INT3404E 20 - Image Processing: Homeworks 1

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1 Original Image

Figure 1: Original image

2 Flip Image

2.1 Implementation

```
def flip_image(image):
    flipped_img = cv2.flip(image, 1)
    return flipped_img
```

2.2 Result

Figure 2: Flipped image

3 Rotate Image

3.1 Implementation

```
def rotate_image(image, angle):
    (width, height) = image.shape[1::-1]
    image_center = (width/2, height/2)
    rotate_matrix = cv2.getRotationMatrix2D(center=image_center, angle=angle, scale=1)
    rotate_img = cv2.warpAffine(src=image, M=rotate_matrix, dsize=(width, height))
    return rotate_img
```

3.2 Result

Figure 3: Rotated image

4 Grayscale Image

4.1 Implementation

```
def grayscale_image(image):
    gray_img = cv2.cvtColor(image, cv2.COLOR_RGB2GRAY)
    return gray_img
```

4.2 Result

Figure 4: Grayscaled image