



الجامعة الإسلامية العالمية شيتاغونغ
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LAB 6

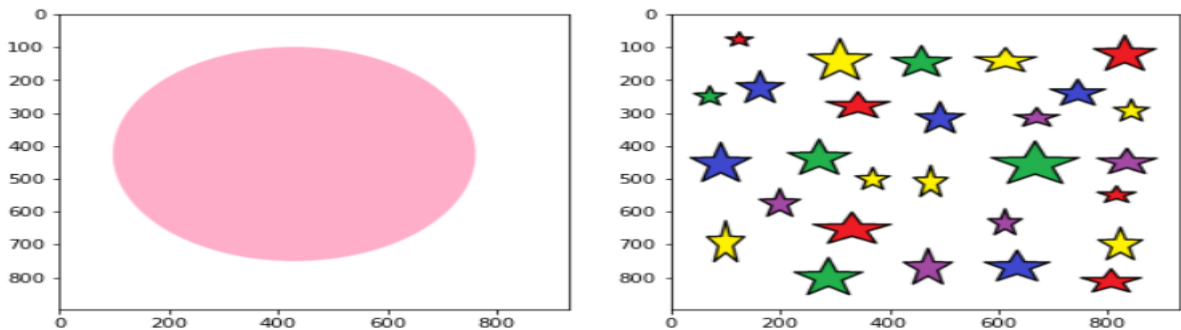
6.1.Temporal Processing

```
In [1]: from PIL import Image
import cv2
import numpy as np
import matplotlib.pyplot as plt
%matplotlib inline
```

```
In [2]: img1 = cv2.imread('star.png',1)
img2 = cv2.imread('round.png',1)
img1 = cv2.cvtColor(img1,cv2.COLOR_BGR2RGB)
img2 = cv2.cvtColor(img2,cv2.COLOR_BGR2RGB)
```

```
In [3]: plt.figure(figsize=(10,10))
plt.subplot(1,2,1)
plt.imshow(img2)
plt.subplot(1,2,2)
plt.imshow(img1)
```

```
Out[3]: <matplotlib.image.AxesImage at 0x1d69f518430>
```



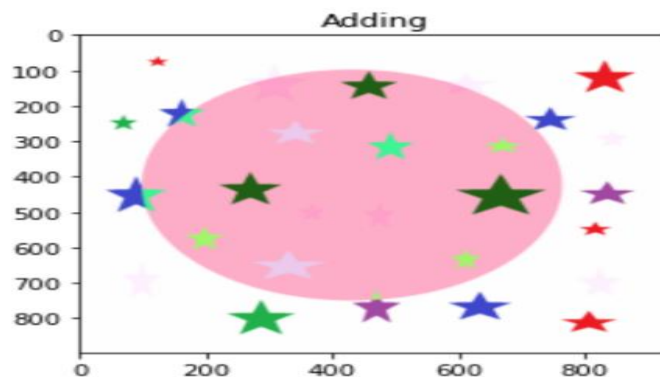
6.1.1.Adding

TASK #1: TEMPORAL PROCESSING

1 ADDING

```
In [4]: add_img = img1+img2
plt.imshow(add_img)
plt.title('Adding')
```

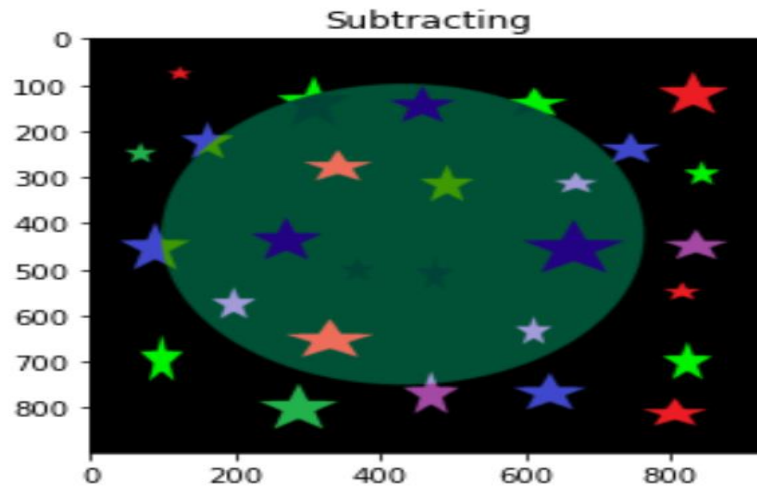
```
Out[4]: Text(0.5, 1.0, 'Adding')
```



