

```
In [14]: import numpy as np
```

```
In [15]: ones_arr = np.ones((3,3))
```

```
In [16]: ones_arr
```

```
Out[16]: array([[1., 1., 1.],  
                 [1., 1., 1.],  
                 [1., 1., 1.]])
```

```
In [17]: ones_arr = np.ones((5,5),dtype=int)
```

```
In [18]: ones_arr
```

```
Out[18]: array([[1, 1, 1, 1, 1],  
                 [1, 1, 1, 1, 1],  
                 [1, 1, 1, 1, 1],  
                 [1, 1, 1, 1, 1],  
                 [1, 1, 1, 1, 1]])
```

```
In [19]: ones_arr*255
```

```
Out[19]: array([[255, 255, 255, 255, 255],  
                 [255, 255, 255, 255, 255],  
                 [255, 255, 255, 255, 255],  
                 [255, 255, 255, 255, 255],  
                 [255, 255, 255, 255, 255]])
```

```
In [20]: ones_arr
```

```
Out[20]: array([[1, 1, 1, 1, 1],  
                 [1, 1, 1, 1, 1],  
                 [1, 1, 1, 1, 1],  
                 [1, 1, 1, 1, 1],  
                 [1, 1, 1, 1, 1]])
```

```
In [21]: import matplotlib.pyplot as plt
```

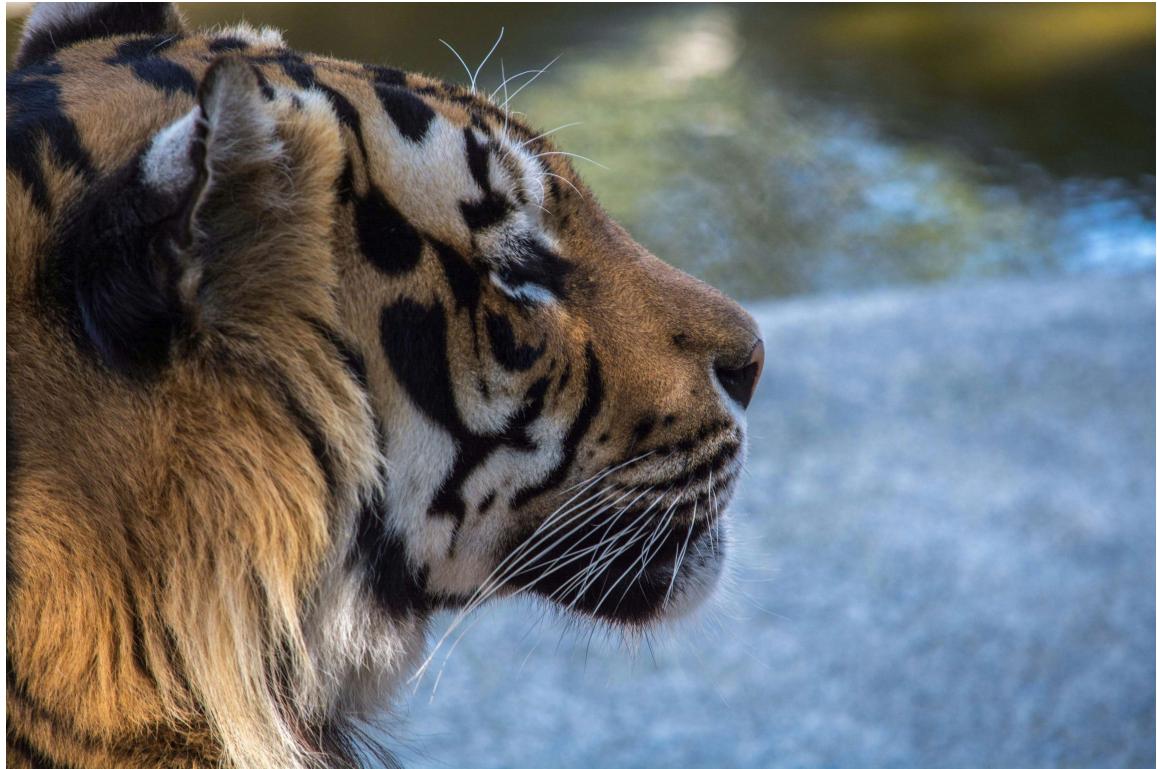
```
In [22]: %matplotlib inline
```

```
In [30]: from PIL import Image # python imaging library
```

```
In [34]: tiger_img = Image.open(r'C:\Users\hp\Downloads\tiger-christian-8Myh76_3M2U-1
```

In [35]: tiger_img

Out[35]:



In [36]: type(tiger_img)

Out[36]: PIL.JpegImagePlugin.JpegImageFile

```
In [39]: tiger_arr = np.asarray(tiger_img)
tiger_arr
```

```
Out[39]: array([[[224, 207, 191],
   [224, 207, 191],
   [224, 207, 191],
   ...,
   [139, 121, 59],
   [139, 121, 59],
   [139, 121, 59]],

  [[[222, 205, 189],
   [222, 205, 189],
   [222, 205, 189],
   ...,
   [137, 119, 57],
   [137, 119, 57],
   [136, 118, 56]],

  [[[220, 203, 187],
   [220, 203, 187],
   [220, 203, 187],
   ...,
   [134, 116, 54],
   [133, 115, 53],
   [132, 114, 52]],

  ...,

  [[[ 45,  31,  20],
   [ 47,  33,  20],
   [ 49,  36,  20],
   ...,
   [ 84, 114, 150],
   [ 84, 114, 150],
   [ 84, 114, 150]],

  [[[ 47,  33,  22],
   [ 51,  37,  24],
   [ 55,  42,  26],
   ...,
   [ 84, 114, 150],
   [ 84, 114, 150],
   [ 84, 114, 150]],

  [[[ 50,  36,  25],
   [ 55,  41,  30],
   [ 61,  48,  32],
   ...,
   [ 84, 114, 150],
   [ 84, 114, 150],
   [ 84, 114, 150]]], dtype=uint8)
```

```
In [41]: type(tiger_arr)
```

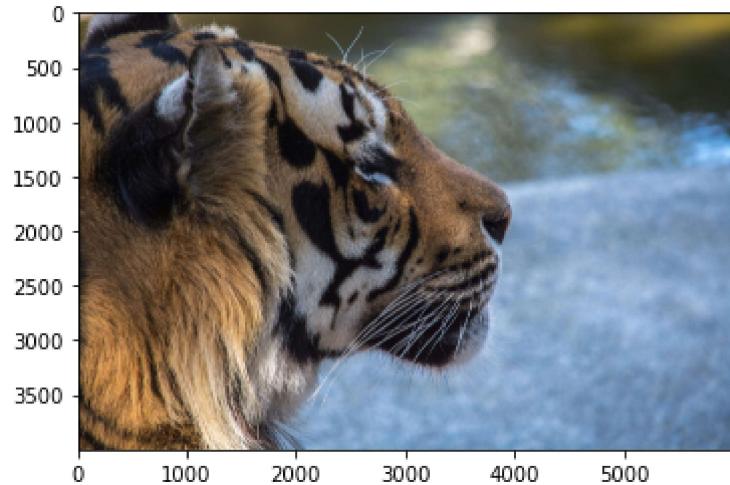
```
Out[41]: numpy.ndarray
```

```
In [42]: tiger_arr.shape
```

```
Out[42]: (4000, 6000, 3)
```

```
In [43]: plt.imshow(tiger_arr)
```

```
Out[43]: <matplotlib.image.AxesImage at 0x1f4877e1610>
```



```
In [44]: tiger_red = horse_arr.copy()
```

```
In [45]: tiger_red
```

```
Out[45]: array([[[224, 207, 191],
   [224, 207, 191],
   [224, 207, 191],
   ...,
   [139, 121, 59],
   [139, 121, 59],
   [139, 121, 59]],

  [[[222, 205, 189],
   [222, 205, 189],
   [222, 205, 189],
   ...,
   [137, 119, 57],
   [137, 119, 57],
   [136, 118, 56]],

  [[[220, 203, 187],
   [220, 203, 187],
   [220, 203, 187],
   ...,
   [134, 116, 54],
   [133, 115, 53],
   [132, 114, 52]],

  ...,

  [[[ 45,  31,  20],
   [ 47,  33,  20],
   [ 49,  36,  20],
   ...,
   [ 84, 114, 150],
   [ 84, 114, 150],
   [ 84, 114, 150]],

  [[[ 47,  33,  22],
   [ 51,  37,  24],
   [ 55,  42,  26],
   ...,
   [ 84, 114, 150],
   [ 84, 114, 150],
   [ 84, 114, 150]],

  [[[ 50,  36,  25],
   [ 55,  41,  30],
   [ 61,  48,  32],
   ...,
   [ 84, 114, 150],
   [ 84, 114, 150],
   [ 84, 114, 150]]], dtype=uint8)
```

```
In [46]: tiger_arr == tiger_red
```

```
Out[46]: 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]],

   ...,

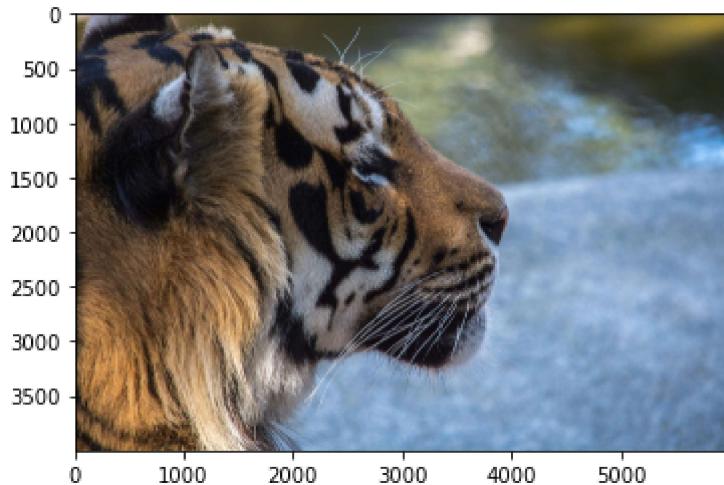
   [[ True,  True,  True],
   [ True,  True,  True],
   [ True,  True,  True],
   ...,
   [ True,  True,  True],
   [ True,  True,  True],
   [ True,  True,  True]],

   [[ 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 [47]: plt.imshow(tiger_red)
```

```
Out[47]: <matplotlib.image.AxesImage at 0x1f488007a00>
```



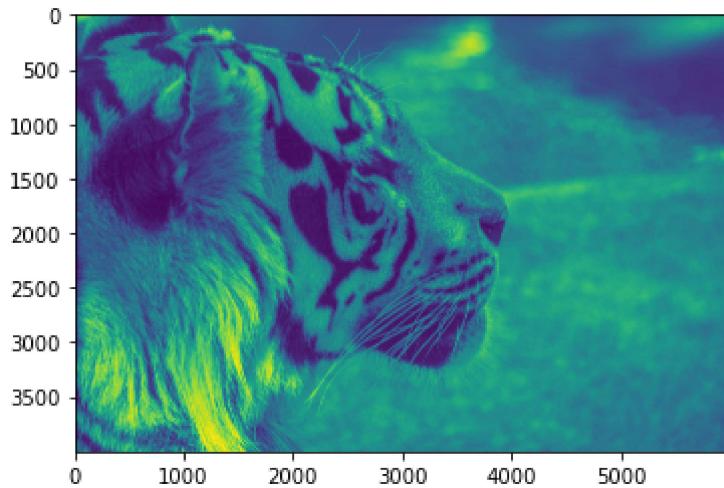
```
In [48]: tiger_red.shape
```

```
Out[48]: (4000, 6000, 3)
```

```
In [50]: #rgb
```

```
plt.imshow(tiger_red[:, :, 0])
```

```
Out[50]: <matplotlib.image.AxesImage at 0x1f48753fb00>
```

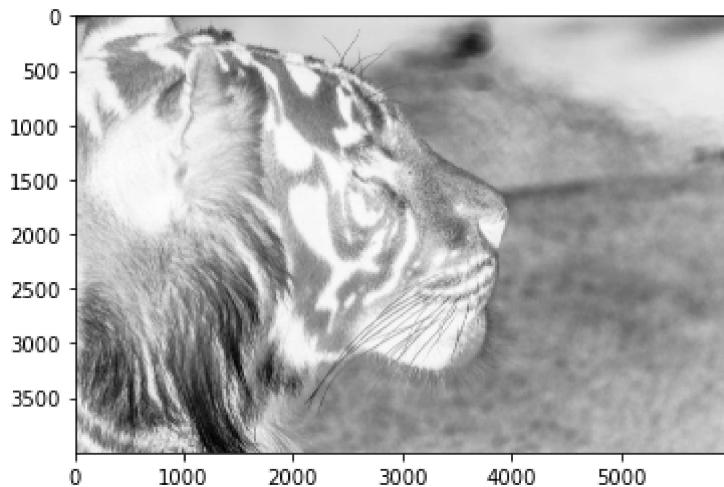


```
In [51]: tiger_red[:, :, 0]
```

```
Out[51]: array([[224, 224, 224, ..., 139, 139, 139],  
                 [222, 222, 222, ..., 137, 137, 136],  
                 [220, 220, 220, ..., 134, 133, 132],  
                 ...,  
                 [ 45,  47,  49, ...,  84,  84,  84],  
                 [ 47,  51,  55, ...,  84,  84,  84],  
                 [ 50,  55,  61, ...,  84,  84,  84]], dtype=uint8)
```

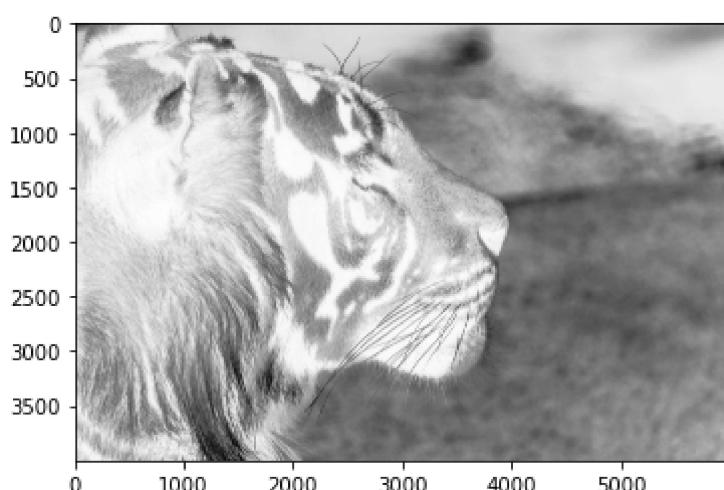
```
In [52]: plt.imshow(tiger_red[:, :, 0], cmap='Greys')
```

```
Out[52]: <matplotlib.image.AxesImage at 0x1f4879e07f0>
```



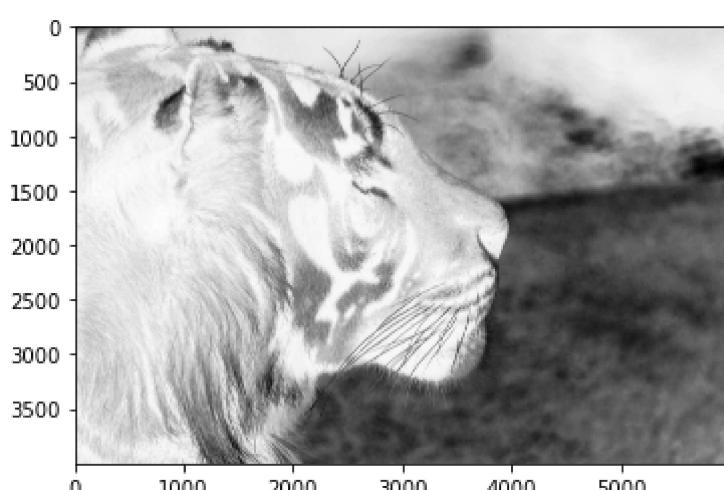
```
In [53]: plt.imshow(tiger_red[:, :, 1], cmap='Greys')
```

```
Out[53]: <matplotlib.image.AxesImage at 0x1f487989ee0>
```



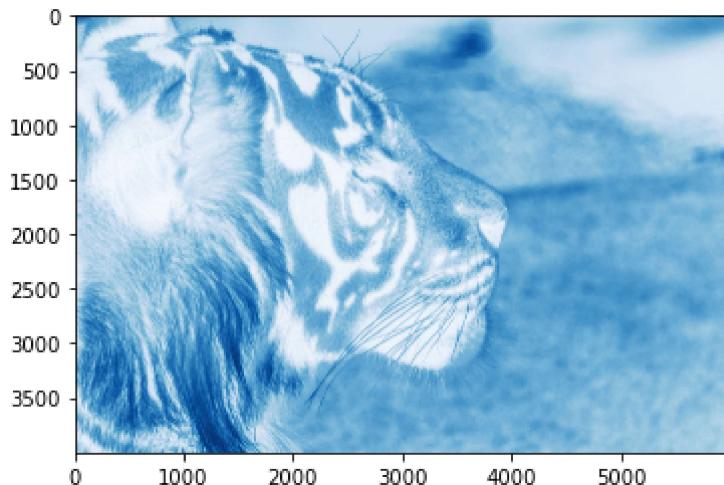
```
In [54]: plt.imshow(tiger_red[:, :, 2], cmap='Greys')
```

```
Out[54]: <matplotlib.image.AxesImage at 0x1f4876ecf40>
```



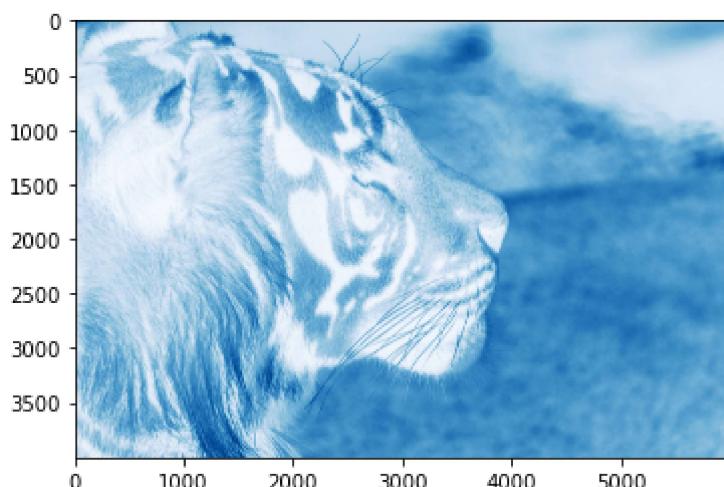
```
In [55]: plt.imshow(tiger_red[:, :, 0], cmap='Blues')
```

```
Out[55]: <matplotlib.image.AxesImage at 0x1f4880caf0>
```



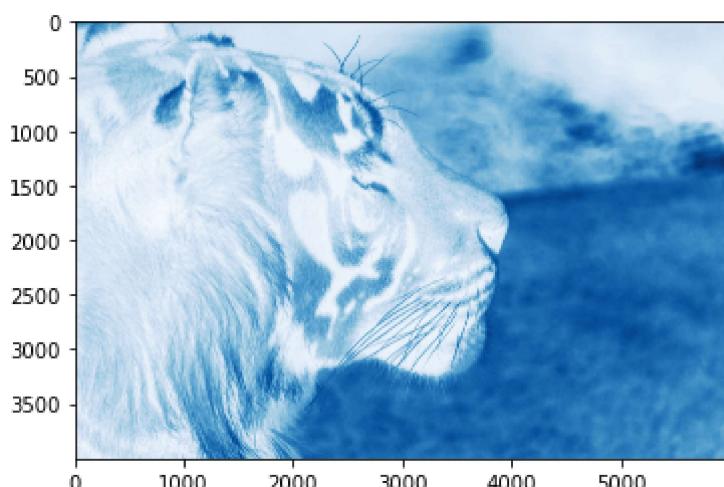
```
In [56]: plt.imshow(tiger_red[:, :, 1], cmap='Blues')
```

```
Out[56]: <matplotlib.image.AxesImage at 0x1f487685040>
```



```
In [57]: plt.imshow(tiger_red[:, :, 2], cmap='Blues')
```

```
Out[57]: <matplotlib.image.AxesImage at 0x1f487502100>
```



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

```
Out[58]: array([[224, 224, 224, ..., 139, 139, 139],  
                 [222, 222, 222, ..., 137, 137, 136],  
                 [220, 220, 220, ..., 134, 133, 132],  
                 ...,  
                 [ 45,  47,  49, ...,  84,  84,  84],  
                 [ 47,  51,  55, ...,  84,  84,  84],  
                 [ 50,  55,  61, ...,  84,  84,  84]], dtype=uint8)
```

```
In [59]: tiger_red[:, :, 1]
```

```
Out[59]: array([[207, 207, 207, ..., 121, 121, 121],  
                 [205, 205, 205, ..., 119, 119, 118],  
                 [203, 203, 203, ..., 116, 115, 114],  
                 ...,  
                 [ 31,  33,  36, ..., 114, 114, 114],  
                 [ 33,  37,  42, ..., 114, 114, 114],  
                 [ 36,  41,  48, ..., 114, 114, 114]], dtype=uint8)
```

```
In [60]: tiger_red[:, :, 2]
```

```
Out[60]: array([[191, 191, 191, ...,  59,  59,  59],  
                 [189, 189, 189, ...,  57,  57,  56],  
                 [187, 187, 187, ...,  54,  53,  52],  
                 ...,  
                 [ 20,  20,  20, ..., 150, 150, 150],  
                 [ 22,  24,  26, ..., 150, 150, 150],  
                 [ 25,  30,  32, ..., 150, 150, 150]], dtype=uint8)
```

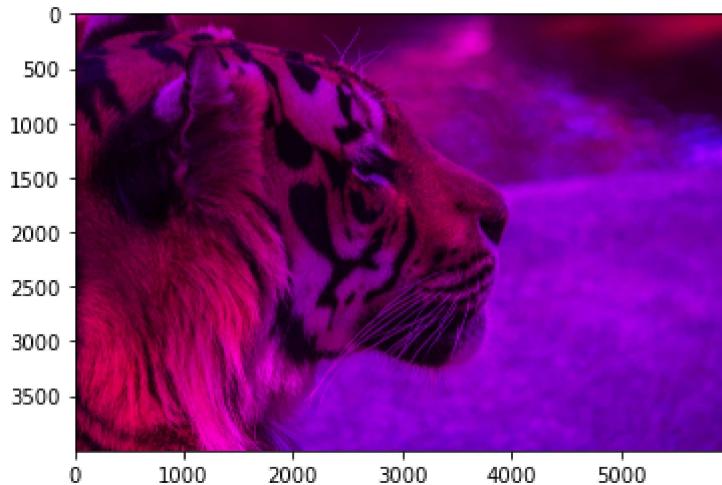
```
In [61]: tiger_red[:, :, 1] = 0
```

```
In [62]: tiger_red[:, :, 1]
```

```
Out[62]: 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 [63]: plt.imshow(tiger_red)
```

```
Out[63]: <matplotlib.image.AxesImage at 0x1f4874d85e0>
```



```
In [65]: tiger_red[:, :, 2]
```

```
Out[65]: 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 [66]: tiger_red[:, :, 2] = 0
```

```
In [67]: tiger_red[:, :, 2]
```

```
Out[67]: 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 [68]: plt.imshow(tiger_red)
```

```
Out[68]: <matplotlib.image.AxesImage at 0x1f487b1fc40>
```



```
In [69]: tiger_arr
```

```
Out[69]: array([[[224, 207, 191],
   [224, 207, 191],
   [224, 207, 191],
   ...,
   [139, 121, 59],
   [139, 121, 59],
   [139, 121, 59]],

  [[222, 205, 189],
   [222, 205, 189],
   [222, 205, 189],
   ...,
   [137, 119, 57],
   [137, 119, 57],
   [136, 118, 56]],

  [[220, 203, 187],
   [220, 203, 187],
   [220, 203, 187],
   ...,
   [134, 116, 54],
   [133, 115, 53],
   [132, 114, 52]],

  ...,

  [[ 45,  31,  20],
   [ 47,  33,  20],
   [ 49,  36,  20],
   ...,
   [ 84, 114, 150],
   [ 84, 114, 150],
   [ 84, 114, 150]],

  [[ 47,  33,  22],
   [ 51,  37,  24],
   [ 55,  42,  26],
   ...,
   [ 84, 114, 150],
   [ 84, 114, 150],
   [ 84, 114, 150]],

  [[ 50,  36,  25],
   [ 55,  41,  30],
   [ 61,  48,  32],
   ...,
   [ 84, 114, 150],
   [ 84, 114, 150],
   [ 84, 114, 150]]], dtype=uint8)
```

```
In [70]: tiger_red
```

```
Out[70]: array([[[224,  0,  0],
   [224,  0,  0],
   [224,  0,  0],
   ...,
   [139,  0,  0],
   [139,  0,  0],
   [139,  0,  0]],

   [[222,  0,  0],
   [222,  0,  0],
   [222,  0,  0],
   ...,
   [137,  0,  0],
   [137,  0,  0],
   [136,  0,  0]],

   [[220,  0,  0],
   [220,  0,  0],
   [220,  0,  0],
   ...,
   [134,  0,  0],
   [133,  0,  0],
   [132,  0,  0]],

   ...,

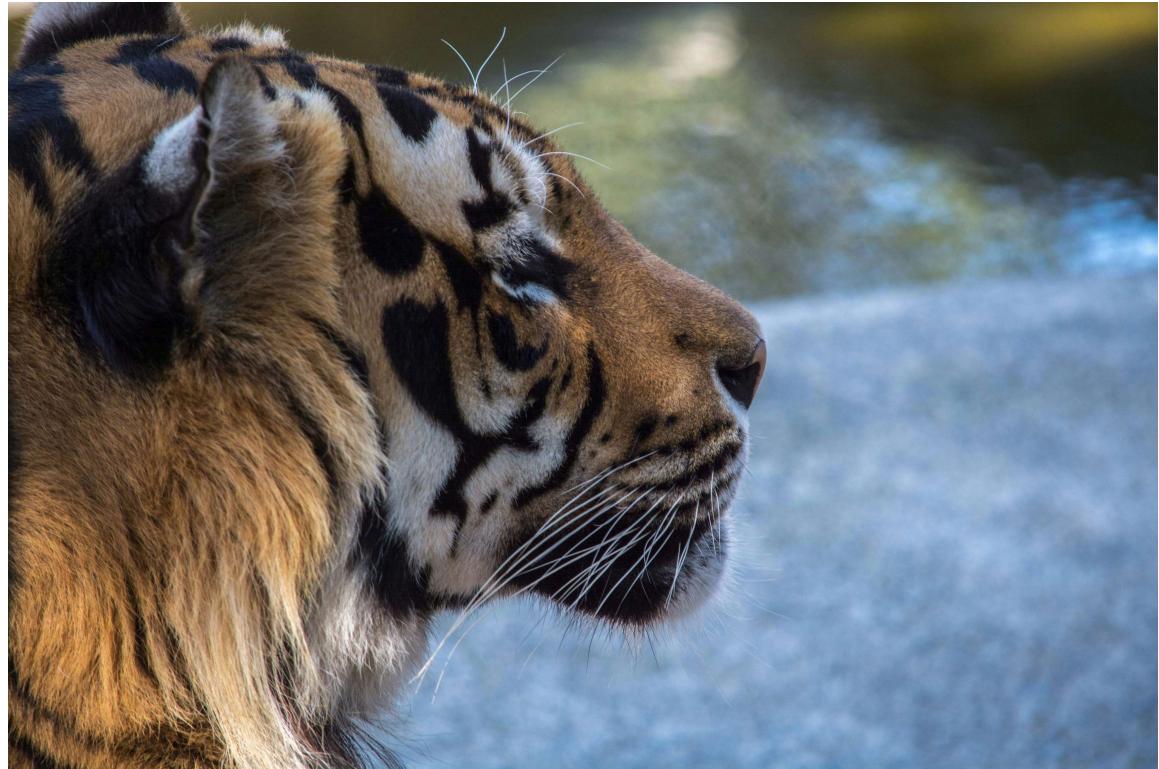
   [[ 45,  0,  0],
   [ 47,  0,  0],
   [ 49,  0,  0],
   ...,
   [ 84,  0,  0],
   [ 84,  0,  0],
   [ 84,  0,  0]],

   [[ 47,  0,  0],
   [ 51,  0,  0],
   [ 55,  0,  0],
   ...,
   [ 84,  0,  0],
   [ 84,  0,  0],
   [ 84,  0,  0]],

   [[ 50,  0,  0],
   [ 55,  0,  0],
   [ 61,  0,  0],
   ...,
   [ 84,  0,  0],
   [ 84,  0,  0],
   [ 84,  0,  0]]], dtype=uint8)
```

```
In [71]: tiger_img
```

Out[71]:



```
In [78]: arr1 = np.asarray(tiger_img)
```

```
In [79]: type(arr1)
```

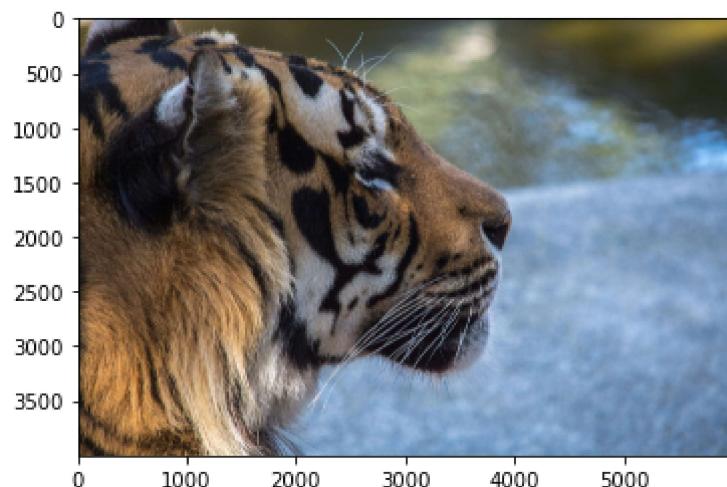
Out[79]: numpy.ndarray

```
In [80]: arr1.shape
```

Out[80]: (4000, 6000, 3)

```
In [81]: plt.imshow(arr1)
```

Out[81]: <matplotlib.image.AxesImage at 0x1f487adac10>

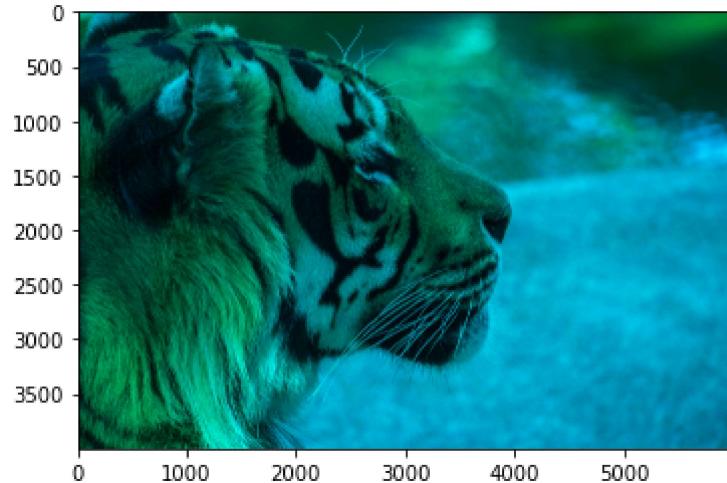


```
In [82]: tiger_img1 = arr1.copy()
```

```
In [84]: tiger_img1[:, :, 0] = 0
```

```
In [86]: plt.imshow(tiger_img1)
```

```
Out[86]: <matplotlib.image.AxesImage at 0x1f487c42be0>
```



```
In [88]: tiger_img1[:, :, 1] = 0
```

```
In [91]: plt.imshow(tiger_img1)
```

```
Out[91]: <matplotlib.image.AxesImage at 0x1f48b04dc10>
```



```
In [ ]:
```