

# Lesson 4 Picture & Video Loading and Display

## 1. Image Reading and Writing

Read image: `cv2.imread(Location, Model)`

1) Location——read the location of the image which can be the absolute path and relative path. However pay attention to the usage of the slash in different operating system.

2) Model——model of image loading. The first model is `cv2.IMREAD_COLOR` used to load a color picture but will not load Alpha channel(record degree of transparency). The second one is `cv2.IMREAD_GRAYSCALE` which is used to load a grayscale picture. The third type is `cv2.IMREAD_UNCHANGED` for loading image and Alpha channel simultaneously.

3) Display image: `cv2.imshow("Name", Pic)`

4) Name——Display the box name of the image

Pic——Pictures to be displayed(The image read by `cv2.imread()` has already used before) For example, create a new py file and put the picture named “**camera.png**” into the same folder. Then input the following codes. After the codes run, the image will be displayed and you can press any key to hide the image.

```
1  import cv2
2  a = cv2.imread("camera.png")
3  cv2.imshow("test", a)
4  cv2.waitKey()
5  cv2.destroyAllWindows()
```

Note: cv2.waitKey() allows users to display a window for given milliseconds or until any key is pressed. And cv2.destroyAllWindows() function will close all the windows.

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## 2.Video Reading and Writing

Video can be seen as pictures that are switched swiftly. Therefore, video reading is the extension of the image reading and writing. Camera initialization: cv2.VideoCapture(Number)

1) Number——Serial number of camera, 0 usually.

Read the frame of camera: cap.read()。

2) cap——the camera that has been defined before

Release the resources of the camera: cap.release()。

For example, the camera screen will be displayed on the desktop. When q key is pressed, the camera screen will be hidden.

```
1  import cv2
2  cap = cv2.VideoCapture(0)
3  while(cap.isOpened()):
4      ret,frame=cap.read()
5      cv2.imshow('capture', frame)
6      key = cv2.waitKey(1)
7      if key & 0x00FF==ord('q'):
8          break
9  cap.release()
10 cv2.destroyAllWindows()
```

Note: cv2.waitKey(delay) will wait for the input from the keyboard and can be used to refresh the image in the video. “**delay**” in the bracket indicates the waiting time. When a frame of picture is displayed, the program will display the next frame in “delay” ms.

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