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Assignment-6

Python Code:

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import cv2

eye_classifier=cv2.CascadeClassifier("haarcascade_eye.xml")

silverware_classifier=cv2.CascadeClassifier("lbpcascade_silverware.xml")

eye_eyeglasses_classifier=cv2.CascadeClassifier("haarcascade_eye_tree_eyeglasses.xml")

fullbody_classifier=cv2.CascadeClassifier("haarcascade_fullbody.xml")

lefteye_classifier=cv2.CascadeClassifier("haarcascade_lefteye_2splits.xml")

plate_classifier=cv2.CascadeClassifier("haarcascade_licence_plate_rus_16stages.xml")

lowerbody_classifier=cv2.CascadeClassifier("haarcascade_lowerbody.xml")

profileface_classifier=cv2.CascadeClassifier("haarcascade_profileface.xml")

righteye_classifier=cv2.CascadeClassifier("haarcascade_righteye_2splits.xml")

number_classifier=cv2.CascadeClassifier("haarcascade_russian_plate_number.xml")

smile_classifier=cv2.CascadeClassifier("haarcascade_smile.xml")

upperbody_classifier=cv2.CascadeClassifier("haarcascade_upperbody.xml")



video=cv2.VideoCapture(0)


while True:


    check,frame=video.read()
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gray=cv2.cvtColor(frame, cv2.COLOR_BGR2GRAY)



eyes=eye_classifier.detectMultiScale(gray,1.3,5)
silverware=silverware_classifier.detectMultiScale(gray,1.3,5)
eyeglasses=eye_eyeglasses_classifier.detectMultiScale(gray,1.3,5)
fullbody=fullbody_classifier.detectMultiScale(gray,1.3,5)
lefteye=lefteye_classifier.detectMultiScale(gray,1.3,5)
plate=plate_classifier.detectMultiScale(gray,1.3,5)
lowerbody=lowerbody_classifier.detectMultiScale(gray,1.3,5)
profileface=profileface_classifier.detectMultiScale(gray,1.3,5)
righteye=righteye_classifier.detectMultiScale(gray,1.3,5)
number=number_classifier.detectMultiScale(gray,1.3,5)
smile=smile_classifier.detectMultiScale(gray,1.3,5)
upperbody=upperbody_classifier.detectMultiScale(gray,1.3,5)

print()



for(x,y,w,h) in eyeglasses:
    cv2.rectangle(frame, (x,y), (x+w,y+h), (127,0,255), 2)
    cv2.imshow('Face detection', frame)

for(ex,ey,ew,eh) in eyes:
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        cv2.rectangle(frame, (ex,ey), (ex+ew,ey+eh), (255,0,0), 2)
        cv2.imshow('Face detection', frame)

    for(lx,ly,lw,lh) in lefteye:
        cv2.rectangle(frame, (lx,ly), (lx+lw,ly+lh), (127,0,255), 2)
        cv2.imshow('Face detection', frame)

    for(rx,ry,rw,rh) in righteye:
        cv2.rectangle(frame, (rx,ry), (rx+rw,ry+rh), (127,0,255), 2)
        cv2.imshow('Face detection', frame)

    for(fx,fy,fw,fh) in profileface:
        cv2.rectangle(frame, (fx,fy), (fx+fw,fy+fh), (0,0,0), 4)
        cv2.putText(frame, 'Face', (fx, fy-10), cv2.FONT_HERSHEY_SIMPLEX,
0.7, (0, 255, 0), 2)
        cv2.imshow('Face detection', frame)


    for(sx,sy,sw,sh) in smile:
        cv2.rectangle(frame, (sx,sy), (sx+sw,sy+sh), (0,0,0), 4)
        cv2.putText(frame, 'Smile', (fx, fy-10), cv2.FONT_HERSHEY_SIMPLEX,
0.7, (0, 255, 0), 2)
        cv2.imshow('Face detection', frame)

    for(ix,iy,iw,ih) in silverware:
        cv2.rectangle(frame, (ix,iy), (ix+iw,iy+ih), (0,0,255), 2)
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        cv2.imshow('Face detection', frame)

    for(dx,dy,dw,dh) in fullbody:
        cv2.rectangle(frame, (dx,dy), (dx+dw,dy+dh), (70,130,180), 2)
        cv2.imshow('Face detection', frame)

    for(lox,loy,low,loh) in lowerbody:
        cv2.rectangle(frame, (lox,loy), (lox+low,loy+loh), (127,255,212), 2)
        cv2.imshow('Face detection', frame)

    for(ux,uy,uw,uh) in upperbody:
        cv2.rectangle(frame, (ux,uy), (ux+uw,uy+uh), (0,0,128), 2)
        cv2.imshow('Face detection', frame)

    for(px,py,pw,ph) in plate:
        cv2.rectangle(frame, (px,py), (px+pw,py+ph), (139,69,19), 2)
        cv2.imshow('Face detection', frame)

    for(nx,ny,nw,nh) in number:
        cv2.rectangle(frame, (nx,ny), (nx+nw,ny+nh), (218,112,147), 2)
        cv2.putText(frame, 'Number Plate', (nx, ny-10),
cv2.FONT_HERSHEY_SIMPLEX, 0.7, (0, 255, 0), 2)
        cv2.imshow('Face detection', frame)



    Key=cv2.waitKey(1)
```

```
    if Key==ord('q'):
        video.release()
        cv2.destroyAllWindows()
        break
```

Screenshots: