

transformations

January 31, 2024

```
[ ]: import cv2 as cv
import numpy as np
#Read image
img = cv.imread('Images/cat.jpg')
cv.imshow('Cat', img)
```

translation

```
[ ]: def translate(img, x, y):
    transMat = np.float32([[1,0,x], [0,1,y]])
    dimensions = (img.shape[1], img.shape[0])
    return cv.warpAffine(img, transMat, dimensions)
```

-x -> Left -y -> Up x -> Right y -> Down

```
[ ]: translated = translate(img, -100, 100)
cv.imshow('Translated', translated)
```

rotation

```
[ ]: def rotate(img, angle, rotPoint=None):
    (height, width) = img.shape[:2]
```

```
[ ]: if rotPoint is None:
    rotPoint = (width//2, height//2)
```

```
[ ]: rotMat = cv.getRotationMatrix2D(rotPoint, angle, 1.0)
    dimensions = (width, height)
```

```
[ ]: return cv.warpAffine(img, rotMat, dimensions)
```

```
[ ]: rotated = rotate(img, -45)
cv.imshow('Rotated', rotated)
```

```
[ ]: rotated_rotated = rotate(rotated, -45)
cv.imshow('Rotated Rotated', rotated_rotated)
```

lip

```
[ ]: flip = cv.flip(img, -1)# modifying the number you can flip the image ↵  
    ↪horizontally or vertically  
    cv.imshow('Flip', flip)
```

ropping

```
[ ]: cropped = img[200:400, 300:400]  
    cv.imshow('Cropped', cropped)
```

```
[ ]: cv.waitKey(0)
```

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[ ]:
```