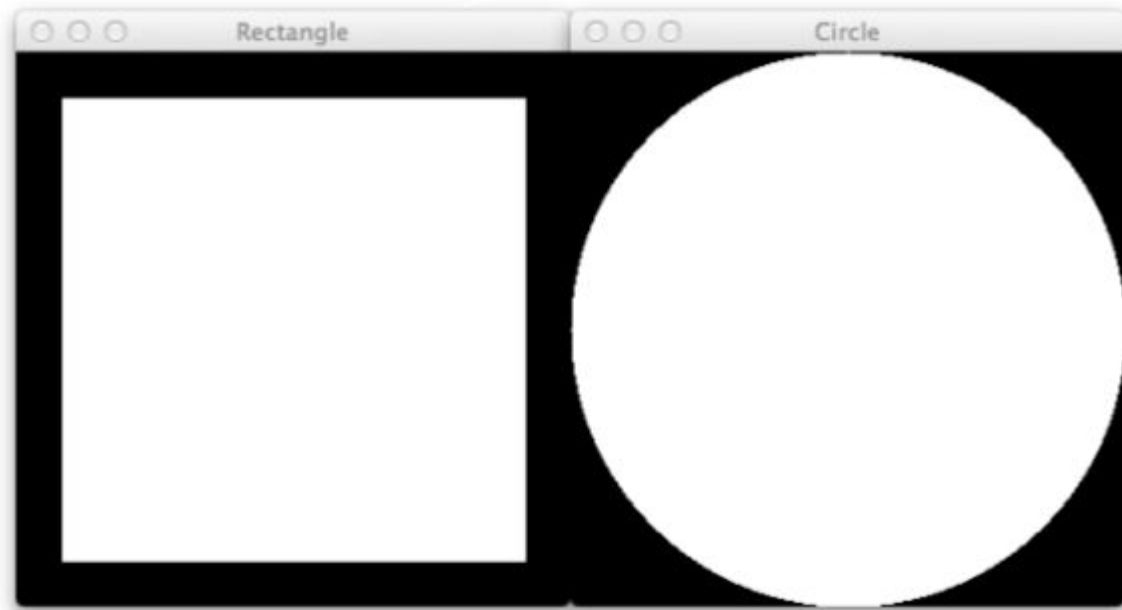


OpenCV: Bitwise operation

```
1 import numpy as np
2 import cv2
3
4 rectangle = np.zeros((300, 300), dtype = "uint8")
5 cv2.rectangle(rectangle, (25, 25), (275, 275), 255, -1)
6 cv2.imshow("Rectangle", rectangle)
7
8 circle = np.zeros((300, 300), dtype = "uint8")
9 cv2.circle(circle, (150, 150), 150, 255, -1)
10 cv2.imshow("Circle", circle)
```

