

```
In [1]: import cv2
import numpy as np
import matplotlib.pyplot as plot
```

```
In [2]: print('hello world')
```

hello world

利用 opencv 读取图片并显示

```
In [3]: img = cv2.imread('./pic/House256rgb.png', 1)
cv2.imshow('Image', img)
cv2.waitKey(0)
```

Out[3]: 27

```
In [4]: img = cv2.imread('./pic/House256rgb.png', 0)
cv2.imshow('Image', img)
cv2.waitKey(0)
```

Out[4]: 27

```
In [5]: img = cv2.imread('./pic/House256rgb.png', 1)
print(type(img))
print(img.shape)
print(img[10, 8, 0])
```

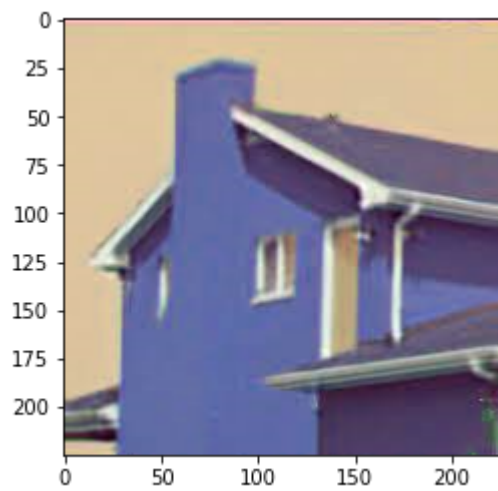
<class 'numpy.ndarray'>
(225, 225, 3)
225

```
In [6]: img = cv2.imread('./pic/House256rgb.png', 1)
img_crop = img[:100, 100:180, :]
print(img_crop.shape)
cv2.imshow('Crop Image', img_crop)
cv2.waitKey(0)
```

(100, 80, 3)

Out[6]: 27

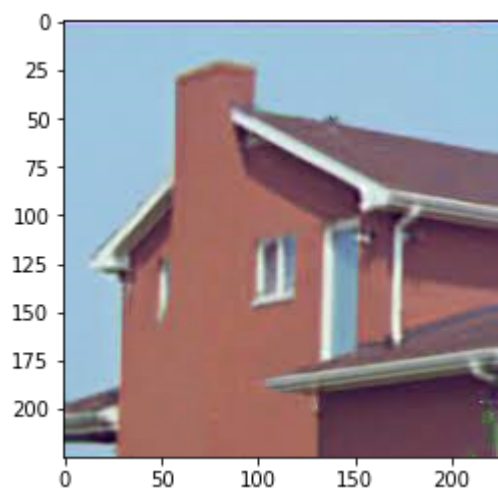
```
In [7]: img = cv2.imread('./pic/House256rgb.png', 1)
plot.imshow(img)
plot.show()
```



RGB & BGR

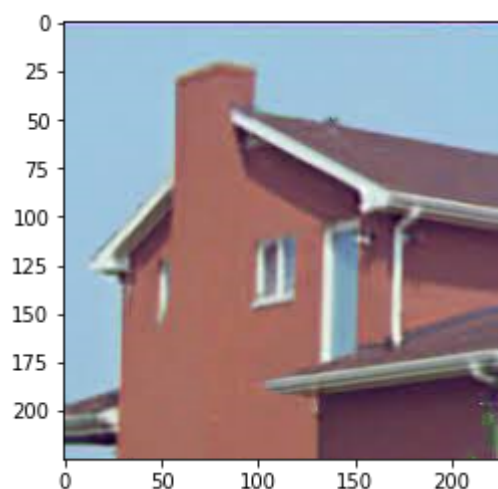
In [8]:

```
img = cv2.imread('./pic/House256rgb.png', 1)
[b, g, r] = cv2.split(img)
img_rgb = cv2.merge([r, g, b])
plot.imshow(img_rgb)
plot.show()
```



In [9]:

```
img = cv2.imread('./pic/House256rgb.png', 1)
img_rgb = cv2.cvtColor(img, cv2.COLOR_BGR2RGB)
plot.imshow(img_rgb)
plot.show()
```



图像保存 JPEG 和 PNG

```
In [10]: img = cv2.imread('./pic/House256rgb.png')
cv2.imwrite('imageTest_PNG.png', img)
```

Out[10]: True

```
In [11]: img = cv2.imread('./pic/House256rgb.png')
Quality = 80
cv2.imwrite('imageTest_JPEG_%d.jpg' % Quality, img, [cv2.IMWRITE_JPEG_QUALITY
```

