptive mean thresholding.

```
int kBands = 2; imageSegmentation.applyUsingKMPP(gsImg1, kBands);
```



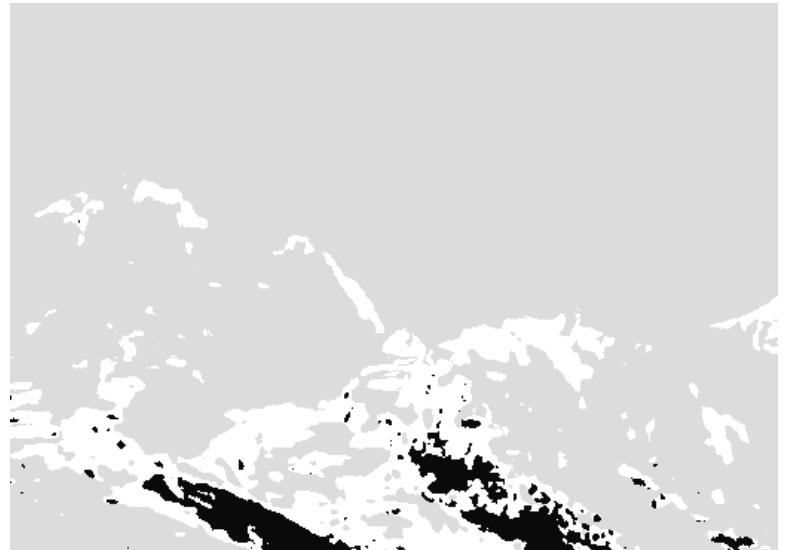
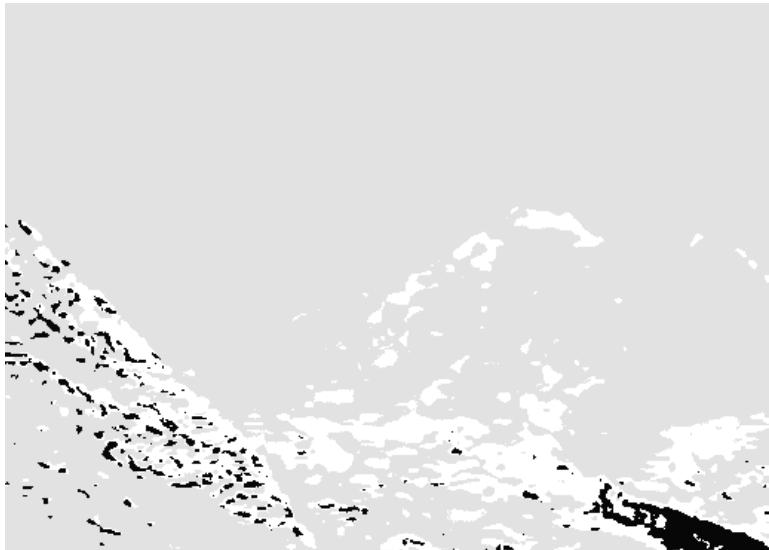
```
int kBands = 3; imageSegmentation.applyUsingKMPP(gsImg1, kBands);
```



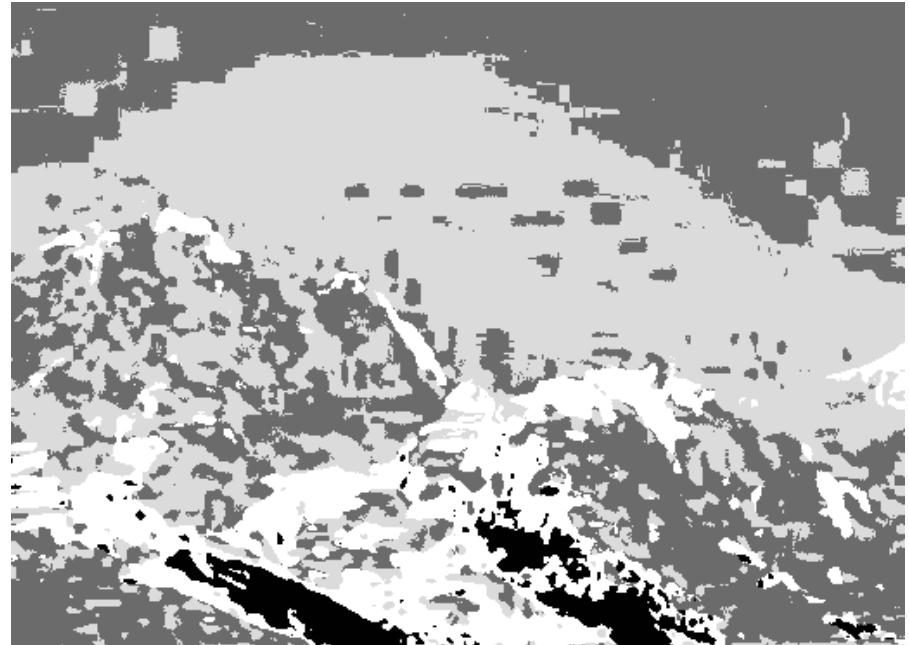
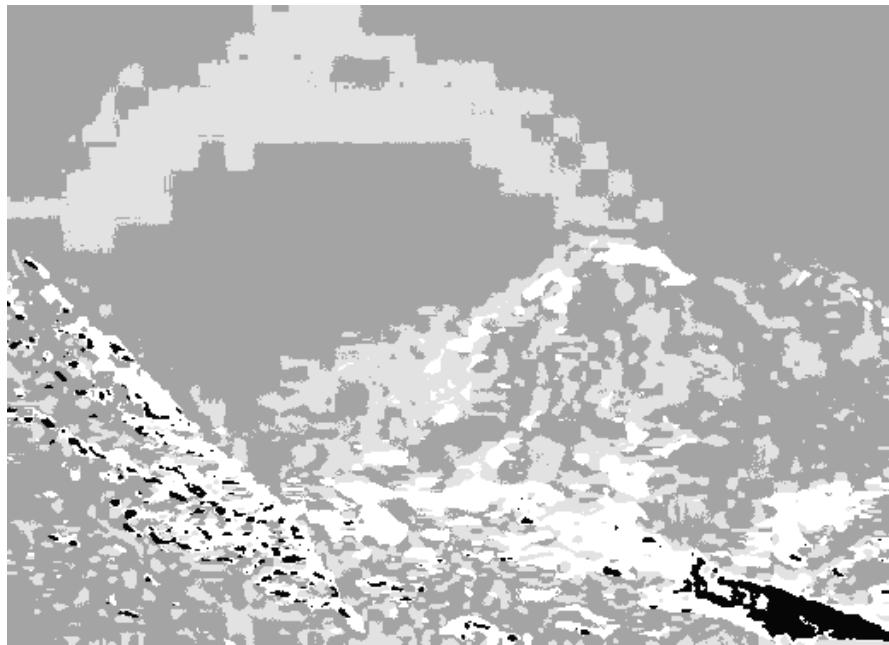
```
int kBands = 8; imageSegmentation.applyUsingKMPP(gslImg1, kBands);
```



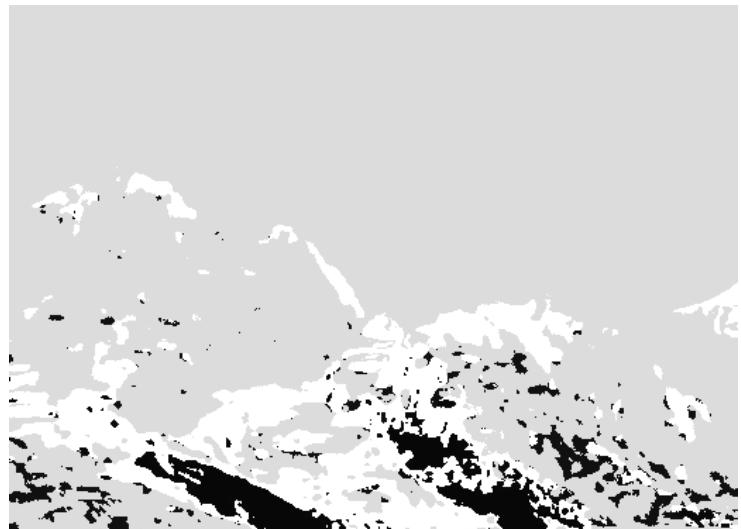
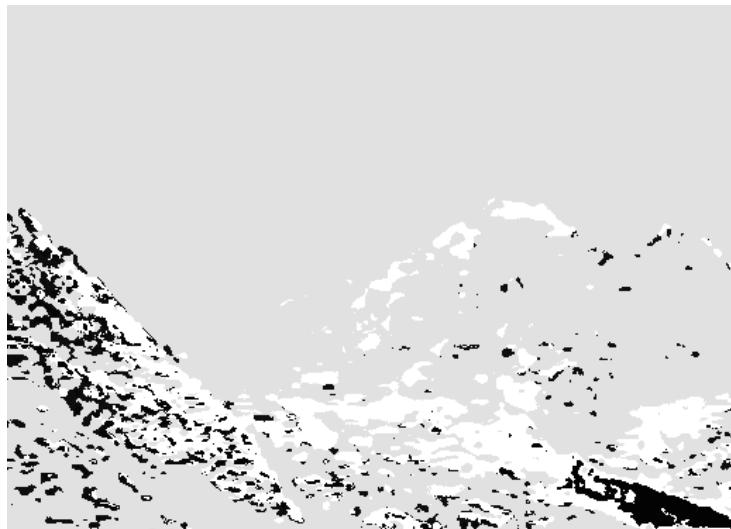
```
int kBands = 2; imageSegmentation.applyUsingCIEXYPolarThetaThenHistEq(gslImg1, kBands);
```



