CV_HW1

February 19, 2021

[13]:
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import cv2
import numpy as np
from matplotlib import pyplot as plt
%matplotlib inline

cap = cv2.VideoCapture(0)
window_name='camera'

font = cv2.FONT_HERSHEY_SIMPLEX
fontScale = 0.5
color = (255, 0, 0)
thickness = 1

blueMatrix = cv2.cvtColor(np.uint8([[[0,0,255]]]),cv2.COLOR_BGR2HSV)
lower_blue = np.array([99,0,0])
upper_blue = np.array([125,255,255])

cv2.namedWindow(window_name,cv2.WND_PROP_FULLSCREEN)
cv2.setWindowProperty(window_name,cv2.WND_PROP_FULLSCREEN,cv2.WINDOW_FULLSCREEN)

fourcc = cv2.VideoWriter_fourcc(*'XVID')
out = cv2.VideoWriter('output.avi',fourcc, 30.0, (640,480)) # capture 30 frame␣
↪per second
                                                # video resolution 640x480
while (True):
    ret, frame = cap.read()
    pixelsInFrame = np.size(frame)
    #print(pixelsInFrame)
    hsv = cv2.cvtColor(frame, cv2.COLOR_BGR2HSV)
    mask = cv2.inRange(hsv, lower_blue, upper_blue)
    #print(np.size(mask))
    countBlue = cv2.countNonZero(mask)
    #print(countBlue)
    mask = cv2.cvtColor(mask, cv2.COLOR_GRAY2BGR)
    #print(mask)
    countBlue = np.sum(mask)/255
    #print(countBlue)
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    #print(np.size(mask))
    ratio = (countBlue/pixelsInFrame)


    hori = np.concatenate((frame, mask), axis=1)
    hori = cv2.putText(hori, str(ratio), (20,20), font, fontScale, color,␣
 ↪thickness, cv2.LINE_AA)
    cv2.imshow(window_name,hori)
    out.write(hori)
    if cv2.waitKey(1) & 0xFF == ord('q'): # btw, you need to click the screen␣
 ↪first. And then
                                          # press q to quit
        break

cap.release()
out.release()
cv2.destroyAllWindows()
```

[14]:
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%matplotlib inline
import matplotlib.pyplot as plt
rgb = cv2.cvtColor(hori, cv2.COLOR_BGR2RGB)
plt.imshow(rgb)
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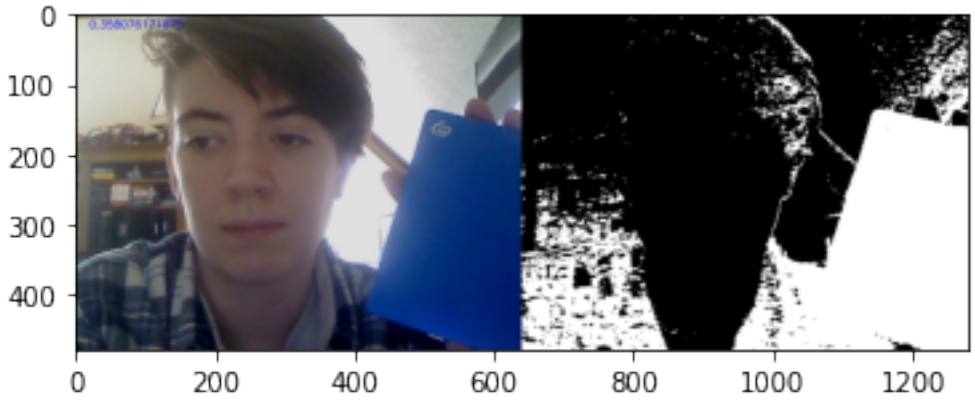
[14]: <matplotlib.image.AxesImage at 0x7f0475adc520>



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