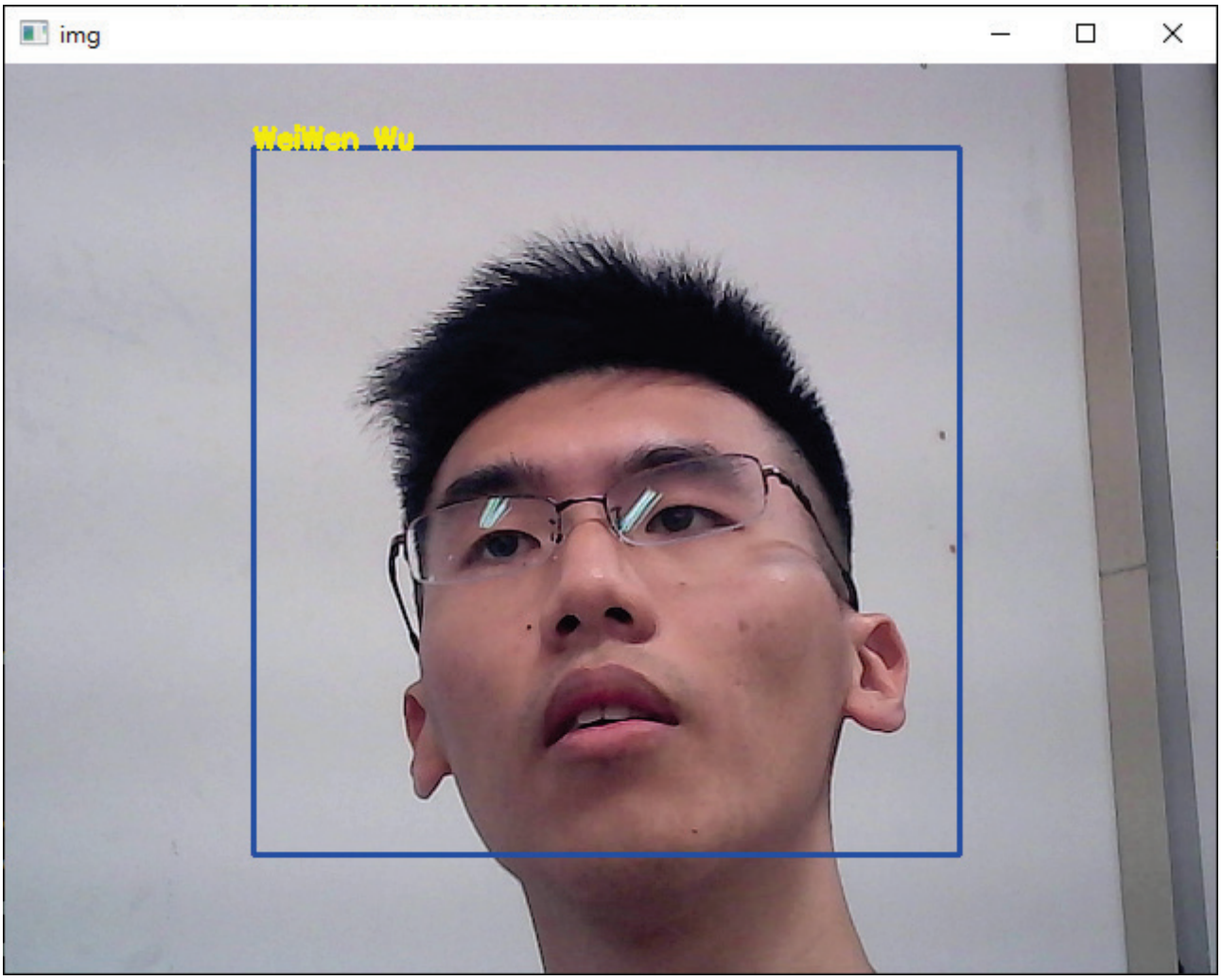
Computer vision – HW9

A、Source code

```
# WeiWen Wu 2023-11-15 15:16:53
import numpy as np
import cv2
object_cascade = cv2.CascadeClassifier('./HW10/cascade.xml') # cascade.xml was
cap = cv2.VideoCapture(0)

while True:
    ret, img = cap.read()
    gray = cv2.cvtColor(img, cv2.COLOR_BGR2GRAY)
    gray = cv2.equalizeHist(gray)
    object = object_cascade.detectMultiScale(gray, 1.07, 5)
    # object = object_cascade.detectMultiScale(gray, 1.3, 5)
    for (x, y, w, h) in object:
        cv2.rectangle(img, (x, y), (x+w, y+h), (255, 0, 0), 2)
        roi_gray = gray[y:y+h, x:x+w]
        roi_color = img[y:y+h, x:x+w]
        font = cv2.FONT_HERSHEY_SIMPLEX
        object_name = 'WeiWen Wu'
        cv2.putText(img, object_name , (x, y), font, .5, (0, 255, 255), 2)
    cv2.imshow('img', img)
    k = cv2.waitKey(30) & 0xff
    if k == 27:
        break
cap.release()
cv2.destroyAllWindows()
```

B、 Result map



C、 Appendix (take_photo.py)

```
import  cv2
def cap_num(max:int=5) -> list[int]:
    """
    Get camera number.

    # Example
    ```
    N = cap_num()
    print(N)
    cap = cv2.VideoCapture(N[0])
    print(cap.isOpened())
    ```
    """
    _ = []
    for n in range(max):
        cap = cv2.VideoCapture(0,n)
        ret, frame = cap.read()
        if ret: _.append(n)
    return _

N = cap_num()
cap = cv2.VideoCapture(N[0])

i = 0
while cap.isOpened():    # https://www.codegrepper.com/code-examples/python/cv2+cap.isOpened
    ret, frame = cap.read()  # returned value of ret is either True (successful) or False (failed). frame: captured image frames
    if ret:
        cv2.imshow('frame', frame) # display captured video in gray level.

        key = cv2.waitKey(1)
        if  key == ord('q') or key == 27:
            break
        elif key==ord('s'): # Save photo.
            gray = cv2.cvtColor(frame, cv2.COLOR_BGR2GRAY)
            gray = cv2.equalizeHist(gray)
            cv2.imwrite(f'./picture/{i}.jpg',gray)
            i+=1
    else:
        break
```

```
cap.release()
cv2.destroyAllWindows()
```