GREYCOMATRIX CONTRAST CORRELATION ENERGY HOMOGENIEITY smooth random coarse

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from skimage import data
from sklearn.feature_extraction.image import extract_patches_2d
from skimage.feature import graycomatrix, graycoprops
import numpy as np
import cv2
import matplotlib.pyplot as plt


img = data.camera()
img = cv2.resize(img,(500,500))
plt.imshow(img,cmap='gray')
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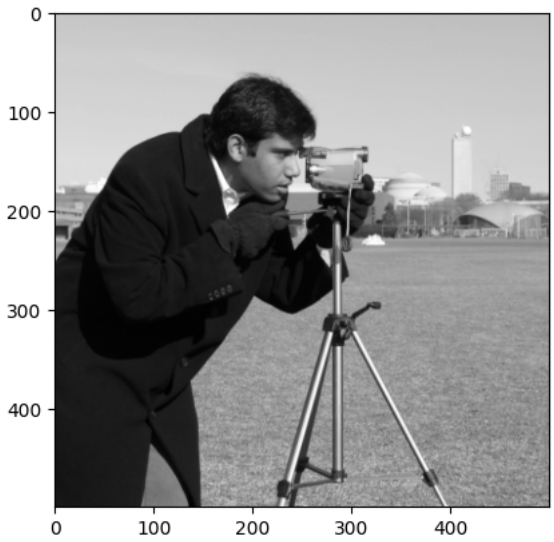
<matplotlib.image.AxesImage at 0x7bd56aa99420>
```




```
#10x10 pacthes for computing GLCM properties
patches = []
means = []
patch_len = 10
for i in range(0, img.shape[0] - patch_len + 1, patch_len):
    for j in range(0, img.shape[1] - patch_len + 1, patch_len):
        patch = img[i:i+patch_len, j:j+patch_len]
        patches.append(patch)
        means.append(np.mean(patch))
means = np.array(means).reshape((50,50))


contrast_list = []
correlation_list = []
dissimilarity_list = []
energy_list = []
homogeneity_list = []

for patch in patches:
    glcm = graycomatrix(patch, distances=[5], angles=[0], levels=256, symmetric=True, normed=True)
    contrast_list.append(graycoprops(glcm, 'contrast')[0, 0])
    correlation_list.append(graycoprops(glcm, 'correlation')[0, 0])
    dissimilarity_list.append(graycoprops(glcm, 'dissimilarity')[0, 0])
    energy_list.append(graycoprops(glcm, 'energy')[0, 0])
    homogeneity_list.append(graycoprops(glcm, 'homogeneity')[0, 0])


f, ax = plt.subplots(1,6, figsize=(15,15))
prop_names = ["Contrast", "Correlation", "Energy", "Homogeneity", "Dissimilarity"]
props = [contrast_list, correlation_list, energy_list, homogeneity_list, dissimilarity_list]
ax[0].imshow(img, cmap='gray')
ax[0].set_title("Image")

for i in range(1,len(props)+1):
  prop = np.array(props[i-1]).reshape((50,50))
  heatmap = ((prop - np.min(prop)) / (np.max(prop) - np.min(prop))) * 255
  ax[i].imshow(heatmap, cmap = 'hot')
  ax[i].set_title(prop_names[i-1]+" Heatmap")
plt.show()
```

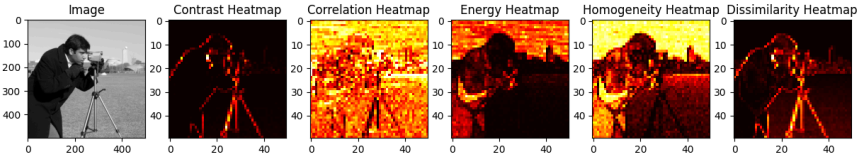


Image
Contrast Heatmap
Correlation Heatmap
Energy Heatmap
Homogeneity Heatmap
Dissimilarity Heatmap