image to pencil sketch-LGM(Task-3)

September 1, 2022

[1]:
```
pip install opencv-python
```

```
Defaulting to user installation because normal site-packages is not writeable
Requirement already satisfied: opencv-python in
c:\users\sravani\appdata\roaming\python\python39\site-packages (4.6.0.66)
Requirement already satisfied: numpy>=1.14.5 in
c:\programdata\anaconda3\lib\site-packages (from opencv-python) (1.21.5)
Note: you may need to restart the kernel to use updated packages.
```

Lets Grow More(LGMVIP)-"DATA SCIENCE INTERN"

LGMVIP August-22

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BEGINNER LEVEL TASK

TASK-3-Image to Pencil Sketch with Python:

We need to read the image in RBG format and then convert it to a grayscale image. This will turn an image into a classic black and white photo. Then the next thing to do is invert the grayscale image also called negative image, this will be our inverted grayscale image. Inversion can be used to enhance details. Then we can finally create the pencil sketch by mixing the grayscale image with the inverted blurry image. This can be done by dividing the grayscale image by the inverted blurry image. Since images are just arrays, we can easily do this programmatically using the divide function from the cv2 library in Python.

In this task i'm using one image which is a Rose Flower

Importing Libraries

[2]:
```
import cv2
import numpy as np
from PIL import Image
from IPython.display import display
```

Read the image

[3]:
```
original_img = cv2.imread('rose.jpg')
```

[4]:
```
original_img = cv2.cvtColor(original_img, cv2.COLOR_BGR2RGB)
```

[5]:
```
display(Image.fromarray(original_img))
```

Convert image to a grayscale image

[6]:
```
gray_image = cv2.cvtColor(original_img, cv2.COLOR_BGR2GRAY)
display(Image.fromarray(gray_image))
```

Here we can see classic black and white photo.Now we have to invert gray scale image(Negative image).

[7]:
```
inv_gray_image = 255 - gray_image
```

[8]:
```
inv_gray_image
```

[8]:
```
array([[ 38,  38,  39, …,  37,  36,  36],
       [ 40,  39,  40, …,  37,  36,  36],
       [ 39,  39,  38, …,  37,  36,  36],
       …,
       [134, 134, 135, …,  76,  75,  73],
       [139, 139, 139, …,  71,  70,  69],
       [140, 140, 141, …,  68,  67,  67]], dtype=uint8)
```

[9]:
```
display(Image.fromarray(inv_gray_image))
```

Now Converting Negative image into a blurry image

[10]:
```
blur_image = cv2.GaussianBlur(inv_gray_image, (35, 35), 0)
```

[11]:
```
display(Image.fromarray(blur_image))
```

Now creating the pencil sketch by mixing the grayscale image with the inverted blurry image.

[12]:
```
def dodge(gray_image, blur_image):
    inv_blur_img = 255 - blur_image
    return cv2.divide(gray_image, inv_blur_img, scale = 400.0)
pencil_sketch = dodge(gray_image, blur_image)
display(Image.fromarray(pencil_sketch))
```

Thank You!

[ ]: