Face Detection

1. Purpose of the experiment

Drive the robot dog's face detection, mark the recognized face and display the recognition degree

2. Experimental path source code

Enter the robot dog system, end the robot dog program, enter "ip (ip is the robot dog's ip): 8888" in the browser, enter the password "yahboom" and log in. Enter the path of **cd ~/DOGZILLA_Lite_class/5.AI Visual Recognition Course/09. Face detection** and run **Face_detection.ipynb** .

Or enter the command in the terminal to directly start the Python script

```
cd /home/pi/DOGZILLA_Lite_class/5.AI Visual Recognition Course/09. Face
detection
python3 FaceDetection_USB.py
```

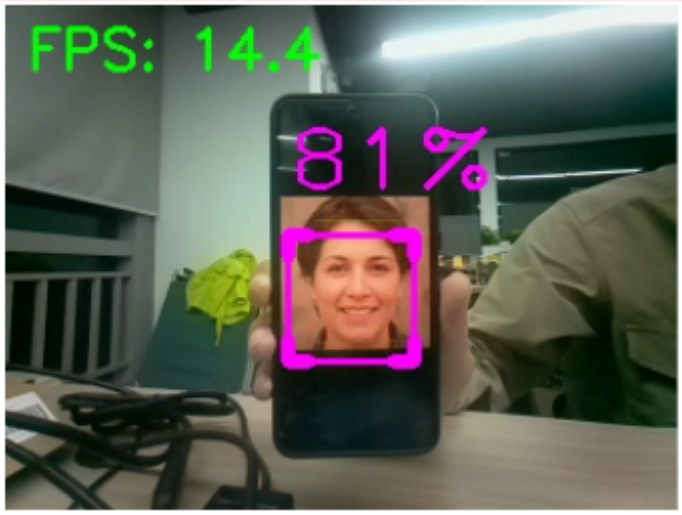
3. Experimental Phenomenon

After running the source code, you can see that the robot dog can detect faces and select them.

```
            #把画面显示在lcd屏上
            b, g, r = cv.split(frame)
            image = cv.merge((r, g, b))
            imgok = Image.fromarray(image)
            mydisplay.ShowImage(imgok)

    except KeyboardInterrupt:
        capture.release()
```

```
capture get FPS :  30.0
INFO: Created TensorFlow Lite XNNPACK delegate for CPU.
```



4. Main source code analysis

```
if __name__ == '__main__':
    capture = cv.VideoCapture(0)
    # capture.set(0, cv.VideoWriter.fourcc('M', 'J', 'P', 'G'))
    capture.set(cv.CAP_PROP_FRAME_WIDTH, 320)
    capture.set(cv.CAP_PROP_FRAME_HEIGHT, 240)
    print("capture get FPS : ", capture.get(cv.CAP_PROP_FPS))
    pTime, cTime = 0, 0
    face_detector = FaceDetector(0.75)
    display(image_widget)
    try:
        while capture.isOpened():
            ret, frame = capture.read()
            # frame = cv.flip(frame, 1)
            frame,_ = face_detector.findFaces(frame)
            if cv.waitKey(1) & 0xFF == ord('q'): break
            cTime = time.time()
            fps = 1 / (cTime - pTime)
            pTime = cTime
            text = "FPS : " + str(int(fps))
            cv.putText(frame, f"FPS: {fps:.1f}", (10, 30),
cv.FONT_HERSHEY_SIMPLEX, 0.9, (0, 255, 0), 2)
            image_widget.value = bgr8_to_jpeg(frame)

            #把画面显示在lcd屏上 Display the image on the LCD screen
            b, g, r = cv.split(frame)
            image = cv.merge((r, g, b))
            imgok = Image.fromarray(image)
            mydisplay.ShowImage(imgok)

    except KeyboardInterrupt:
        capture.release()
```

The robot dog calls the detected face model, selects the recognized face results, and displays the recognition rate.