22684251-trinhduonghoan

August 12, 2024

[4]:
```
from google.colab import drive
drive.mount('/content/drive')
```

```
Mounted at /content/drive
```

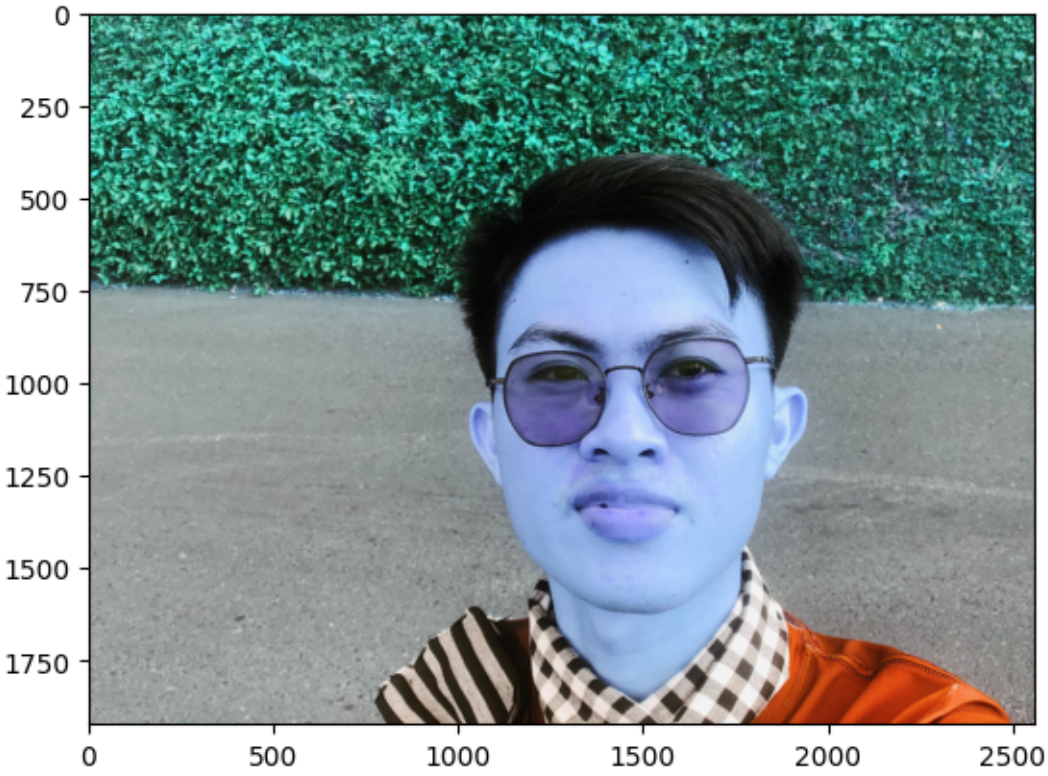
Thư viện

[9]:
```
import cv2
import numpy as np
import matplotlib.pyplot as plt
```

Đọc ảnh

[25]:
```
img = cv2.imread('/content/drive/MyDrive/XuLiAnh/Lab2/duonghoan2.jpg')
plt.imshow(img)
```

[25]:
```
<matplotlib.image.AxesImage at 0x7a91e832b0a0>
```



Thông tin ảnh

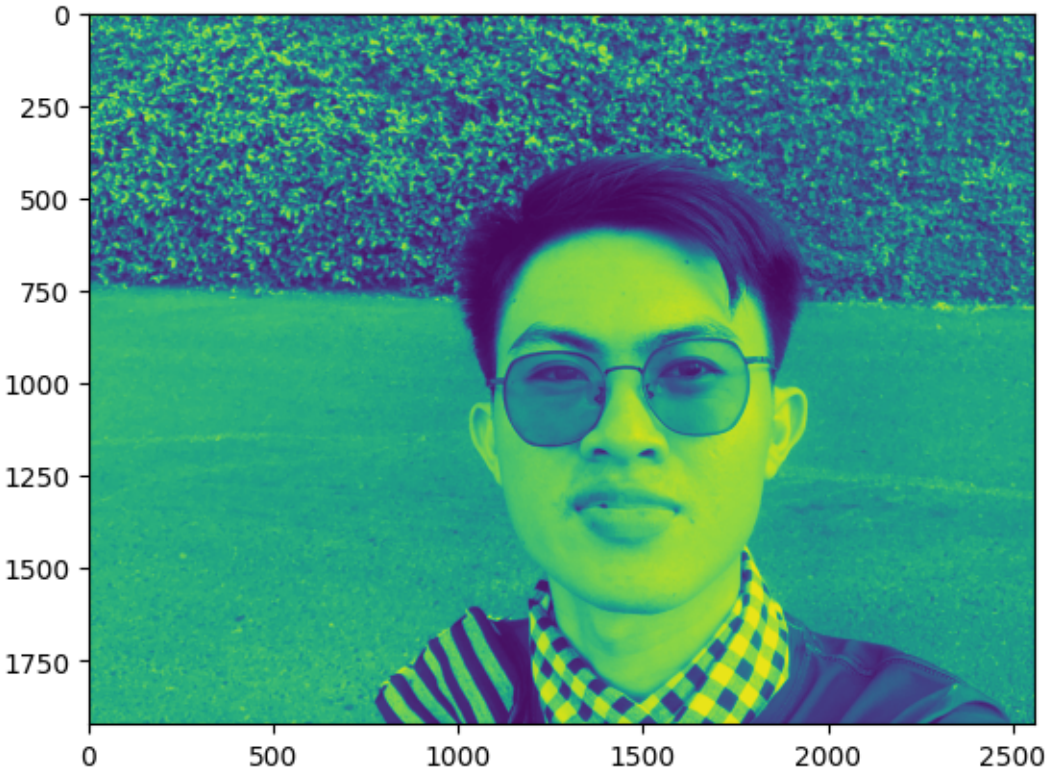
[13]:
```
print("Kích thước ảnh : ", img.shape)
print("Thuộc tính ảnh : ", img.dtype)
```

```
Kích thước ảnh :  (1922, 2558, 3)
Thuộc tính ảnh :  uint8
```

Chuyển đổi ảnh màu sang ảnh xám

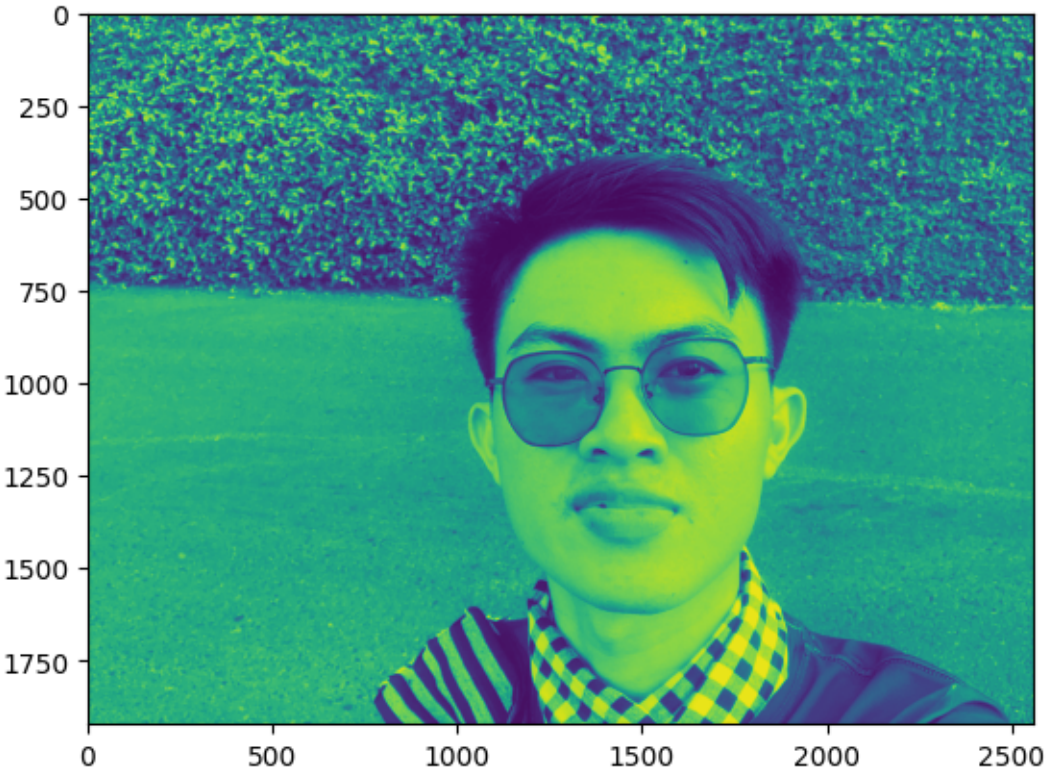
[23]:
```
# Cách 1 : Sử dụng hàm cv2.cvtColor()
gray_image1 = cv2.cvtColor(img, cv2.COLOR_BGR2GRAY)
plt.imshow(gray_image1)
```

[23]: <matplotlib.image.AxesImage at 0x7a91f533f190>



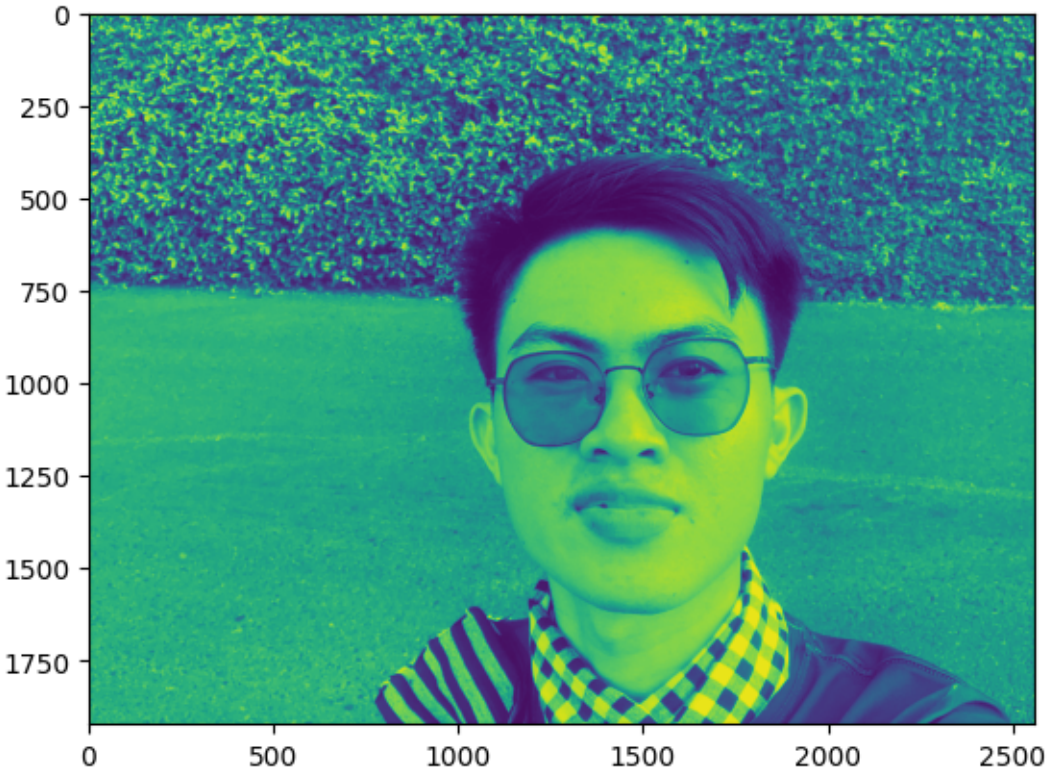
[22]:
```
# Cách 2 : Sử dụng hàm cv2.imread() với flag=zero
gray_image2 = cv2.imread('/content/drive/MyDrive/XuLiAnh/Lab2/duonghoan2.jpg',␣
↪0)
plt.imshow(gray_image2)
```

[22]: <matplotlib.image.AxesImage at 0x7a91f40e0940>



[20]:
```
# Cách 3 :  phương pháp trung bình
gray_image3 =  img[:,:,0]*0.07 + img[:,:,1]*0.72 + img[:,:,2]*0.21
plt.imshow(gray_image3)
```

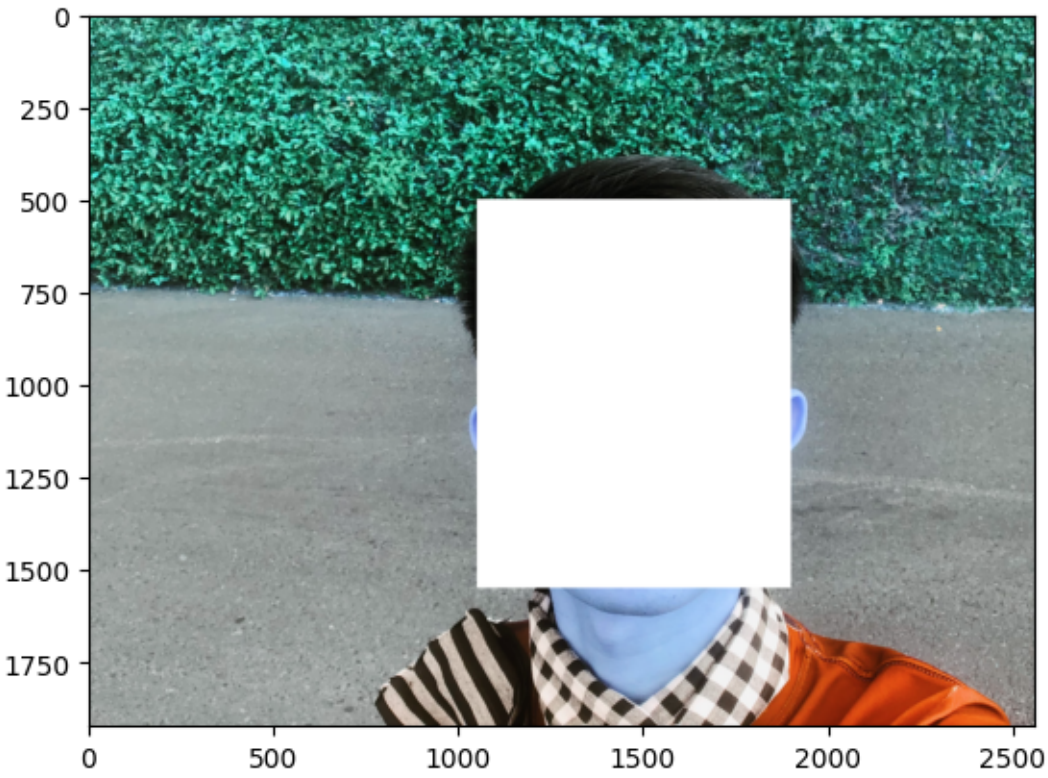
[20]: <matplotlib.image.AxesImage at 0x7a91e7f533d0>



Xóa vùng ảnh

[27]:
```
temp_image = img.copy()
temp_image[500:1550, 1050:1900] = 255
plt.imshow(temp_image)
```

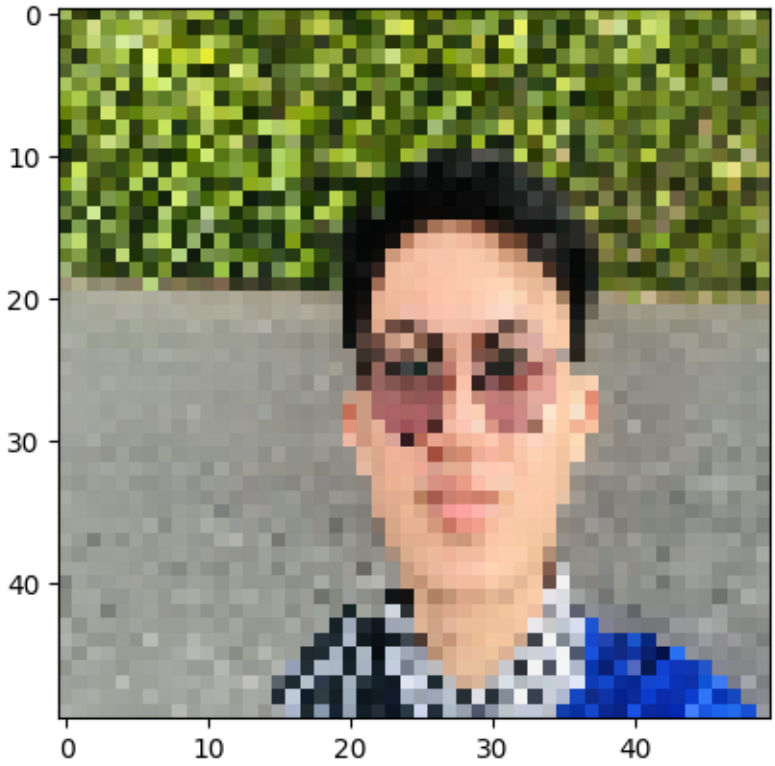
[27]: <matplotlib.image.AxesImage at 0x7a91e801e080>



Resize ảnh

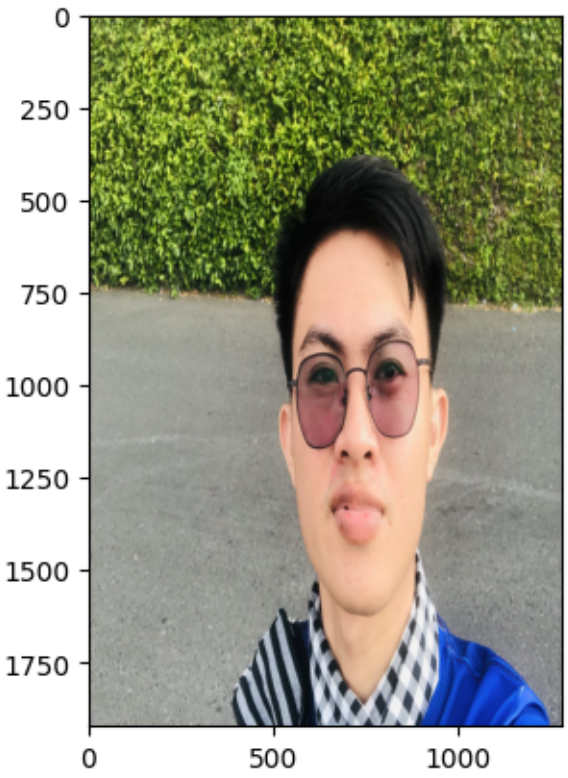
[29]:
```
# Làm mờ
new_width = 50
new_height = 50
resized_image = cv2.resize(img, (new_width, new_height))
plt.imshow(resized_image[:,:,::-1])
```

[29]: <matplotlib.image.AxesImage at 0x7a91e7ae7be0>



[30]:
```
# chỉnh kích thước
f_x = 0.5
f_y = 1
resized_image1 = cv2.resize(src = img, dsize = None, fx = f_x, fy = f_y)
plt.imshow(resized_image1[:,:,::-1])
```

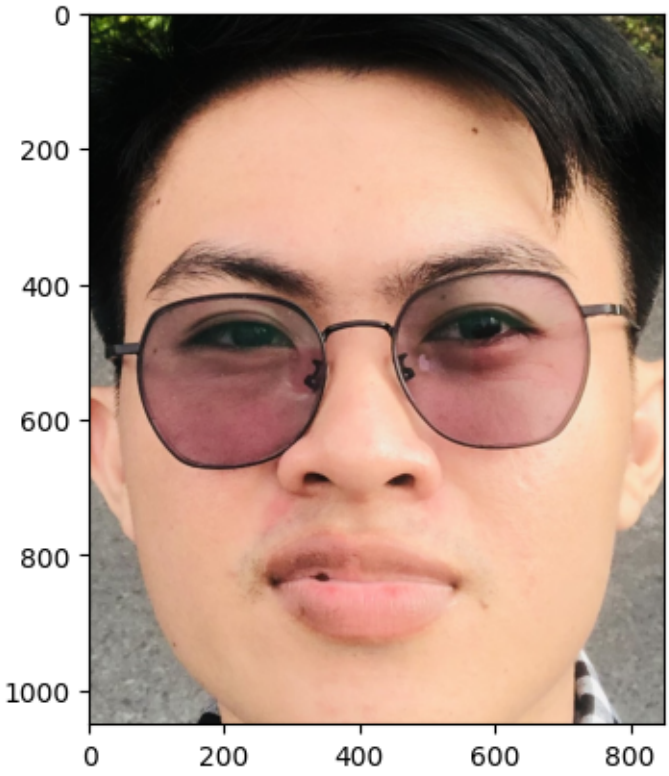
[30]: <matplotlib.image.AxesImage at 0x7a91f40c5db0>



Crop ảnh

[31]:
```
crop_image = img[500:1550, 1050:1900]
plt.imshow(crop_image[:,:,::-1])
```

[31]: <matplotlib.image.AxesImage at 0x7a91e7d4e0b0>



Xoay ảnh

[32]:
```
rol_image = img[::-1, :]
plt.imshow(rol_image[:,:,::-1])
```

[32]: <matplotlib.image.AxesImage at 0x7a91e7e74850>

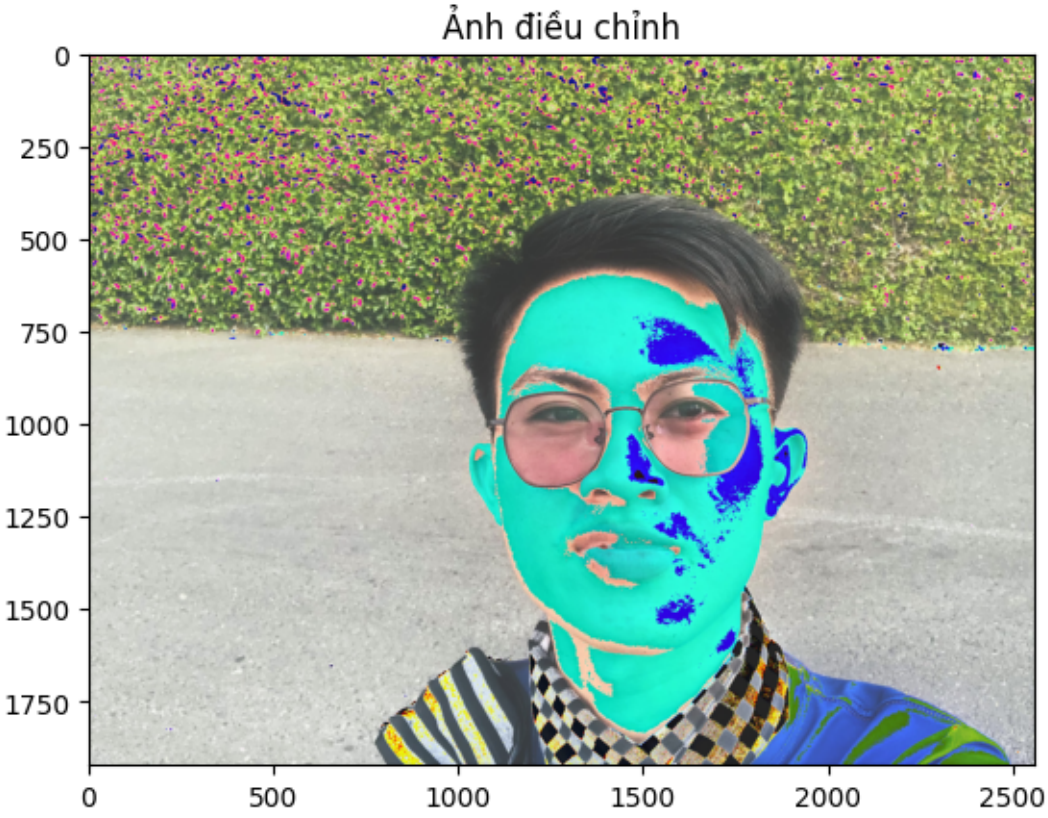
[34]:
```
# transpose
trans_image = cv2.transpose(img)
plt.imshow(trans_image[:,:,::-1])
```

[34]: <matplotlib.image.AxesImage at 0x7a91e77082e0>

Điều chỉnh độ sáng tối của ảnh

[35]:
```
result = img.copy()
result += 50
plt.imshow(result[:, :, ::-1])
plt.title("Ảnh điều chỉnh")
```

[35]:
```
Text(0.5, 1.0, 'Ảnh điều chỉnh')
```


Ảnh điều chỉnh
0
250
500
750
1000
1250
1500
1750
0
500
1000
1500
2000
2500