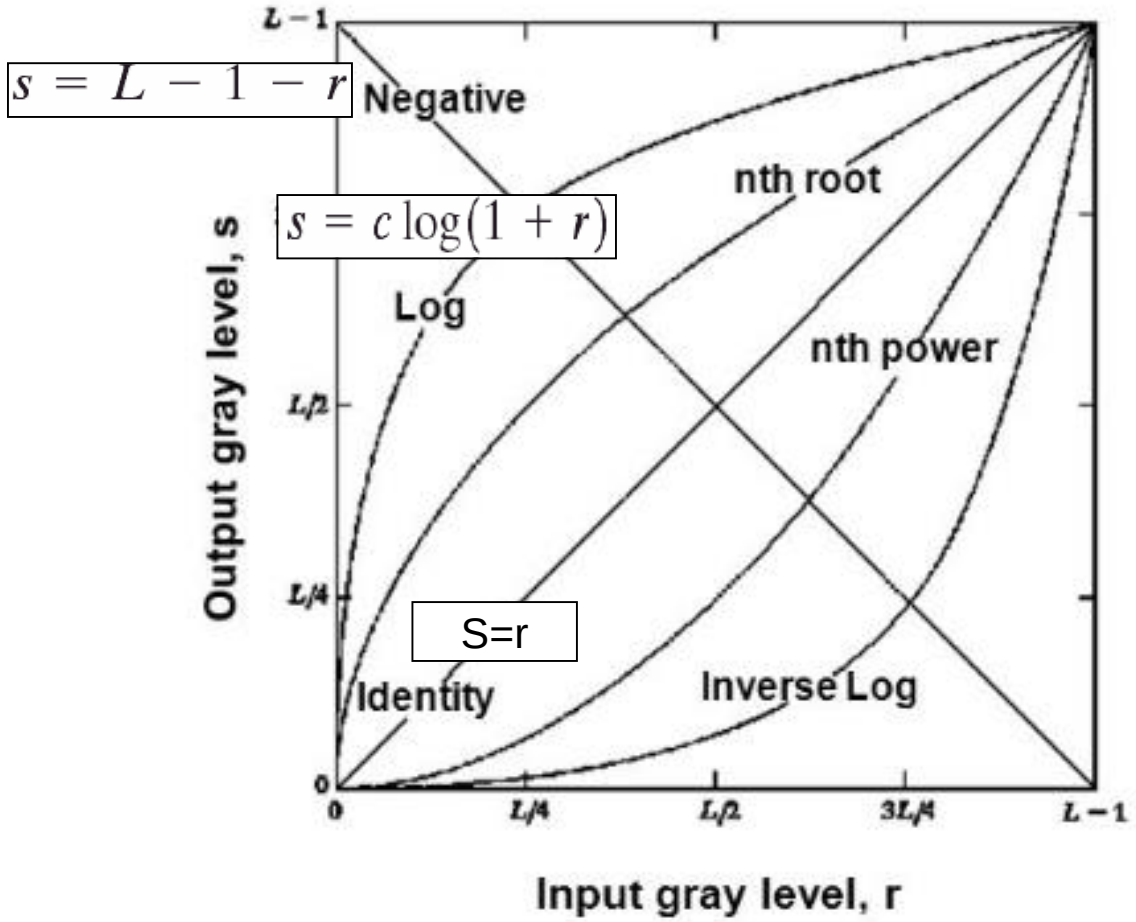
電腦視覺原理及應用簡介

Lab2

Enhancement

Point Processing:
Gray-level transformation function



Negative transformation

- S = L - 1 - r

```python
import cv2
import numpy as np

#read gray image
image = cv2.imread('detention_1.jpg', cv2.IMREAD_GRAYSCALE)

#negativce transformation
transfer_img = 255 - image
transfer_img =  transfer_img.astype(np.uint8)

cv2.imshow("Image", image)
cv2.imshow("Output", transfer_img)
cv2.waitKey(0)
cv2.destroyAllWindows()
```

Shape

```
(491, 980)
```

```
[[137 141 138 ...  32  32  31]
 [148 146 139 ...  32  32  32]
 [155 147 138 ...  32  33  33]
 ...
 [ 88  85  92 ...  28  24  21]
 [ 85  82  90 ...  37  31  28]
 [ 81  78  87 ...  44  38  33]]
```

Numpy array

Demo

Log transformation

- $S = c \log(1+r)$
- c is a constant. For r varying between 0 and 255, output results in 0 and 2.41 where c=1. So, the range [0, 2.41] should be mapped to [0, L-1] for getting a meaningful image.

Assignment

- 將彩色圖片 變灰階後分一半，一邊負片 轉換，一邊Log轉換，把轉換結果寫出
- 完成請繳交程式碼與圖片 ，以學號命名壓縮檔

Hint :

1. 對每個pixel做轉換
2. Log transformation (S = c log(1+r))，調整好c的值

Demo