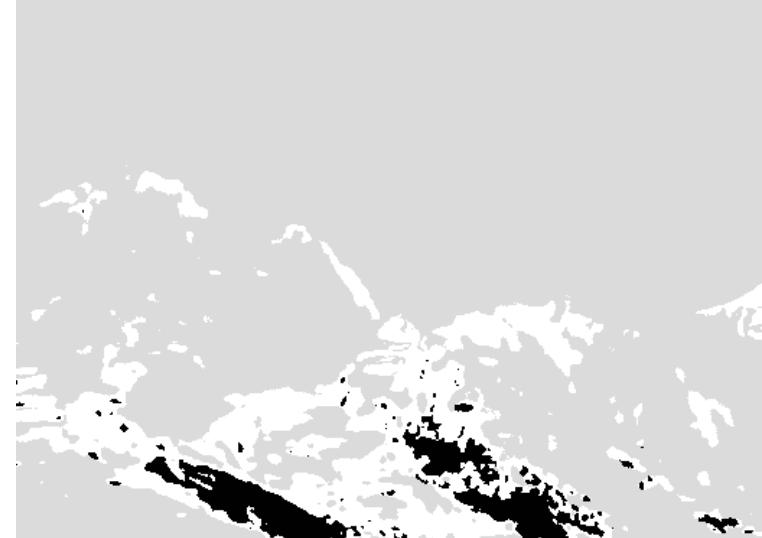
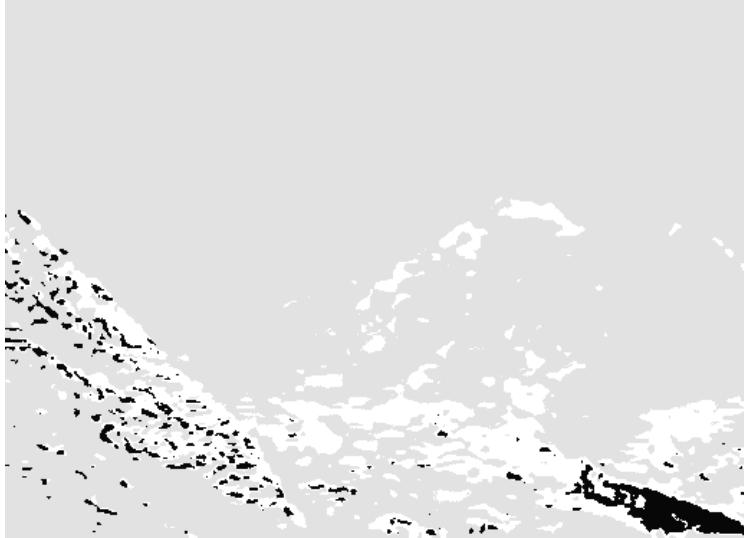
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int kBands = 3; imageSegmentation.applyUsingCIEXYPolarThetaThenHistEq(gsImg1, kBands);
```



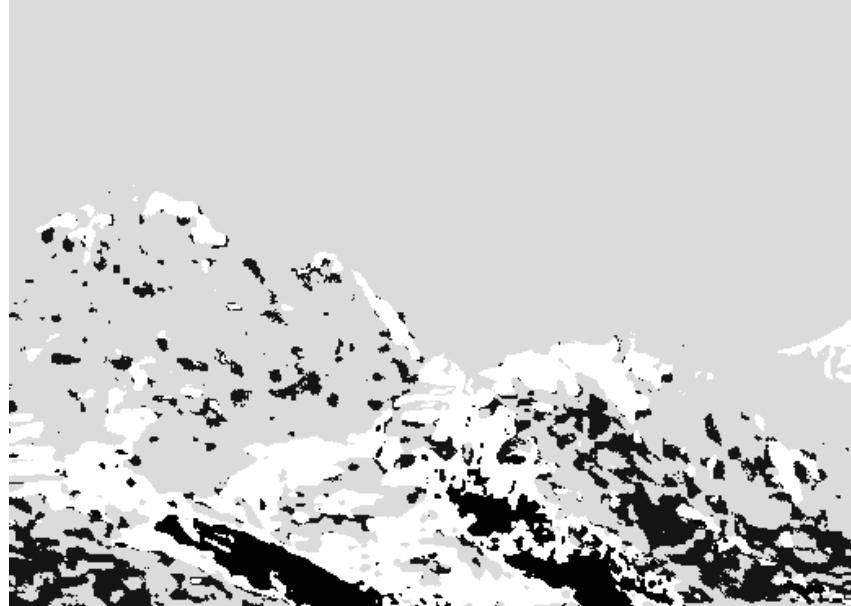
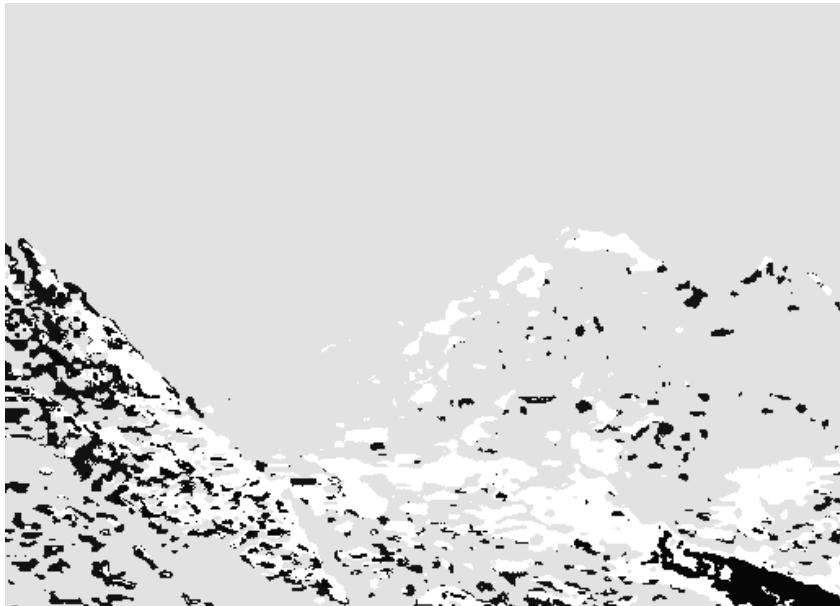
```
int kBands = 8; imageSegmentation.applyUsingCIEXYPolarThetaThenHistEq(gsImg1, kBands);
```



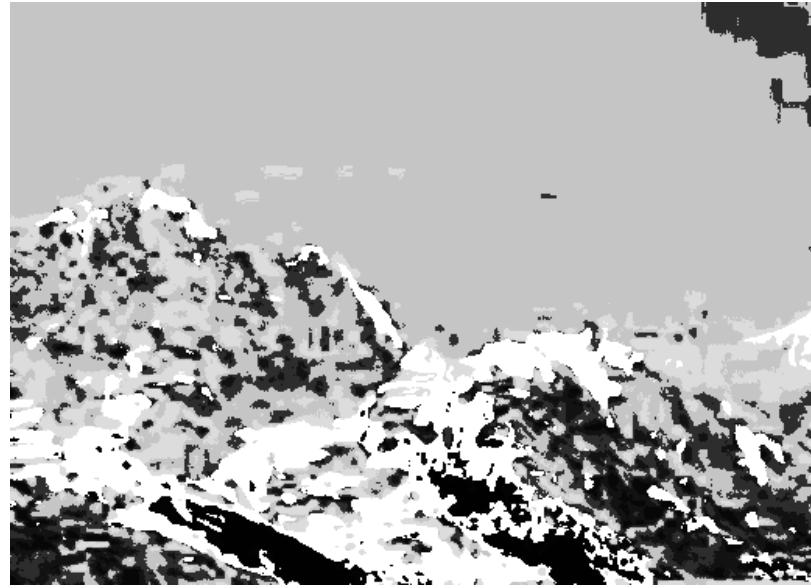
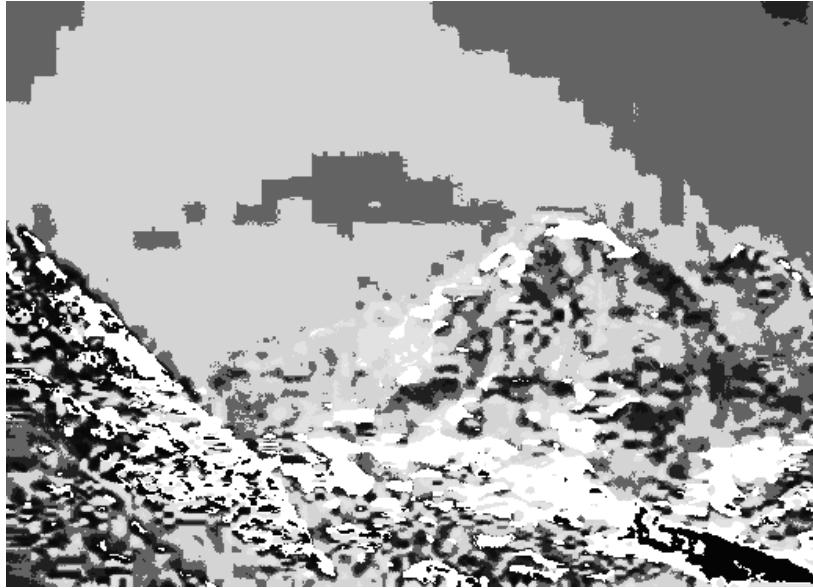
```
int kBands = 2; imageSegmentation.applyUsingCIEXYPolarThetaThenKMPPThenHistEq(gsImg1,  
kBands);
```



```
int kBands = 3; imageSegmentation.applyUsingCIEXYPolarThetaThenKMPPThenHistEq(gsImg1,  
kBands);
```

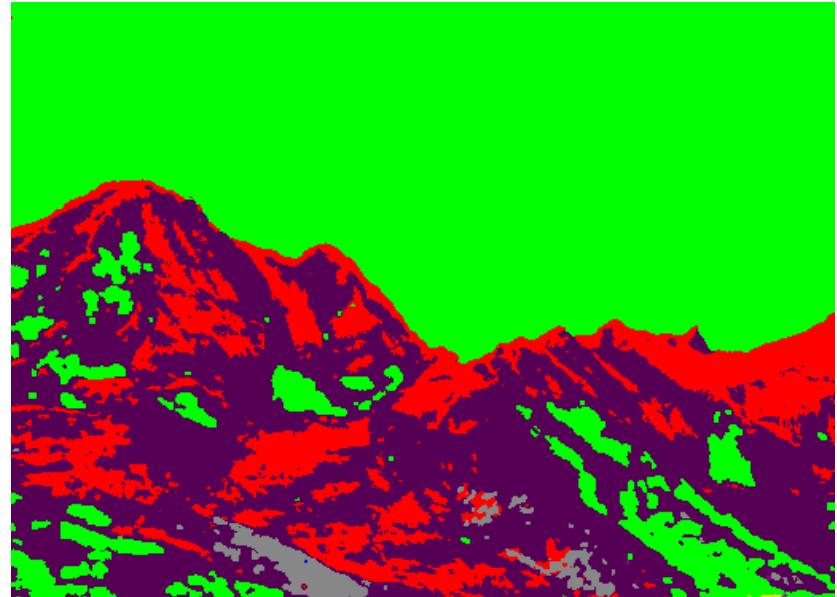
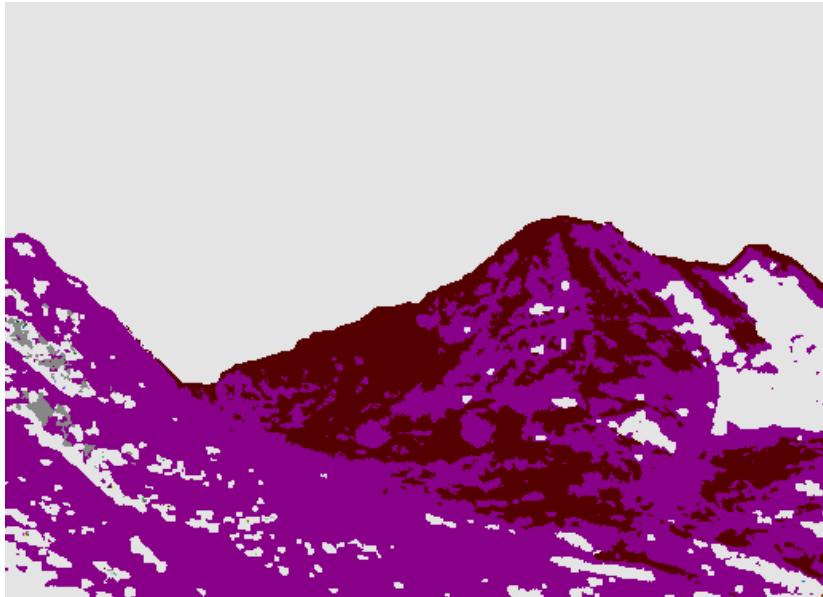


```
int kBands = 8; imageSegmentation.applyUsingCIEXYPolarThetaThenKMPPThenHistEq(gsImg1,  
kBands);
```

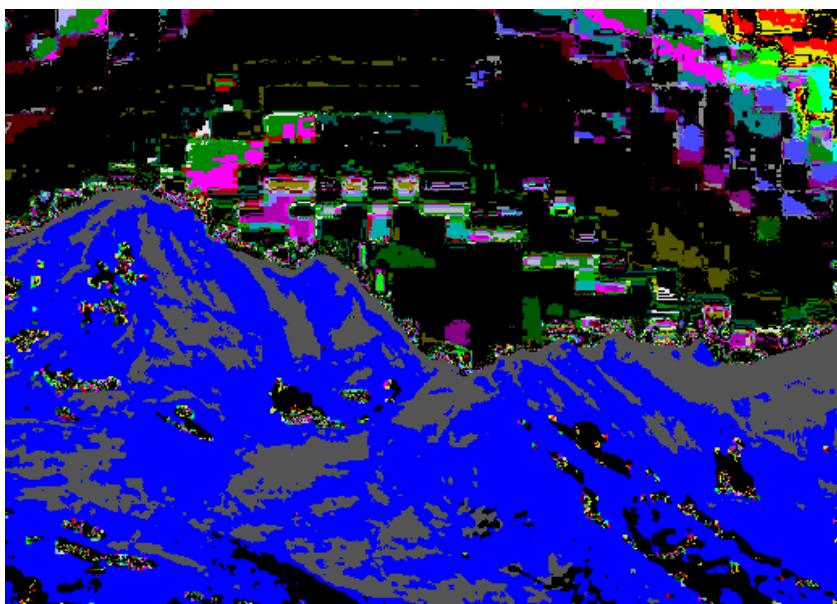
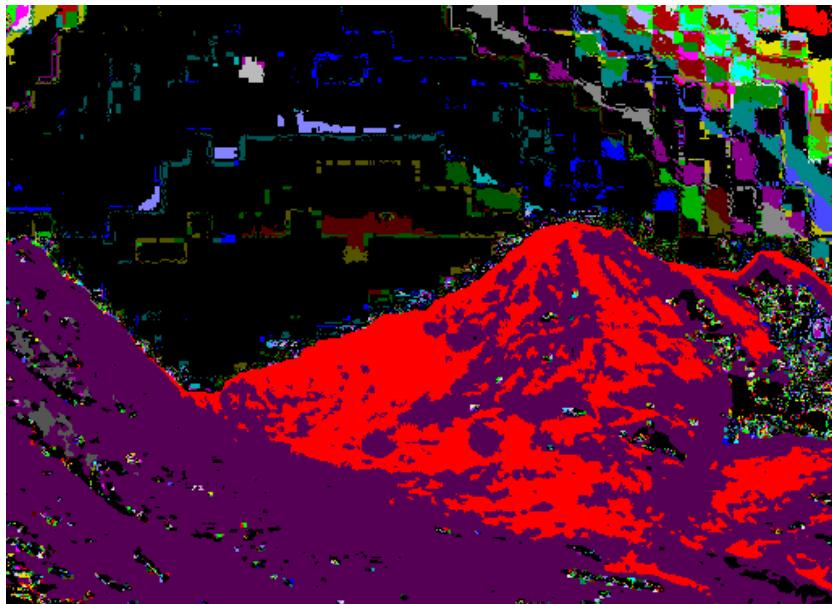


