

```
In [2]: import numpy as np  
import matplotlib.pyplot as plt
```

```
In [1]: import warnings  
warnings.filterwarnings('ignore')
```

```
In [3]: from PIL import Image
```

```
In [8]: img = Image.open('Interstellar Film.jfif')
```

```
In [9]: img
```

Out[9]:





```
In [10]: type(img)
```

```
Out[10]: PIL.JpegImagePlugin.JpegImageFile
```

```
In [11]: img_arr=np.asarray(img)  
img_arr
```

```

Out[11]: array([[[ 0,  1,  5],
                  [ 0,  1,  5],
                  [ 0,  1,  5],
                  ...,
                  [ 0,  0,  9],
                  [ 0,  0,  9],
                  [ 0,  0,  9]],

                [[ 48, 57, 62],
                  [ 48, 57, 62],
                  [ 49, 58, 63],
                  ...,
                  [ 31, 35, 44],
                  [ 31, 35, 44],
                  [ 31, 35, 44]],

                [[121, 139, 143],
                  [121, 139, 143],
                  [121, 139, 143],
                  ...,
                  [ 87,  97, 106],
                  [ 87,  97, 106],
                  [ 87,  97, 106]],

                ...,

                [[ 28, 36, 47],
                  [ 30, 38, 49],
                  [ 30, 38, 49],
                  ...,
                  [ 33, 42, 49],
                  [ 22, 31, 38],
                  [ 20, 29, 36]],

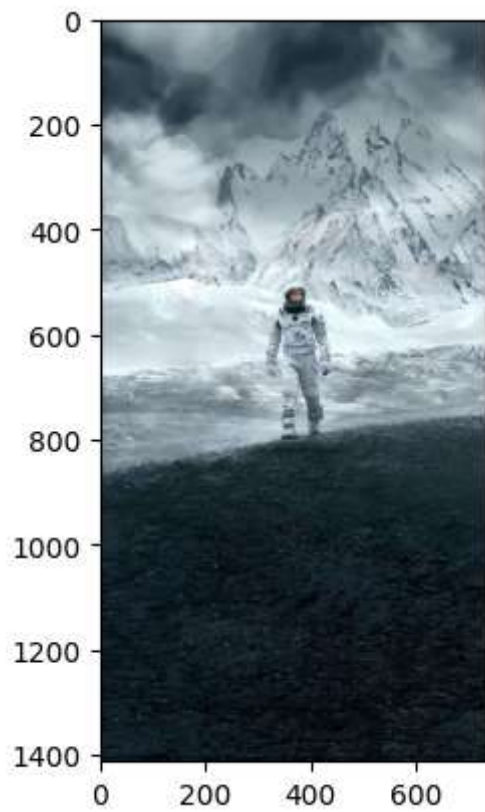
                [[ 19, 27, 38],
                  [ 14, 22, 33],
                  [ 10, 18, 29],
                  ...,
                  [ 30, 39, 46],
                  [ 27, 36, 43],
                  [ 31, 40, 47]],

                [[ 11, 21, 31],
                  [ 19, 29, 39],
                  [ 25, 35, 45],
                  ...,
                  [ 11, 20, 27],
                  [ 15, 24, 31],
                  [ 23, 32, 39]]], dtype=uint8)

```

```
In [12]: plt.imshow(img_arr)
```

```
Out[12]: <matplotlib.image.AxesImage at 0x1bc5ff80a70>
```



```
In [14]: Ai=img_arr.copy()  
Ai
```

```

Out[14]: array([[[ 0,  1,  5],
                  [ 0,  1,  5],
                  [ 0,  1,  5],
                  ...,
                  [ 0,  0,  9],
                  [ 0,  0,  9],
                  [ 0,  0,  9]],

                [[ 48, 57, 62],
                  [ 48, 57, 62],
                  [ 49, 58, 63],
                  ...,
                  [ 31, 35, 44],
                  [ 31, 35, 44],
                  [ 31, 35, 44]],

                [[121, 139, 143],
                  [121, 139, 143],
                  [121, 139, 143],
                  ...,
                  [ 87, 97, 106],
                  [ 87, 97, 106],
                  [ 87, 97, 106]],

                ...,

                [[ 28, 36, 47],
                  [ 30, 38, 49],
                  [ 30, 38, 49],
                  ...,
                  [ 33, 42, 49],
                  [ 22, 31, 38],
                  [ 20, 29, 36]],

                [[ 19, 27, 38],
                  [ 14, 22, 33],
                  [ 10, 18, 29],
                  ...,
                  [ 30, 39, 46],
                  [ 27, 36, 43],
                  [ 31, 40, 47]],

                [[ 11, 21, 31],
                  [ 19, 29, 39],
                  [ 25, 35, 45],
                  ...,
                  [ 11, 20, 27],
                  [ 15, 24, 31],
                  [ 23, 32, 39]]], dtype=uint8)

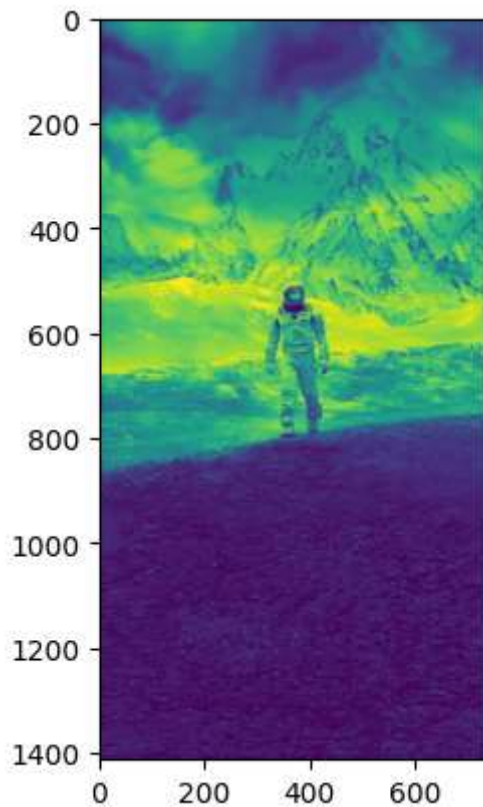
```

```
In [17]: Ai.shape
```

```
Out[17]: (1413, 736, 3)
```

```
In [18]: plt.imshow(Ai[:, :, 0])
```

Out[18]: <matplotlib.image.AxesImage at 0x1bc5ffd4620>



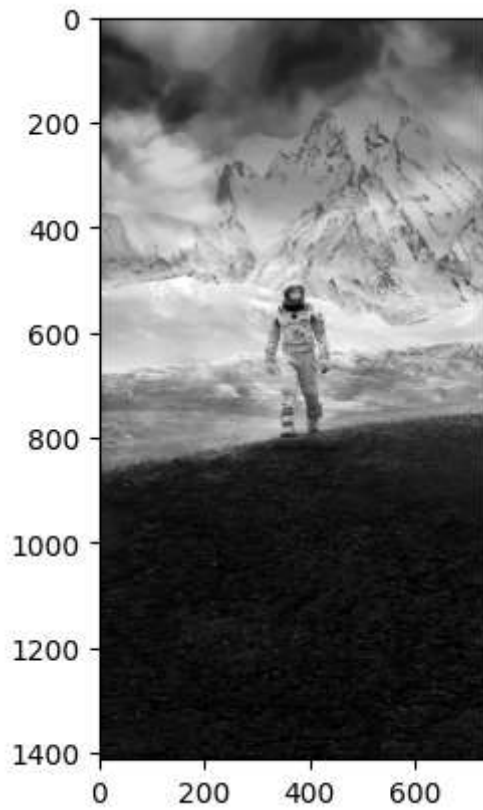
In [19]: `Ai[:, :, 0]`

Out[19]: `array([[ 0, 0, 0, ..., 0, 0, 0],  
 [ 48, 48, 49, ..., 31, 31, 31],  
 [121, 121, 121, ..., 87, 87, 87],  
 ...,  
 [ 28, 30, 30, ..., 33, 22, 20],  
 [ 19, 14, 10, ..., 30, 27, 31],  
 [ 11, 19, 25, ..., 11, 15, 23]], dtype=uint8)`

In [20]: `plt.imshow(Ai[:, :, 0], cmap='gray')`

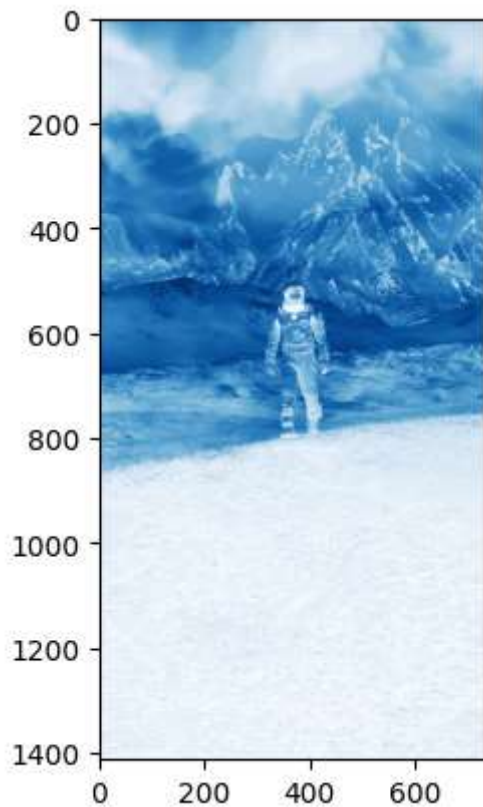
Out[20]: <matplotlib.image.AxesImage at 0x1bc5ffd79e0>





```
In [21]: plt.imshow(Ai[:, :, 0], cmap='Blues')
```

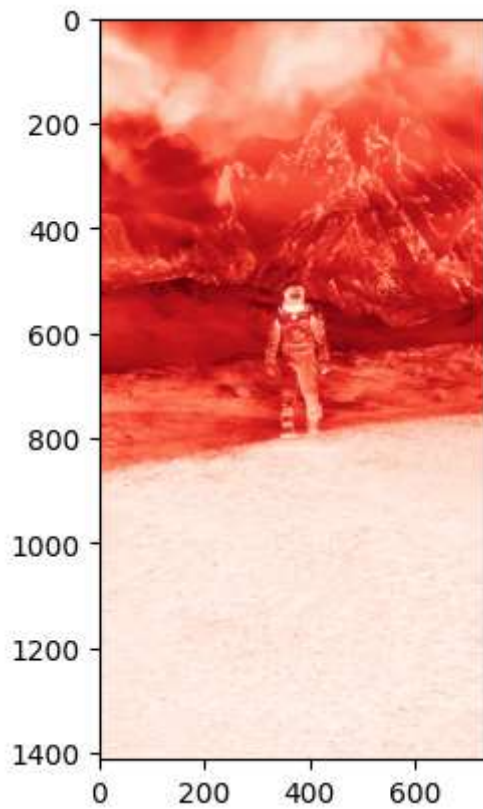
```
Out[21]: <matplotlib.image.AxesImage at 0x1bc62c2ab10>
```



```
In [22]: plt.imshow(Ai[:, :, 0], cmap='Reds')
```

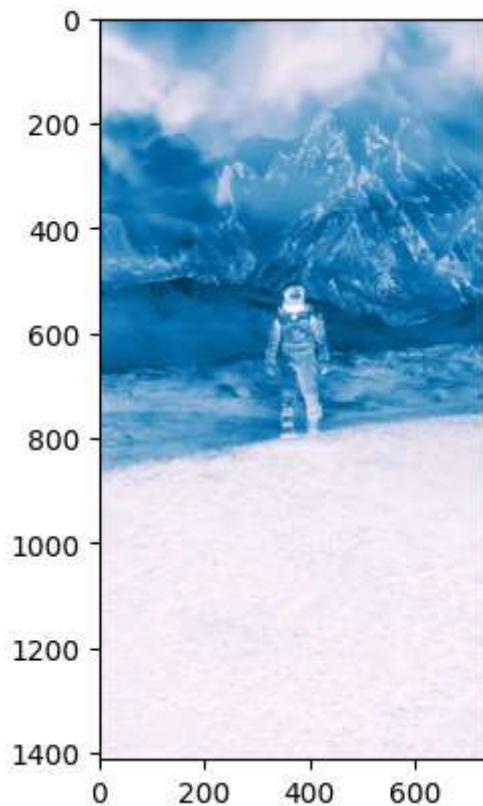


Out[22]: <matplotlib.image.AxesImage at 0x1bc62c70920>



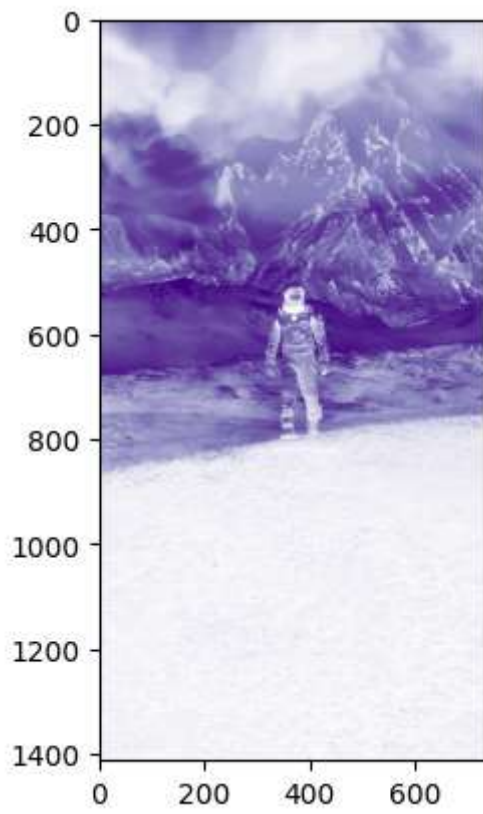
In [23]: `plt.imshow(Ai[:, :, 0], cmap='PuBu')`

Out[23]: <matplotlib.image.AxesImage at 0x1bc607a9850>



```
In [24]: plt.imshow(Ai[:, :, 0], cmap='Purples')
```

```
Out[24]: <matplotlib.image.AxesImage at 0x1bc62bb5580>
```



```
In [ ]:
```