6.1.2.Subtracting

```
In [5]: sub_img = img1-img2
plt.imshow(sub_img)
plt.title('Subtracting')
```

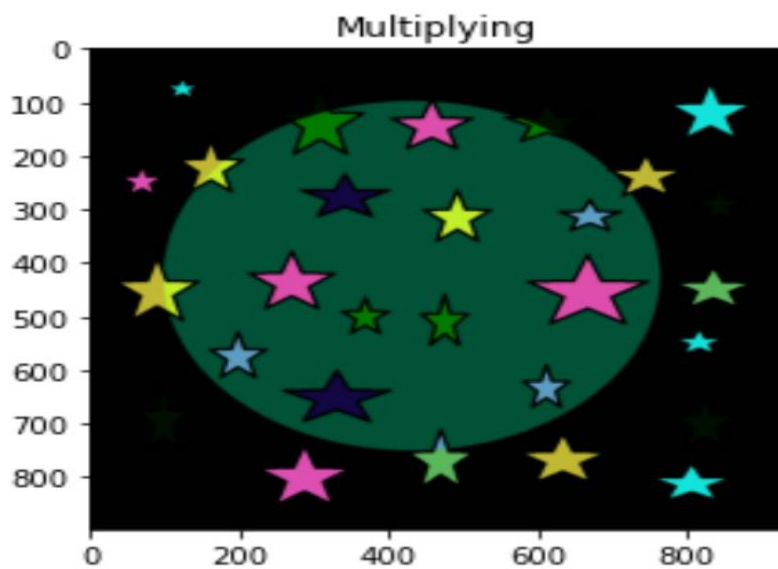
Out[5]: Text(0.5, 1.0, 'Subtracting')



6.1.3.Multiplying

```
In [6]: mul_img=img1*img2
plt.imshow((mul_img).astype(np.uint8))
plt.title('Multiplying')
```

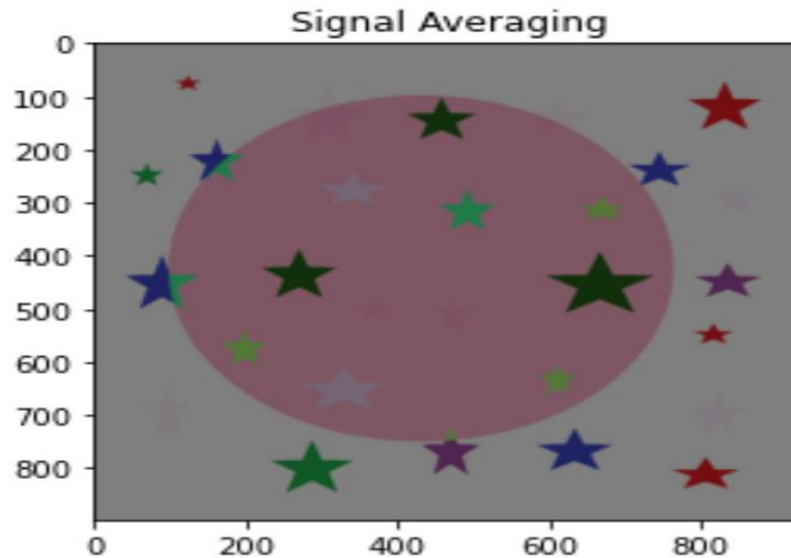
Out[6]: Text(0.5, 1.0, 'Multiplying')



6.1.4.Signal Averaging

```
In [7]: avg_img=(img1+img2)/2
plt.imshow((avg_img).astype(np.uint8))
plt.title('Signal Averaging')
```

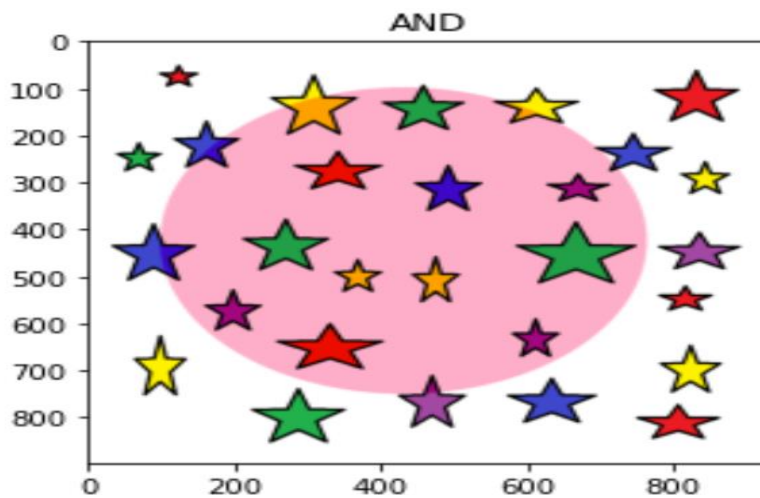
```
Out[7]: Text(0.5, 1.0, 'Signal Averaging')
```



6.1.5.AND

```
In [8]: and_img = cv2.bitwise_and(img1,img2)
plt.imshow((and_img).astype(np.uint8))
plt.title('AND')
```

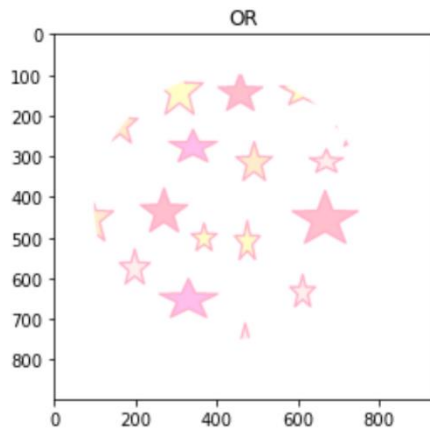
```
Out[8]: Text(0.5, 1.0, 'AND')
```



6.1.6.OR

```
In [9]: or_img = cv2.bitwise_or(img1,img2)
plt.imshow((or_img).astype(np.uint8))
plt.title('OR')
```

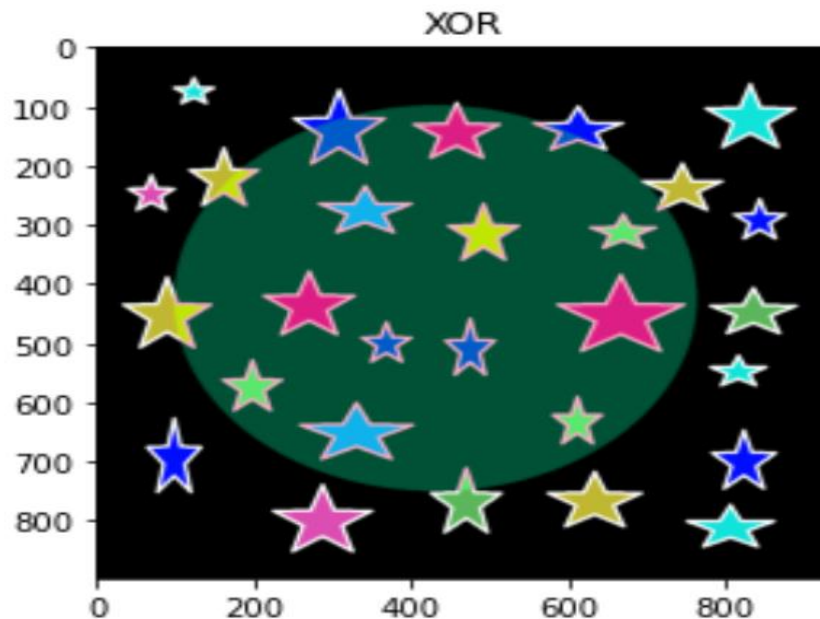
Out[9]: Text(0.5, 1.0, 'OR')



6.1.7.XOR

```
In [10]: xor_img = cv2.bitwise_xor(img1,img2)
plt.imshow((xor_img).astype(np.uint8))
plt.title('XOR')
```

Out[10]: Text(0.5, 1.0, 'XOR')



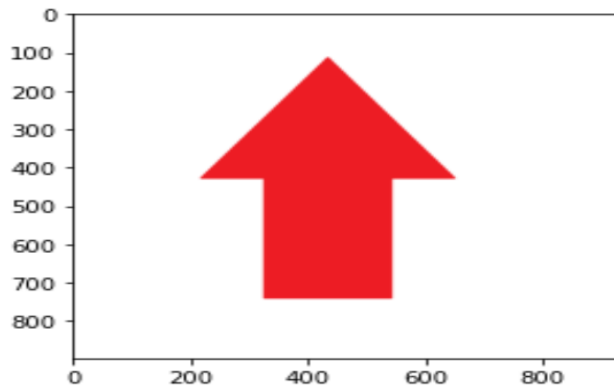
6.2.Geometric Processing

OneDrive/Desktop/IP/ C181208 Lab6 - Jupyter Notebook Lab6
localhost:8888/notebooks/OneDrive/Desktop/IP/C181208%20Lab6.ipynb

TASK2: GEOMETRIC PROCESSING

```
In [11]: img3 = cv2.imread('tir.png',1)
img3 = cv2.cvtColor(img3,cv2.COLOR_BGR2RGB)
plt.imshow(img3)
```

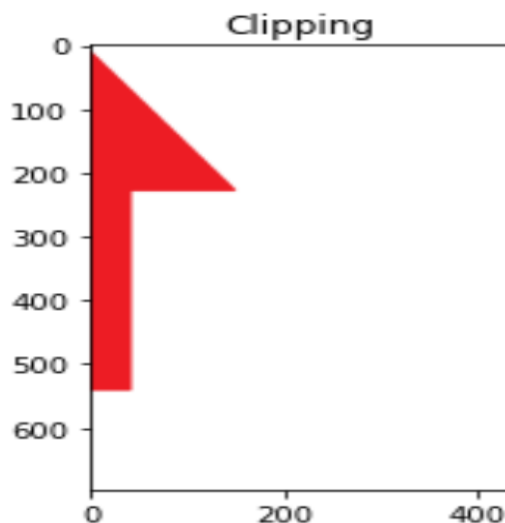
Out[11]: <matplotlib.image.AxesImage at 0x1d6a254ff40>



6.2.1.Clipping

```
In [12]: y = 500
x= 200
h= 1000
w= 1000
crop_img=img3[x:w,y:h]
plt.imshow(crop_img)
plt.title('Clipping')
```

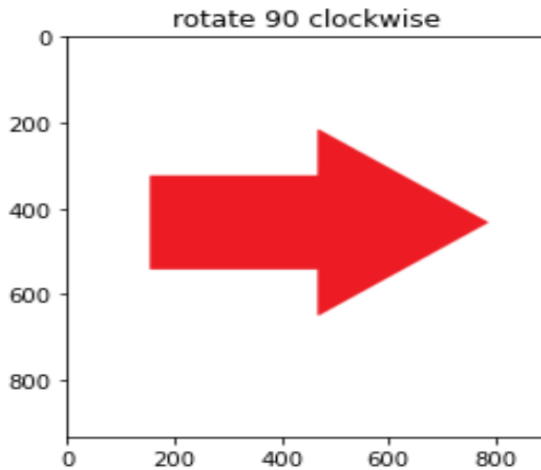
Out[12]: Text(0.5, 1.0, 'Clipping')



6.2.2.Rotating

```
In [13]: img_rotate_90_clockwise = cv2.rotate(img3,cv2.ROTATE_90_CLOCKWISE)
plt.imshow(img_rotate_90_clockwise)
plt.title('rotate 90 clockwise')
```

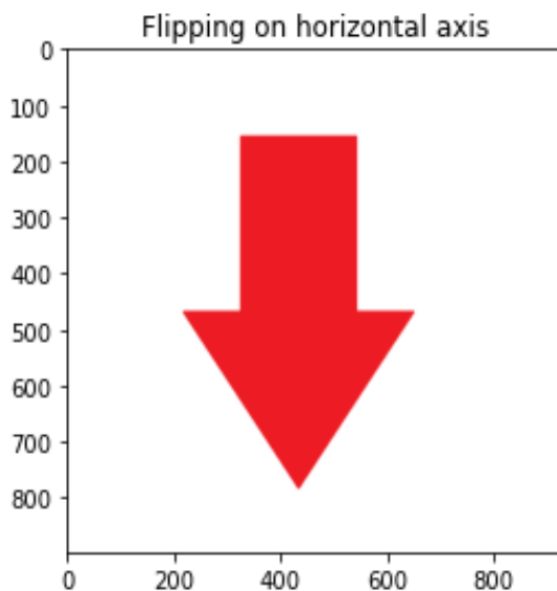
Out[13]: Text(0.5, 1.0, 'rotate 90 clockwise')



6.2.3.Flipping

```
In [14]: img_flip_ud = cv2.flip(img3,0)
plt.imshow(img_flip_ud)
plt.title('Flipping on horizontal axis')
```

Out[14]: Text(0.5, 1.0, 'Flipping on horizontal axis')



6.2.4.Zooming

```
In [15]: height, width = img3.shape[:2]
zoom_img = cv2.resize(img3,(10*width, 10*height), interpolation =
cv2.INTER_CUBIC)
plt.imshow(zoom_img)
plt.title('Zooming')
```

Out[15]: Text(0.5, 1.0, 'Zooming')