```
int kBands = 2; imageSegmentation.applyUsingCIEXYPolarThetaThenHistogram(gsImg1, kBands);
```

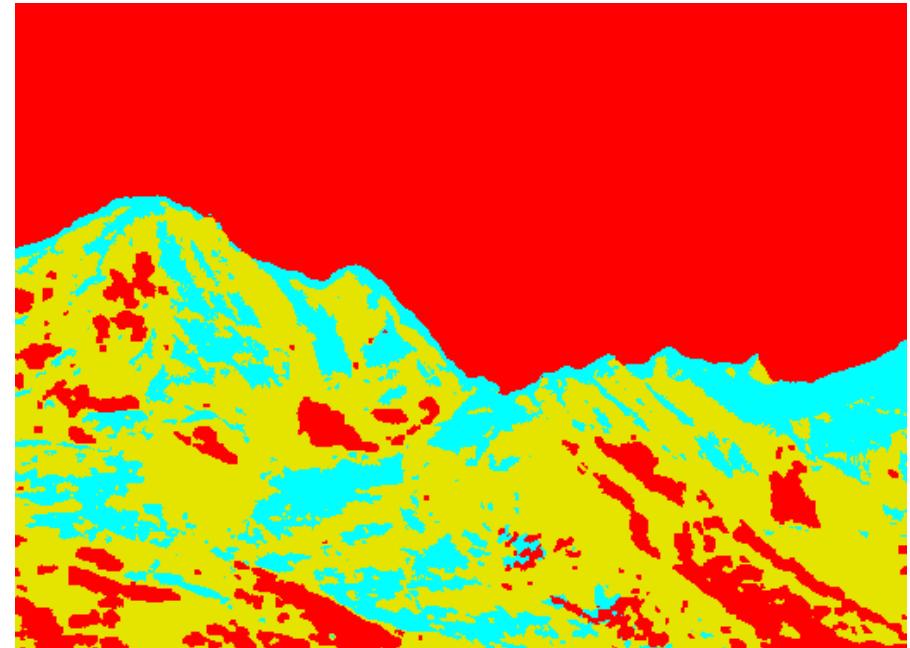
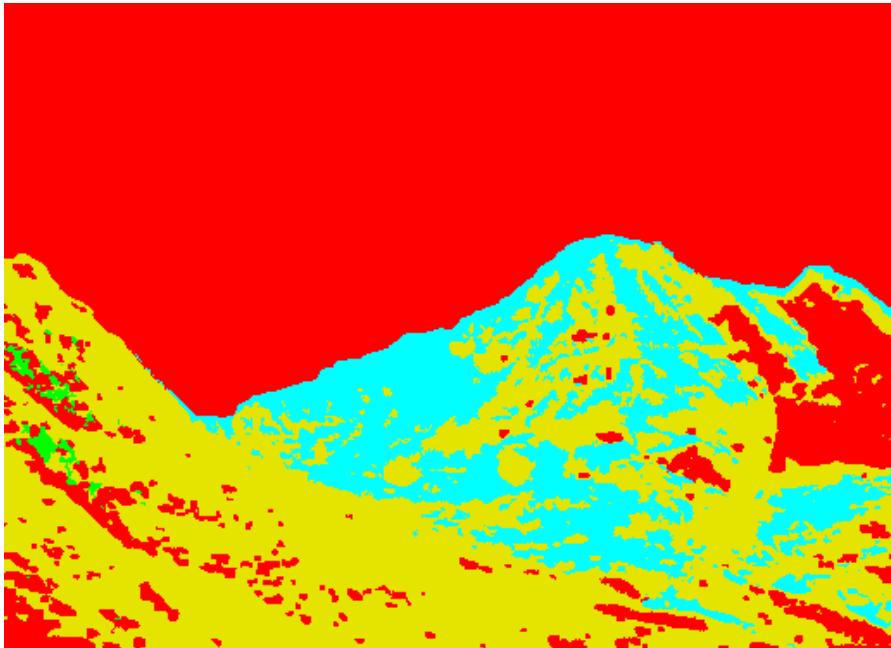
```
imageSegmentation.calculateUsingCIEXYAndClustering(gsImg1, true);
```



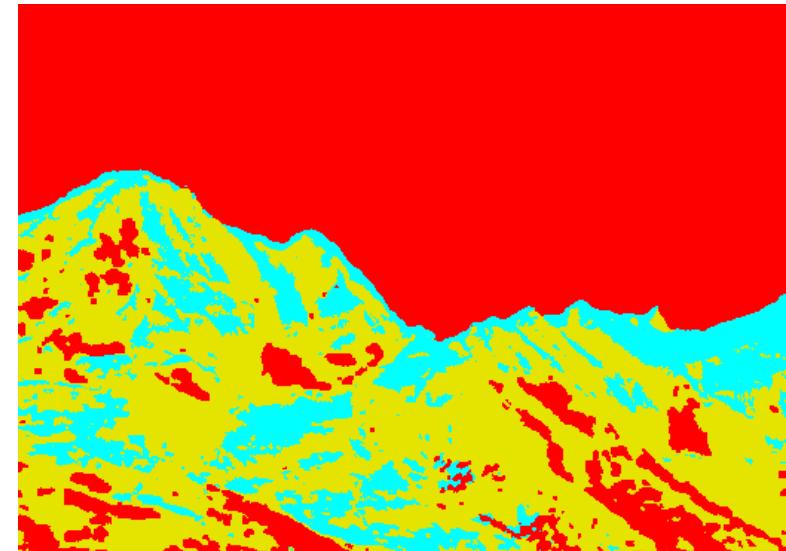
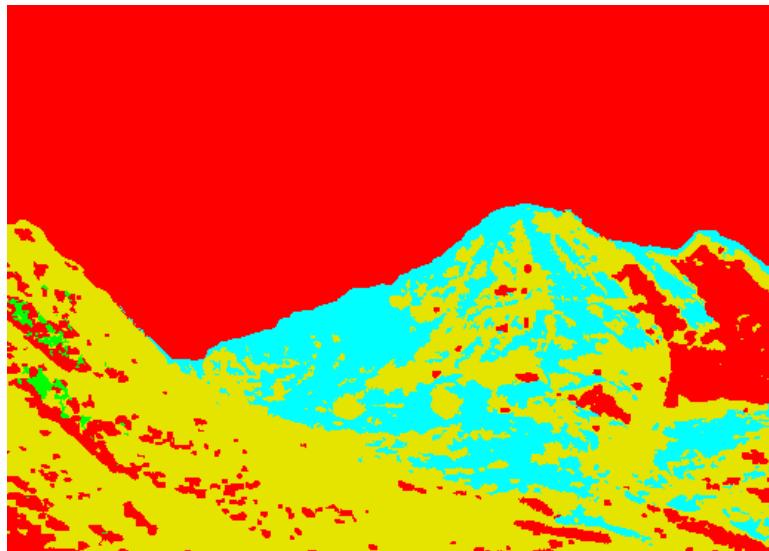
```
imageSegmentation.calculateUsingPolarCIEXYAndClustering(gsImg1, true);
```



```
imageSegmentation.calculateUsingPolarCIEXYAndFrequency(gsImg1, true);
```



```
imageSegmentation.calculateUsingPolarCIEXYAndFrequency(gsImg1, 0.2f, true);
```



```
int kBands = 2; imageSegmentation.applyUsingKMPP(gslImg1, kBands);
```



```
int kBands = 3; imageSegmentation.applyUsingKMPP(gslImg1, kBands);
```



```
int kBands = 8; imageSegmentation.applyUsingKMPP(gsImg1, kBands);
```



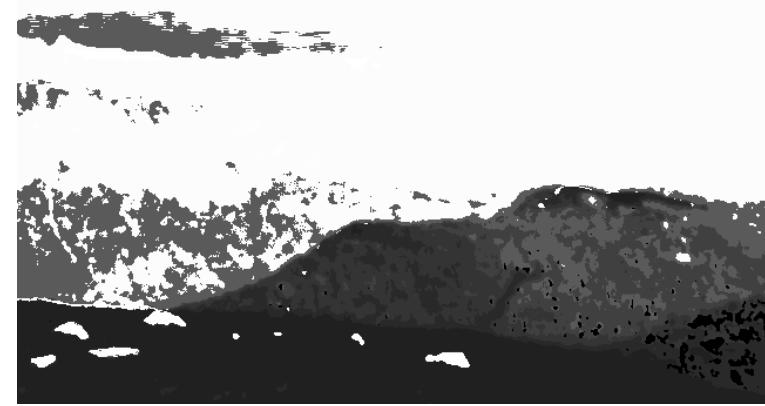
```
int kBands = 2; imageSegmentation.applyUsingCIEXYPolarThetaThenHistEq(gsImg1, kBands);
```



```
int kBands = 3; imageSegmentation.applyUsingCIEXYPolarThetaThenHistEq(gsImg1, kBands);
```



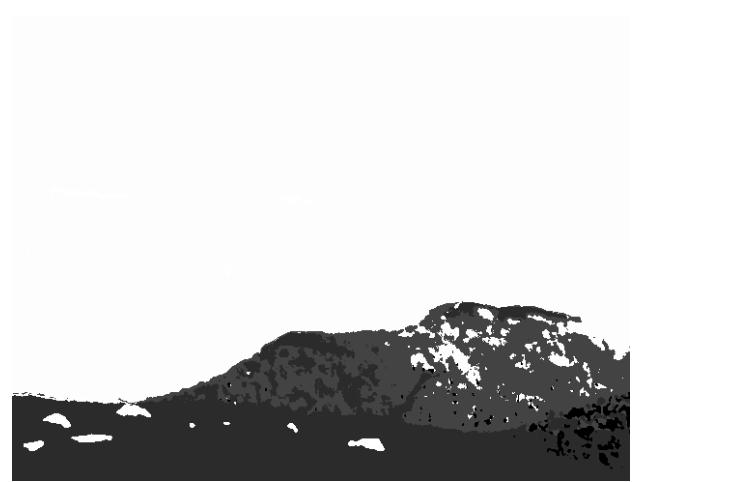
```
int kBands = 8; imageSegmentation.applyUsingCIEXYPolarThetaThenHistEq(gsImg1, kBands);
```



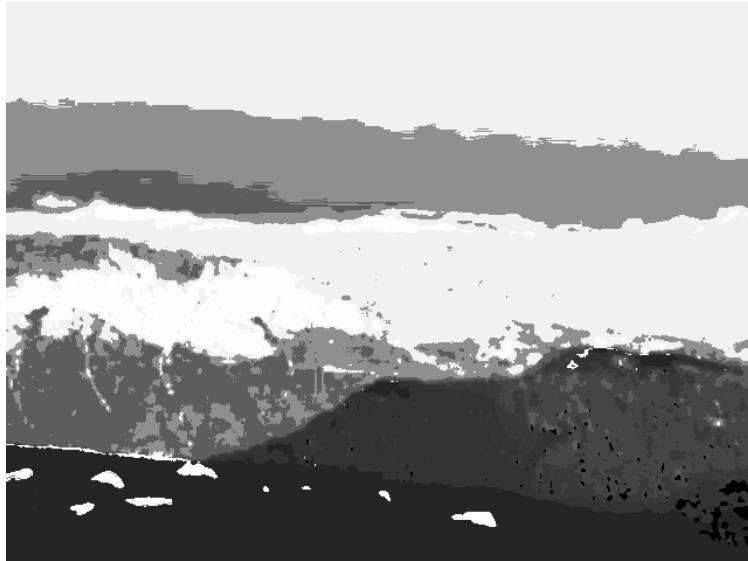
```
int kBands = 2; imageSegmentation.applyUsingCIEXYPolarThetaThenKMPPThenHistEq(gsImg1,  
kBands);
```



```
int kBands =3; imageSegmentation.applyUsingCIEXYPolarThetaThenKMPPThenHistEq(gsImg1,  
kBands);
```



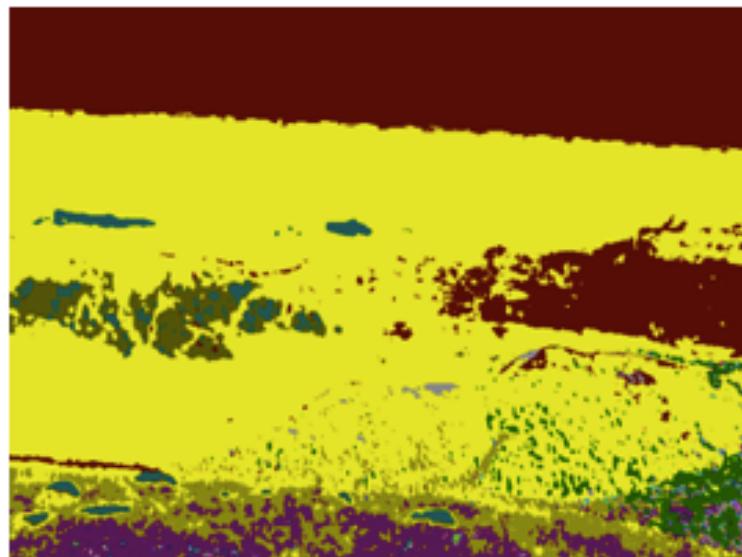
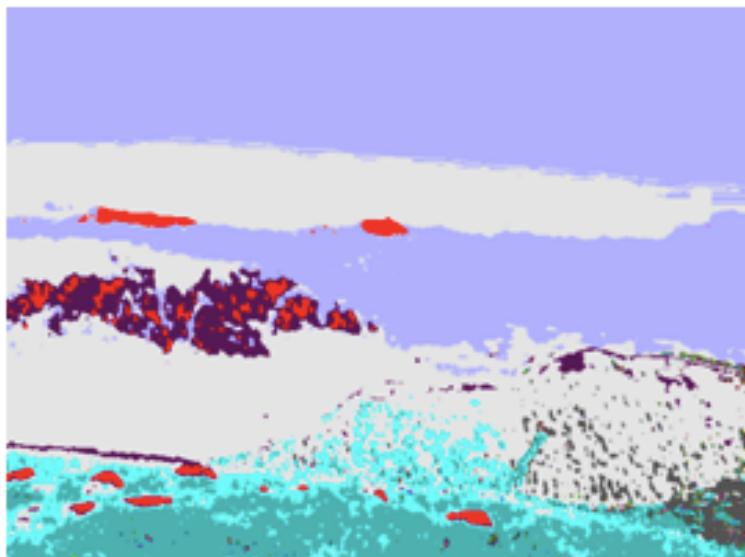
```
int kBands =8; imageSegmentation.applyUsingCIEXYPolarThetaThenKMPPThenHistEq
```



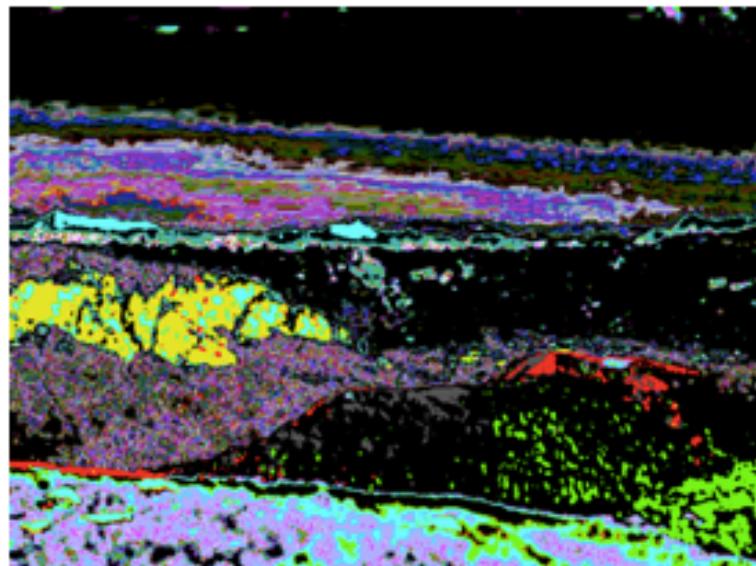
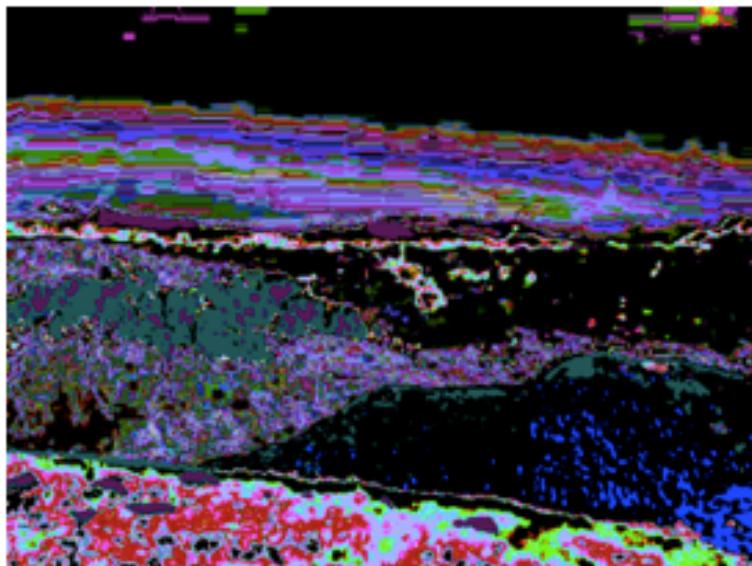
```
int kBands = 2; imageSegmentation.applyUsingCIEXYPolarThetaThenHistogram(gsImg1, kBands);
```



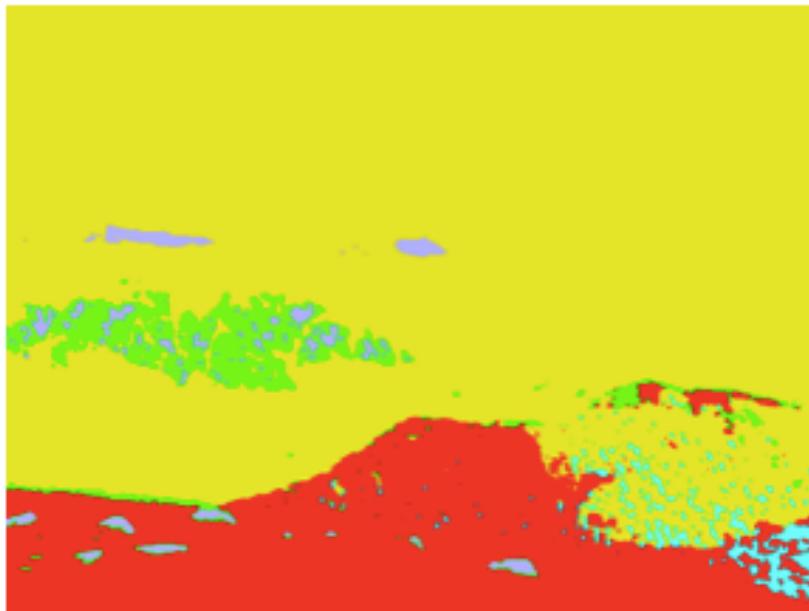
```
imageSegmentation.calculateUsingCIEXYAndClustering(gslImg1, true);
```



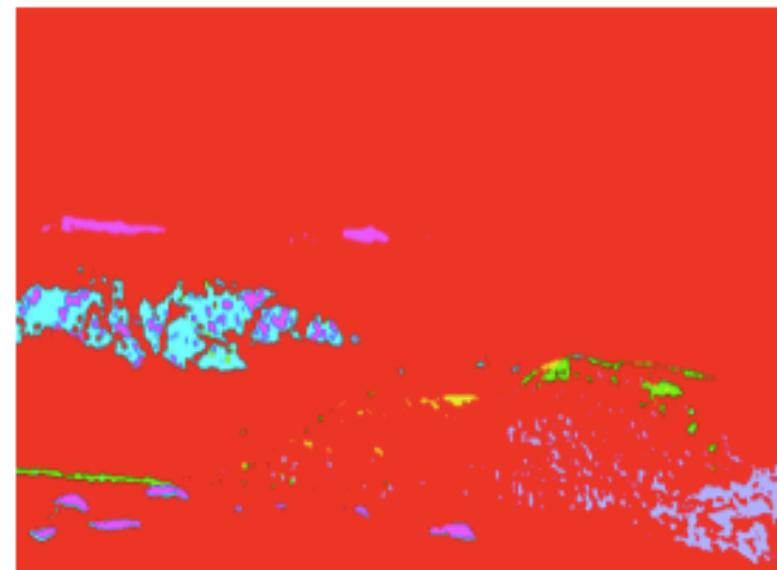
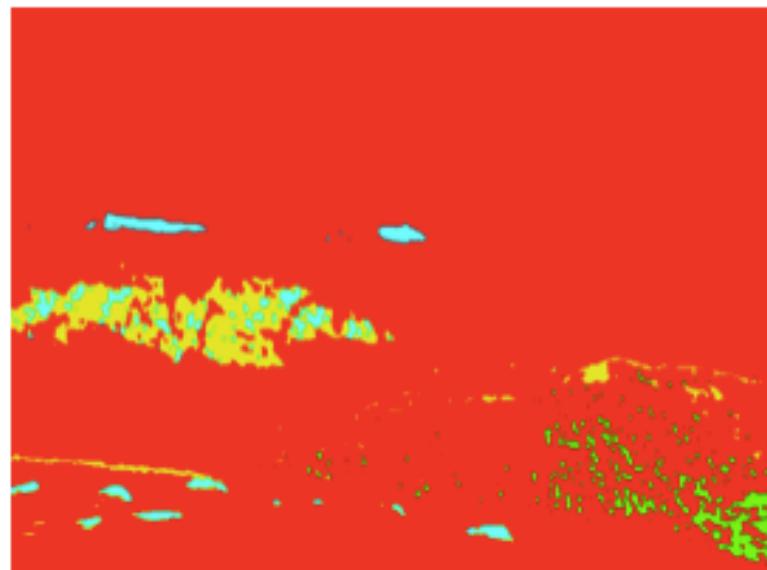
```
imageSegmentation.calculateUsingPolarCIEXYAndClustering(gslImg1, true);
```



```
imageSegmentation.calculateUsingPolarCIEXYAndFrequency(gslImg1, true);
```



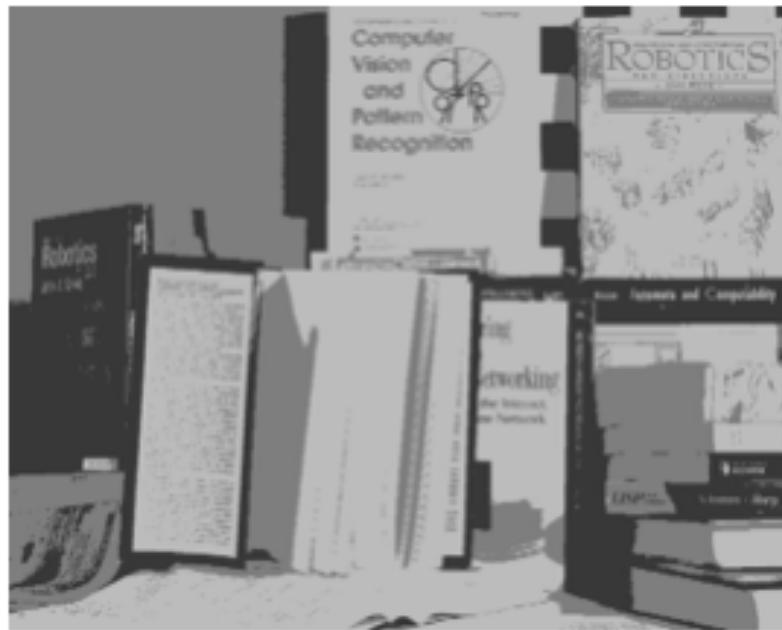
```
imageSegmentation.calculateUsingPolarCIEXYAndFrequency(gslImg1, 0.2f, true);
```



```
int kBands = 2; imageSegmentation.applyUsingKMPP(gslImg1, kBands);
```



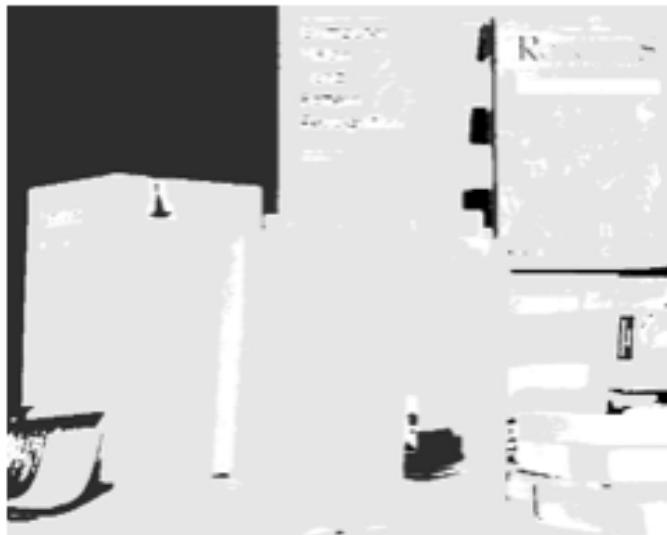
```
int kBands = 3; imageSegmentation.applyUsingKMPP(gslImg1, kBands);
```



```
int kBands = 8; imageSegmentation.applyUsingKMPP(gslmg1, kBands);
```



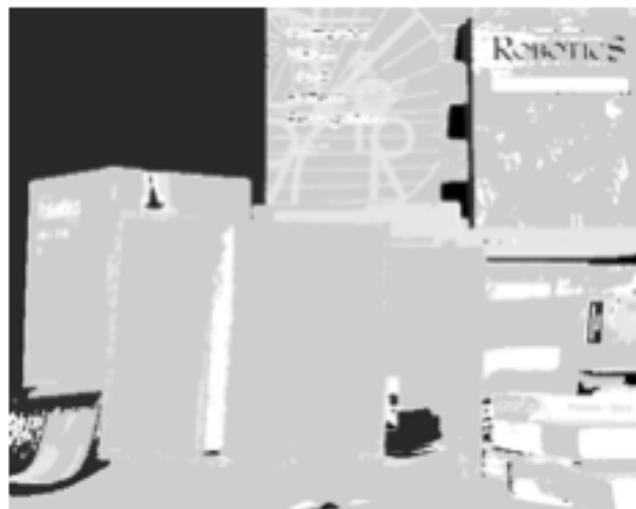
```
int kBands = 2; imageSegmentation.applyUsingCIEXYPolarThetaThenHistEq(gslmg1, kBands);
```



```
int kBands = 3; imageSegmentation.applyUsingCIEXYPolarThetaThenHistEq(gsImg1, kBands);
```



```
int kBands = 8; imageSegmentation.applyUsingCIEXYPolarThetaThenHistEq(gsImg1, kBands);
```



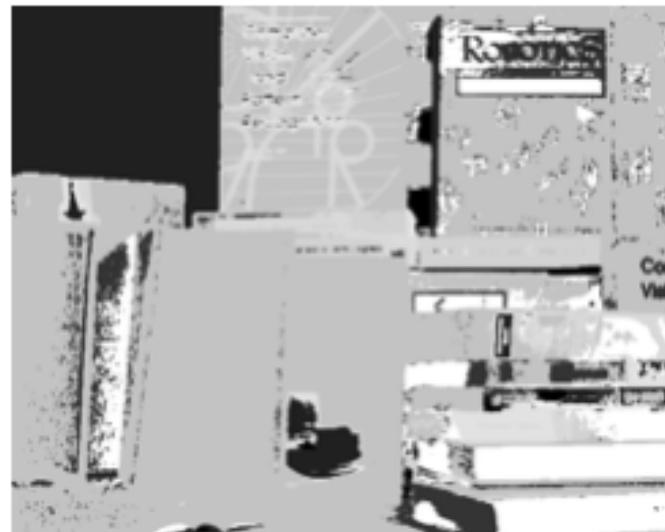
```
int kBands = 2; imageSegmentation.applyUsingCIEXYPolarThetaThenKMPPThenHistEq(gsImg1,  
kBands);
```



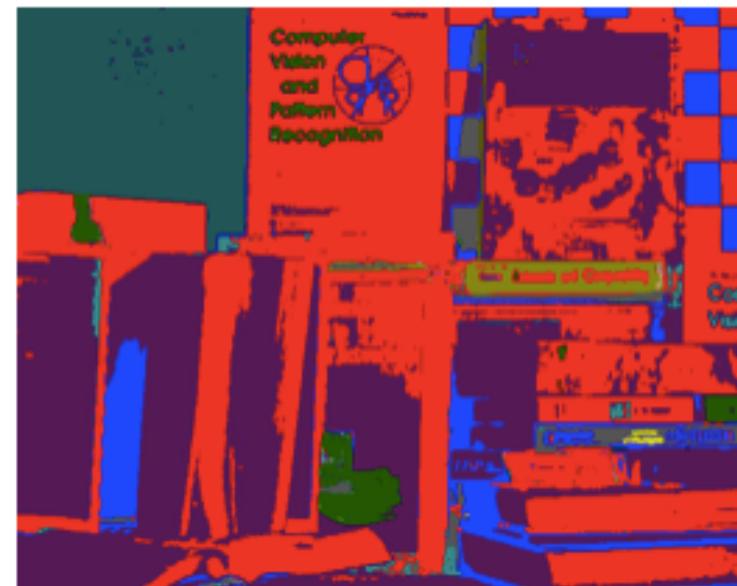
```
int kBands = 3; imageSegmentation.applyUsingCIEXYPolarThetaThenKMPPThenHistEq(gsImg1,  
kBands);
```



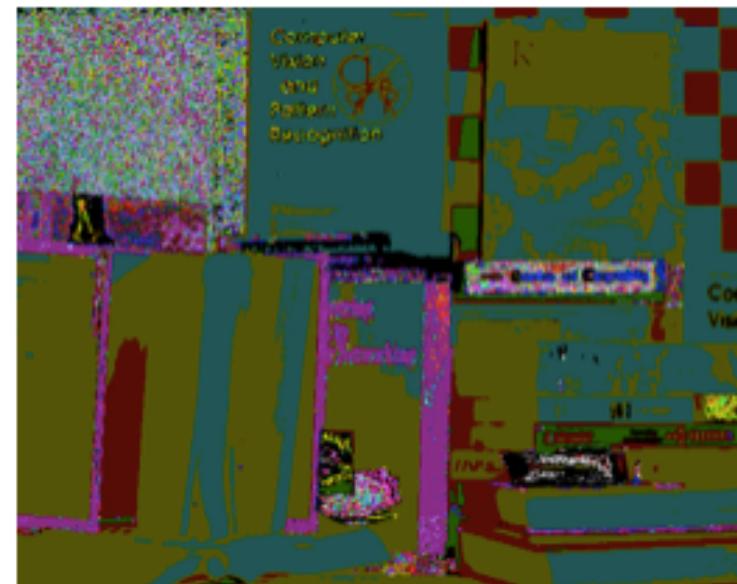
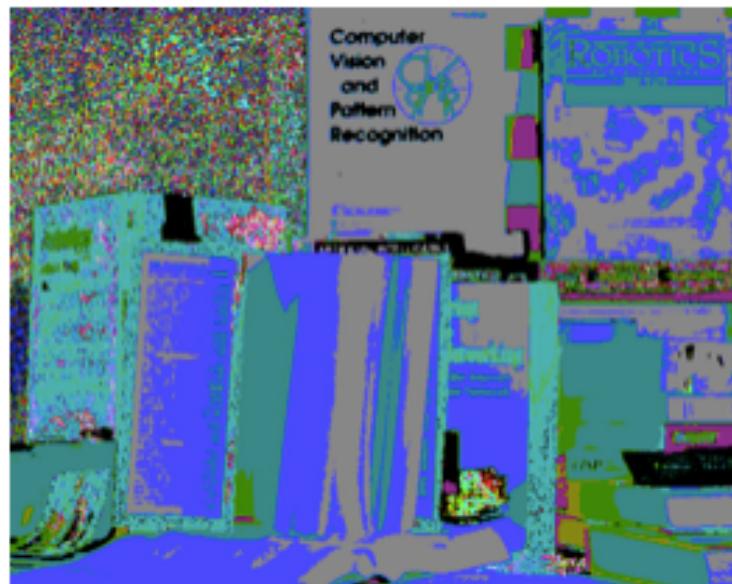
```
int kBands = 8; imageSegmentation.applyUsingCIEXYZPolarThetaThenKMPPThenHistEq(gsImg1,  
kBands);
```



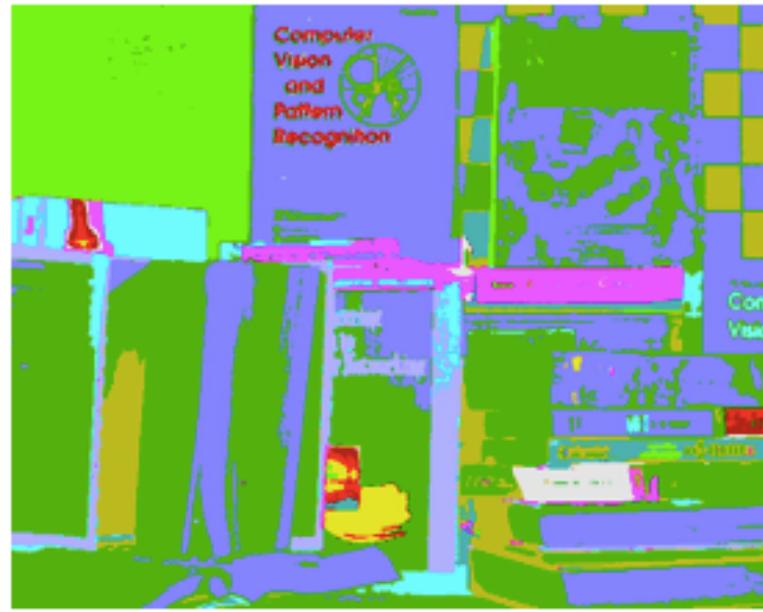
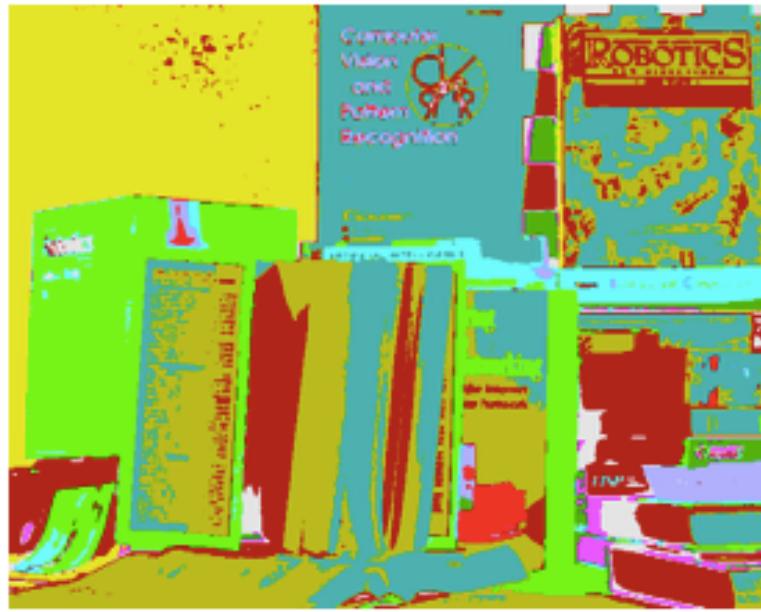
```
imageSegmentation.calculateUsingCIEXYAndClustering(gsImg1, true);
```



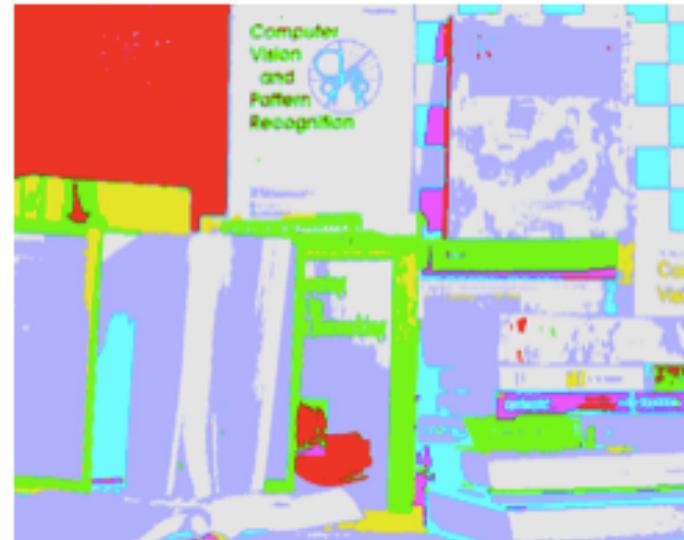
```
imageSegmentation.calculateUsingPolarCIEXYAndClustering(gsImg1, true);
```



```
imageSegmentation.calculateUsingPolarCIEXYAndFrequency(gsImg1, true);
```



```
imageSegmentation.calculateUsingPolarCIEXYAndFrequency(gsImg1, 0.2f, true);
```



```
int kBands = 2; imageSegmentation.applyUsingKMPP(gslImg1, kBands);  
zoom in
```

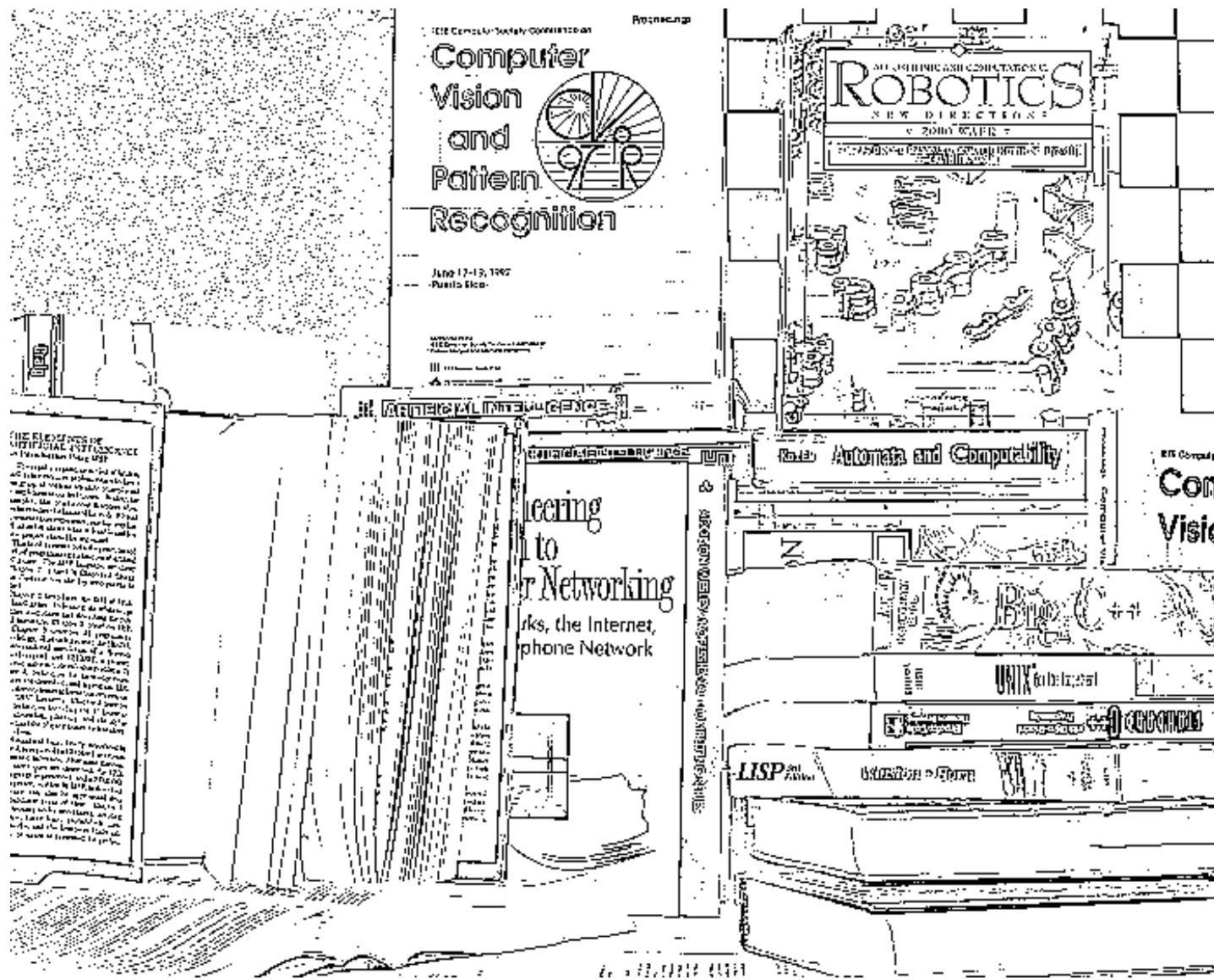
Computer
Vision
and
Pattern
Recognition



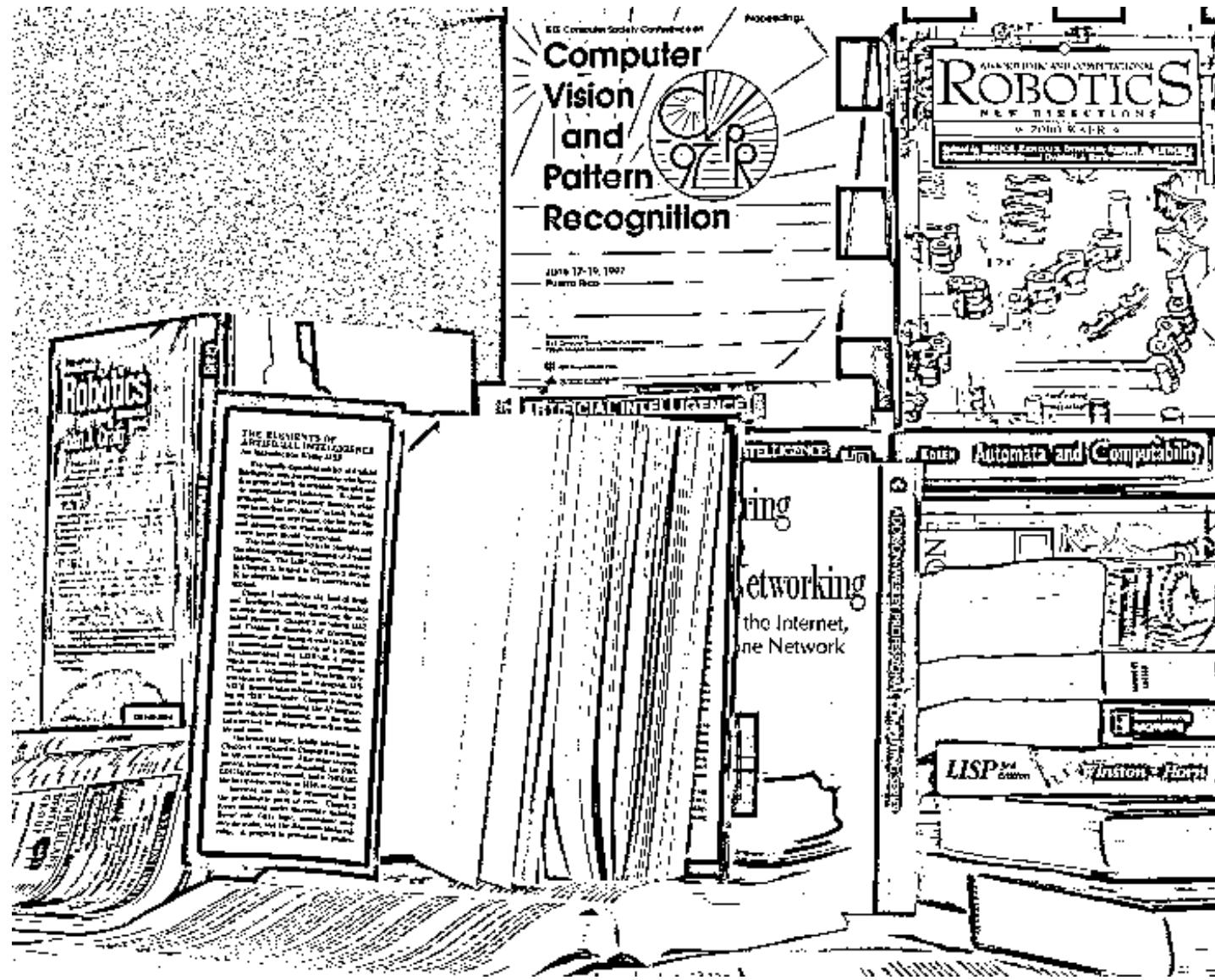
Computer
Vision
and
Pattern
Recognition



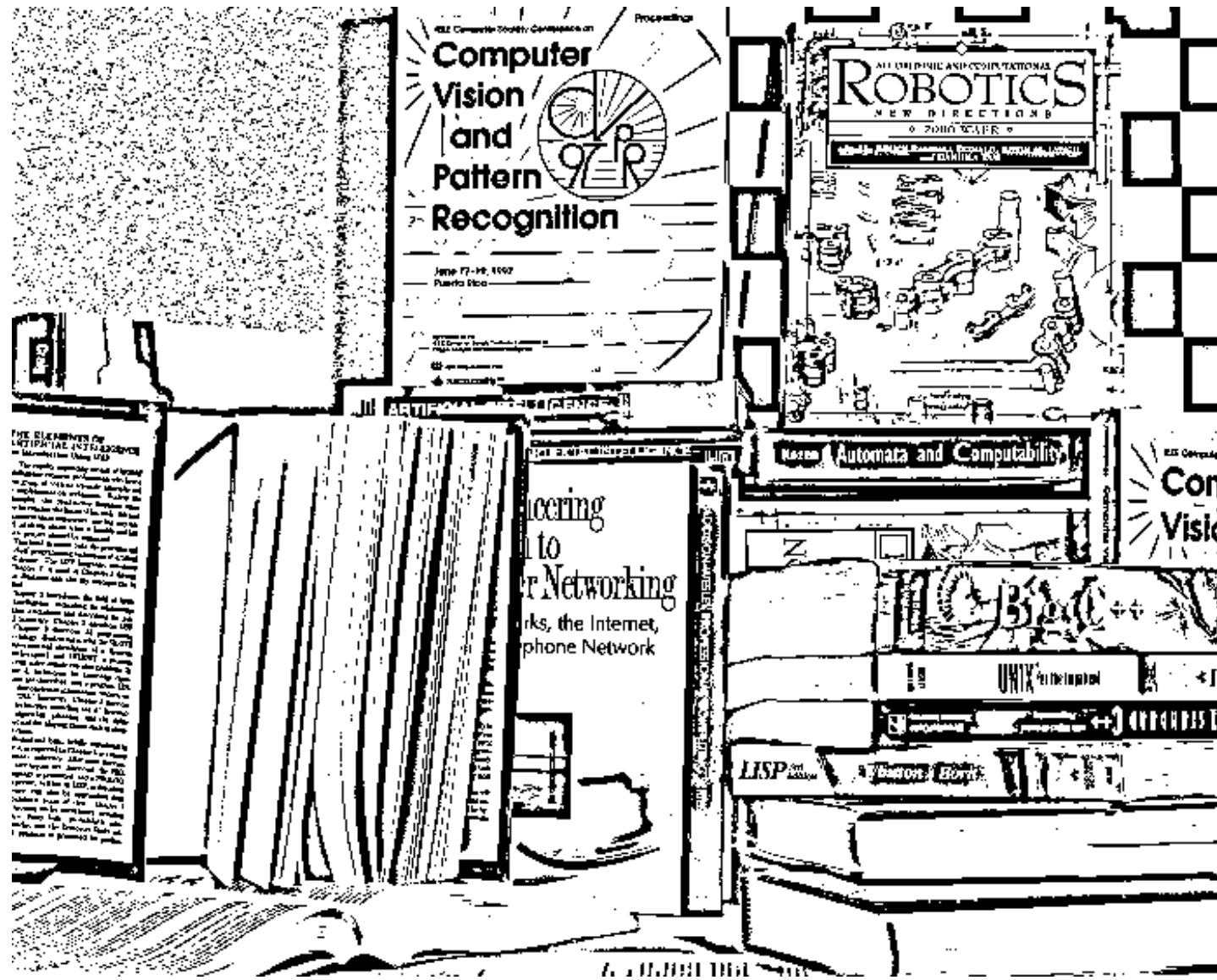
adaptive means, h=1



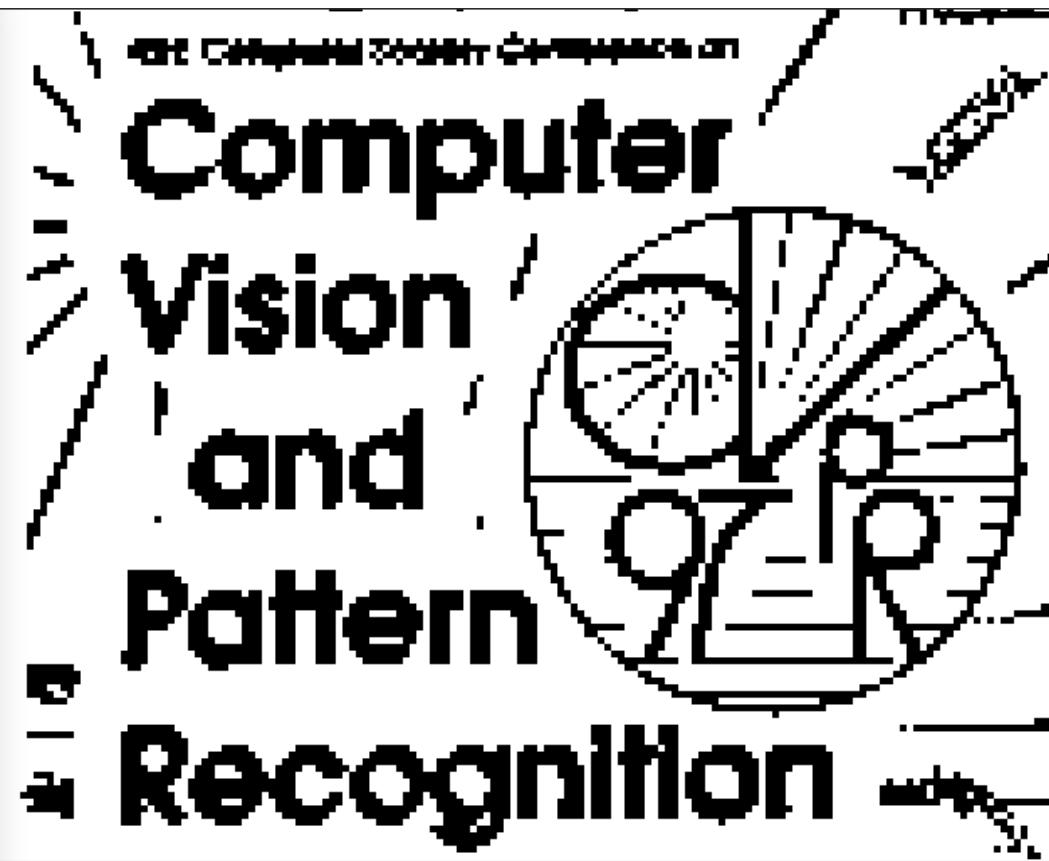
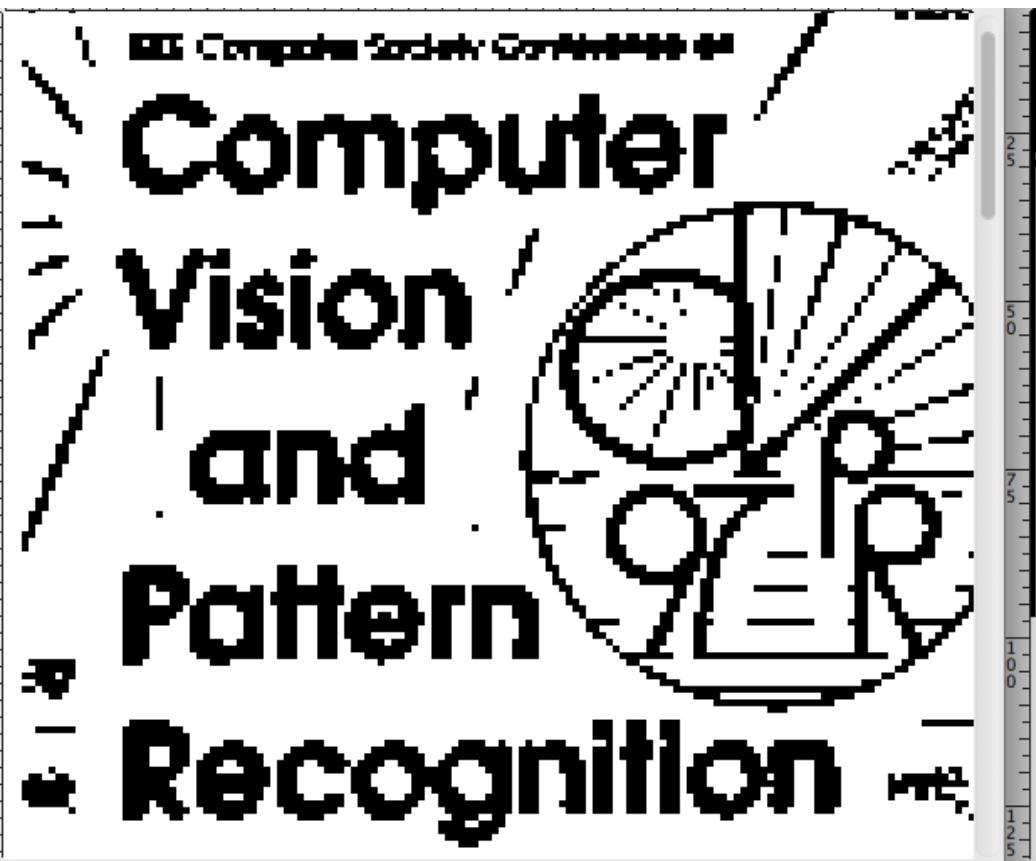
adaptive means, h=3



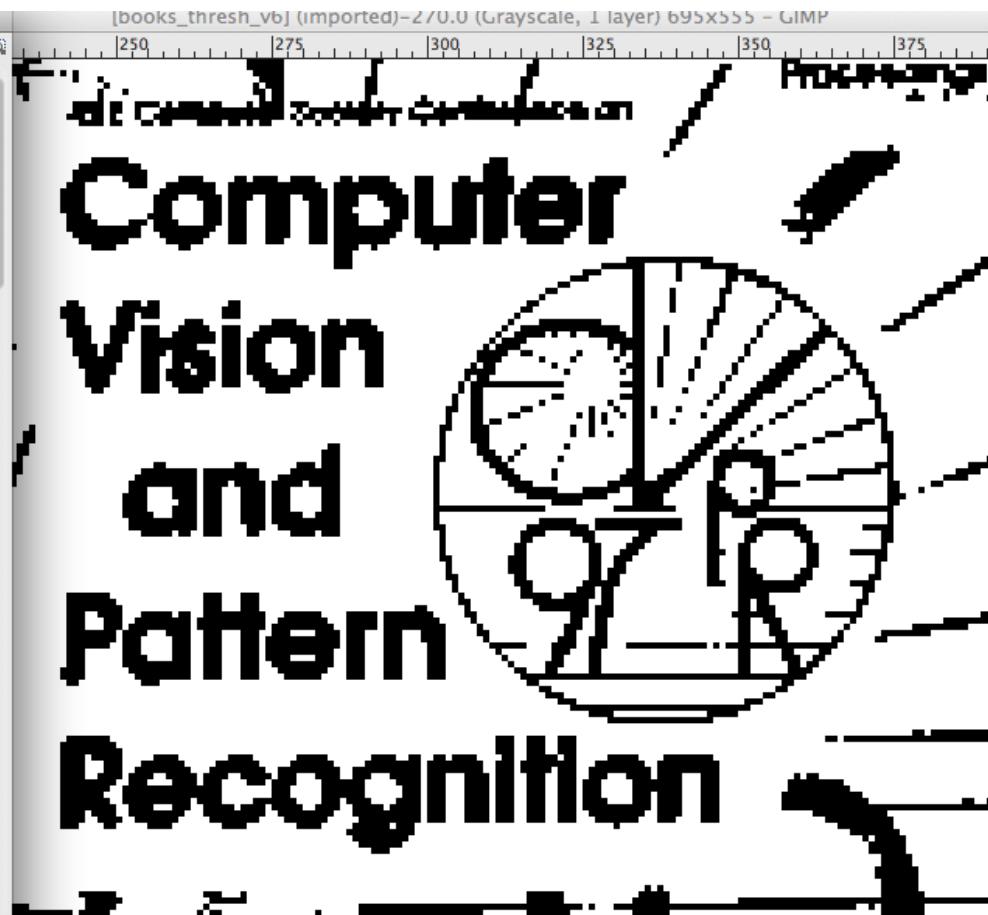
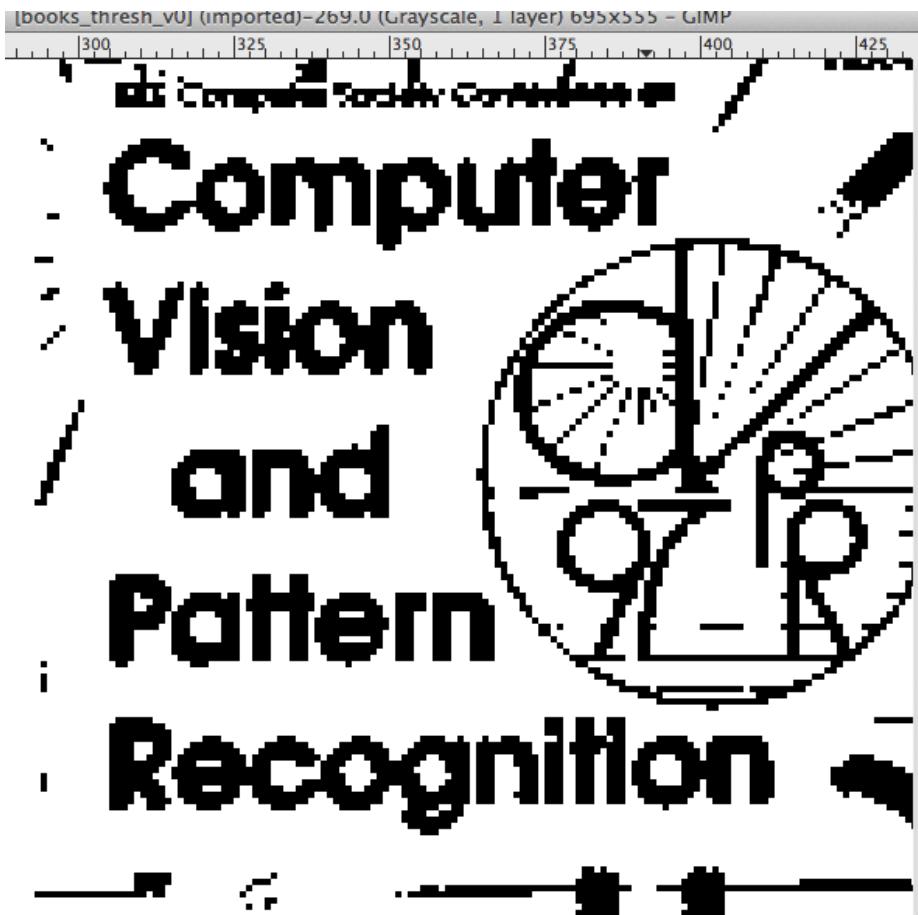
adaptive means, h=5



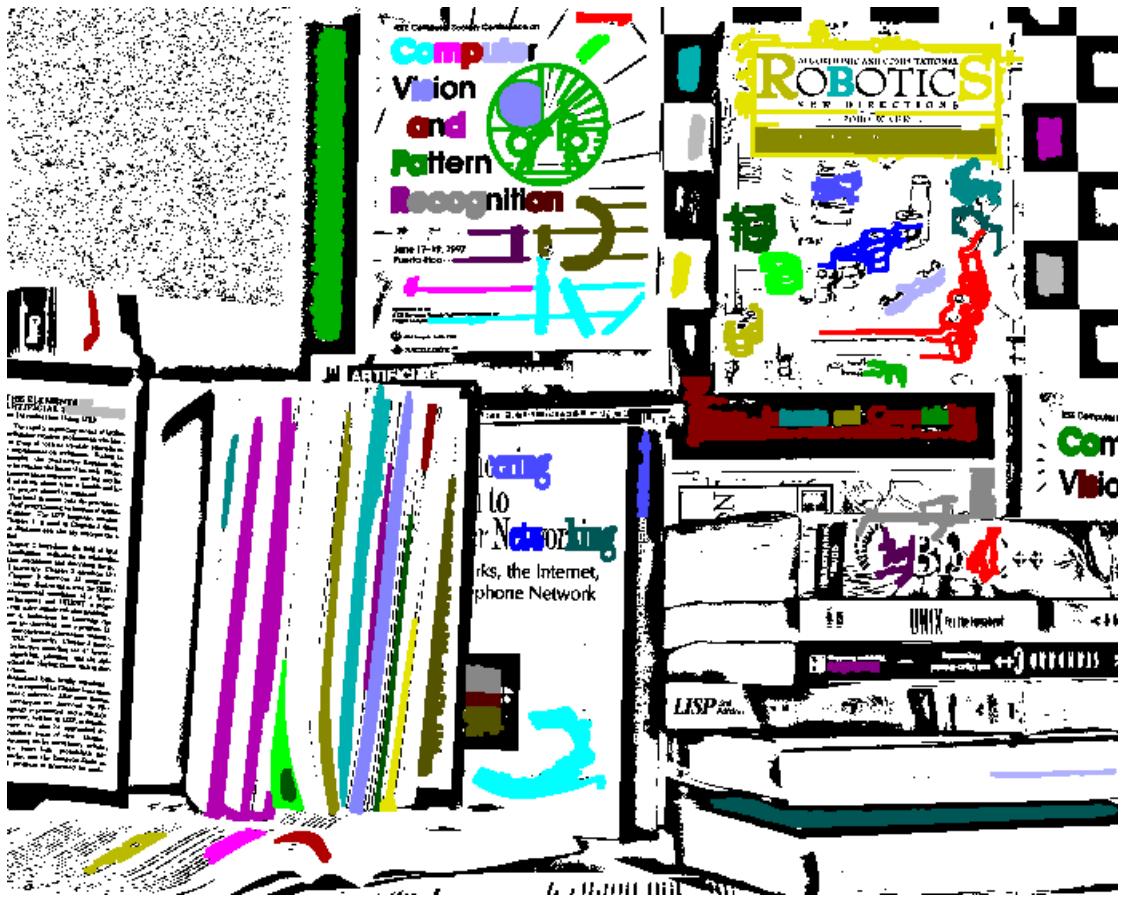
adaptive means, $h=7$



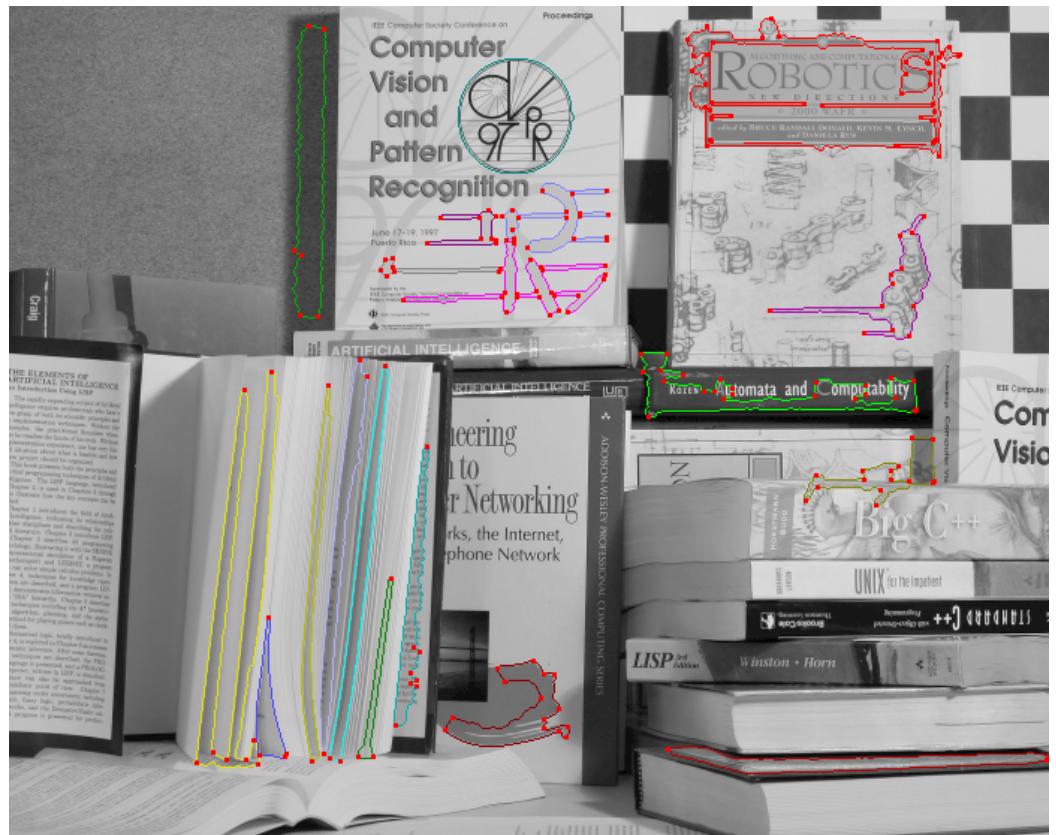
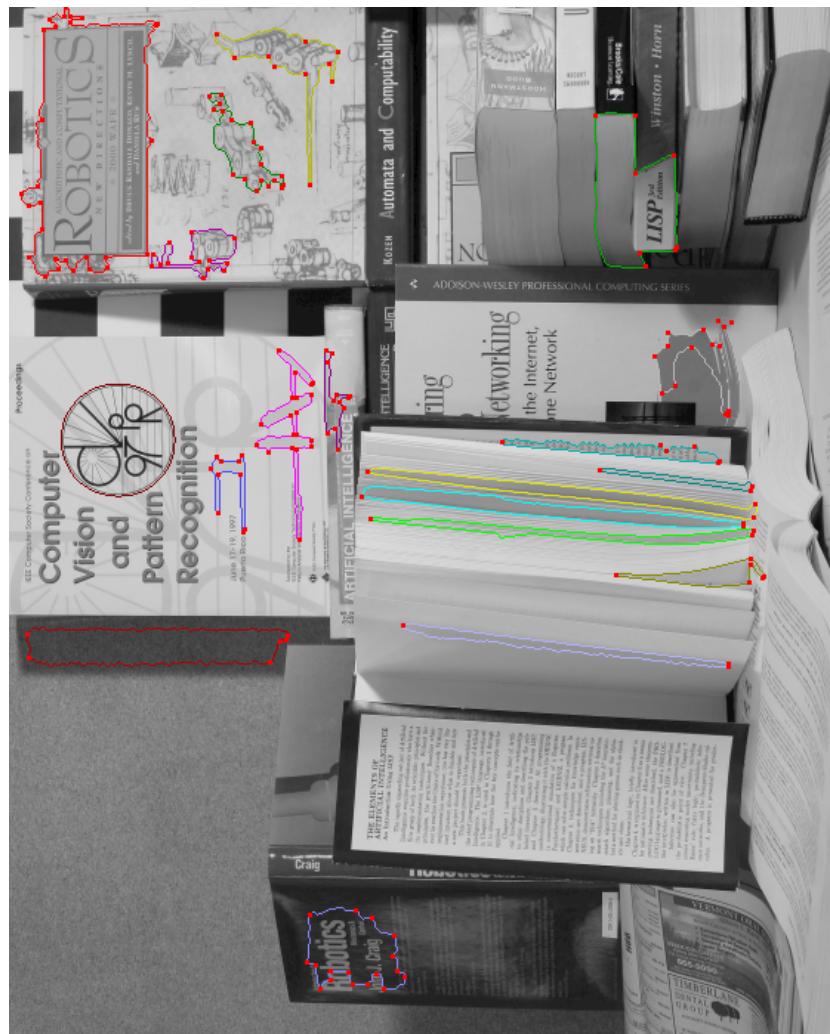
adaptive means, h=11 for adaptive to join close letters



adaptive means, h=11 blobs (extr using scale calc code)

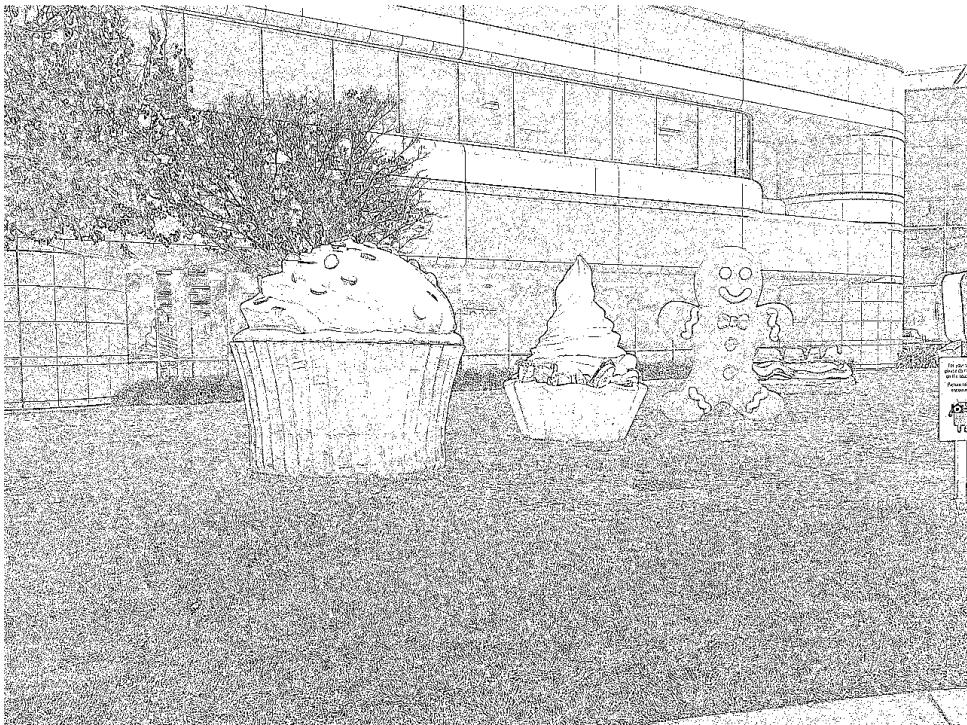


adaptive means, h=11 blob corners

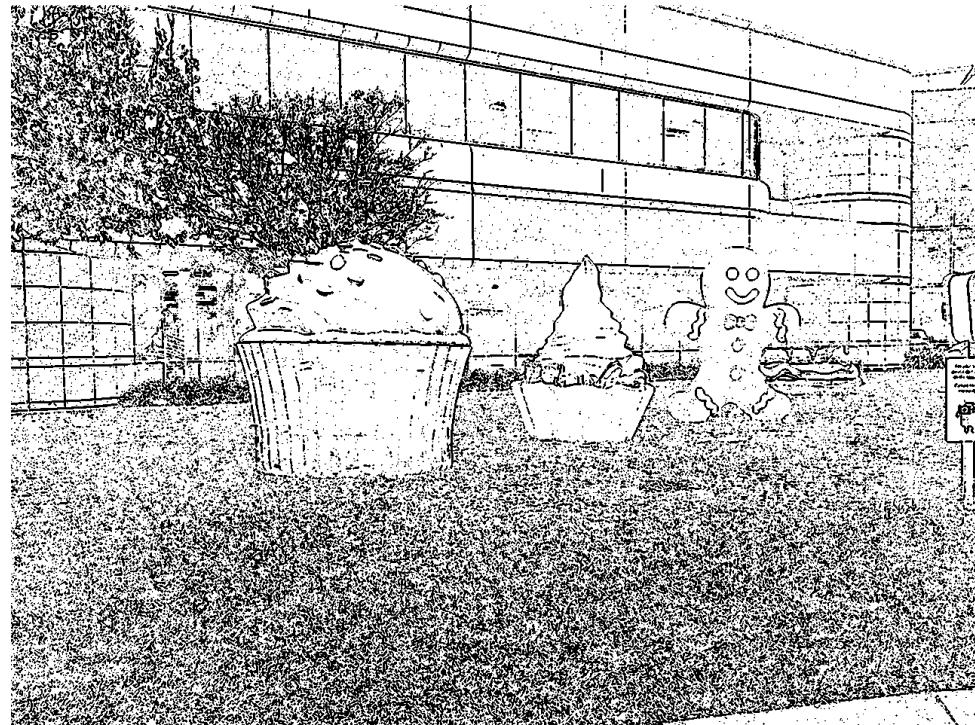


the letters are filtered out due to large nPerimeter compared to nInternal
adaptive means, h=3 was better for letters as blobs

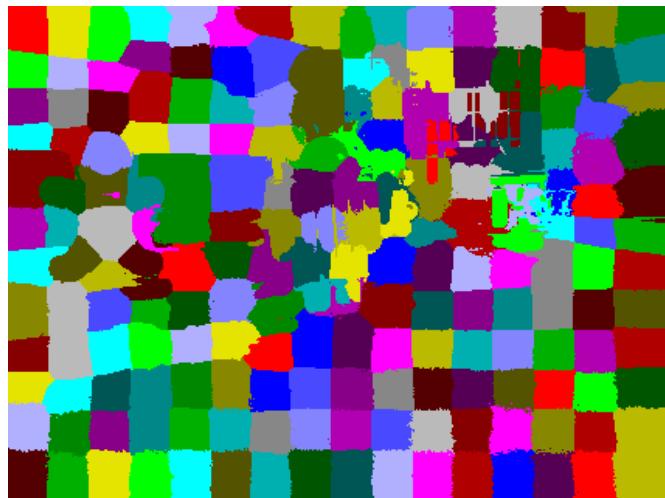
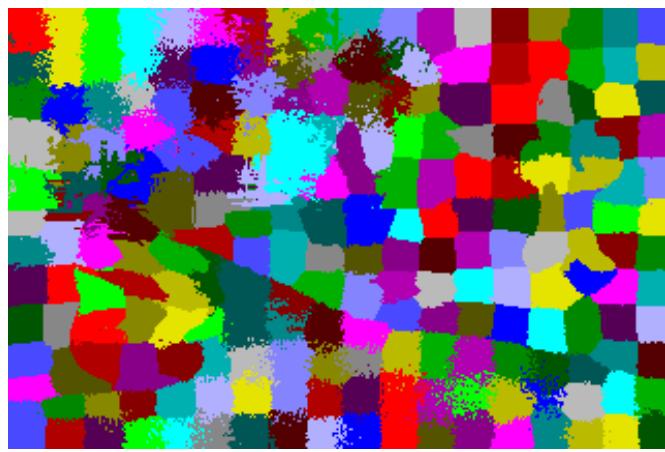
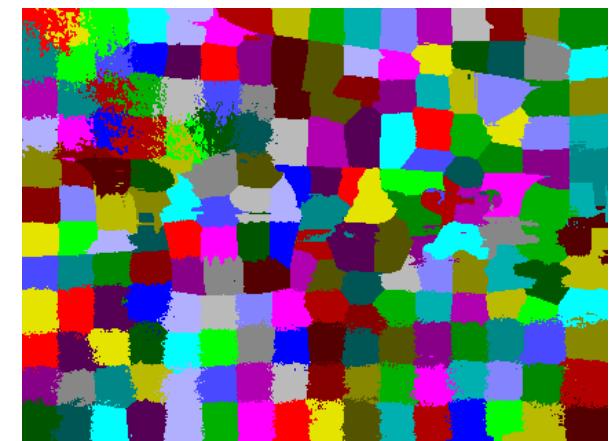
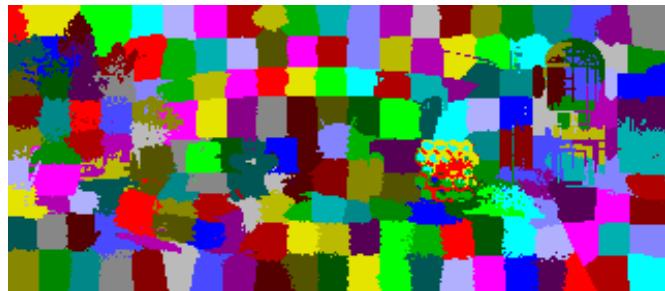
adaptive means, h=1



