

# Computer vision – HW1

## A、程式碼

```
import cv2

cap = cv2.VideoCapture(0)

fourcc = cv2.VideoWriter_fourcc('X', 'V', 'I', 'D')
# cv2.VideoWriter_fourcc('X', 'V', 'I', 'D'), MPEG-4 encoding, .avi (video format)
# cv2.VideoWriter_fourcc('I', '4', '2', '0'), YUV encoding, .avi (video format)
# cv2.VideoWriter_fourcc('P', 'I', 'M', 'I'), MPEG-1 encoding, .avi (video format)
# cv2.VideoWriter_fourcc('T', 'H', 'E', 'O'), Ogg Vorbis encoding, .ogv (video format)
# cv2.VideoWriter_fourcc('F', 'L', 'V', '1'), Flash encoding, .flv (video format)

out = cv2.VideoWriter('output.avi', fourcc, 20.0, (640, 480))
# output.avi: output video's file name and format.
# fourcc: video format.
# 20.0: 20 frames per second.
# Resolution is 640x480

print(cap.isOpened())
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

width,height=cap.get(cv2.CAP_PROP_FRAME_WIDTH),cap.get(cv2.CAP_PROP_FRAME_HEIGHT)
# print(f"width,height={width},{height}")
if ret:
```

```
out.write(frame)

# captured video is saved as output.avi
gray = cv2.cvtColor(frame, cv2.COLOR_BGR2GRAY)
# convert color video to gray level
cv2.imshow('frame', gray)
# display captured video in gray level

key = cv2.waitKey(1)
if key == ord('q') or key == 27:
    break
else:
    break
cap.release()
out.release()
cv2.destroyAllWindows()
```

## B、成果圖

