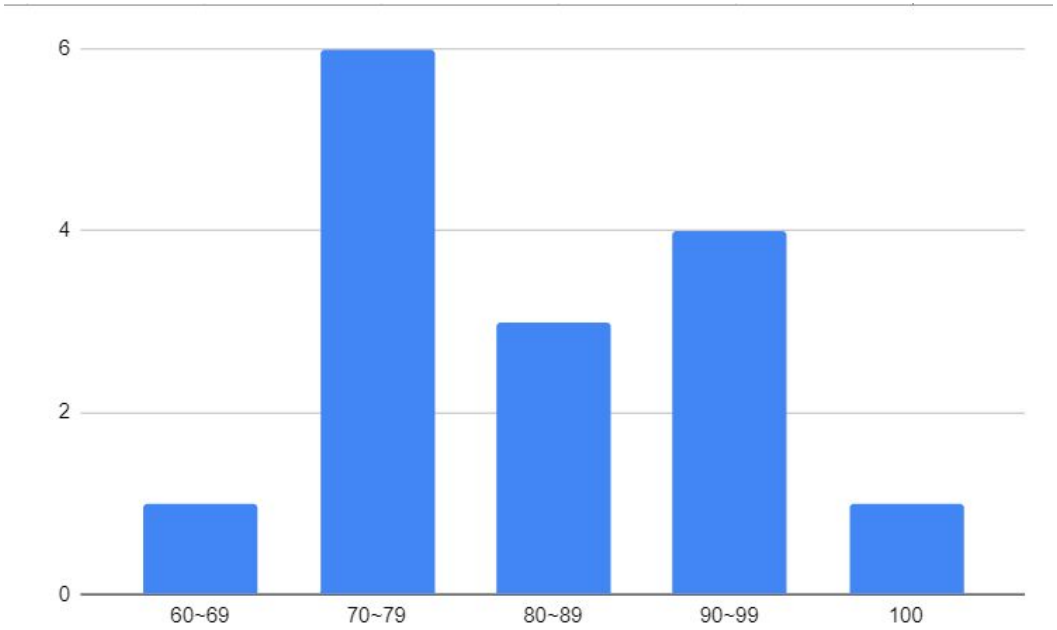
Lab08

Midterm score

https://docs.google.com/spreadsheets/d/1DcLjN0H5C7ECJH3LZxIzj14pxTBRb09GayRh_bI0Bb4/edit?usp=sharing



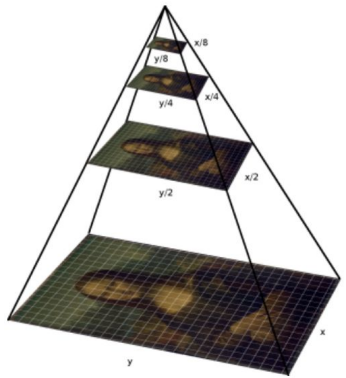
目標

- 利用HOG行人檢測及Haar-cascade臉部偵測框出人(25%)與人臉 (25%)
- 利用任一方法算出與其的距離
- demo時為即時影像並用尺量人(25%)與人臉 (25%) 距離準確度
- demo誤差: 人(50cm)、人臉(10cm)

HOG(Histogram of Oriented Gradient)

 # initialize the HOG descriptor/person detector

- hog = cv2.HOGDescriptor()
- hog.setSVMDetector(cv2.HOGDescriptor_getDefaultPeopleDetector())
- rects, weights = hog.detectMultiScale(src, #輸入圖
  winStride, #在圖上抓取特徵時窗口的移動大小
  scale, #抓取不同scale (越小就要做越多次)
  useMeanshiftGrouping = False)



Haar-cascade Face Detection

```
face_cascade = cv2.CascadeClassifier('haarcascade_frontalface_default.xml')

rects = face_cascade.detectMultiScale(frame,
        ScaleFactor, #每次搜尋方塊減少的比例
        minNeighbers, #每個目標至少檢測到幾次以上，才可被認定是真數據。
        minSize：#設定數據搜尋的最小尺寸，如 minSize=(40,40)
        )
```

畫出長方形

- image = cv2.rectangle(image, start_point, end_point, color, thickness)

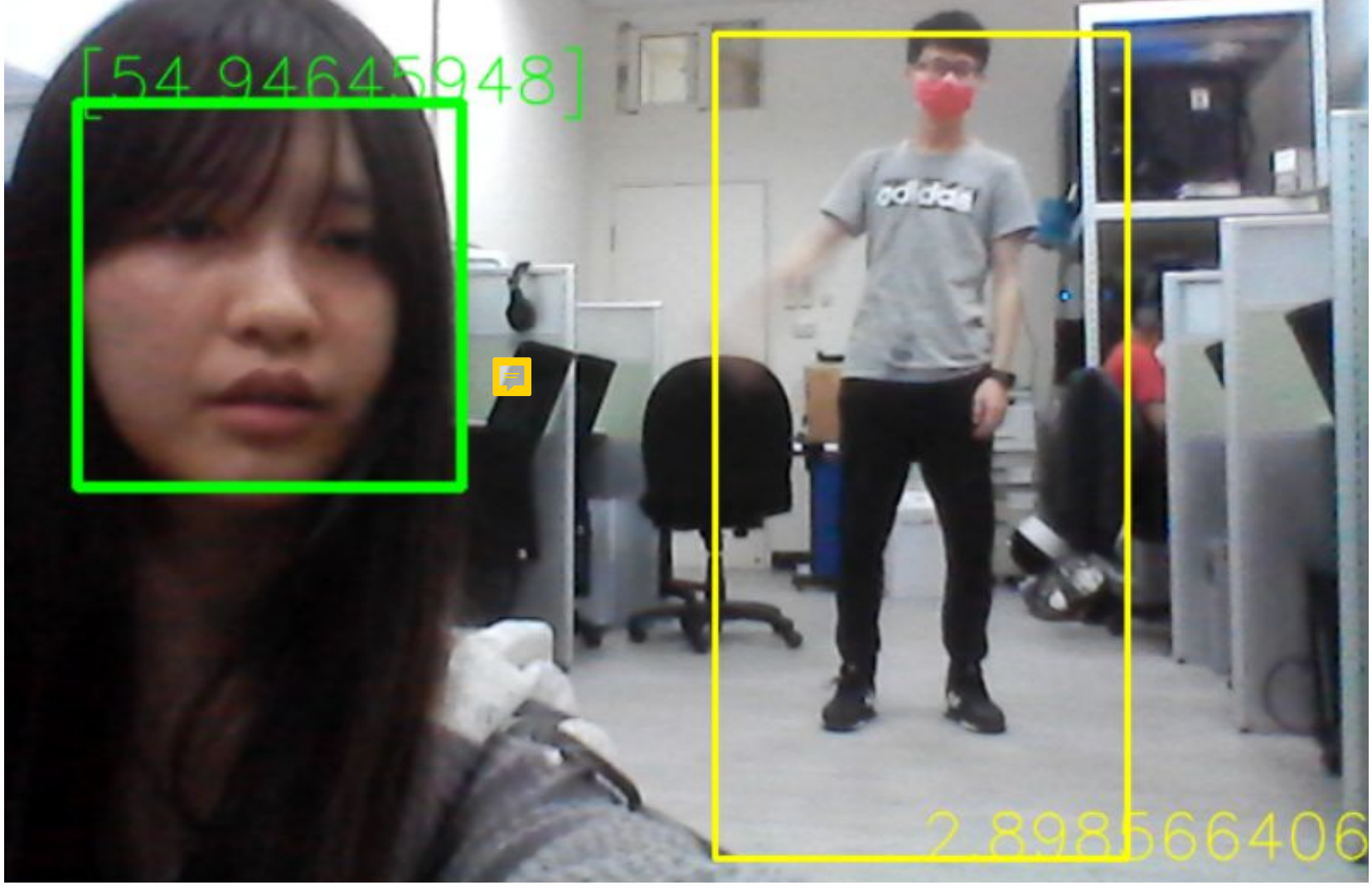
*start_point跟end_point要是整數喔

深度預測

- 不限定方法

1. 已知物體大小及相機焦距，用物體在畫面中占的pixel計算
   物件的框會有留白，可以自行判斷要乘多少比例才是物體實際pixel大小
2. 假設人或人臉為平面，已知大小解SolvePnP

- cv2.solvePnP(objp, imgPoints, intrinsic, distortion)→ retval, rvec, tvec
  objp的部分要用真實的長度單位，非(0,0), (0,1), (1,0), (1,1)


[54.94645948]
2.898566406