In [2]:
```
import numpy as np
```

In [4]:
```
import matplotlib.pyplot as plt
```

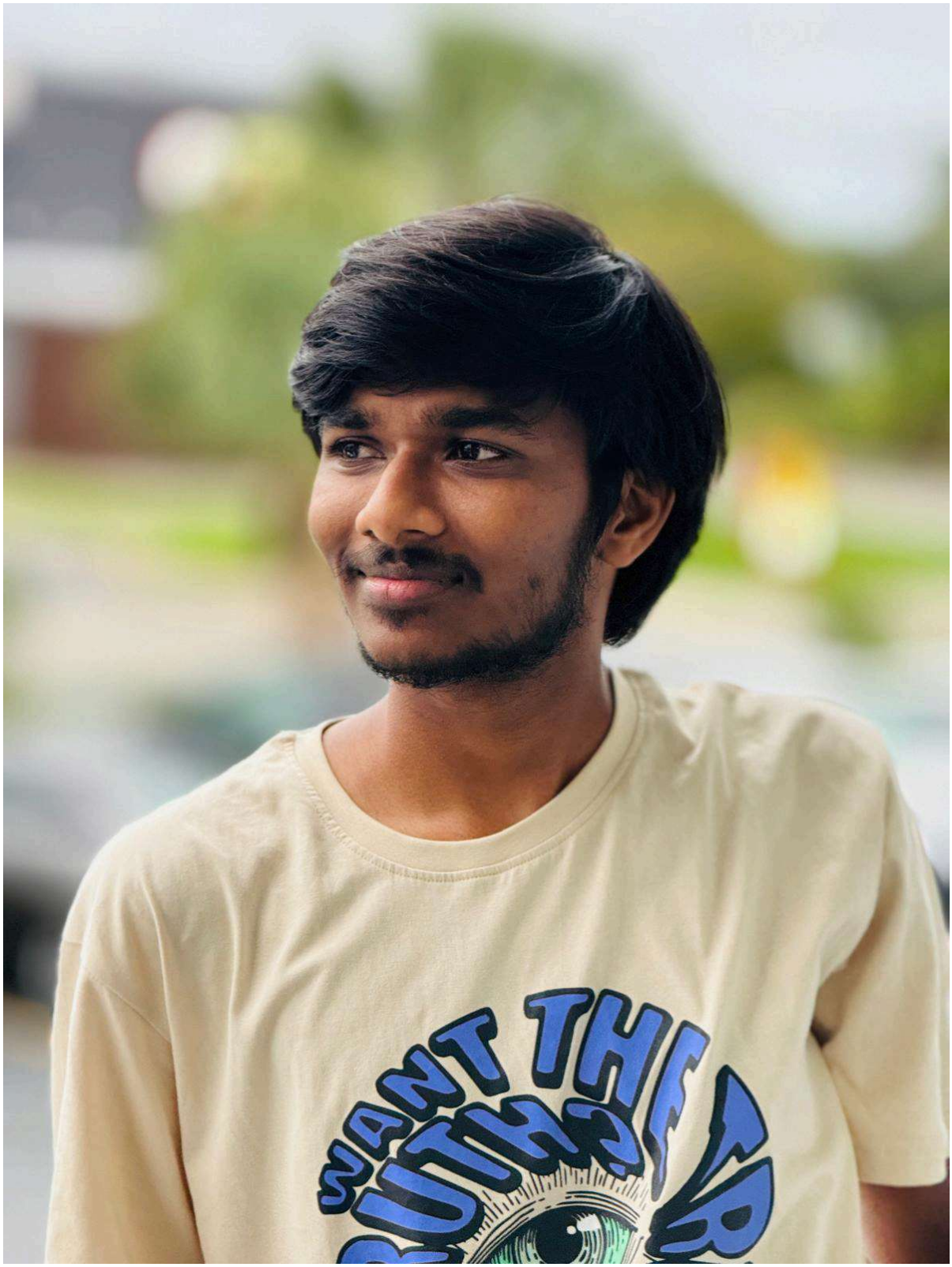
In [6]:
```
%matplotlib inline
```

In [10]:
```
from PIL import Image #python imaging library used to open,manipulate,save various
```

In [14]:
```
hero_img=Image.open(r"C:\Users\rahul\Downloads\WhatsApp Image 2024-10-01 at 11.01.2
```

In [16]:
```
hero_img
```

Out[16]:



In [18]:
```
type(hero_img)
```

Out[18]:
```
PIL.JpegImagePlugin.JpegImageFile
```

In [20]:
```
hero_arr=np.array(hero_img)
hero_arr
```

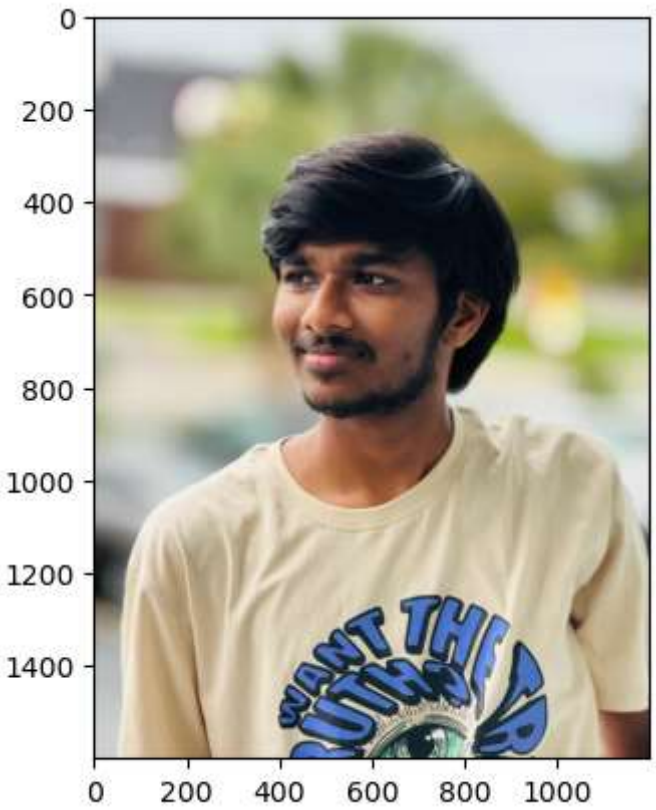
Out[20]:
```
array([[[224, 228, 239],
        [224, 228, 239],
        [224, 228, 239],
        ...,
        [220, 227, 235],
        [222, 229, 237],
        [223, 230, 238]],

       [[224, 228, 239],
        [224, 228, 239],
        [224, 228, 239],
        ...,
        [221, 228, 236],
        [221, 228, 236],
        [222, 229, 237]],

       [[224, 228, 239],
        [224, 228, 239],
        [224, 228, 239],
        ...,
        [221, 228, 236],
        [221, 228, 236],
        [220, 227, 235]],

       ...,

       [[207, 208, 210],
        [207, 208, 210],
        [207, 208, 210],
        ...,
        [ 45,  29,  29],
        [ 44,  28,  28],
        [ 43,  27,  27]],

       [[207, 208, 210],
        [207, 208, 210],
        [207, 208, 210],
        ...,
        [ 46,  30,  30],
        [ 45,  29,  29],
        [ 45,  29,  29]],

       [[207, 208, 210],
        [207, 208, 210],
        [207, 208, 210],
        ...,
        [ 47,  31,  31],
        [ 46,  30,  30],
        [ 46,  30,  30]]], dtype=uint8)
```

In [22]:
```
type(hero_img)
```

Out[22]:
```
PIL.JpegImagePlugin.JpegImageFile
```

In [26]:
```
plt.imshow(hero_arr)
```

Out[26]: <matplotlib.image.AxesImage at 0x21fca2b3c80>



In [30]:
```
hero_arr.shape
```

Out[30]: (1600, 1200, 3)

In [32]:
```
hero_red=hero_arr.copy()
```

In [34]:
```
hero_red
```

Out[34]:
```
array([[[224, 228, 239],
        [224, 228, 239],
        [224, 228, 239],
        ...,
        [220, 227, 235],
        [222, 229, 237],
        [223, 230, 238]],

       [[224, 228, 239],
        [224, 228, 239],
        [224, 228, 239],
        ...,
        [221, 228, 236],
        [221, 228, 236],
        [222, 229, 237]],

       [[224, 228, 239],
        [224, 228, 239],
        [224, 228, 239],
        ...,
        [221, 228, 236],
        [221, 228, 236],
        [220, 227, 235]],

       ...,

       [[207, 208, 210],
        [207, 208, 210],
        [207, 208, 210],
        ...,
        [ 45,  29,  29],
        [ 44,  28,  28],
        [ 43,  27,  27]],

       [[207, 208, 210],
        [207, 208, 210],
        [207, 208, 210],
        ...,
        [ 46,  30,  30],
        [ 45,  29,  29],
        [ 45,  29,  29]],

       [[207, 208, 210],
        [207, 208, 210],
        [207, 208, 210],
        ...,
        [ 47,  31,  31],
        [ 46,  30,  30],
        [ 46,  30,  30]]], dtype=uint8)
```

In [36]:
```
hero_arr==hero_red
```

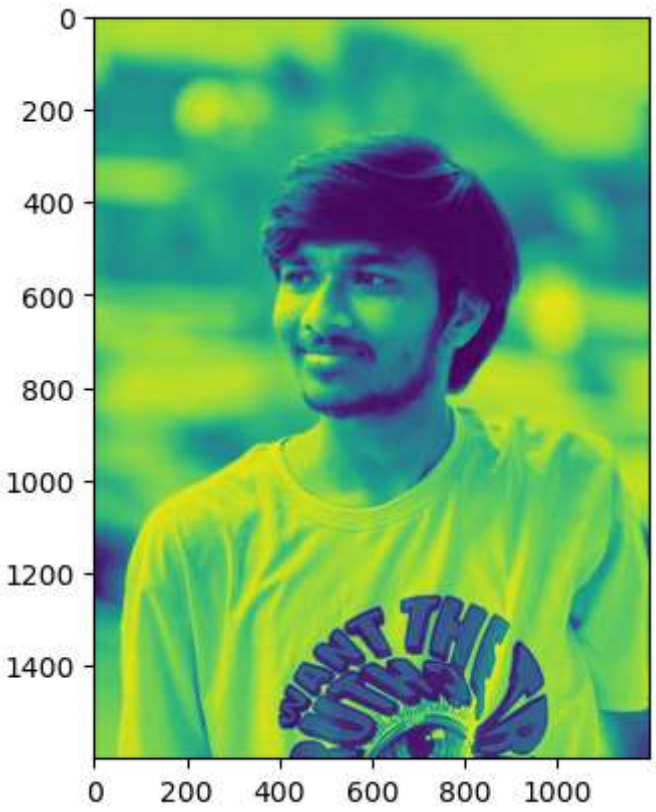
Out[36]:
```
array([[[ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True],
        ...,
        [ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True]],

       [[ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True],
        ...,
        [ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True]],

       [[ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True],
        ...,
        [ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True]],

       ...,

       [[ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True],
        ...,
        [ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True]],

       [[ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True],
        ...,
        [ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True]],

       [[ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True],
        ...,
        [ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True]]])
```

In [38]:
```
hero_red.shape
```

Out[38]:
```
(1600, 1200, 3)
```

In [40]:
```
plt.imshow(hero_red[:,:,0])
```

Out[40]: <matplotlib.image.AxesImage at 0x21fcae41790>

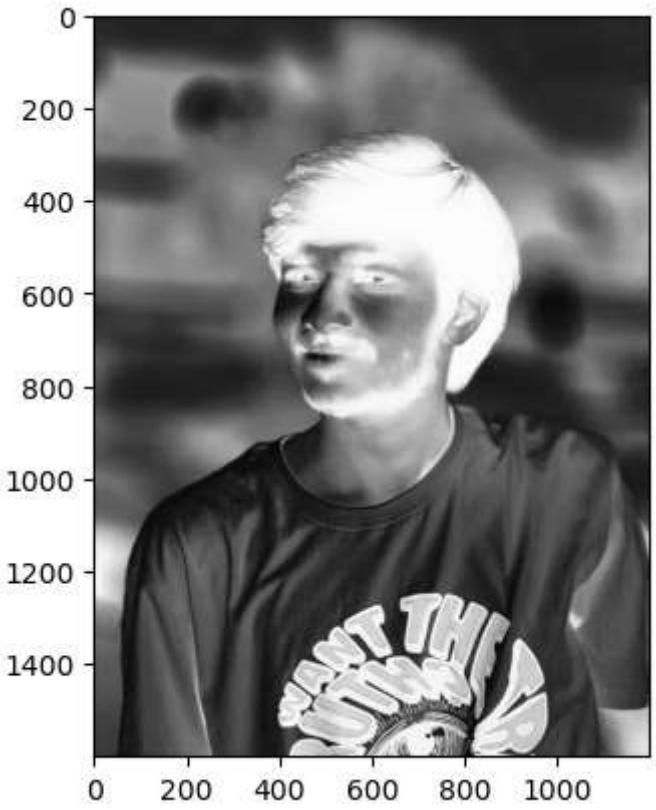


In [44]:
```
hero_red[:,:,0]
```

Out[44]:
```
array([[224, 224, 224, ..., 220, 222, 223],
       [224, 224, 224, ..., 221, 221, 222],
       [224, 224, 224, ..., 221, 221, 220],
       ...,
       [207, 207, 207, ...,  45,  44,  43],
       [207, 207, 207, ...,  46,  45,  45],
       [207, 207, 207, ...,  47,  46,  46]], dtype=uint8)
```

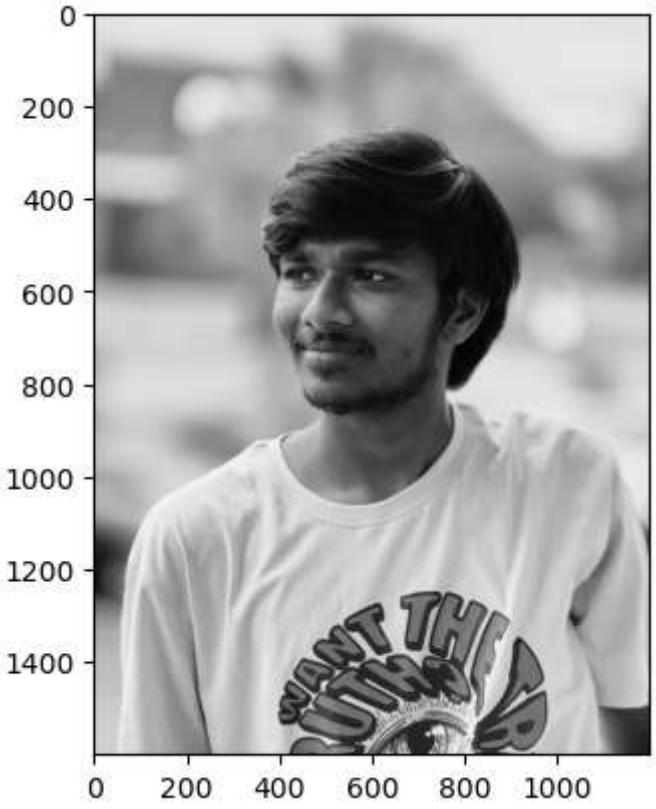
In [48]:
```
plt.imshow(hero_red[:,:,0], cmap='Greys')
```

Out[48]: <matplotlib.image.AxesImage at 0x21fd1e9a0f0>



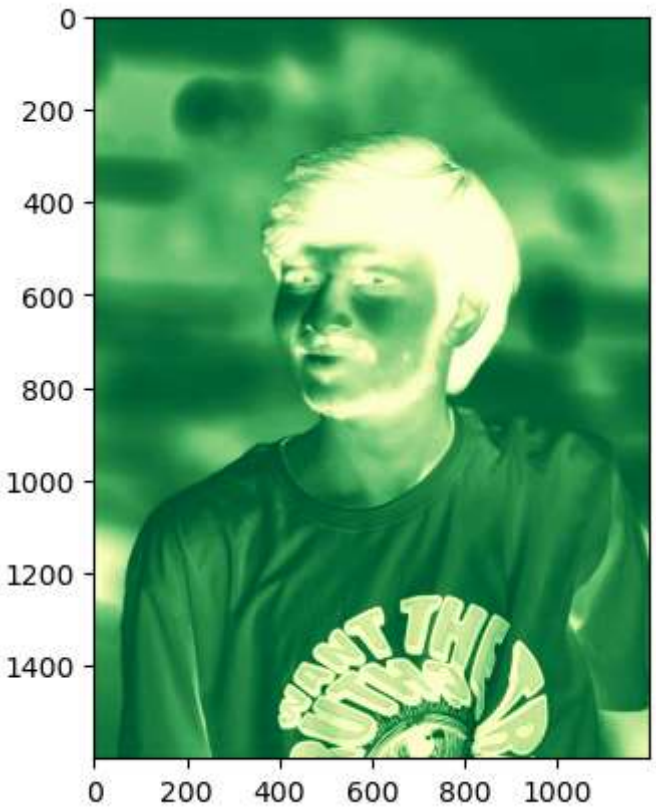
In [52]:
```
plt.imshow(hero_red[:,:,1], cmap='grey')
```

Out[52]: <matplotlib.image.AxesImage at 0x21fcfc42810>



In [54]:
```
plt.imshow(hero_red[:,:,0], cmap='YlGn')
```

Out[54]: <matplotlib.image.AxesImage at 0x21fcfc42690>



In [58]:
```
hero_red[:,:,0]
```

Out[58]:
```
array([[224, 224, 224, ..., 220, 222, 223],
       [224, 224, 224, ..., 221, 221, 222],
       [224, 224, 224, ..., 221, 221, 220],
       ...,
       [207, 207, 207, ...,  45,  44,  43],
       [207, 207, 207, ...,  46,  45,  45],
       [207, 207, 207, ...,  47,  46,  46]], dtype=uint8)
```

In [60]:
```
hero_red[:,:,1]
```

Out[60]:
```
array([[228, 228, 228, ..., 227, 229, 230],
       [228, 228, 228, ..., 228, 228, 229],
       [228, 228, 228, ..., 228, 228, 227],
       ...,
       [208, 208, 208, ...,  29,  28,  27],
       [208, 208, 208, ...,  30,  29,  29],
       [208, 208, 208, ...,  31,  30,  30]], dtype=uint8)
```

In [62]:
```
hero_red[:,:,2]
```

Out[62]:
```
array([[239, 239, 239, ..., 235, 237, 238],
       [239, 239, 239, ..., 236, 236, 237],
       [239, 239, 239, ..., 236, 236, 235],
       ...,
       [210, 210, 210, ...,  29,  28,  27],
       [210, 210, 210, ...,  30,  29,  29],
       [210, 210, 210, ...,  31,  30,  30]], dtype=uint8)
```

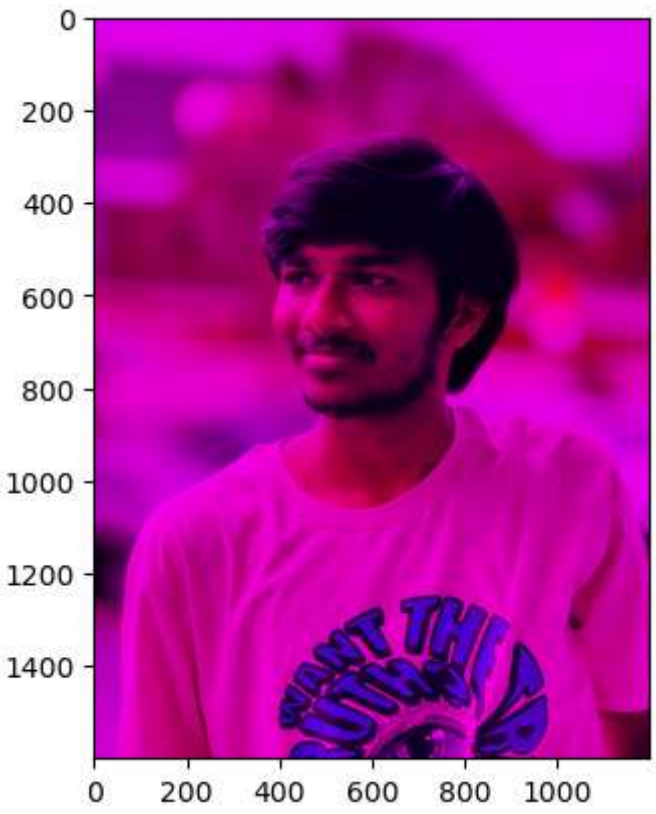
In [64]:
```
hero_red[:,:,1]=0
```

In [66]:
```
hero_red[:,:,1]
```

Out[66]:
```
array([[0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0],
       ...,
       [0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0]], dtype=uint8)
```

