

```
1 from PIL import Image
2 import numpy as np
3 import matplotlib.pyplot as plt
4
5 im = Image.open("Lenna.jpg").resize((255,255))
6 arr = np.array(im.copy())
7
8 keys = np.arange(256)
9 histOri = np.zeros((256), dtype= np.uint32)
10
11 for y in range(arr.shape[0]):
12     for x in range(arr.shape[1]):
13         akum = (int(arr[y,x,0])+int(arr[y,x,1])+int(arr[y,x,2]))
14         tmp = max(min(int(akum/3),255),0)
15         arr[y,x] = [tmp,tmp,tmp]
16         histOri[tmp] = histOri[tmp]+1;
17
18 fig = plt.figure(1)
19 plt.bar(keys,histOri)
20 fig.canvas.draw()
21 dataOri = np.frombuffer(fig.canvas.tostring_rgb(), dtype=np.uint8)
22 dataOri = dataOri.reshape(fig.canvas.get_width_height()[::-1] + (3,))
23 histImageOri = Image.fromarray(dataOri).resize((255,255))
24 histNpOri = np.array(histImageOri)
25
26 Image.fromarray(np.vstack((histNpOri,arr))).show()
```