Report for hw4

Part 0:
Set the camera to work well.

Part 1:
Use the code snippet. Since the color of the wall is kind of yellow in my house, which is similar to the color of my skin, I turn the value of lower_HSV to [0, 65, 0] and lower_YCrCb to [0, 138, 67] to fit better.
Also I change the kernel size to (10, 10), skinmask size to (1,1)

Part 2:
Code snippets work well.I processed the hand image with connected component analysis. Find the contours and show ROIs.

Part 3:
Code snippets work well. I changed ret, thresh to cv2.threshold(gray, 0, max_binary_value, cv2.THRESH_OTSU) , instead of using cv2.THRESH_BINARY_INV
Detect the fingers and angels.

Part 4:
Design gestures.
Compute the number of fingers.

```
if(fingerCount == 0):
        pyautogui.press('s')
    elif (fingerCount == 1):
        pyautogui.press('d')
    elif (fingerCount == 2):
        pyautogui.press('a')
    elif (fingerCount == 3):
        pyautogui.press('w')
    else:
        pyautogui.press('space')
```

Also the patterns in the spec.
And I used these gestures to play an online game.

Part 5:
Maybe can use Yolo v3 to separate the hand image captured by webcam. Then apply gesture recognition to them separately.