In [70]:
```
plt.imshow(hero_red)
```

Out[70]:
```
<matplotlib.image.AxesImage at 0x21fcb559f70>
```



In [72]:
```
hero_red[:,:,2]
```

Out[72]:
```
array([[239, 239, 239, ..., 235, 237, 238],
       [239, 239, 239, ..., 236, 236, 237],
       [239, 239, 239, ..., 236, 236, 235],
       ...,
       [210, 210, 210, ...,  29,  28,  27],
       [210, 210, 210, ...,  30,  29,  29],
       [210, 210, 210, ...,  31,  30,  30]], dtype=uint8)
```

In [74]:
```
hero_arr
```

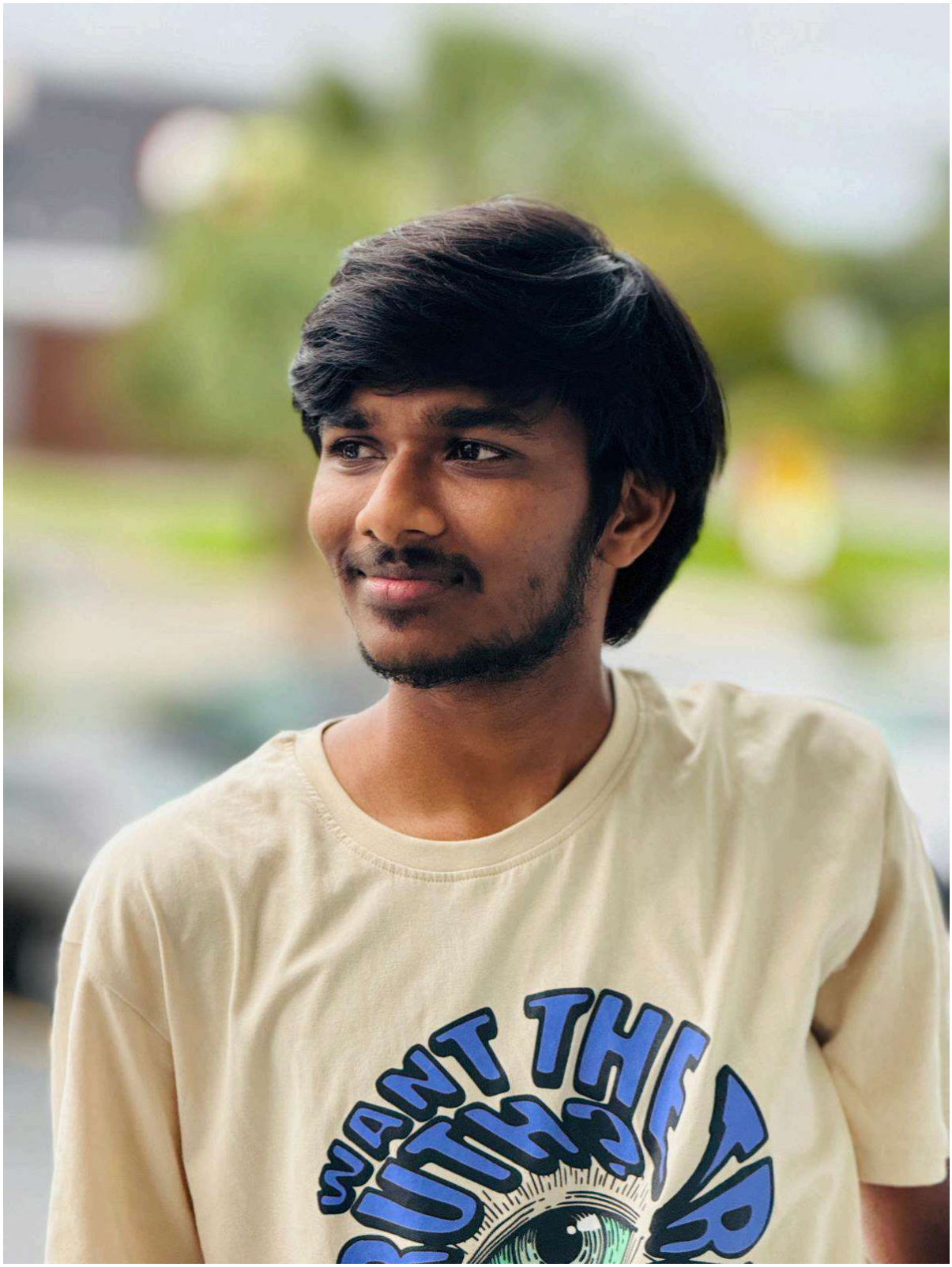
Out[74]:
```
array([[[224, 228, 239],
        [224, 228, 239],
        [224, 228, 239],
        ...,
        [220, 227, 235],
        [222, 229, 237],
        [223, 230, 238]],

       [[224, 228, 239],
        [224, 228, 239],
        [224, 228, 239],
        ...,
        [221, 228, 236],
        [221, 228, 236],
        [222, 229, 237]],

       [[224, 228, 239],
        [224, 228, 239],
        [224, 228, 239],
        ...,
        [221, 228, 236],
        [221, 228, 236],
        [220, 227, 235]],

       ...,

       [[207, 208, 210],
        [207, 208, 210],
        [207, 208, 210],
        ...,
        [ 45,  29,  29],
        [ 44,  28,  28],
        [ 43,  27,  27]],

       [[207, 208, 210],
        [207, 208, 210],
        [207, 208, 210],
        ...,
        [ 46,  30,  30],
        [ 45,  29,  29],
        [ 45,  29,  29]],

       [[207, 208, 210],
        [207, 208, 210],
        [207, 208, 210],
        ...,
        [ 47,  31,  31],
        [ 46,  30,  30],
        [ 46,  30,  30]]], dtype=uint8)
```

In [78]:
```
hero_red
```

Out[78]:
```
array([[[224,   0, 239],
        [224,   0, 239],
        [224,   0, 239],
        ...,
        [220,   0, 235],
        [222,   0, 237],
        [223,   0, 238]],

       [[224,   0, 239],
        [224,   0, 239],
        [224,   0, 239],
        ...,
        [221,   0, 236],
        [221,   0, 236],
        [222,   0, 237]],

       [[224,   0, 239],
        [224,   0, 239],
        [224,   0, 239],
        ...,
        [221,   0, 236],
        [221,   0, 236],
        [220,   0, 235]],

       ...,

       [[207,   0, 210],
        [207,   0, 210],
        [207,   0, 210],
        ...,
        [ 45,   0,  29],
        [ 44,   0,  28],
        [ 43,   0,  27]],

       [[207,   0, 210],
        [207,   0, 210],
        [207,   0, 210],
        ...,
        [ 46,   0,  30],
        [ 45,   0,  29],
        [ 45,   0,  29]],

       [[207,   0, 210],
        [207,   0, 210],
        [207,   0, 210],
        ...,
        [ 47,   0,  31],
        [ 46,   0,  30],
        [ 46,   0,  30]]], dtype=uint8)
```

In [80]:
```
hero_img
```

Out[80]:



In [82]:
```
arr1=np.asarray(hero_img)
```

In [86]:
```
type(arr1)
```

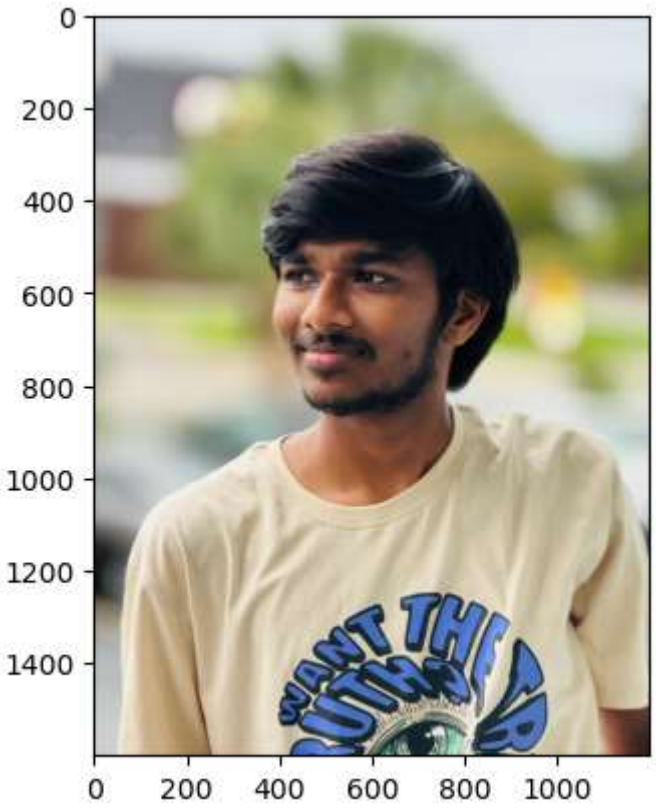
Out[86]:
```
numpy.ndarray
```

In [88]:
```
arr1.shape
```

Out[88]: (1600, 1200, 3)

In [90]:
```
plt.imshow(arr1)
```

Out[90]: <matplotlib.image.AxesImage at 0x21fd1fafb00>



In [92]:
```
hero_img1=arr1.copy()
```

In [96]:
```
hero_img1[:,:,0]=0
```

In [98]:
```
plt.imshow(hero_img1)
```

Out[98]: <matplotlib.image.AxesImage at 0x21fd1e90d40>

In [100…
```
hero_img1[:,:,1]
```

Out[100…
```
array([[228, 228, 228, ..., 227, 229, 230],
       [228, 228, 228, ..., 228, 228, 229],
       [228, 228, 228, ..., 228, 228, 227],
       ...,
       [208, 208, 208, ...,  29,  28,  27],
       [208, 208, 208, ...,  30,  29,  29],
       [208, 208, 208, ...,  31,  30,  30]], dtype=uint8)
```

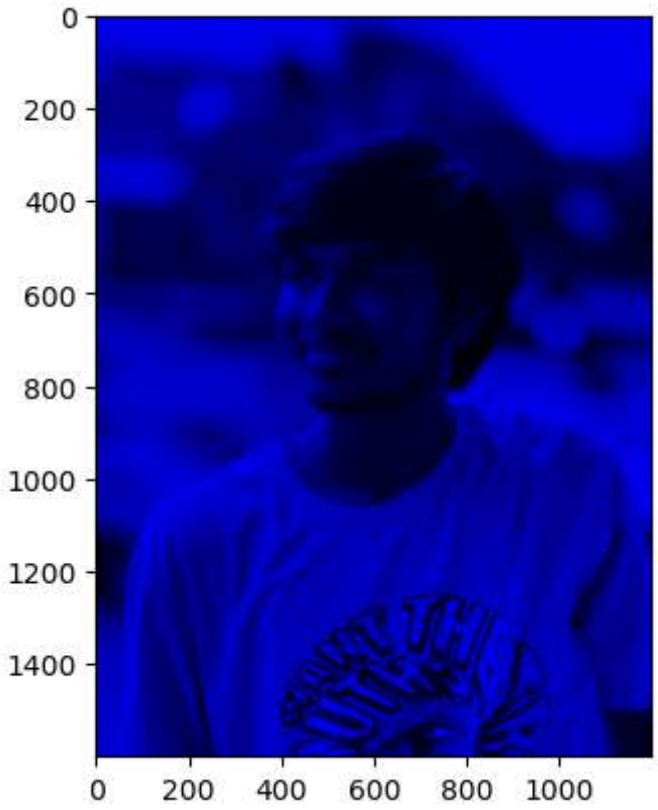
In [102…
```
plt.imshow(hero_img1)
```

Out[102…
```
<matplotlib.image.AxesImage at 0x21fd2d28140>
```

In [104…
```
hero_img1[:,:,1]=0
```

In [106…
```
plt.imshow(hero_img1)
```

Out[106… `<matplotlib.image.AxesImage at 0x21fd43c3b00>`



In [ ]: