

```
1 from math import hypot
2
3 import cv2
4 import dlib
5
6 detector = dlib.get_frontal_face_detector()
7 predictor = dlib.shape_predictor(r"C:\Users\rkssp\Downloads\facial-landmarks-recognition-master\facial-landmarks-recognition-master\
shape_predictor_68_face_landmarks.dat")
8
9 cap = cv2.VideoCapture(0)
10
11 def midpoint(p1,p2):
12     return int((p1.x + p2.x)/2), int((p1.y + p2.y)/2)
13
14 def get_blinking_ratio(eye_points, facial_landmarks):
15     left_point = facial_landmarks.part(eye_points[0]).x, facial_landmarks.part(eye_points[0]).y
16     right_point = facial_landmarks.part(eye_points[3]).x , facial_landmarks.part(eye_points[3]).y
17     center_top = midpoint(facial_landmarks.part(eye_points[1]), facial_landmarks.part(eye_points[2]))
18     center_bottom = midpoint(facial_landmarks.part(eye_points[5]), facial_landmarks.part(eye_points[4]))
19
20     hor_line_lenght = hypot((left_point[0] - right_point[0]), (left_point[1] - right_point[1]))
21     ver_line_lenght = hypot((center_top[0] - center_bottom[0]), (center_top[1] - center_bottom[1]))
22
23     ratio = hor_line_lenght / ver_line_lenght
24     return ratio
25
26 while True:
27     success,img = cap.read()
28     imgGray = cv2.cvtColor(img,cv2.COLOR_BGR2GRAY)
29     faces = detector(imgGray)
30
31     for face in faces:
32         landmarks = predictor(imgGray,face)
33         left_eye_ratio = get_blinking_ratio([36, 37, 38, 39, 40, 41], landmarks)
34         right_eye_ratio = get_blinking_ratio([42, 43, 44, 45, 46, 47], landmarks)
35         blinking_ratio = (left_eye_ratio + right_eye_ratio) / 2
36
37         if blinking_ratio > 5.0:
38             cv2.putText(img, "Blinking", (20, 50), cv2.FONT_HERSHEY_COMPLEX, 1, (0, 255, 0), 2)
39
40
41 cv2.imshow('Facial Landmark Detection',img)
42 if cv2.waitKey(1) & 0xFF==ord('q'):
43     break
44
```