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1 # OpenCV program to detect face in real time
2 # import libraries of python OpenCV
3 # where its functionality resides
4 import cv2
5
6 # Load the required trained XML classifiers
7 # Trained XML classifiers describes some features of some
8 # object we want to detect a cascade function is trained
9 # from a lot of positive(faces) and negative(non-faces)
10 # images.
11 face_cascade = cv2.CascadeClassifier('
    haarcascade_frontalface_default.xml')
12
13 # Trained XML file for detecting eyes
14 eye_cascade = cv2.CascadeClassifier('haarcascade_eye.xml')
15
16 # capture frames from a camera
17 cap = cv2.VideoCapture(0)
18
19 # Video Resolution
20 resW = 800 # Resolution width and
21 resH = (resW//16) * 9 # Height (aspect ratio must be 16:9)
22
23 cap.set(cv2.CAP_PROP_FRAME_WIDTH, resW)
24 cap.set(cv2.CAP_PROP_FRAME_HEIGHT, resH)
25
26 font = cv2.FONT_HERSHEY_SIMPLEX
27
28 # Loop runs if capturing has been initialized.
29 while True:
30
31     # reads frames from a camera
32     ret, img = cap.read()
33
34     # convert to gray scale of each frames
35     gray = cv2.cvtColor(img, cv2.COLOR_BGR2GRAY)
36
37     # Detects faces of different sizes in the input image
38     faces = face_cascade.detectMultiScale(gray, 1.3, 5)
39     print(faces, "\n")
40
41     for (x, y, w, h) in faces:
42         # To draw a rectangle on a face
43         cv2.rectangle(img, (x, y), (x + w, y + h), (230, 220, 210
44 ), 2)
45
46         # Draw Line from face to center of screen
47         cx_face = x + w//2
48         cy_face = y + h//2
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48     c_screen = (resW//2, resH//2)
49
50     cv2.line(img, (cx_face, cy_face), c_screen, (0, 255, 0), 2
51 )
52
53     # Using cv2.putText() method
54     img = cv2.putText(img, 'human', (x, y-5), font,
55                       1, (30,220,210), 2, cv2.LINE_AA)
56
57     # Regions of interest
58     roi_gray = gray[y:y+h, x:x+w]
59     roi_color = img[y:y+h, x:x+w]
60
61     # Detects eyes of different sizes in the input image
62     eyes = eye_cascade.detectMultiScale(roi_gray)
63
64     # To draw a rectangle around eyes
65     for (ex,ey,ew,eh) in eyes:
66         cv2.rectangle(roi_color,(ex,ey),(ex + ew,ey +eh),(0,
127,255),2)
67
68     # Display an image in a window
69     cv2.imshow('img', img)
70
71     cv2.imshow('facecam', gray)
72
73     # Wait for Esc key to stop
74     k = cv2.waitKey(30) & 0xff
75     if k == 27:
76         break
77
78 # Close the window
79 cap.release()
80
81 # De-allocate any associated memory usage
82 cv2.destroyAllWindows()
```