Date 01-07-2021

Opening Image files in a notebook

In [1]:
```python
import numpy as np
import matplotlib.pyplot as plt
import cv2
```

In [2]:
```python
img=cv2.imread('00-puppy.jpg')
img
```

Out[2]:
```
array([[[78, 81, 95],
        [80, 83, 97],
        [81, 84, 98],
        ...,
        [22, 27, 25],
        [22, 27, 25],
        [22, 27, 25]],

       [[78, 81, 95],
        [79, 82, 96],
        [79, 82, 96],
        ...,
        [22, 27, 25],
        [22, 27, 25],
        [22, 27, 25]],

       [[78, 81, 95],
        [77, 80, 94],
        [77, 80, 94],
        ...,
        [22, 27, 25],
        [22, 27, 25],
        [22, 27, 25]],

       ...,

       [[20, 29, 19],
        [21, 30, 20],
        [21, 30, 20],
        ...,
        [22, 30, 23],
        [23, 31, 24],
        [23, 31, 24]],

       [[21, 30, 20],
        [21, 30, 20],
        [20, 29, 19],
        ...,
        [22, 30, 23],
        [23, 31, 24],
        [23, 31, 24]],

       [[21, 30, 20],
        [20, 29, 19],
        [20, 29, 19],
        ...,
        [22, 30, 23],
        [23, 31, 24],
        [23, 31, 24]]], dtype=uint8)
```

In [3]:
```python
type(img)
```

Out[3]: numpy.ndarray

In [4]:
```python
img.shape
```

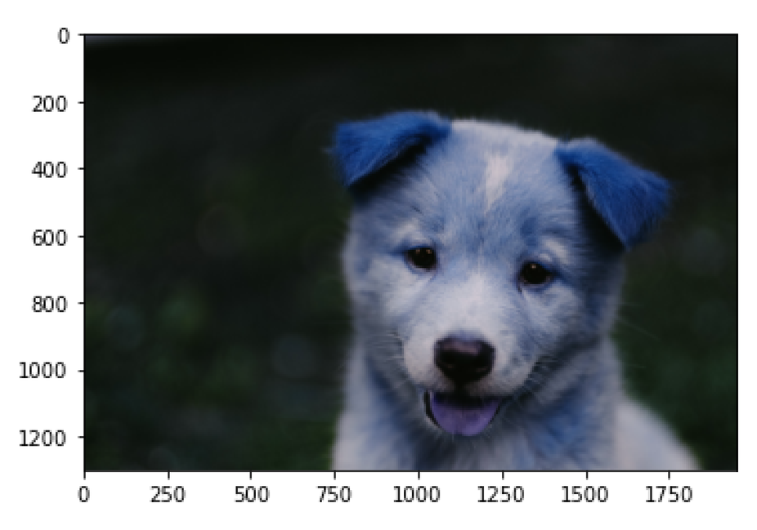
Out[4]: (1300, 1950, 3)

In [5]:
```python
wrong_path_image=cv2.imread('wrong/path/which/does/not/exists/on/my/computer.png')
type(wrong_path_image)
```

Out[5]: NoneType

In [6]:
```python
plt.imshow(img)
```

Out[6]: <matplotlib.image.AxesImage at 0x1f3254875e0>



The above Output is a strange Output because -

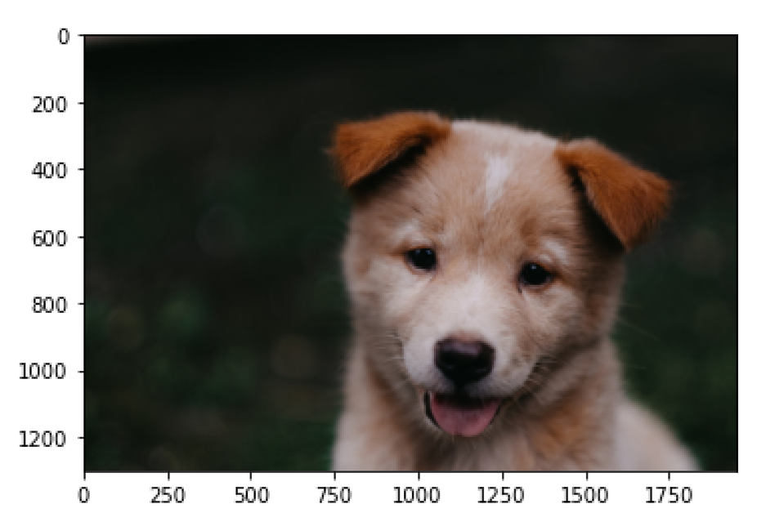
MatPlotLib read image in format of RED-GREEN-BLUE

OpenCV read image in format of BLUE-GREEN-RED

In [7]:
```python
img=cv2.cvtColor(img, cv2.COLOR_BGR2RGB)
```

In [8]:
```python
plt.imshow(img)
```

Out[8]: <matplotlib.image.AxesImage at 0x1f325576af0>



In [9]:
```python
img_gray=cv2.imread('00-puppy.jpg',cv2.IMREAD_GRAYSCALE)
img_gray
```

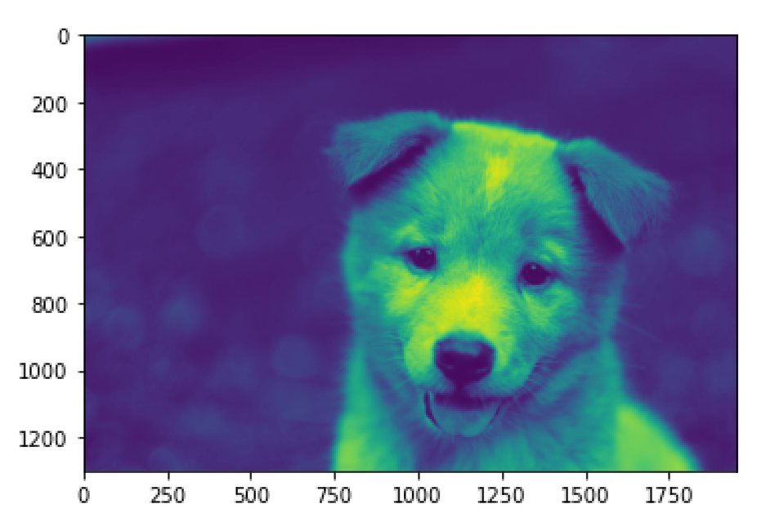
Out[9]:
```
array([[85, 87, 88, ..., 26, 26, 26],
       [85, 86, 86, ..., 26, 26, 26],
       [85, 84, 84, ..., 26, 26, 26],
       ...,
       [25, 26, 26, ..., 27, 28, 28],
       [26, 26, 25, ..., 27, 28, 28],
       [26, 25, 25, ..., 27, 28, 28]], dtype=uint8)
```

In [10]:
```python
img_gray.shape
```

Out[10]: (1300, 1950)

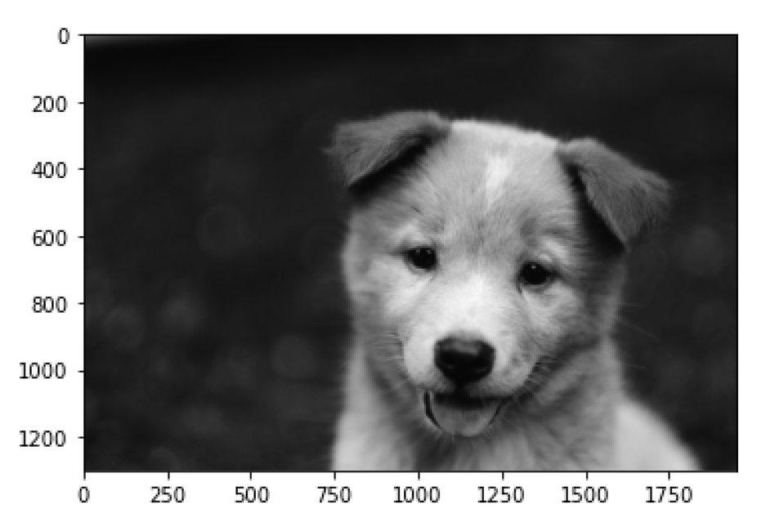
In [11]:
```python
plt.imshow(img_gray)
```

Out[11]: <matplotlib.image.AxesImage at 0x1f3255dae20>



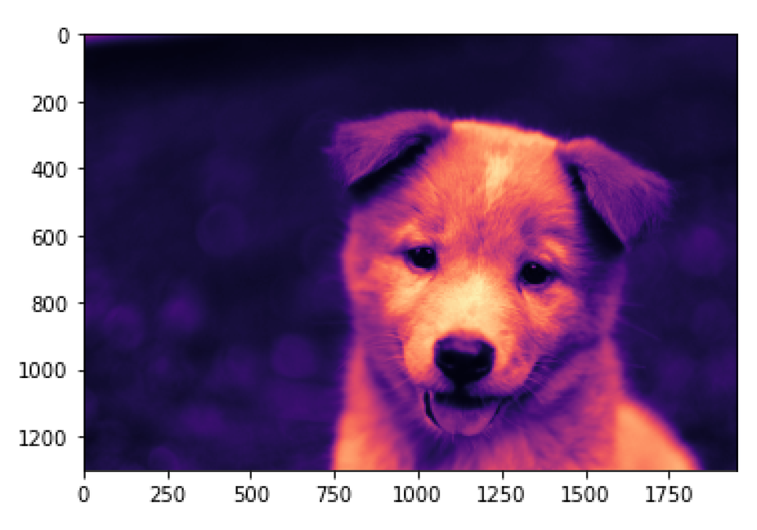
In [12]:
```python
plt.imshow(img_gray,cmap='gray')
```

Out[12]: <matplotlib.image.AxesImage at 0x1f325646700>



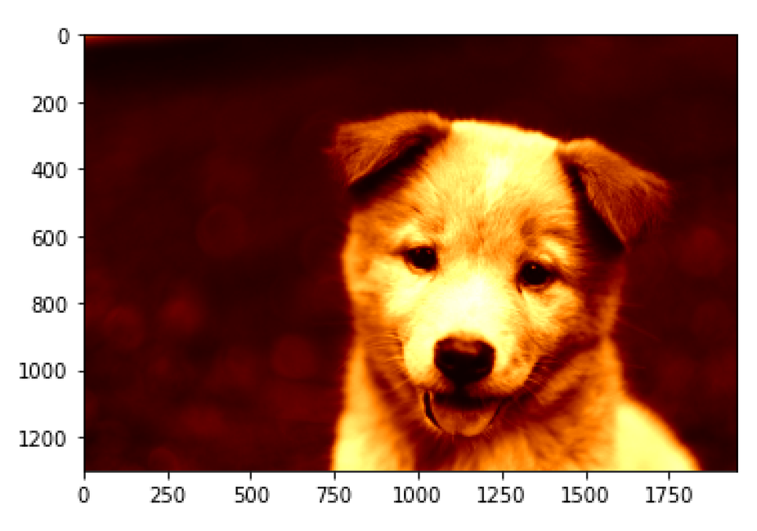
In [13]:
```python
plt.imshow(img_gray,cmap='magma')
```

Out[13]: <matplotlib.image.AxesImage at 0x1f32569afa0>



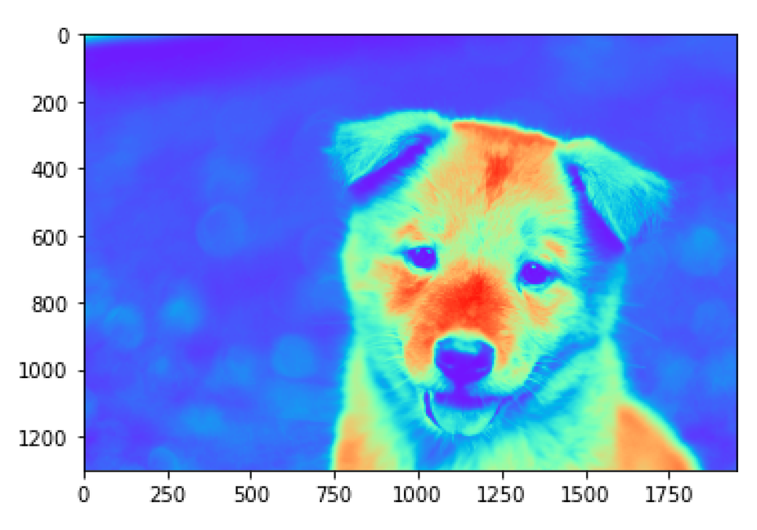
In [14]:
```python
plt.imshow(img_gray,cmap='afmhot')
```

Out[14]: <matplotlib.image.AxesImage at 0x1f325703820>



In [15]:
```python
plt.imshow(img_gray,cmap='rainbow')
```

Out[15]: <matplotlib.image.AxesImage at 0x1f3257680d0>

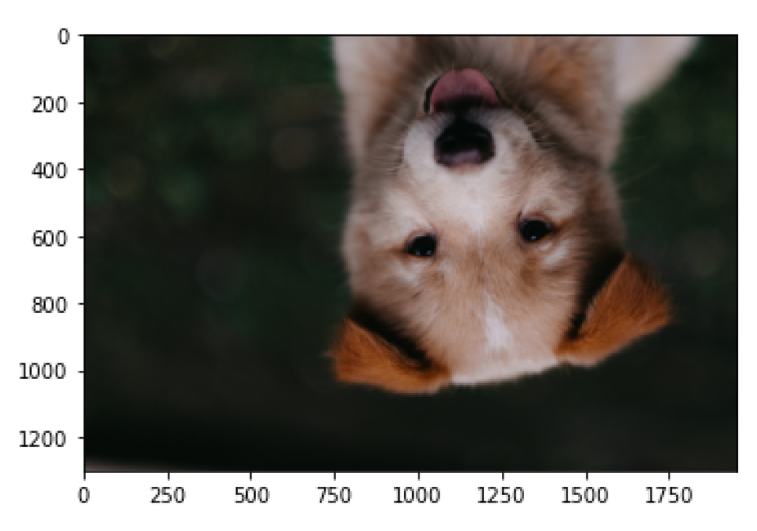


In [16]:
```python
plt.imshow(cv2.resize(img,(2920,700)))
```

Out[16]: <matplotlib.image.AxesImage at 0x1f3257be9d0>

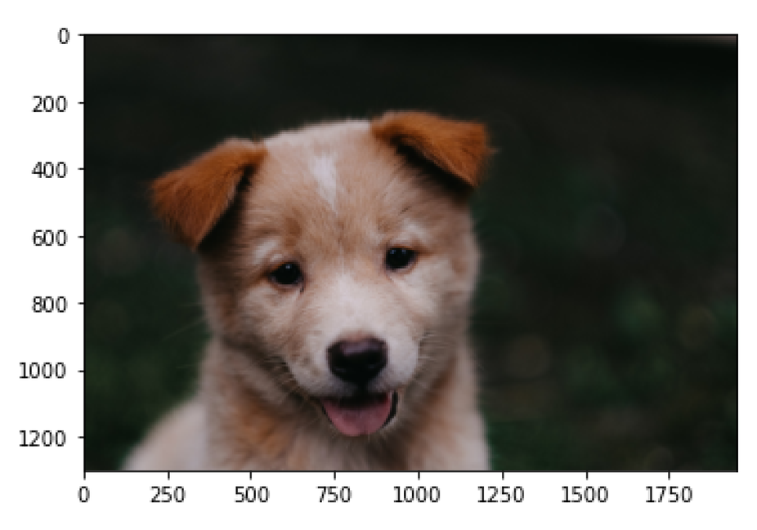
In [17]:
```python
plt.imshow(cv2.flip(img,0))
```

Out[17]: <matplotlib.image.AxesImage at 0x1f3258181f0>



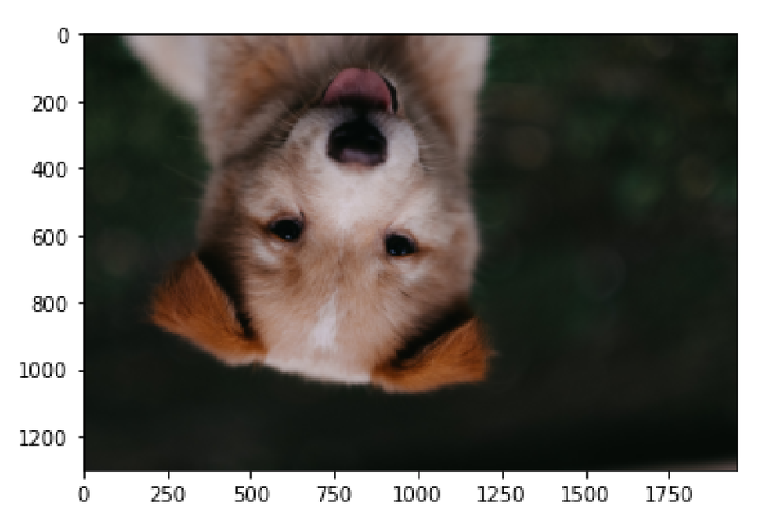
In [18]:
```python
plt.imshow(cv2.flip(img,1))
```

Out[18]: <matplotlib.image.AxesImage at 0x1f325aefa00>



In [19]:
```python
plt.imshow(cv2.flip(img,-1))
```

Out[19]: <matplotlib.image.AxesImage at 0x1f3255b0310>

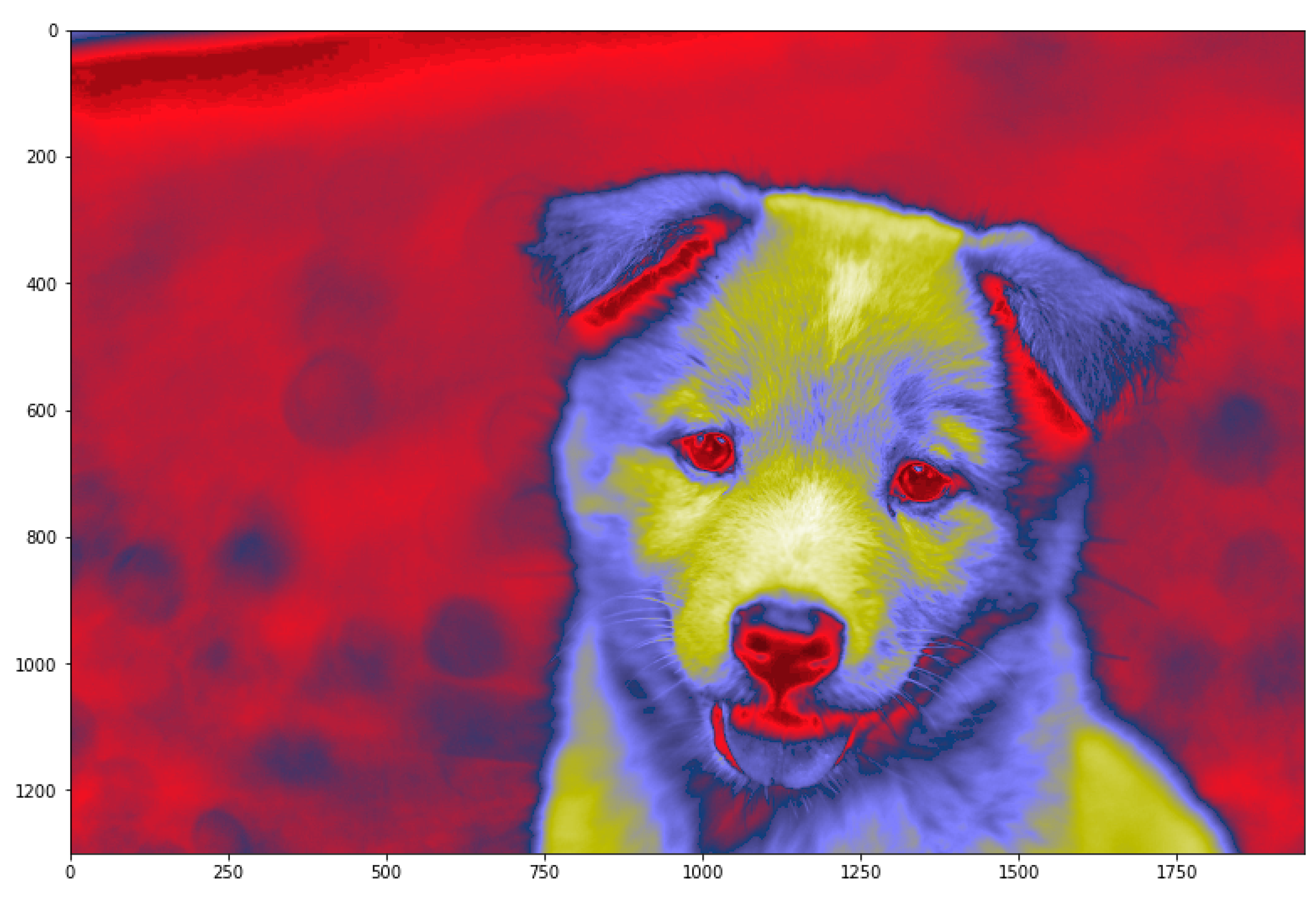


In [20]:
```python
cv2.imwrite('Flipped image.png',cv2.flip(img,-1))
```

Out[20]: True

In [21]:
```python
plt.figure(figsize=(16,9))
plt.imshow(img_gray,cmap='gist_stern')
```

Out[21]: <matplotlib.image.AxesImage at 0x1f325b309d0>



In [22]:
```python
plt.figure(figsize=(16,9))
plt.imshow(img_gray,cmap='gist_stern_r')
```

Out[22]: <matplotlib.image.AxesImage at 0x1f328807a90>