

Computer Vision 2018Fall

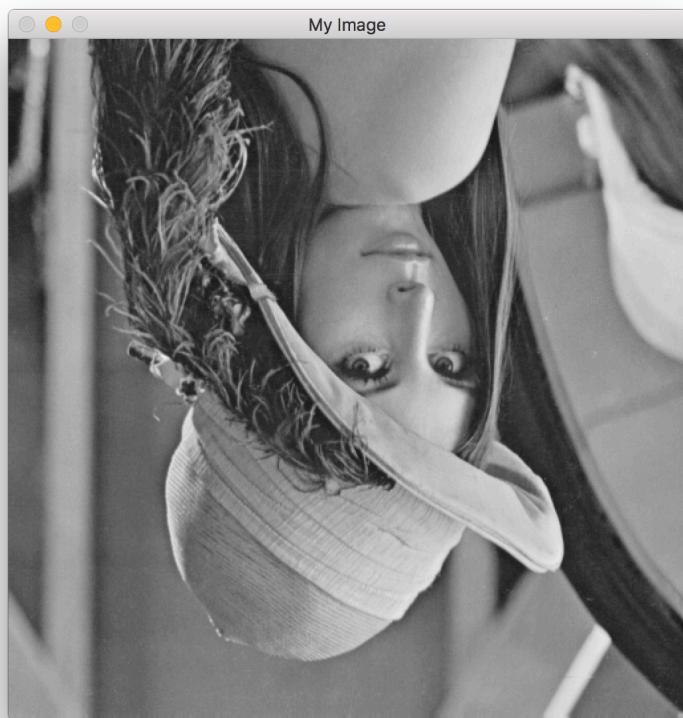
HW01

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Part1.

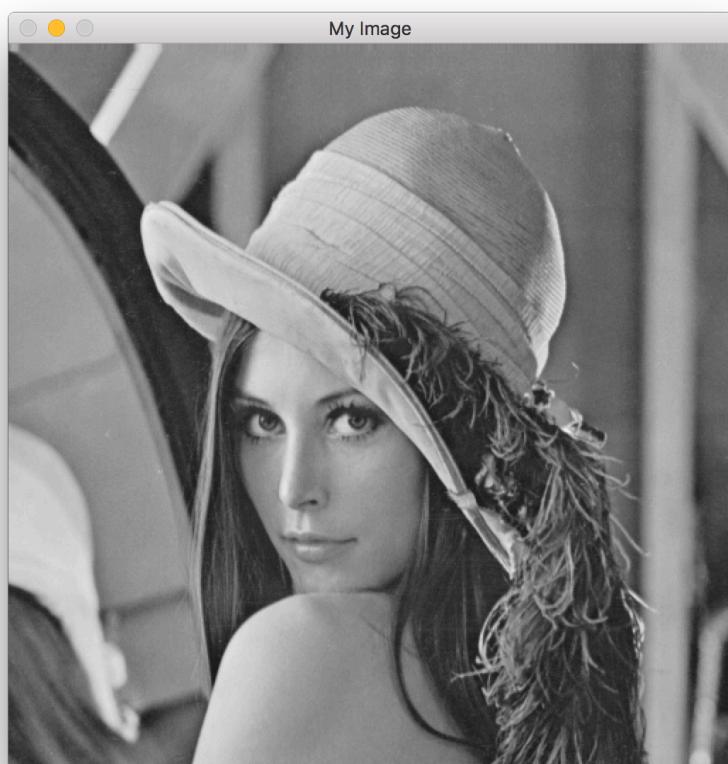
(a)upside-down lena.im

```
import cv2
import numpy as np
img = cv2.imread('lena.bmp')
height = img.shape[0]
width = img.shape[1]
inv_img = img.copy()
for i in range(height):
    inv_img[height - 1 - i] = img[i]
cv2.imshow('My Image', inv_img)
cv2.waitKey(0)
```



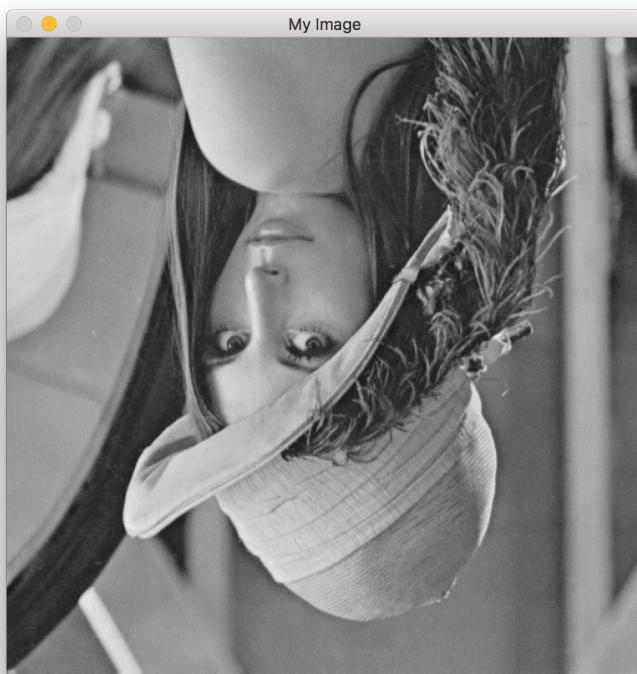
(b)right-side-left lena.im

```
import cv2
import numpy as np
img = cv2.imread('lena.bmp')
height = img.shape[0]
width = img.shape[1]
print(height, width)
inv_img = img.copy()
for i in range(height):
    for j in range(width):
        inv_img[i][j] = img[i][width-1-j]
cv2.imshow('My Image', inv_img)
cv2.waitKey(0)
```



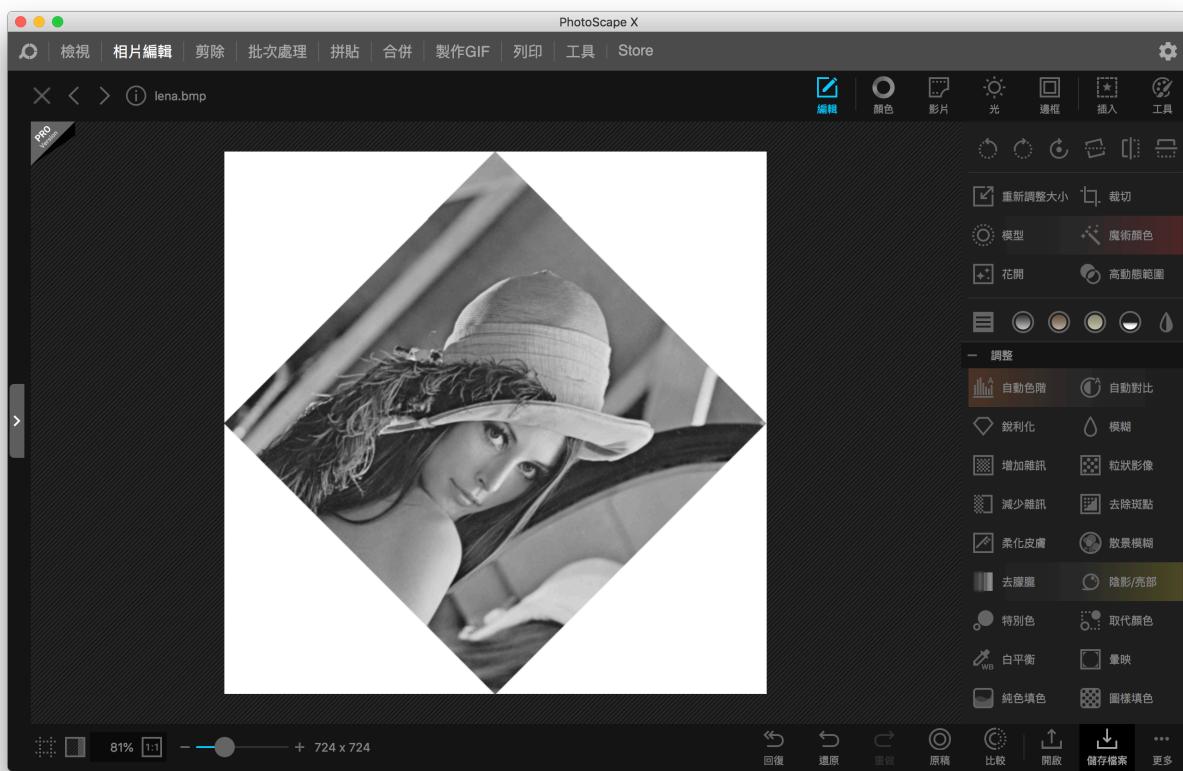
(c)diagonally mirrored lena.im

```
import cv2
import numpy as np
img = cv2.imread('lena.bmp')
height = img.shape[0]
width = img.shape[1]
print(height, width)
inv_img = img.copy()
for i in range(height):
    for j in range(width):
        inv_img[height - 1 - i][width - 1 - j] = img[i][j]
cv2.imshow('My Image', inv_img)
cv2.waitKey(0)
```

