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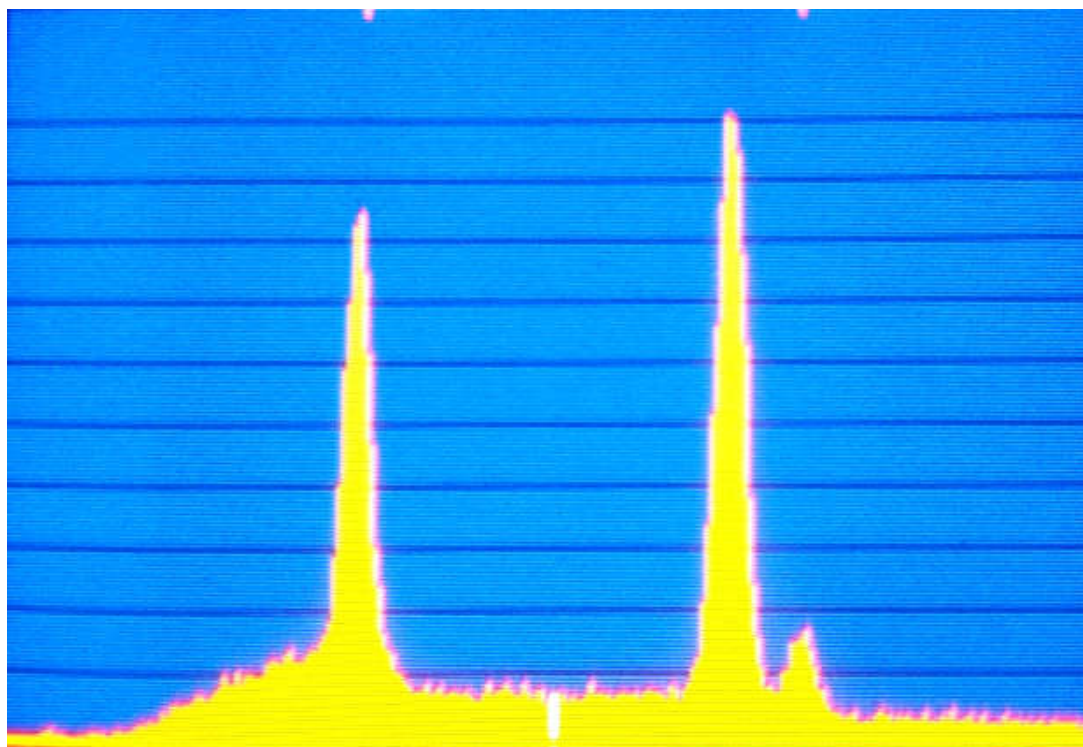
**学号：2016141482154**

**结论：计算比例结果为9.97%**

```
In [85]: import numpy as np
import cv2
from PIL import Image
import matplotlib.pyplot as plt
%matplotlib inline
```

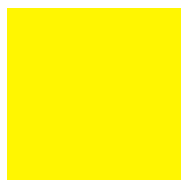
```
In [86]: img = Image.open('./hw_img1.bmp')
data = np.array(img)
img
```

Out[86]:



```
In [87]: Image.fromarray(np.full((100,100,3),[255, 247, 0],np.uint8))
```

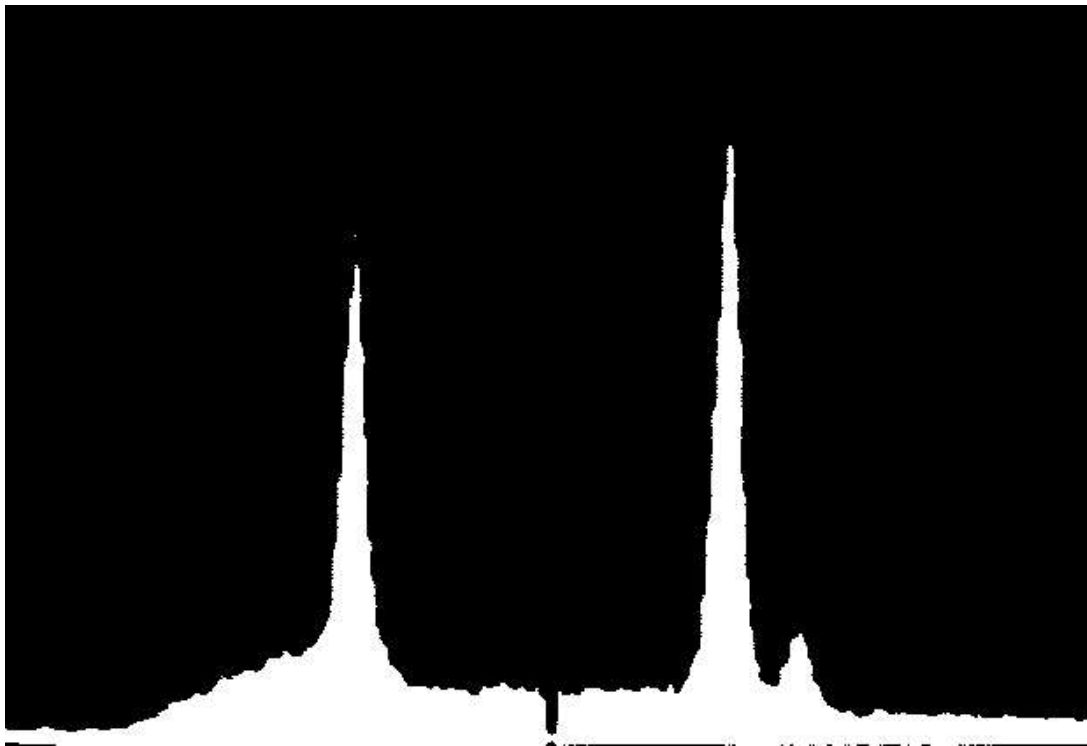
Out[87]:



**计算每个像素点与黄色rgb值的方差，设定阈值**

```
In [103]: data_bak = np.zeros(data.shape[:2], np.uint8)
def res(rgb):
    return sum(np.power([255, 247, 0]-rgb, 2))
for i in range(len(data)):
    for j in range(len(data[i])):
        if res(data[i][j]) < 20000:
            data_bak[i][j] = 255
cv2.threshold(data_bak, 140, 255, 0, data_bak)
Image.fromarray(data_bak)
```

Out[103]:



## 计算黄色区域所占比例

```
In [104]: flat = data_bak.reshape((1,-1))
np.sum(flat)/(flat.shape[1]*255)
```

Out[104]: 0.09971364913597072