

ASSIGNMENT-6

OBJECT DETECTION USING HAAR CASCADE CLASSIFIER

```
import cv2

import datetime

face_classifier=cv2.CascadeClassifier("haarcascade_frontalface_default.xml")
eye_classifier=cv2.CascadeClassifier("haarcascade_eye.xml")
smile_classifier = cv2.CascadeClassifier("haarcascade_smile.xml")

#It will read the first frame/image of the video
video=cv2.VideoCapture('hey.mp4')

while True:

    #capture the first frame
    check,frame=video.read()
    gray=cv2.cvtColor(frame, cv2.COLOR_BGR2GRAY)

    #detect the faces from the video using detectMultiScale function
    faces=face_classifier.detectMultiScale(gray,1.3,5)
    eyes=eye_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 faces:
        cv2.rectangle(frame, (x,y), (x+w,y+h), (127,0,255), 2)
        cv2.imshow('Face detection', frame)
        cv2.putText(frame, 'Face', (x,y-10), cv2.FONT_HERSHEY_SIMPLEX, 1,(0,255,0),2)
```

```
#drawing rectangle boundries for the detected eyes
```

```
for(ex,ey,ew,eh) in eyes:
```

```
    cv2.rectangle(frame, (ex,ey), (ex+ew,ey+eh), (0,127,255), 2)
```

```
    cv2.imshow('eyes detection', frame)
```

```
#drawing rectangle boundries for the detected smiles
```

```
for(sx,sy,sw,sh) in smiles:
```

```
    cv2.rectangle(frame, (sx,sy), (sx+sw,sy+sh), (0,0,255), 2)
```

```
    cv2.imshow('Smile detection', frame)
```

```
    cv2.putText(frame, 'Smile', (sx,sy-10), cv2.FONT_HERSHEY_SIMPLEX, 1.2,(127,255,0),2)
```

```
    picname=datetime.datetime.now().strftime("%y-%m-%d-%H-%M")
```

```
    cv2.imwrite(picname+".jpg",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
```

new2.py - C:\Users\praty\OneDrive\Desktop\new folder (2)\new2.py (3.3.0)

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```
import cv2
import datetime
face_classifier=cv2.CascadeClassifier("haarcascade_frontalface_default.xml")
eye_classifier=cv2.CascadeClassifier("haarcascade_eye.xml")
smile_classifier = cv2.CascadeClassifier("haarcascade_smile.xml")
#It will read the first frame/image of the video
video=cv2.VideoCapture('Smile.mp4')

while True:
    #capture the first frame
    check,frame=video.read()
    gray=cv2.cvtColor(frame, cv2.COLOR_BGR2GRAY)

    #detect the faces from the video using detectMultiScale function
    faces=face_classifier.detectMultiScale(gray,1.3,5)
    eyes=eye_classifier.detectMultiScale(gray,1.3,5)
    smiles=smile_classifier.detectMultiScale(gray,1.3,5)

    print(smiles)

    #drawing rectangle boundaries for the detected face
    for(x,y,w,h) in faces:
        cv2.rectangle(frame, (x,y), (x+w,y+h), (127,0,255), 2)
        cv2.imshow('Face detection', frame)
        #cv2.putText(frame, 'Face', (x,y-10), cv2.FONT_HERSHEY_SIMPLEX, 0.8, (0,255,0),2)
        |

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

    #drawing rectangle boundaries for the detected smiles
    for(sx,sy,sw,sh) in smiles:
        cv2.rectangle(frame, (sx,sy), (sx+sw,sy+sh), (0,0,255), 2)
        cv2.imshow('Smile detection', frame)
        cv2.putText(frame, 'Smile', (x,y-20), cv2.FONT_HERSHEY_SIMPLEX, 12, (127,255,0),2)
        picname=datetime.datetime.now().strftime("%y-%m-%d-%H-%M")
        cv2.imwrite(picname+".jpg",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
```

IDLE Shell 3.9.6

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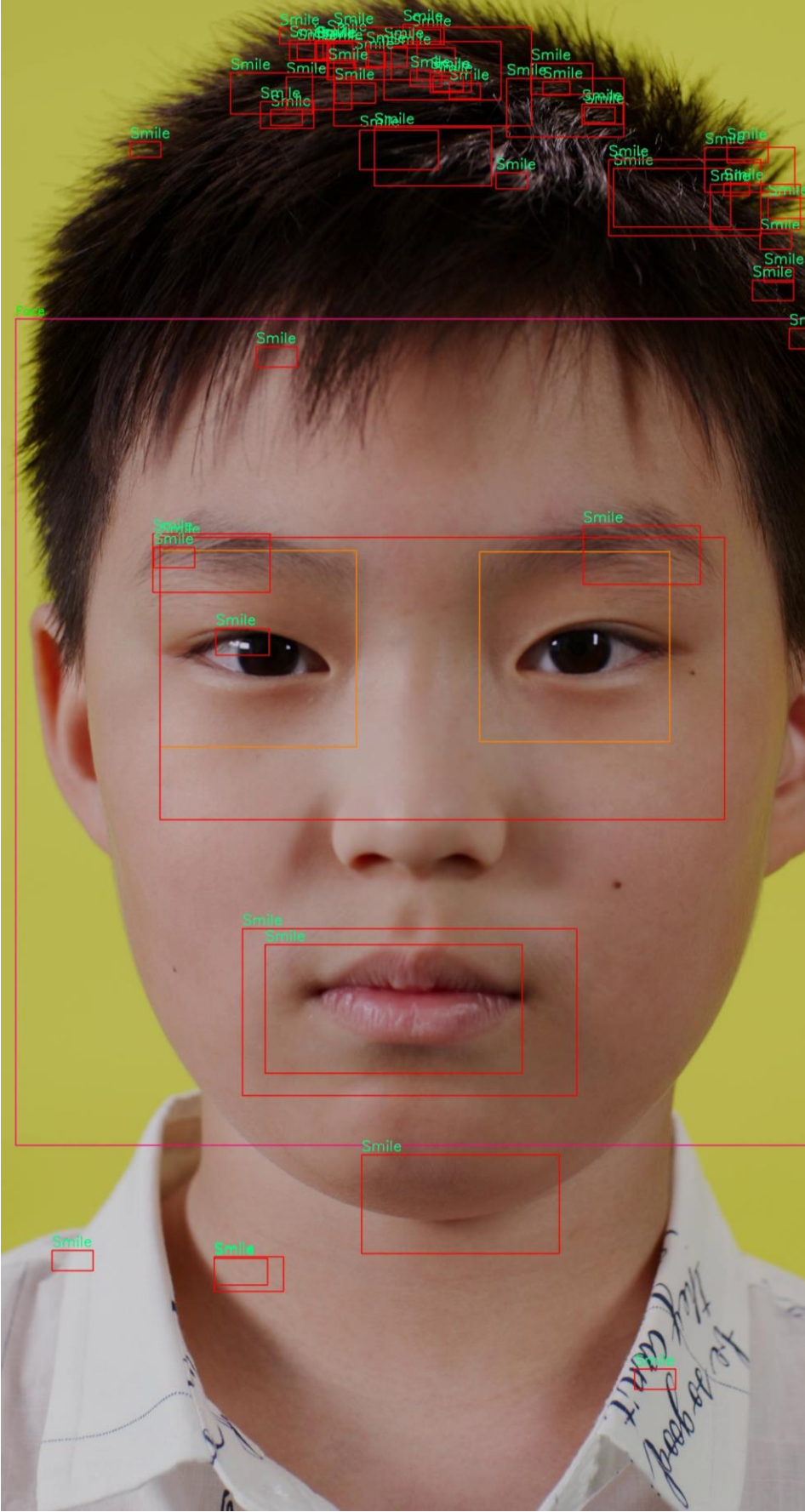
Python 3.9.6 (tags/v3.9.6:db3ff76, Jun 28 2021, 15:26:21) [MSC v.1929 64 bit (AMD64)]

Type "help", "copyright", "credits" or "license()" for more information.

>>>

===== RESTART: C:\Users\praty\OneDrive\Desktop\New folder (2)\new2.py =====

```
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 [ 980 1998 134 67]
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 [1803 28 79 40]
 [1909 30 77 39]
 [2343 714 839 419]
 [1852 21 103 51]
 [ 989 544 294 147]
 [ 224 1369 839 419]
 [1694 956 403 201]
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 [ 285 335 134 67]
 [ 394 461 134 67]
 [3422 791 103 51]
 [1626 702 134 67]
 [2065 28 36 18]
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 [3421 738 226 113]
 [1457 615 134 67]
 [1926 145 73 37]
 [3482 347 134 67]
 [1583 1132 645 323]
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 [1959 37 76 39]
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 [ 761 1715 174 87]
 [2885 760 645 323]
 [ 738 189 103 51]
 [1915 90 134 67]
 [3495 915 134 67]
 [2681 1849 294 147]
 [1728 78 79 40]
 [1051 55 56 18]
```



OTHER OUTPUTS:

