

Image_Lab_01

January 10, 2019

```
In [1]: # Importing OpenCV
import cv2

# Importing numpy
import numpy as np

# Import matplotlib
import matplotlib.pyplot as plt

In [2]: # Reading Image
image = cv2.imread("image.jpeg", cv2.IMREAD_COLOR)

# BGR to RGB
image[:, :, 0], image[:, :, 2] = np.array(image[:, :, 2]), np.array(image[:, :, 0])

In [3]: shape = image.shape
```

1 Converting to Grayscale

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In [4]: gray_image = np.zeros(shape[:2])

In [5]: for i in range(shape[0]):

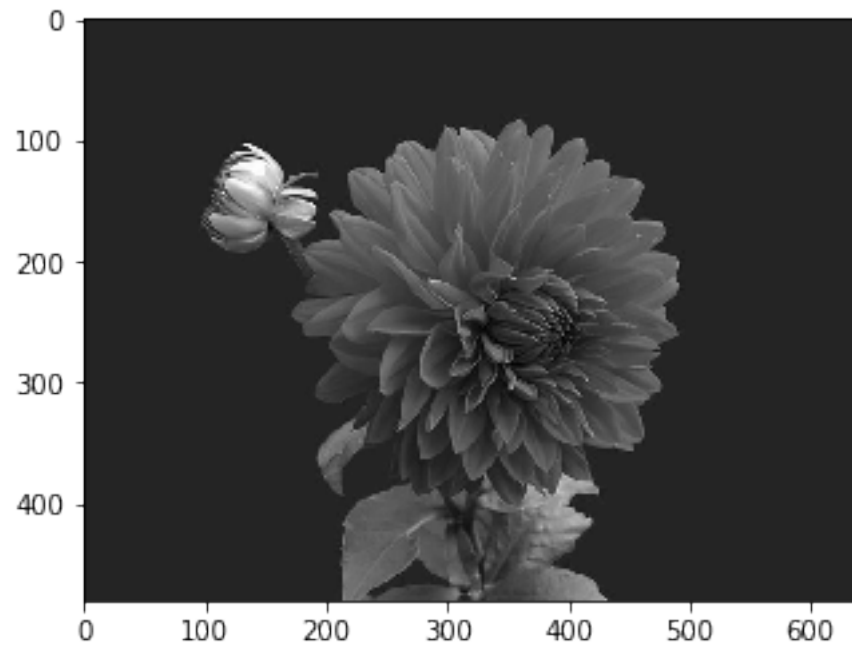
    for j in range(shape[1]):

        red   = image[i][j][0]
        green = image[i][j][1]
        blue  = image[i][j][2]

        gray_image[i][j] = 0.3 * red + 0.59 * green + 0.11 * blue

In [6]: plt.imshow(gray_image, cmap='gray')

Out[6]: <matplotlib.image.AxesImage at 0x7fe6e6c065c0>
```



2 Splitting RGB Channels

In [7]: `plt.imshow(image)`

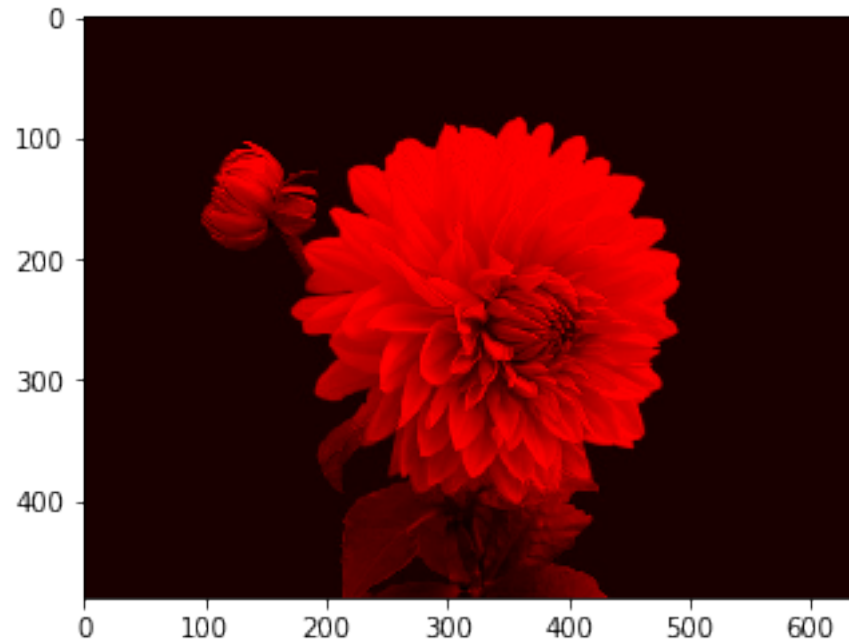
Out [7]: `<matplotlib.image.AxesImage at 0x7fe6e68c47f0>`



```
In [8]: red_channel = np.array(image)
        red_channel[:, :, 1:3] = 0

        plt.imshow(red_channel)
```

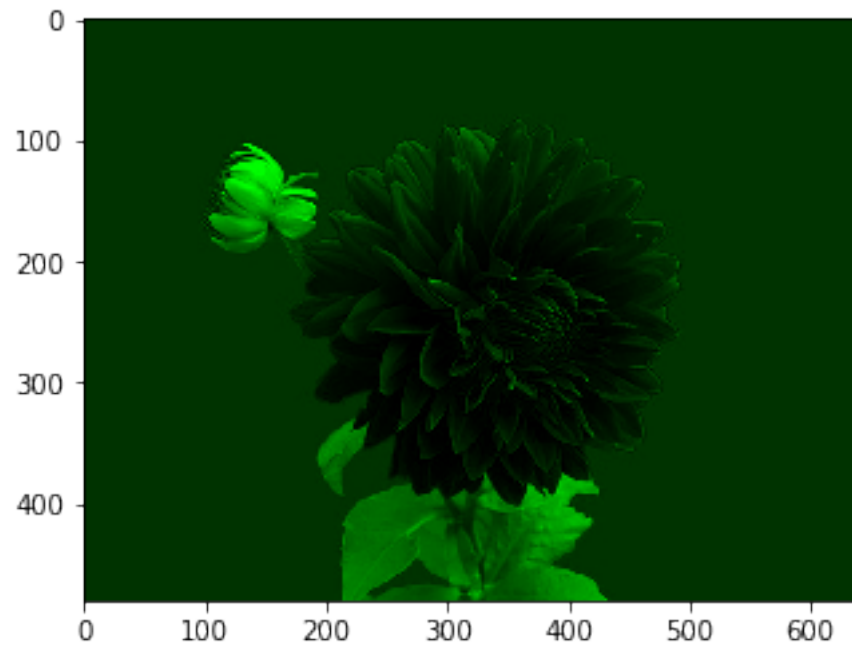
```
Out[8]: <matplotlib.image.AxesImage at 0x7fe6e68b17b8>
```



```
In [9]: green_channel = np.array(image)
        green_channel[:, :, 0] = 0
        green_channel[:, :, 2] = 0

        plt.imshow(green_channel)
```

```
Out[9]: <matplotlib.image.AxesImage at 0x7fe6e5009668>
```



```
In [10]: blue_channel = np.array(image)
         blue_channel[:, :, 0:2] = 0

         plt.imshow(blue_channel)
```

```
Out[10]: <matplotlib.image.AxesImage at 0x7fe6e4fe9128>
```

