

```
In [1]: import numpy as np  
import matplotlib.pyplot as plt  
from PIL import Image
```

```
In [23]: img2=Image.open(r'C:\Users\nandh\OneDrive\Desktop\elephant image.jpeg')
```

```
In [25]: img2
```

```
Out[25]:
```



```
In [29]: type(img)
```

```
Out[29]: PIL.JpegImagePlugin.JpegImageFile
```

```
In [39]: arr2=np.asarray(img2)
```

```
In [41]: arr2
```

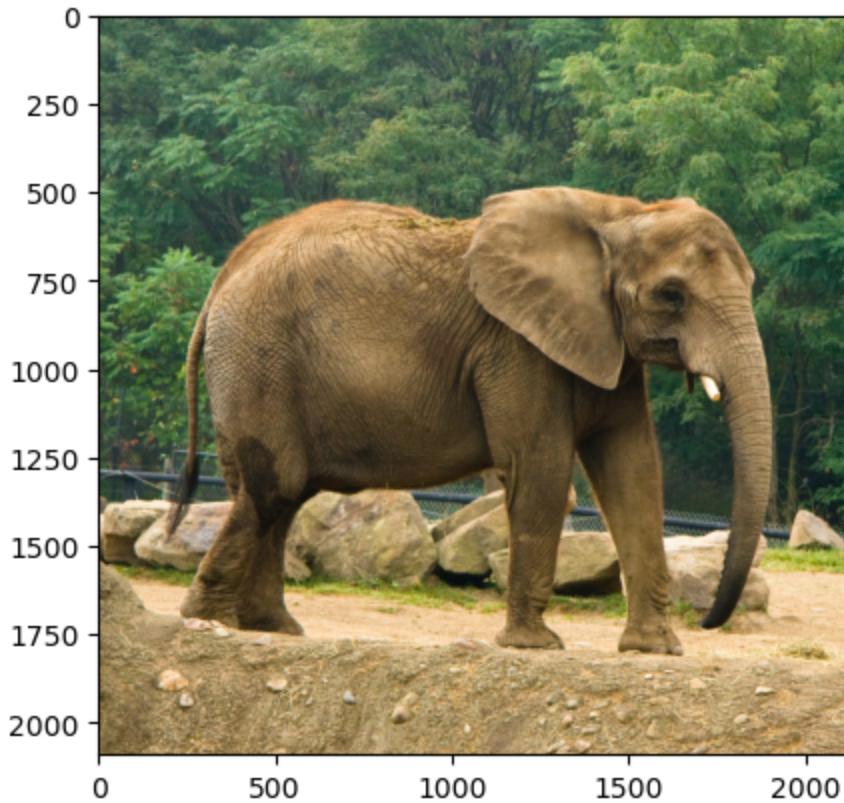
```
Out[41]: array([[[ 61,  88,  79],  
   [ 63,  91,  79],  
   [ 64,  92,  78],  
   ...,  
   [107, 142,  52],  
   [104, 137,  48],  
   [111, 146,  56]],  
  
   [[ 59,  87,  75],  
   [ 61,  89,  77],  
   [ 65,  93,  79],  
   ...,  
   [110, 148,  61],  
   [108, 144,  57],  
   [117, 151,  65]],  
  
   [[ 61,  89,  77],  
   [ 58,  86,  74],  
   [ 62,  90,  78],  
   ...,  
   [115, 154,  71],  
   [121, 158,  78],  
   [118, 152,  68]],  
  
   ...,  
  
   [[132, 105,  62],  
   [131, 107,  63],  
   [121, 103,  55],  
   ...,  
   [217, 162,  98],  
   [215, 156,  90],  
   [214, 154,  91]],  
  
   [[142, 115,  72],  
   [145, 119,  82],  
   [139, 119,  82],  
   ...,  
   [214, 165,  89],  
   [218, 164,  94],  
   [217, 159,  85]],  
  
   [[145, 118,  75],  
   [150, 124,  87],  
   [145, 125,  88],  
   ...,  
   [229, 188, 124],  
   [228, 186, 136],  
   [224, 176, 110]]], dtype=uint8)
```

```
In [43]: type(arr2)
```

```
Out[43]: numpy.ndarray
```

```
In [45]: plt.imshow(arr2)
```

```
Out[45]: <matplotlib.image.AxesImage at 0x1dbcf330e30>
```



```
In [47]: arr2.shape
```

```
Out[47]: (2091, 2121, 3)
```

```
In [49]: arr3=arr2.copy()
```

```
In [51]: arr3
```

```
Out[51]: array([[[ 61,  88,  79],
   [ 63,  91,  79],
   [ 64,  92,  78],
   ...,
   [107, 142,  52],
   [104, 137,  48],
   [111, 146,  56]],

   [[ 59,  87,  75],
   [ 61,  89,  77],
   [ 65,  93,  79],
   ...,
   [110, 148,  61],
   [108, 144,  57],
   [117, 151,  65]],

   [[ 61,  89,  77],
   [ 58,  86,  74],
   [ 62,  90,  78],
   ...,
   [115, 154,  71],
   [121, 158,  78],
   [118, 152,  68]],

   ...,

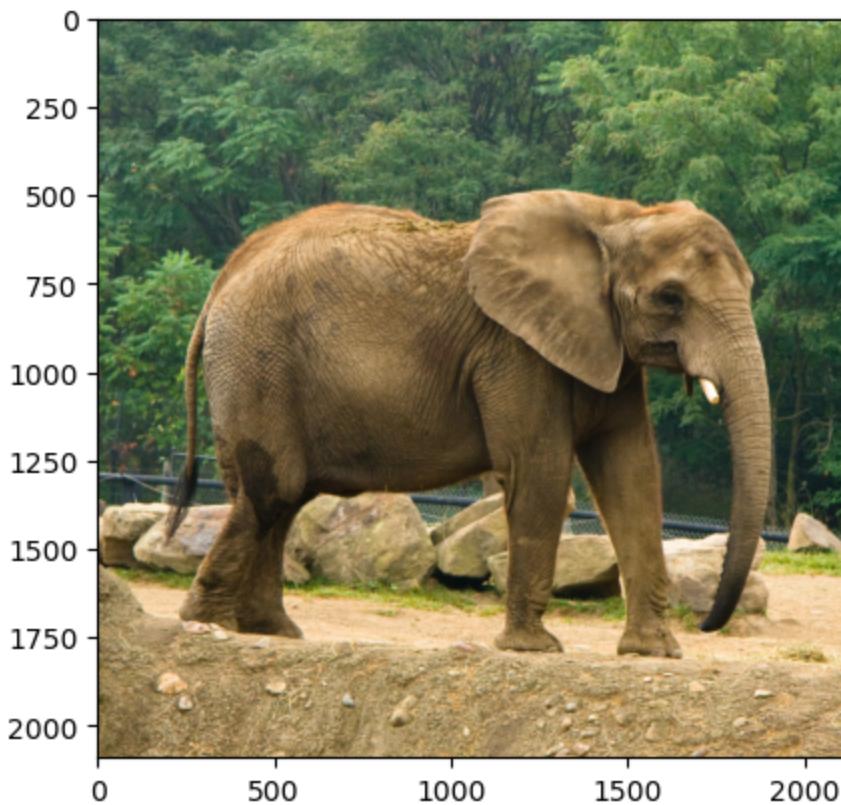
   [[132, 105,  62],
   [131, 107,  63],
   [121, 103,  55],
   ...,
   [217, 162,  98],
   [215, 156,  90],
   [214, 154,  91]],

   [[142, 115,  72],
   [145, 119,  82],
   [139, 119,  82],
   ...,
   [214, 165,  89],
   [218, 164,  94],
   [217, 159,  85]],

   [[145, 118,  75],
   [150, 124,  87],
   [145, 125,  88],
   ...,
   [229, 188, 124],
   [228, 186, 136],
   [224, 176, 110]]], dtype=uint8)
```

```
In [55]: plt.imshow(arr3)
```

```
Out[55]: <matplotlib.image.AxesImage at 0x1dbcfdfe750>
```



```
In [57]: arr3.shape
```

```
Out[57]: (2091, 2121, 3)
```

```
In [59]: arr2==arr3
```

```
Out[59]: 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]],

   ...,

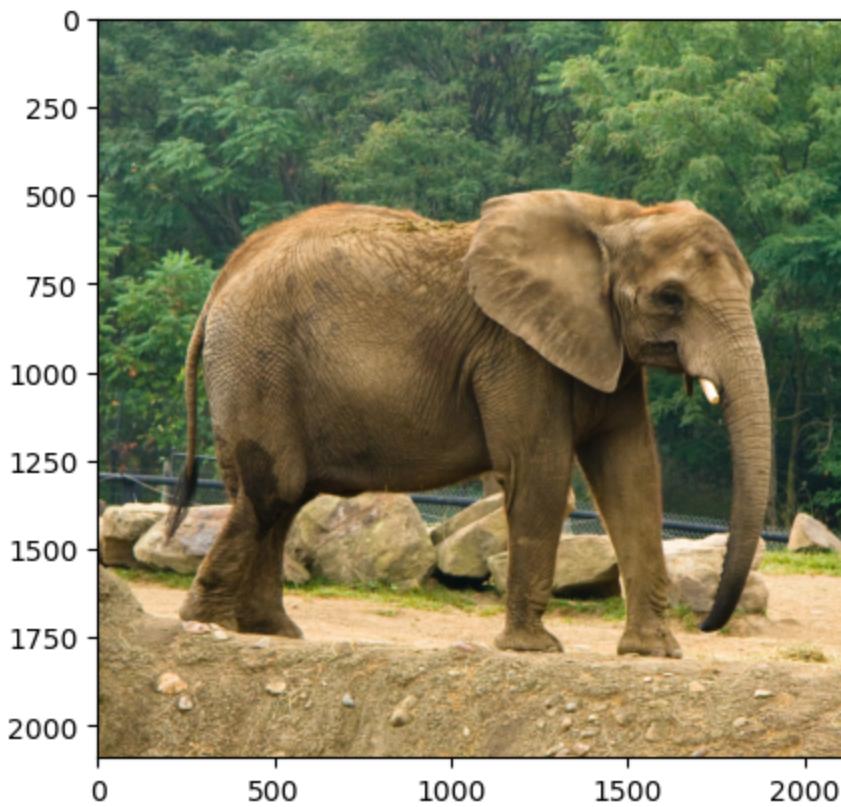
   [[ True,  True,  True],
   [ True,  True,  True],
   [ True,  True,  True],
   ...,
   [ True,  True,  True],
   [ True,  True,  True],
   [ True,  True,  True]],

   [[ 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]]])
```

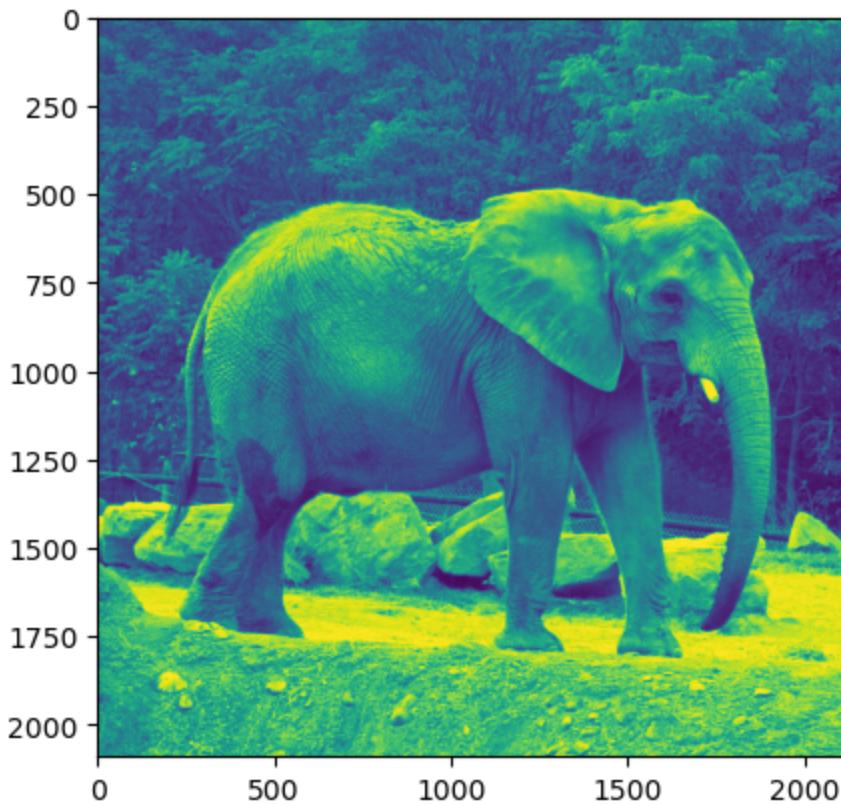
```
In [61]: plt.imshow(arr3)
```

```
Out[61]: <matplotlib.image.AxesImage at 0x1dbcf9eddf0>
```