Out[11]: True

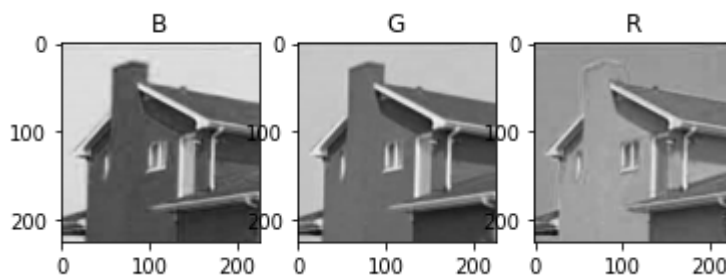
颜色空间转换

RGB

```
In [12]: # img = cv2.imread('./Picture/House256rgb.png')
# cv2.imshow('B', img[:, :, 0])
# cv2.imshow('G', img[:, :, 1])
# cv2.imshow('R', img[:, :, 2])
# cv2.waitKey(0)
```

```
In [13]: img = cv2.imread('./pic/House256rgb.png')
print(img[:, :, 0].shape)
plot.subplot(131)
plot.imshow(img[:, :, 0], cmap='gray')
plot.title('B')
plot.subplot(132)
plot.imshow(img[:, :, 1], cmap='gray')
plot.title('G')
plot.subplot(133)
plot.imshow(img[:, :, 2], cmap='gray')
plot.title('R')
plot.show()
```

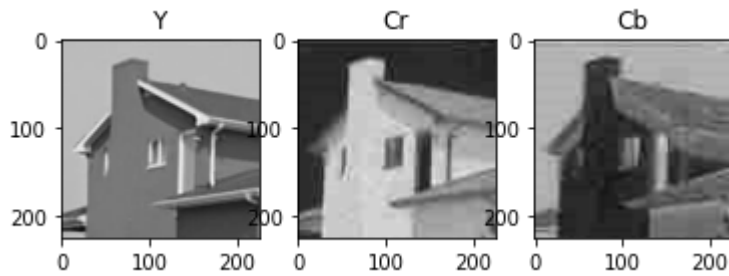
(225, 225)



RGB->YCrCb

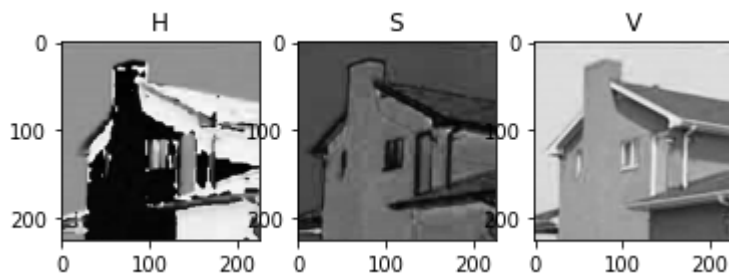
```
In [14]: # img = cv2.imread('./Picture/House256rgb.png')
# img_YCbCr = cv2.cvtColor(img, cv2.COLOR_BGR2YCrCb)
# cv2.imshow('Y', img_YCbCr[:, :, 0])
# cv2.imshow('Cb', img_YCbCr[:, :, 1])
# cv2.imshow('Cr', img_YCbCr[:, :, 2])
# cv2.waitKey(0)
```

```
In [15]: img = cv2.imread('./pic/House256rgb.png')
img_YCbCr = cv2.cvtColor(img, cv2.COLOR_BGR2YCrCb)
plot.subplot(131)
plot.imshow(img_YCbCr[:, :, 0], cmap='gray')
plot.title('Y')
plot.subplot(132)
plot.imshow(img_YCbCr[:, :, 1], cmap='gray')
plot.title('Cr')
plot.subplot(133)
plot.imshow(img_YCbCr[:, :, 2], cmap='gray')
plot.title('Cb')
plot.show()
```



RGB --> HSV

```
In [16]: img = cv2.imread('./pic/House256rgb.png')
img_HSV = cv2.cvtColor(img, cv2.COLOR_BGR2HSV)
plot.subplot(131)
plot.imshow(img_HSV[:, :, 0], cmap='gray')
plot.title('H')
plot.subplot(132)
plot.imshow(img_HSV[:, :, 1], cmap='gray')
plot.title('S')
plot.subplot(133)
plot.imshow(img_HSV[:, :, 2], cmap='gray')
plot.title('V')
plot.show()
```



在图中画一条蓝线和一个红点

```
In [17]: for k in range(0, 225):
img[k, 100, :] = [225, 0, 0]
for g in range(1, 200, 2):
img[g, g] = [0, 0, 255]

cv2.imshow('image', img)
cv2.waitKey(0)

# for k in range(0, 256):
#     img[k, 100, :] = [255, 0, 0]
#
```

```
#img[200, 200] = [0, 0, 255]

#cv2.imshow('image', img)
#cv2.waitKey(0)
```

Out[17]: 27

```
In [ ]: disrow = 500
discol = 500
new_img = cv2.resize(img, (disrow, discol), interpolation = cv2.INTER_CUBIC)
cv2.imshow('new_img', new_img)
cv2.waitKey(0)
```

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In [ ]: # Kan Horst - PKU - 干皓丞
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In [ ]:
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