4. Face positioning experiment

The principle of face positioning experiment is to determine the distance and position information of the face from the camera, and to judge by calculating the coordinates of the center point of the face in the camera screen, so as to realize face positioning. The experimental results show that it will always find the center point of the face, print the coordinates of the center point, and draw a box on the face.

Code path: ~/jetcobot_ws/src/jetcobot_face_follow/face_detection.ipynb

4.1. Main code

- Import header file

```
import cv2 as cv
import threading
from time import sleep
import ipywidgets as widgets
from IPython.display import display
from face_pose import face_follow
```

- Create an instance and initialize parameters

```
# Create an instance
follow = face_follow()
# Initialize mode
model = 'General'
```

- Main process

```
def camera():
    global model
    # 打开摄像头 Open camera
    capture = cv.VideoCapture(0)
    while capture.isOpened():
        try:
            _, img = capture.read()
            img = cv.resize(img, (640, 480))
            img = follow.follow_function(img)
            if model == 'Exit':
                cv.destroyAllWindows()
                capture.release()
                break
            imgbox.value = cv.imencode('.jpg', img)[1].tobytes()
        except KeyboardInterrupt:capture.release()
```

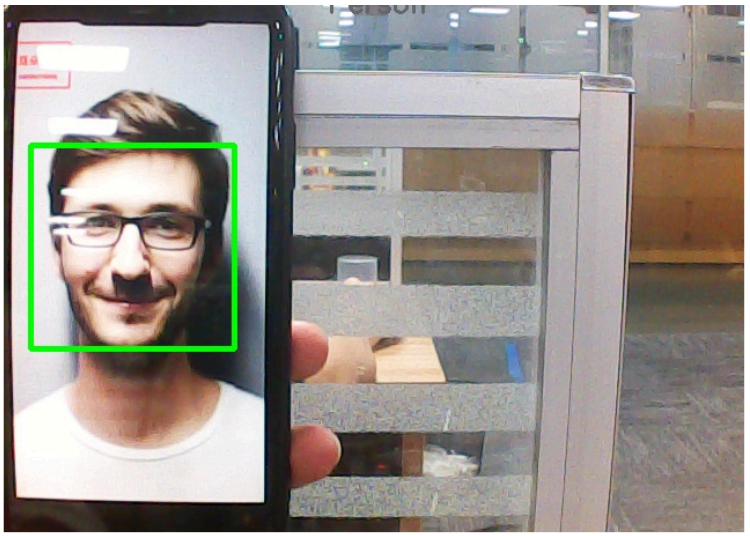
- start

```
display(controls_box,output)
threading.Thread(target=camera, ).start()
```

4.2. Run the program

Click the Run the entire program button on the jupyterlab toolbar, and then scroll to the bottom.

After the program starts, put the face image into the camera screen, and you can see the face in the green box. Move the face image and the box will move with the face. At the same time, the center coordinates of the face will be printed below.



Exit

```
x=  80.0
y=  229.0
x=  83.0
y=  228.0
x=  93.0
y=  226.0
x=  100.0
y=  227.0
x=  107.0
y=  226.0
```