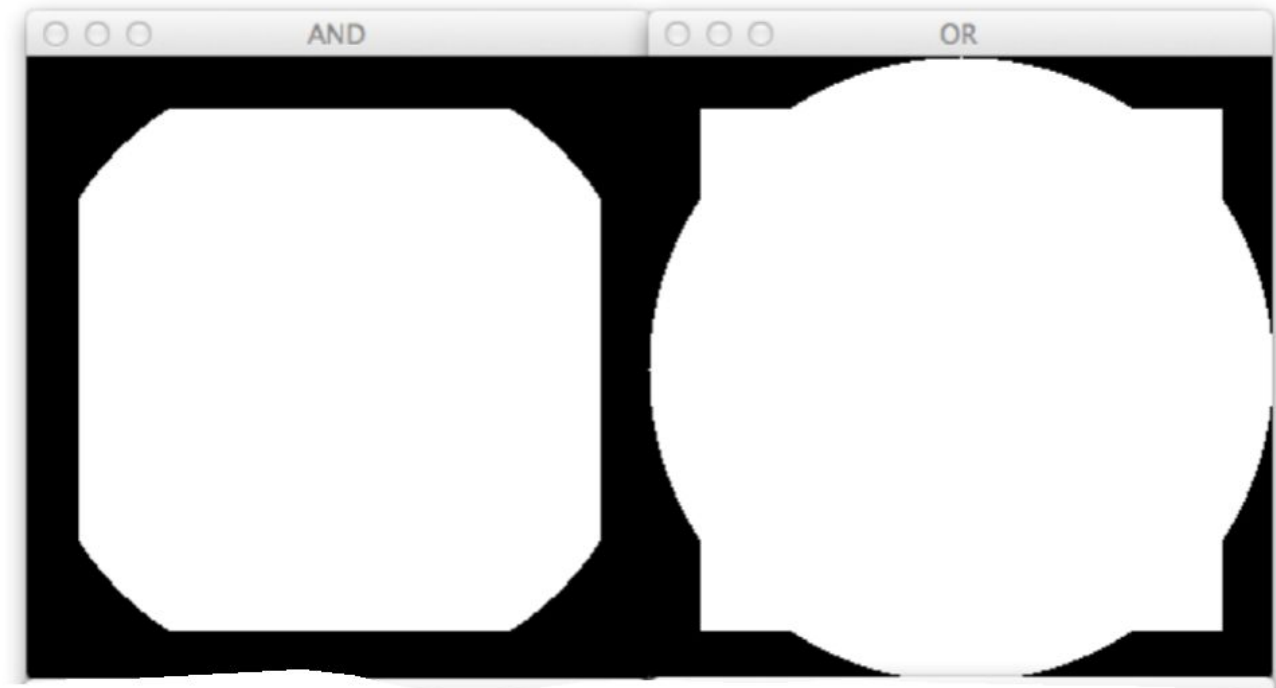
OpenCV: Bitwise Operation



What do you get when you do this?

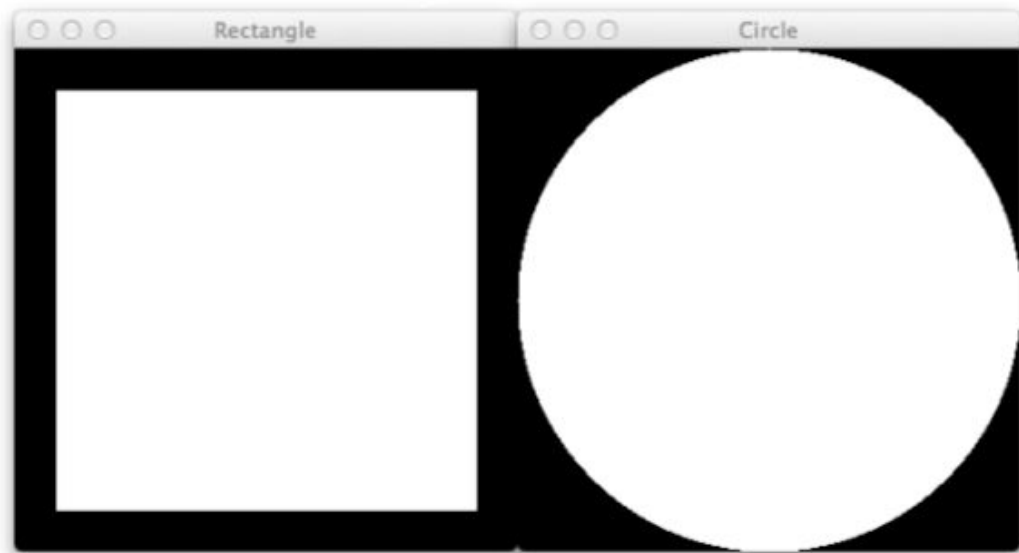
```
11 bitwiseAnd = cv2.bitwise_and(rectangle, circle)
12 cv2.imshow("AND", bitwiseAnd)
13 cv2.waitKey(0)
14
15 bitwiseOr = cv2.bitwise_or(rectangle, circle)
16 cv2.imshow("OR", bitwiseOr)
17 cv2.waitKey(0)
18
```

OpenCV: Bitwise Operation

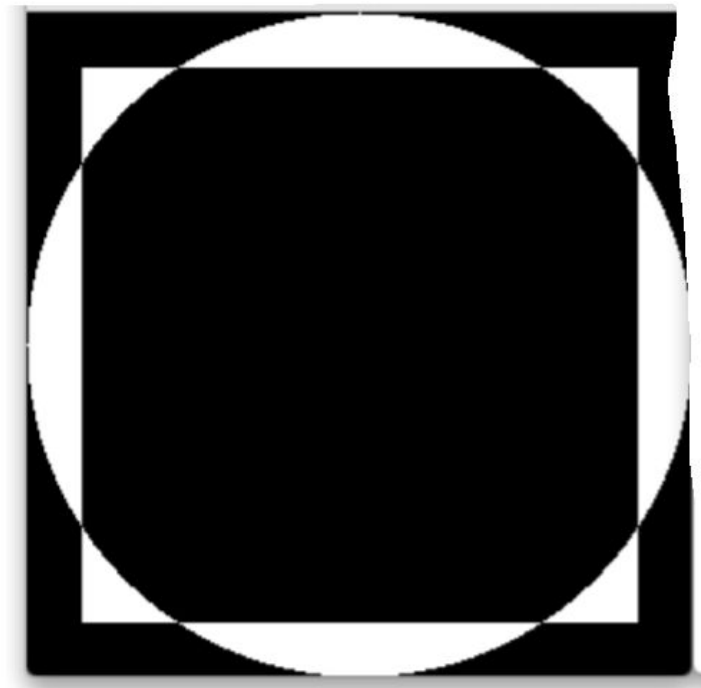


OpenCV: How do you get this?

From:

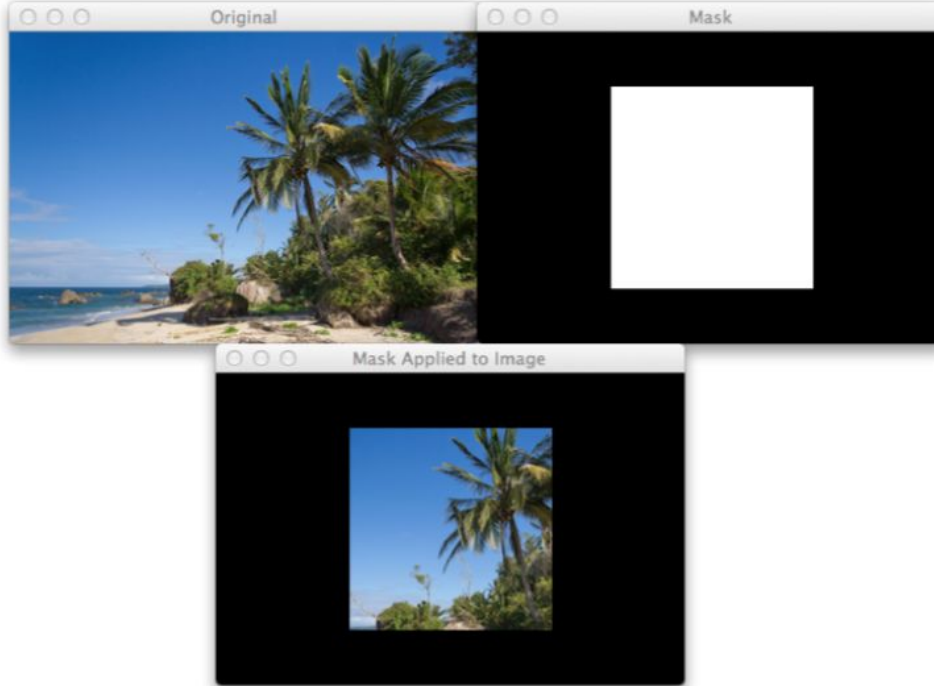


To:



Masking

```
2 import argparse
3 import cv2
4
5 ap = argparse.ArgumentParser()
6 ap.add_argument("-i", "--image", required = True,
7                 help = "Path to the image")
8 args = vars(ap.parse_args())
9
10 image = cv2.imread(args["image"])
11 cv2.imshow("Original", image)
12
13 mask = np.zeros(image.shape[:2], dtype = "uint8")
14 (cX, cY) = (image.shape[1] // 2, image.shape[0] // 2)
15 cv2.rectangle(mask, (cX - 75, cY - 75), (cX + 75, cY + 75), 255,
16               -1)
17
18 cv2.imshow("Mask", mask)
19
20 masked = cv2.bitwise_and(image, image, mask = mask)
21 cv2.imshow("Mask Applied to Image", masked)
22 cv2.waitKey(0)
```



Lab 4: Green Screen Removal with scene replacement