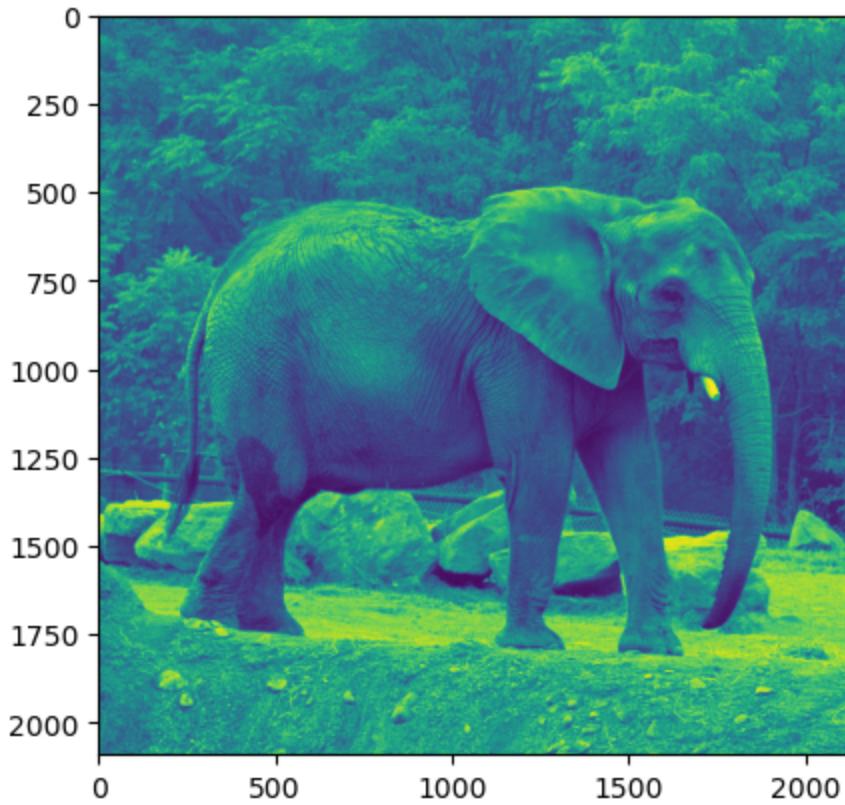
```
In [63]: plt.imshow(arr3[:, :, 0])
```

```
Out[63]: <matplotlib.image.AxesImage at 0x1dbd012c080>
```



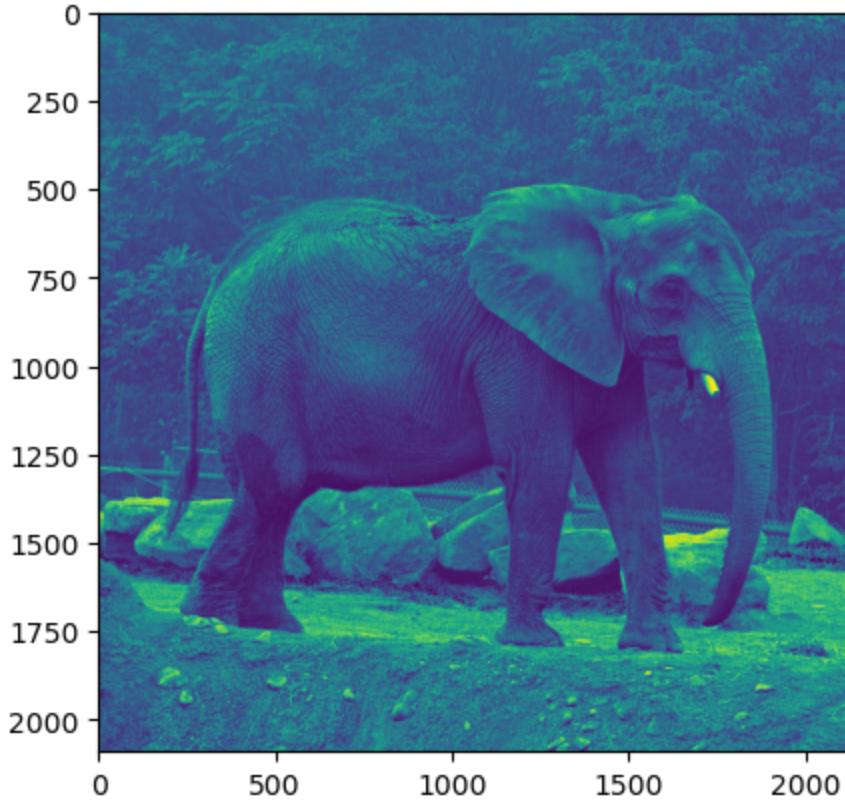
```
In [65]: plt.imshow(arr3[:, :, 1])
```

```
Out[65]: <matplotlib.image.AxesImage at 0x1dbcfa9fe90>
```



```
In [75]: plt.imshow(arr3[:, :, 2])
```

```
Out[75]: <matplotlib.image.AxesImage at 0x1dbcff73a70>
```

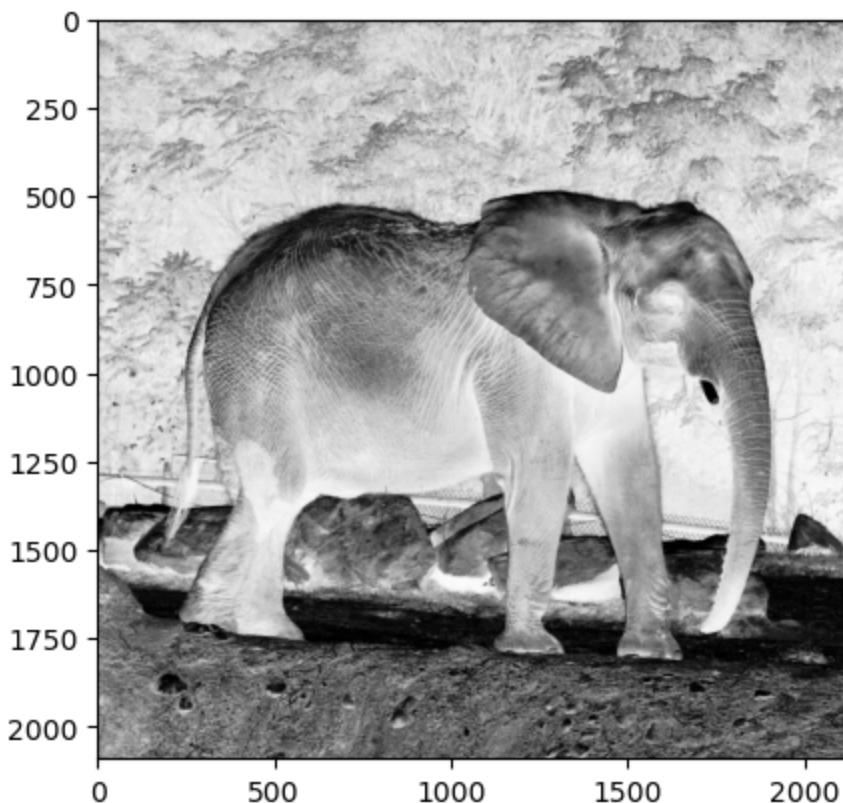


```
In [77]: (arr3[:, :, 2])
```

```
Out[77]: array([[ 79,  79,  78, ...,  52,  48,  56],
   [ 75,  77,  79, ...,  61,  57,  65],
   [ 77,  74,  78, ...,  71,  78,  68],
   ...,
