Lets Grow More

Virtual Internship Program - *Data Science* (Feb 2023)

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Task 4 - Image to Pencil Sketch With Python¶

Importing neccesaary Libraries / Packages

In [1]:
```
import cv2
import numpy as np
import plotly.express as px
```

Loading Images

In [2]:
```
img = cv2.imread('Sanskaaar.jpg')
img = cv2.cvtColor(img,cv2.COLOR_BGR2RGB)
```

In [3]:
```
imgs=px.imshow(img)
#imgs.update_layout(width=990, height=600 ,margin=dict(l=20, r=20, b=10, t=10))
imgs.update_xaxes(showticklabels=False).update_yaxes(showticklabels=False)
imgs.show()
```

Resizing Image Shape

In [4]:
```
scale_percent = 0.60
```

In [5]:
```
width = int(img.shape[1]*scale_percent)
height = int(img.shape[0]*scale_percent)
```

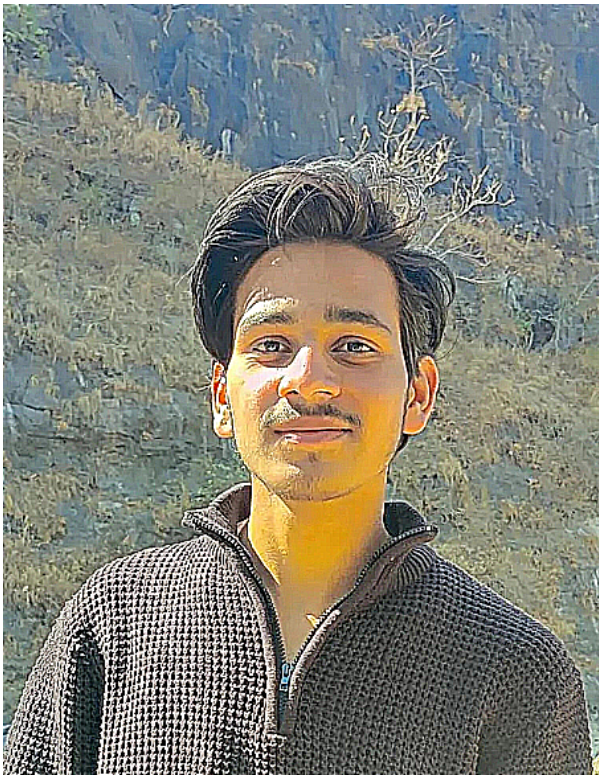
In [6]:
```
dim = (width,height)
resized = cv2.resize(img,dim,interpolation = cv2.INTER_AREA)
```

In [7]:
```
res=px.imshow(resized)
res.update_xaxes(showticklabels=False).update_yaxes(showticklabels=False)
res.show()
```

Sharpening Image

In [8]:
```
kernel_sharpening = np.array([[-1,-1,-1],
                              [-1, 9,-1],
                              [-1,-1,-1]])
sharpened = cv2.filter2D(resized,-1,kernel_sharpening)
```

In [9]:
```
sharp=px.imshow(sharpened)
sharp.update_xaxes(showticklabels=False).update_yaxes(showticklabels=False)
sharp.show()
```



Converting an image into gray_scale image

In [10]:
```
grayscale = cv2.cvtColor(sharpened , cv2.COLOR_BGR2GRAY)
```

In [11]:
```
gray = px.imshow(grayscale, color_continuous_scale='gray')
gray.update_xaxes(showticklabels=False).update_yaxes(showticklabels=False)
gray.show()
```

Inverting the Image

In [12]:
```
invs = 255-grayscale
```

In [13]:
```
inv=px.imshow(invs,color_continuous_scale='gray')
inv.update_xaxes(showticklabels=False).update_yaxes(showticklabels=False)
inv.show()
```

Smoothing the Image

In [14]:
```
gauss = cv2.GaussianBlur(invs,ksize=(15,15),sigmaX=0,sigmaY=0)
```

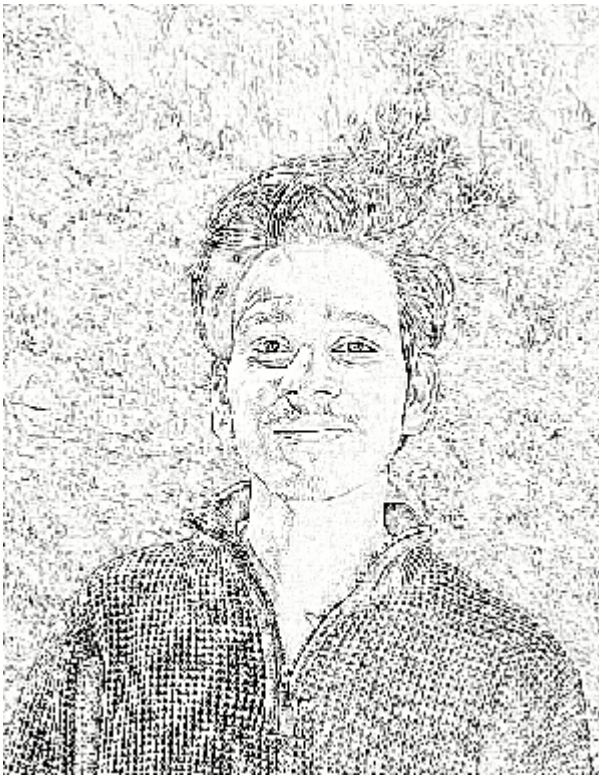
In [15]:
```
gaus=px.imshow(gauss,color_continuous_scale='gray')
gaus.update_xaxes(showticklabels=False).update_yaxes(showticklabels=False)
gaus.show()
```

Obtaining the Final Sketch

In [16]:
```
def dodgeV2(image,mask):
    return cv2.divide(image,255-mask,scale=256)

pencil_img = dodgeV2(grayscale,gauss)
```

In [17]:
```
sketch=px.imshow(pencil_img,color_continuous_scale='gray')
#sketch.update_layout(width=990, height=600 ,margin=dict(l=20, r=20, b=10, t=10))
sketch.update_layout(coloraxis_showscale=False)
sketch.update_xaxes(showticklabels=False).update_yaxes(showticklabels=False)
sketch.show()
```



THANK YOU !