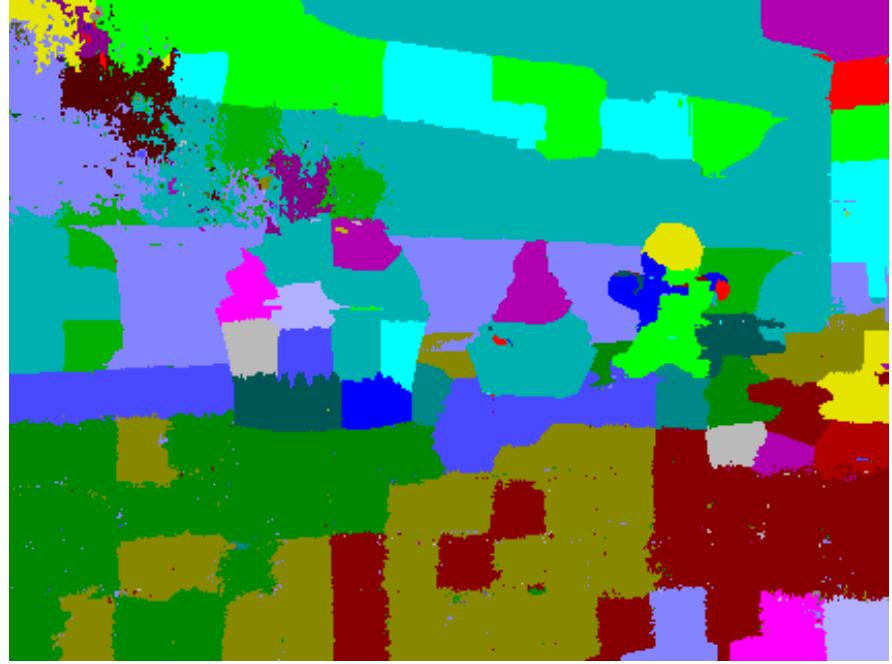
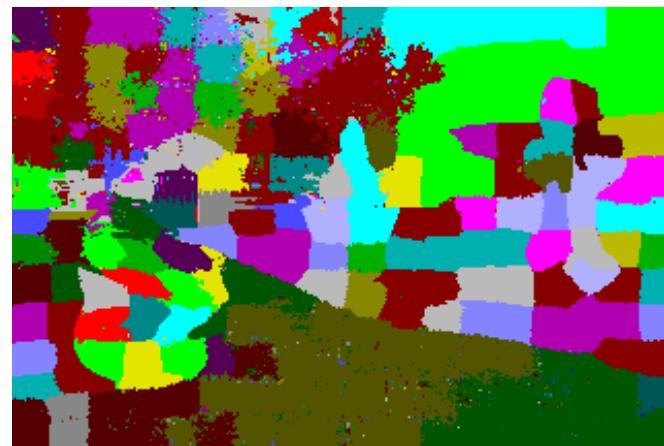
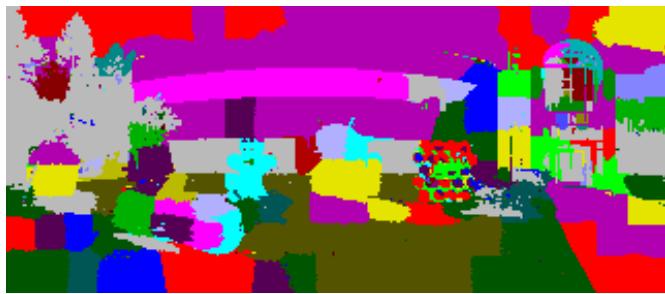
two median smooth with h=2



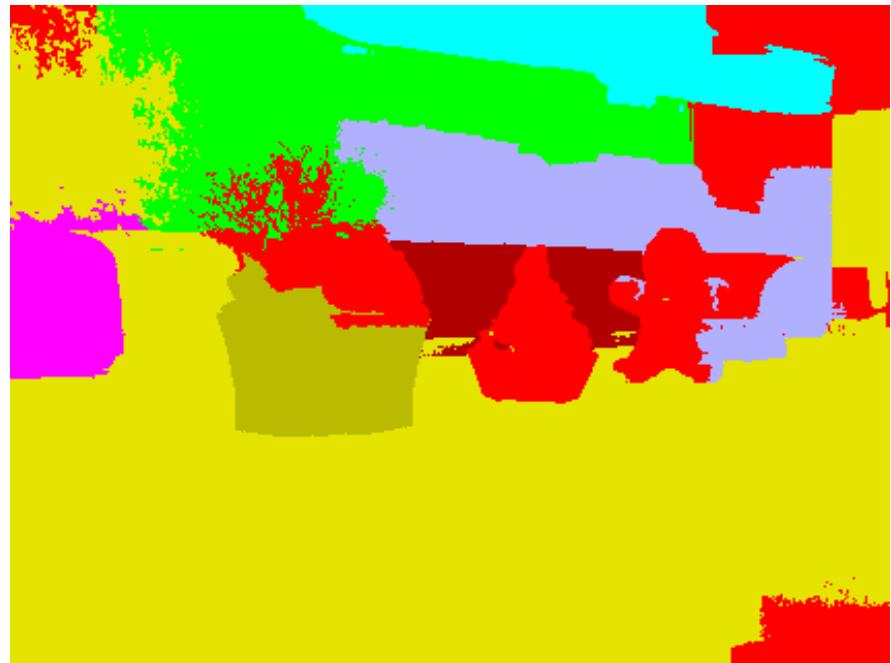
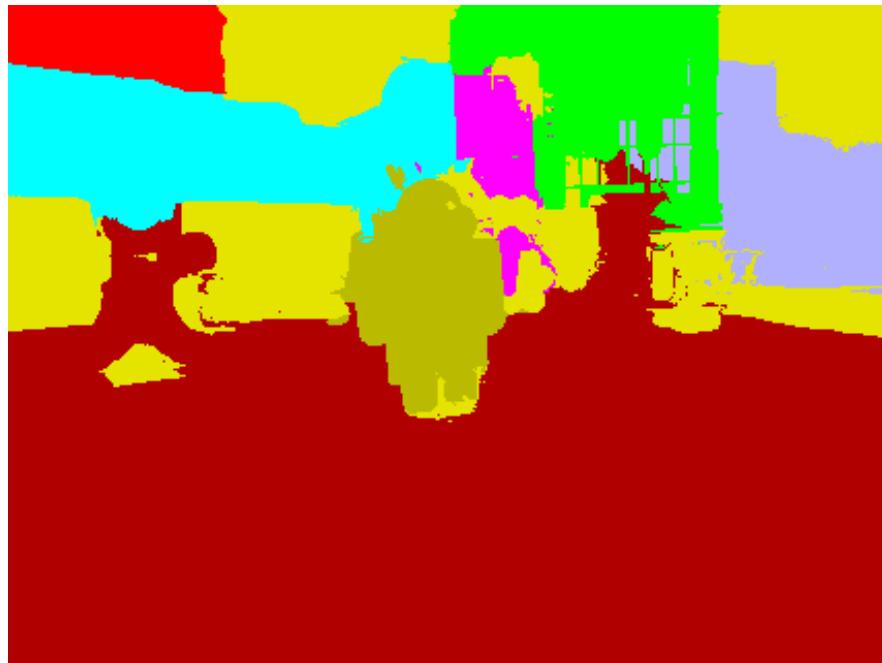
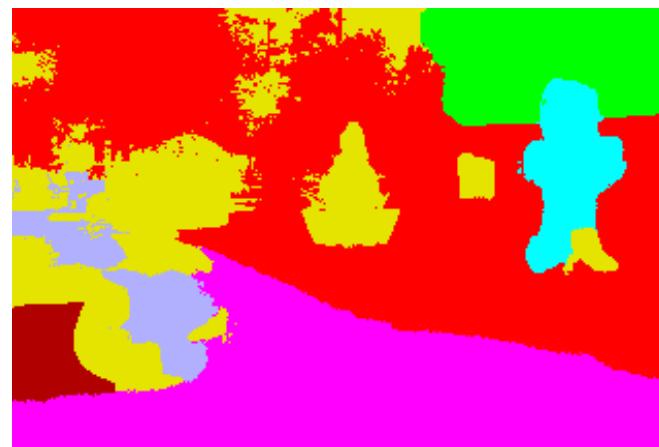
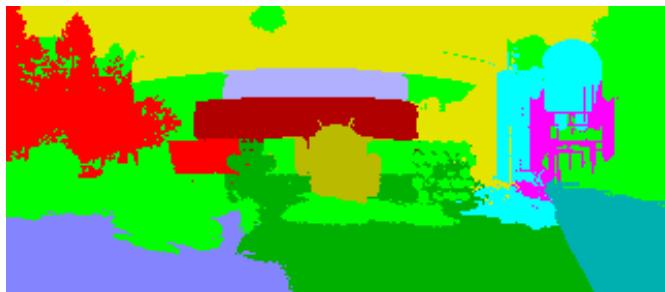
SLIC super pixels algorithm



CIE XY Theta Clustering of the super pixels



Normalized Cuts w/ HSV cs on the super pixels



Partial Shape Matching of the gingerbread man

extract ordered borders of shapes, blur them by one or two sigma,
then ordered bipartite matching algorithm.