   [ 62,  63,  55, ...,  98,  90,  91],
   [ 72,  82,  82, ...,  89,  94,  85],
   [ 75,  87,  88, ..., 124, 136, 110]], dtype=uint8)
```

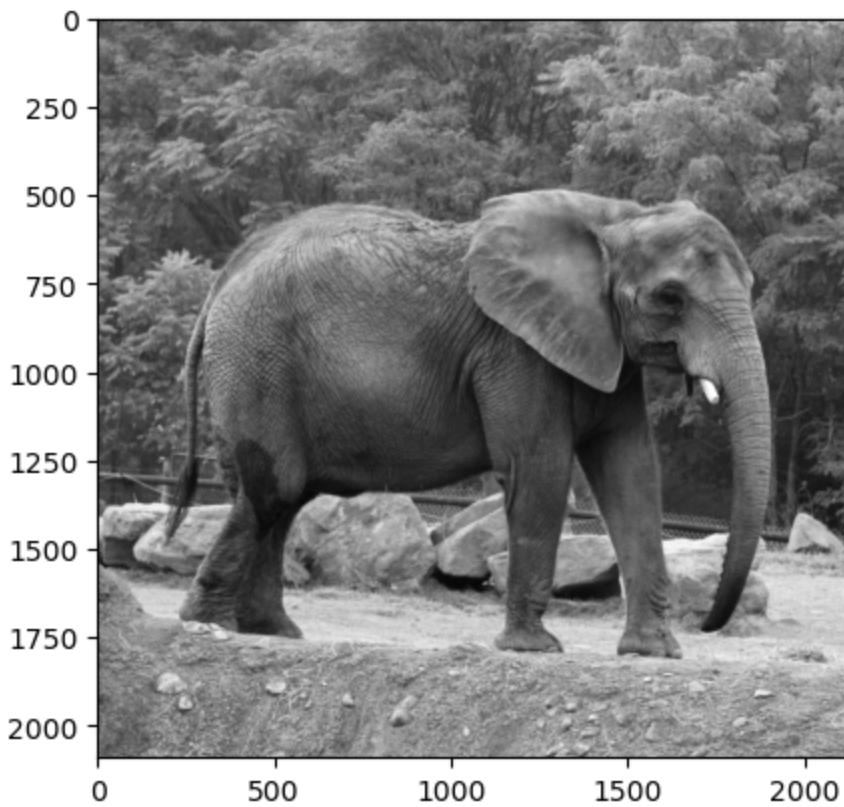
```
In [81]: plt.imshow(arr3[:, :, 0], cmap='Greys')
```

```
Out[81]: <matplotlib.image.AxesImage at 0x1dbcffbd60>
```



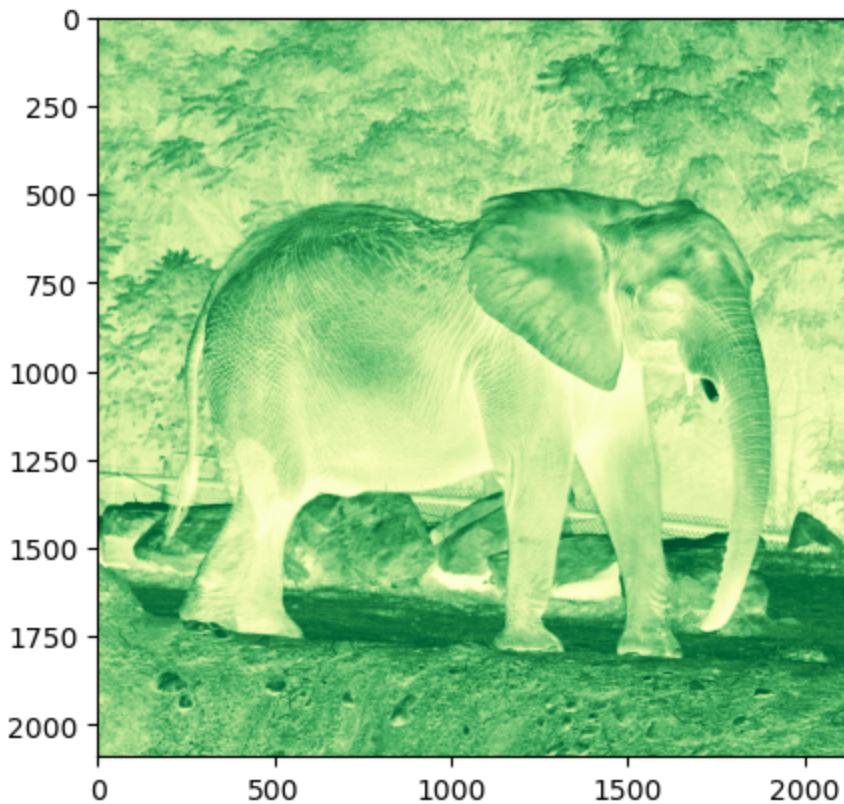
```
In [85]: plt.imshow(arr3[:, :, 1], cmap='grey')
```

```
Out[85]: <matplotlib.image.AxesImage at 0x1dbda5ef080>
```



```
In [94]: plt.imshow(arr3[:, :, 1], cmap='YlGn')
```

```
Out[94]: <matplotlib.image.AxesImage at 0x1dbda596870>
```



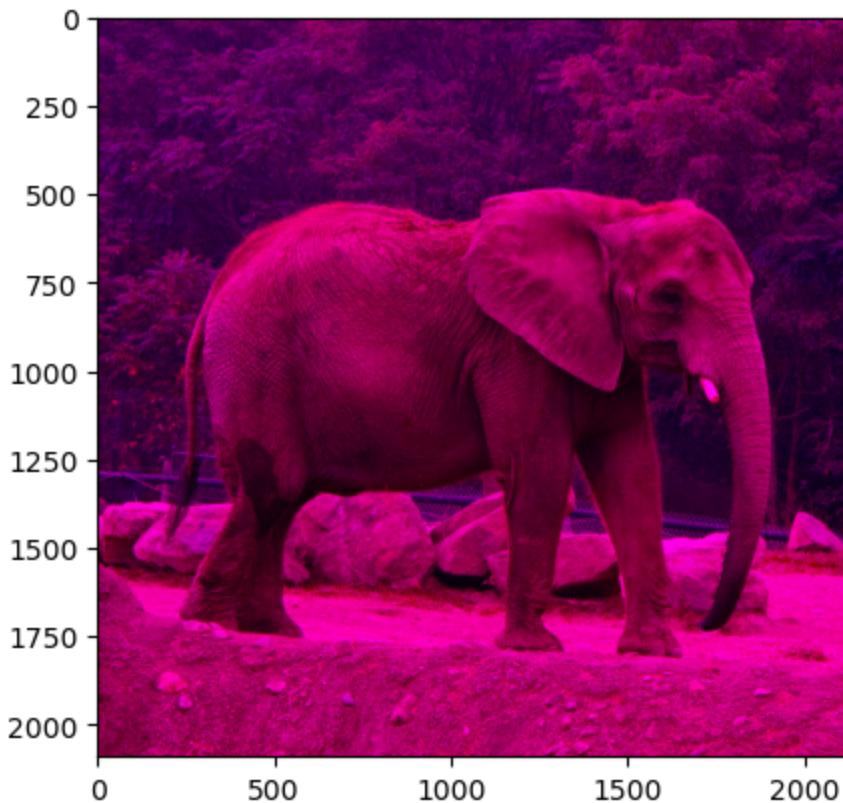
```