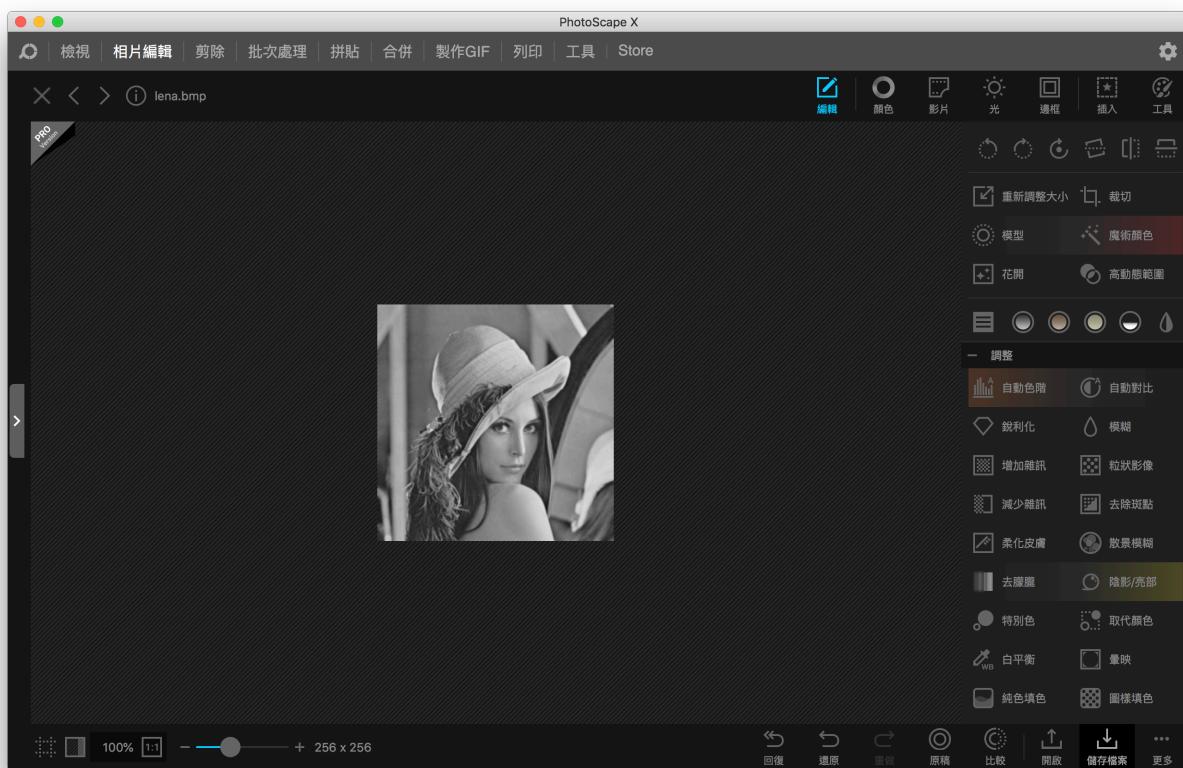


Part2. Use PhotoScape X

(a) rotate lena.im 45 degrees clockwise



(b) shrink lena.im in half



(c) binarize lena.im at 128 to get a binary image

