

# OpenCV pixel operations

For pixel operations, we can change any position to a new pixel color. Here we first read the image, and then assign an area to white.

- Start Docker

After entering the Raspberry Pi 5 desktop, open a terminal and run the following command to start the container corresponding to Dofbot:

```
./Docker_Ros.sh
```

Access Jupyter Lab within Docker:

```
IP:9999 // Example: 192.168.1.11:9999
```

## Code path:

/root/Dofbot/4.opencv/1.OpenCV\_basic/04\_pixel\_pic.ipynb

The main code is as follows:

```
import cv2

img = cv2.imread('yahboom.jpg',1)
(b,g,r) = img[100,100]
print(b,g,r)# bgr
#10 100 --- 110 100
i=j=0
for j in range(1,500):
    img[i,j] = (255,255,255)
    for i in range(1,500):
        img[i,j] = (255,255,255)
#cv2.imshow('image',img)
#cv2.waitKey(0) #1000 ms
```

```
#bgr8 to jpeg format
import enum
import cv2
def bgr8_to_jpeg(value, quality=75):
    return bytes(cv2.imencode('.jpg', value)[1])
```

JupyterLab shows image comparison before and after:

```
import ipywidgets.widgets as widgets
image_widget1 = widgets.Image(format='jpg', )
image_widget2 = widgets.Image(format='jpg', )
# create a horizontal box container to place the image widget next to each other
image_container = widgets.HBox([image_widget1, image_widget2])
# display the container in this cell's output
display(image_container)
img1 = cv2.imread('yahboom.jpg',1)
image_widget1.value = bgr8_to_jpeg(img1) #Original

image_widget2.value = bgr8_to_jpeg(img) #After pixel operation
```

After the code block is run, you can compare and see that part of the second image has turned into white pixels.

