Computer vison programs using python

1. How to Load a image

#to check the version of opencv  
import cv2  
print(cv2.\_\_version\_\_)

# read a image file 0 – Grayscale; 1- color & -1- color with alpha channel  
img = cv2.imread("2.jpg",0)

# to read  
cv2.imshow('Original', img)

# to display - original is name of the window

cv2.waitKey(0) # window will close only if we press ESC

cv2.destroyAllWindows() # once process completed all windows will be closed

1. If file name is wrong what will happen

#to check the version of opencv  
import cv2  
print(cv2.\_\_version\_\_)  
# read a image file  
img = cv2.imread("jkdjk.jpg",0) # to read  
cv2.imshow('Original', img) # to display - original is name of the window  
cv2.waitKey(0) # window will close only if we press ESC  
cv2.destroyAllWindows()

1. To print the matrix array of the input image

import cv2  
# read a image file  
img = cv2.imread("2.jpg", 0) # to read  
print (img) # to print the matrix array of input image

1. To display the image for only 10 secs and it will get automatically closed

# Display image for 10 secs  
import cv2  
# read a image file  
img = cv2.imread("2.jpg",0) # to read  
cv2.imshow('Original', img) # to display - original is name of the window  
cv2.waitKey(10000) # window will close only if we press ESC  
cv2.destroyAllWindows()

5.Save a copy of the file after closing the window

# Save a copy of the file after closing the window  
import cv2  
# read a image file  
img = cv2.imread("2.jpg",0) # to read  
cv2.imshow('Original', img) # to display - original is name of the window  
cv2.waitKey(0) # window will close only if we press ESC  
cv2.destroyAllWindows()  
cv2.imwrite('2.png', img) # save a image file with different extension

6. if I press EXC key it will destroy all windows, suppose if I press “s” key then it must be saved

# Press s key to save the file after closing the window  
import cv2  
# read a image file  
img = cv2.imread("2.jpg",0) # to read  
cv2.imshow('Original', img) # to display - original is name of the window  
k=cv2.waitKey(0) # initialize k here  
if k==27: # 27 is the key value for ESC  
 cv2.destroyAllWindows()  
elif k == ord('s'): # return an integer representing the Unicode code point of the character   
 # when the argument is a unicode object  
 cv2.imwrite('2.png', img) # save a image file with different extension  
 cv2.destroyAllWindows()

7. Read a video from webcam

import cv2  
  
cap = cv2.VideoCapture(0); # 0 or -1 is the index value of our inbuilt camera, if multiple 1,2,3,4....  
  
while(True):  
 ret, frame = cap.read() # ret will sve true or false if frame have captured  
  
 cv2.imshow('frame', frame)  
  
 if cv2.waitKey(1) & 0xFF == ord('q'): # mask for 64 bit machine  
 break  
  
cap.release()  
cv2.destroyAllWindows()

8. change the color video to grayscale

import cv2  
  
cap = cv2.VideoCapture(0); # 0 or -1 is the index value of our inbuilt camera, if multiple 1,2,3,4....  
  
while(True):  
 ret, frame = cap.read() # ret will sve true or false if frame have captured  
 gray = cv2.cvtColor(frame, cv2.COLOR\_BGR2GRAY) # CONVERT COLOR TO GRAYSCALE  
 cv2.imshow('frame', gray)  
  
 if cv2.waitKey(1) & 0xFF == ord('q'): # mask for 64 bit machine and if we increase the waitkey video gets slow

break  
  
cap.release()  
cv2.destroyAllWindows()

9. if file name of the video or index of capturing device is wrong what will happen

import cv2  
  
cap = cv2.VideoCapture(8); # 0 or -1 is the index value of our inbuilt camera, if multiple 1,2,3,4....  
print(cap.isOpened())  
while(cap.isOpened()):  
 ret, frame = cap.read() # ret will sve true or false if frame have captured  
 gray = cv2.cvtColor(frame, cv2.COLOR\_BGR2GRAY) # CONVERT COLOR TO GRAYSCALE  
 cv2.imshow('frame', gray)  
  
 if cv2.waitKey(1) & 0xFF == ord('q'): # mask for 64 bit machine and if we increase the waitkey video gets slow  
 break  
  
cap.release()  
cv2.destroyAllWindows()

output will be shown as “False”

10. Access the width and height properties of video

# Access the width and height properties of video  
import cv2  
  
cap = cv2.VideoCapture(0); # 0 or -1 is the index value of our inbuilt camera, if multiple 1,2,3,4....  
print(cap.isOpened())  
while(cap.isOpened()):  
 ret, frame = cap.read() # ret will say true or false if frame have captured  
 windowWidth = frame.shape[1]  
 windowHeight = frame.shape[0]  
 print(windowWidth)  
 print(windowHeight)  
 # print(cv2.get(cv2.CAP\_PROP\_FRAME\_WIDTH))  
  
 #print(cv2.get(cv2.CAP\_PROP\_FRAME\_HEIGHT))  
 gray = cv2.cvtColor(frame, cv2.COLOR\_BGR2GRAY) # CONVERT COLOR TO GRAYSCALE  
 cv2.imshow('frame', gray)  
  
 if cv2.waitKey(1) & 0xFF == ord('q'): # mask for 64 bit machine and if we increase the waitkey video gets slow  
 break  
  
cap.release()  
cv2.destroyAllWindows()