PARAMATHMUNI V N S SAI SARAN

Paramathmuni.saisaran2019@vitstudent.ac.in

Assignment-5:

Develop a python code to detect any object using Haar -cascade classifier

Software: IDLE

Detection:

Code:

detection.py - C:\Users\DELL\AppData\Local\Programs\Python\Python39\cv_pt\Face_detect\detection.py (3.9.6)

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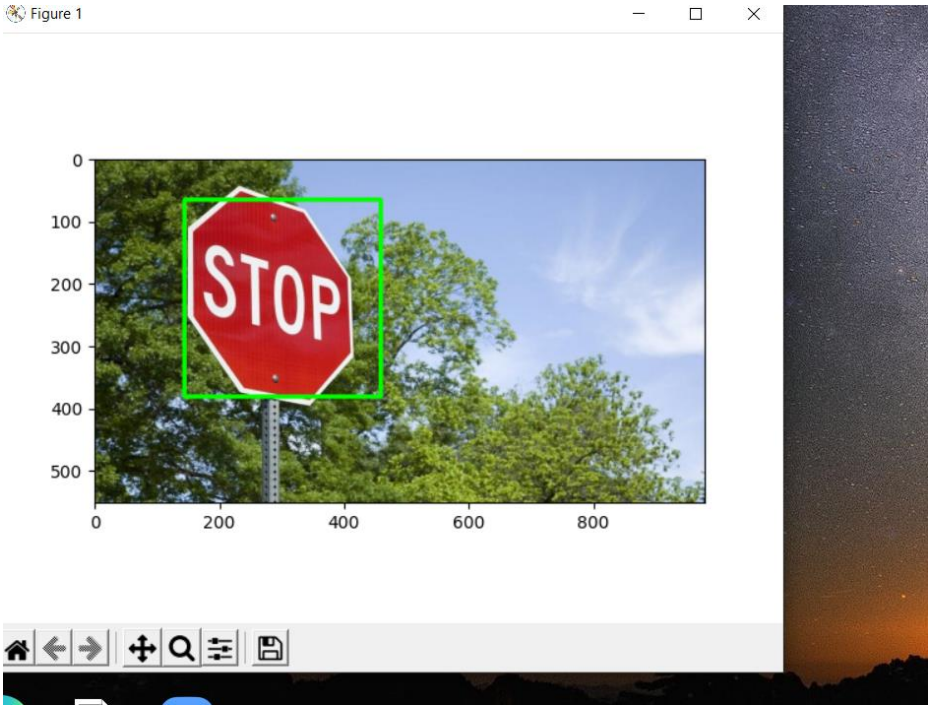
```
import cv2
from matplotlib import pyplot as plt

# Opening image
img = cv2.imread("image.jpg")

# OpenCV opens images as BRG
# but we want it as RGB We'll
# also need a grayscale version
img_gray = cv2.cvtColor(img, cv2.COLOR_BGR2GRAY)
img_rgb = cv2.cvtColor(img, cv2.COLOR_BGR2RGB)


# Use minSize because for not
# bothering with extra-small
# dots that would look like STOP signs
stop_data = cv2.CascadeClassifier('stop_data.xml')

found = stop_data.detectMultiScale(img_gray, minSize =(20, 20))

# Don't do anything if there's
# no sign
amount_found = len(found)

if amount_found != 0:

        # There may be more than one
        # sign in the image
        for (x, y, width, height) in found:

                # We draw a green rectangle around
                # every recognized sign
                cv2.rectangle(img_rgb, (x, y),
                                        (x + height, y + width),
                                        (0, 255, 0), 5)

# Creates the environment of
# the picture and shows it
plt.subplot(1, 1, 1)
plt.imshow(img_rgb)
plt.show()
```

Ln: 34 Col: 0

OUTPUT:



RIGHT EYE DETECTION:

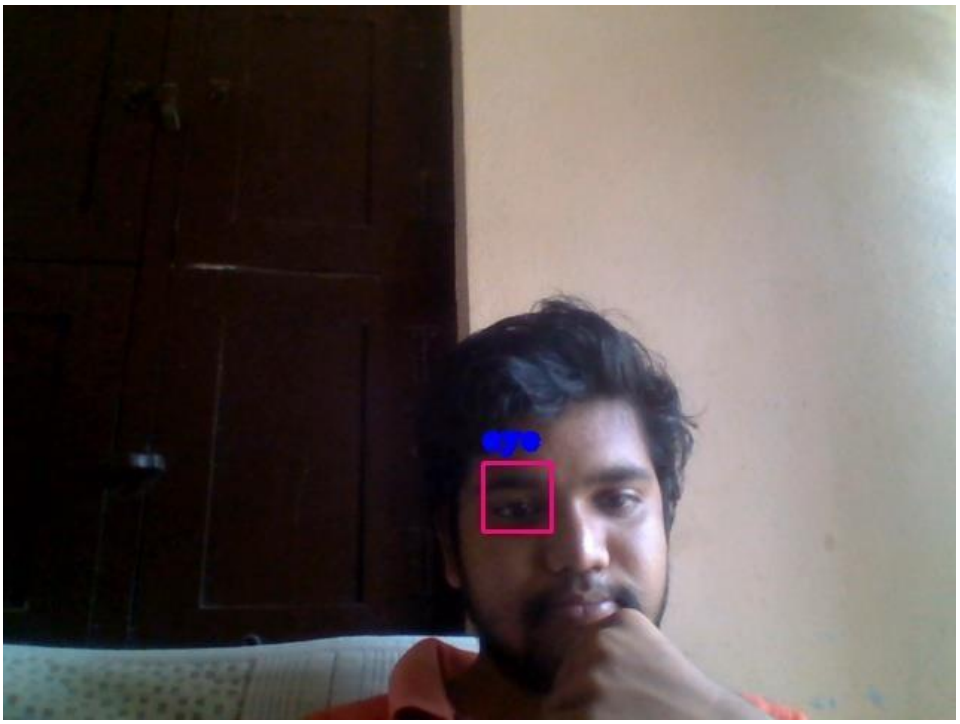
Code:

new2.py - C:\Users\DELL\AppData\Local\Programs\Python\Python39\cv_pt\Face_detect\new2.py (3.9.6)

File Edit Format Run Options Window Help

```
import cv2
import datetime

right_classifier=cv2.CascadeClassifier("haarcascade_righteye_2splits.xml")
smile_classifier=cv2.CascadeClassifier("haarcascade_smile.xml")
#It will read the first frame/image of the video
video=cv2.VideoCapture(0)

while True:
    #capture the first frame
    check,frame=video.read()
    gray=cv2.cvtColor(frame, cv2.COLOR_BGR2GRAY)
    cv2.imshow('video',gray)
    #detect the faces from the video using detectMultiScale function
    rights=right_classifier.detectMultiScale(gray,1.3,5)
    smiles=smile_classifier.detectMultiScale(gray,1.3,5)

    print(rights)

    #drawing rectangle boundries for the detected face
    for(x,y,w,h) in rights:
        cv2.rectangle(frame, (x,y), (x+w,y+h), (127,0,255), 2)
        cv2.imshow('eye detection', frame)
        cv2.putText(frame, 'eye', (x,y-10), cv2.FONT_HERSHEY_COMPLEX_SMALL, 1, (255,0,0), 4)
        picname=datetime.datetime.now().strftime("saran_%y-%m-%d-%H-%M")
        cv2.imwrite(picname+".jpg",frame)

    #drawing rectangle boundries for the detected eyes
    for(ex,ey,ew,eh) in smiles:
        cv2.rectangle(frame, (ex,ey), (ex+ew,ey+eh), (127,0,255), 2)
        cv2.imshow('smile detection', frame)

    #waitKey(1)- for every 1 millisecond new frame will be captured
    Key=cv2.waitKey(1)
    if Key==ord('q'):
        #release the camera
        video.release()
        #destroy all windows
        cv2.destroyAllWindows()
        break
```

OUTPUT:



SMILE_DETECTION:

Code:

new2.py - C:\Users\DELL\AppData\Local\Programs\Python\Python39\cv_pt\Face_detect\new2.py (3.9.6)

File Edit Format Run Options Window Help

```
import cv2
import datetime

face_classifier=cv2.CascadeClassifier("haarcascade_frontalface_default.xml")
smile_classifier=cv2.CascadeClassifier("haarcascade_smile.xml")
#It will read the first frame/image of the video
video=cv2.VideoCapture(0)

while True:
    #capture the first frame
    check,frame=video.read()
    gray=cv2.cvtColor(frame, cv2.COLOR_BGR2GRAY)
    cv2.imshow('video',gray)
    #detect the faces from the video using detectMultiScale function
    faces=face_classifier.detectMultiScale(gray,1.3,5)
    smiles=smile_classifier.detectMultiScale(gray,1.3,5)

    print(smiles)

    #drawing rectangle boundries for the detected face
    for(x,y,w,h) in smiles:
        cv2.rectangle(frame, (x,y), (x+w,y+h), (127,0,255), 2)
        cv2.imshow('smile detection', frame)
        cv2.putText(frame, 'smile', (x,y-10), cv2.FONT_HERSHEY_COMPLEX_SMALL, 1, (255,0,0), 4)
        picname=datetime.datetime.now().strftime("saran_%y-%m-%d-%H-%M")
        cv2.imwrite(picname+".jpg",frame)

    #drawing rectangle boundries for the detected eyes
    for(ex,ey,ew,eh) in faces:
        cv2.rectangle(frame, (ex,ey), (ex+ew,ey+eh), (127,0,255), 2)
        #cv2.imshow('face detection', frame)

    #waitKey(1)- for every 1 millisecond new frame will be captured
    Key=cv2.waitKey(1)
    if Key==ord('q'):
        #release the camera
        video.release()
        #destroy all windows
        cv2.destroyAllWindows()
        break
```

OUTPUT: