

GLCM

May 5, 2016

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In [15]: from glcm import glcm, glcm_features
         from core.util import get_histogram
         import matplotlib.pyplot as plt
         import numpy as np
         import Image
         from skimage.exposure import adjust_log

         figa = np.array(Image.open('../images/Fig1130(a)(uniform_noise).tif').convert('L'))
         figb = np.array(Image.open('../images/Fig1130(b)(sinusoidal).tif').convert('L'))
         figc = np.array(Image.open('../images/Fig1130(c)(cktboard_section).tif').convert('L'))

         glcma = glcm(figa)
         glcmb = glcm(figb)
         glcmc = glcm(figc)
         fa = glcm_features(glcma)
         fb = glcm_features(glcmb)
         fc = glcm_features(glcmc)

         ax = plt.subplot('321')
         ax.set_title("Figure a")
         ax.imshow(figa, 'gray')
         ax.axis('off')

         ax = plt.subplot('322')
         ax.set_title("GLCM of Figure b")
         ax.imshow(adjust_log(glcma), 'gray')
         ax.axis('off')

         ax = plt.subplot('323')
         ax.set_title("Figure b")
         ax.imshow(figb, 'gray')
         ax.axis('off')

         ax = plt.subplot('324')
         ax.set_title("GLCM of Figure b")
         ax.imshow(adjust_log(glcmb), 'gray')
         ax.axis('off')

         ax = plt.subplot('325')
         ax.set_title("Figure c")
         ax.imshow(figc, 'gray')
         ax.axis('off')
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ax = plt.subplot('326')
ax.set_title("GLCM of Figure c")
plt.imshow(adjust_log(glcmc), 'gray')
ax.axis('off')

plt.show()

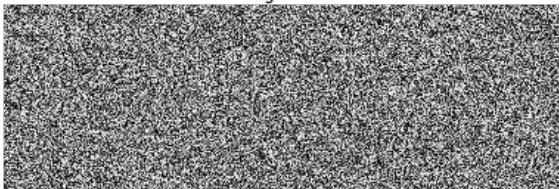
print 'Figure a\n'
for x in fa.items():
    print x
print '\n'

print 'Figure b\n'
for x in fb.items():
    print x
print '\n'

print 'Figure c\n'
for x in fc.items():
    print x
print '\n'

```

Figure a



GLCM of Figure b

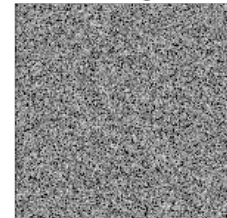
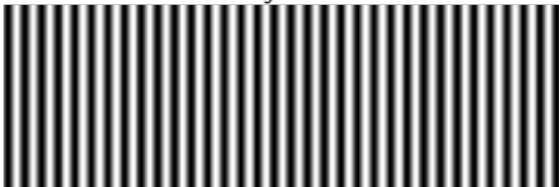


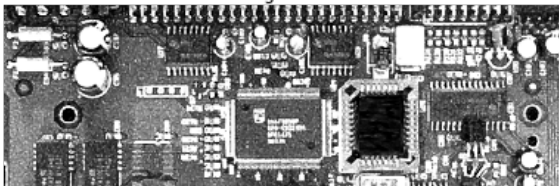
Figure b



GLCM of Figure b



Figure c



GLCM of Figure c

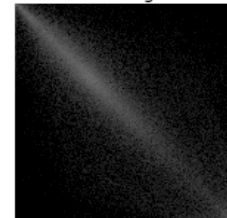


Figure a

('max_prob', 5.710560253548875e-05)

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('energy', 2.009384179595791e-05)
('homogeneity', 0.036605170294720477)
('entropy', 15.75163745606217)
('correlation', -0.00047317102186848032)
('contrast', 10838.31168237864)
```

Figure b

```
('max_prob', 0.015018773466833541)
('energy', 0.012348038301945018)
('homogeneity', 0.082361700685087663)
('entropy', 6.4294454703155228)
('correlation', 0.96497555722965966)
('contrast', 569.87359198998752)
```

Figure c

```
('max_prob', 0.058942499417046976)
('energy', 0.0035953969699850648)
('homogeneity', 0.20049513380390668)
('entropy', 13.630613678658932)
('correlation', 0.90427511989856368)
('contrast', 1044.0752747017423)
```