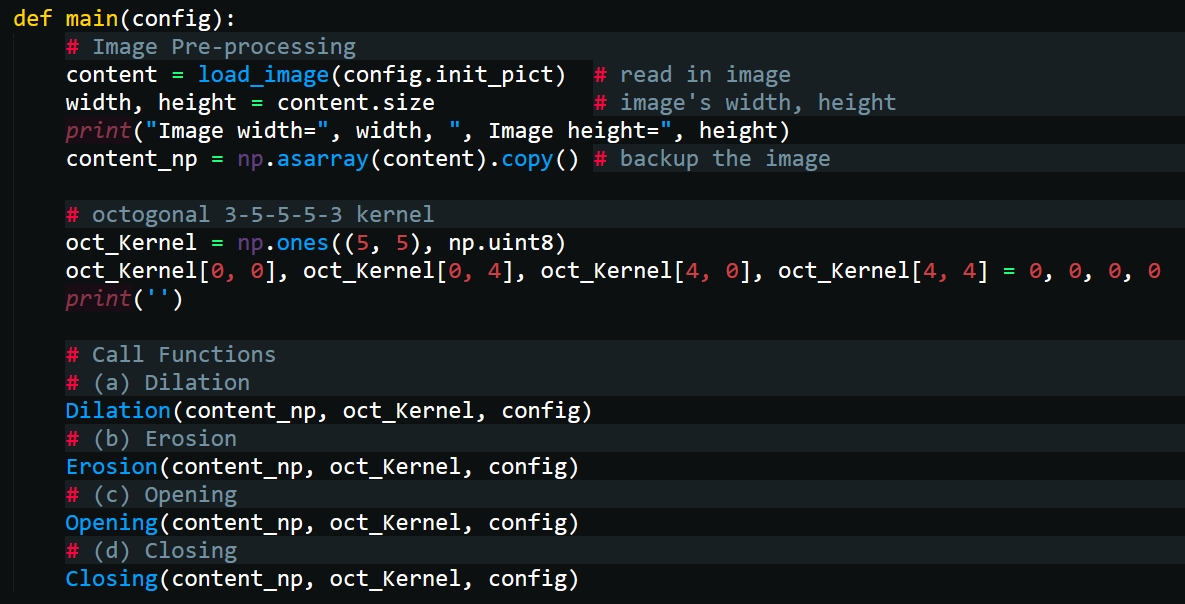
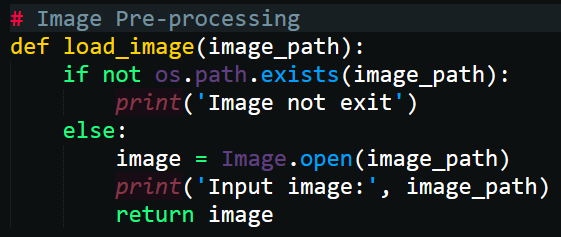
[Computer Vision I] Homework 5

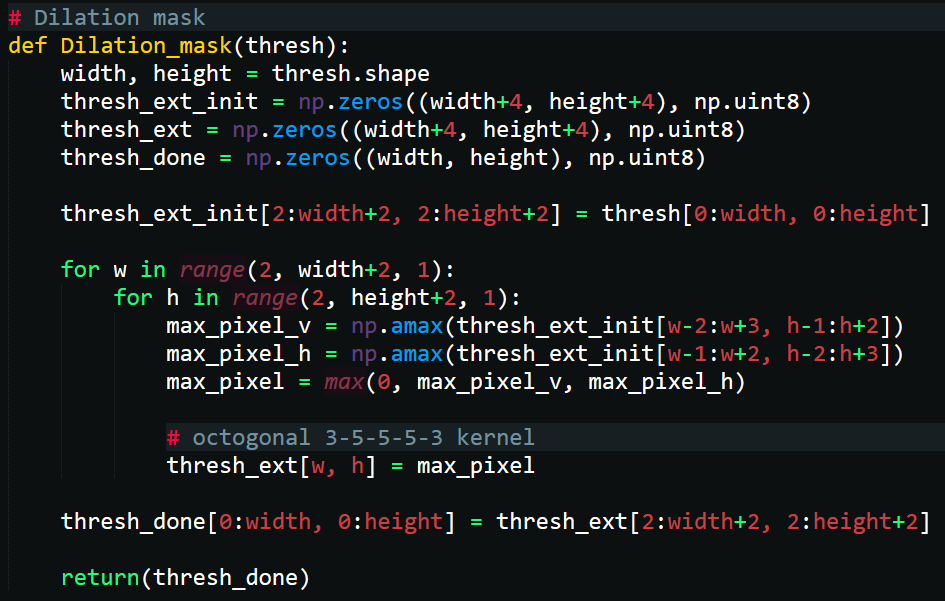
學號: R07943087姓名: 林啟源

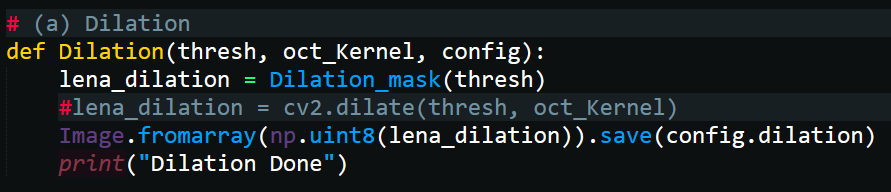
**Write a program to generate images and histograms:**

****

****

1. **Dilation**



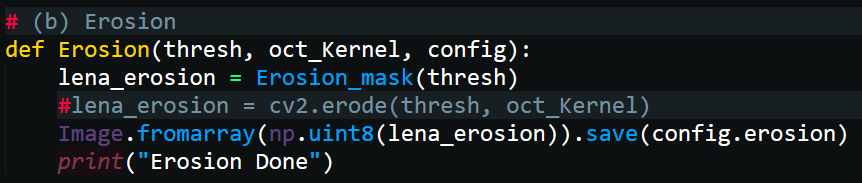


* def Dilation(thresh, oct\_Kernel, config) call function “Dilation\_mask()”
* thresh\_ext\_init[2:width+2, 2:height+2] = thresh[0:width, 0:height]建立一個比原始圖片各邊長多4的np array，並將gray level圖片數據存於其中
* 使用2個for loop掃描比對filter和gray level圖片，並找出filter範圍內pixel最大值” max\_pixel”
* 將filter涵蓋部分中間值的pixel值改為” max\_pixel”
* thresh\_done[0:width, 0:height] = thresh\_ext[2:width+2, 2:height+2]刪除多餘的邊緣，並儲存於”thresh\_done” np array (shape=512\*512)



1. **Erosion**

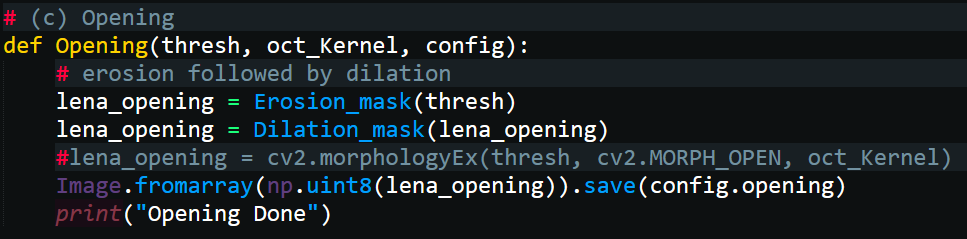




* def Erosion (thresh, oct\_Kernel, config) call function “Erosion\_mask ()”
* thresh\_ext\_init[2:width+2, 2:height+2] = thresh[0:width, 0:height]建立一個比原始圖片各邊長多4的np array，並將gray level圖片數據存於其中
* 使用2個for loop掃描比對filter和gray level圖片，並找出filter範圍內pixel最小值” min\_pixel”
* 將filter涵蓋部分中間值的pixel值改為” min\_pixel”
* thresh\_done[0:width, 0:height] = thresh\_ext[2:width+2, 2:height+2]刪除多餘的邊緣，並儲存於”thresh\_done” np array (shape=512\*512)



1. **Opening**

****

* erosion followed by dilation:

lena\_opening = Erosion\_mask(thresh)

lena\_opening = Dilation\_mask(lena\_opening)

* #lena\_opening = cv2.morphologyEx(thresh, cv2.MORPH\_OPEN, oct\_Kernel)

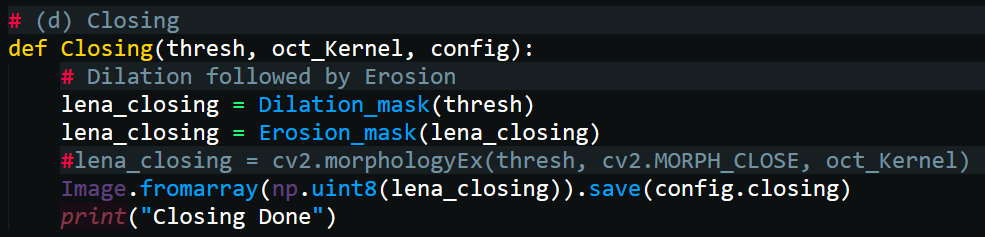
使用cv2函數直接產生Opening結果

* Image.fromarray(np.uint8(lena\_opening)).save(config.opening)

儲存圖片



1. **Closing**

****

* Dilation followed by Erosion:

lena\_closing = Dilation\_mask(thresh)

lena\_closing = Erosion\_mask(lena\_closing)

* #lena\_closing = cv2.morphologyEx(thresh, cv2.MORPH\_CLOSE, oct\_Kernel)

使用cv2函數直接產生Closing結果

* Image.fromarray(np.uint8(lena\_closing)).save(config.closing)

儲存圖片