In [96]: arr3[:, :, 0]
```

```
Out[96]: array([[ 61,  63,  64, ..., 107, 104, 111],
   [ 59,  61,  65, ..., 110, 108, 117],
   [ 61,  58,  62, ..., 115, 121, 118],
   ...,
   [132, 131, 121, ..., 217, 215, 214],
   [142, 145, 139, ..., 214, 218, 217],
   [145, 150, 145, ..., 229, 228, 224]], dtype=uint8)
```

```
In [100... arr3[:, :, 1]=0
```

```
In [102... plt.imshow(arr3)
```

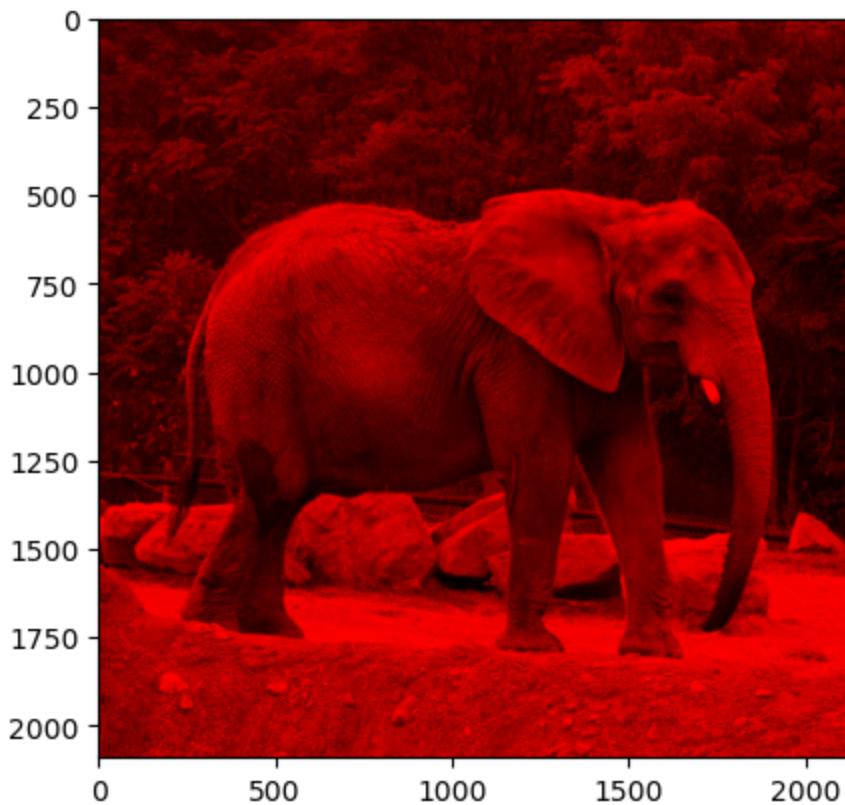
```
Out[102... <matplotlib.image.AxesImage at 0x1dbdb10ef30>
```



```
In [104... arr3[:, :, 2]=0
```

```
In [106... plt.imshow(arr3)
```

```
Out[106... <matplotlib.image.AxesImage at 0x1dbdaf47ad0>
```



In []: