cnn_scratch

January 4, 2020

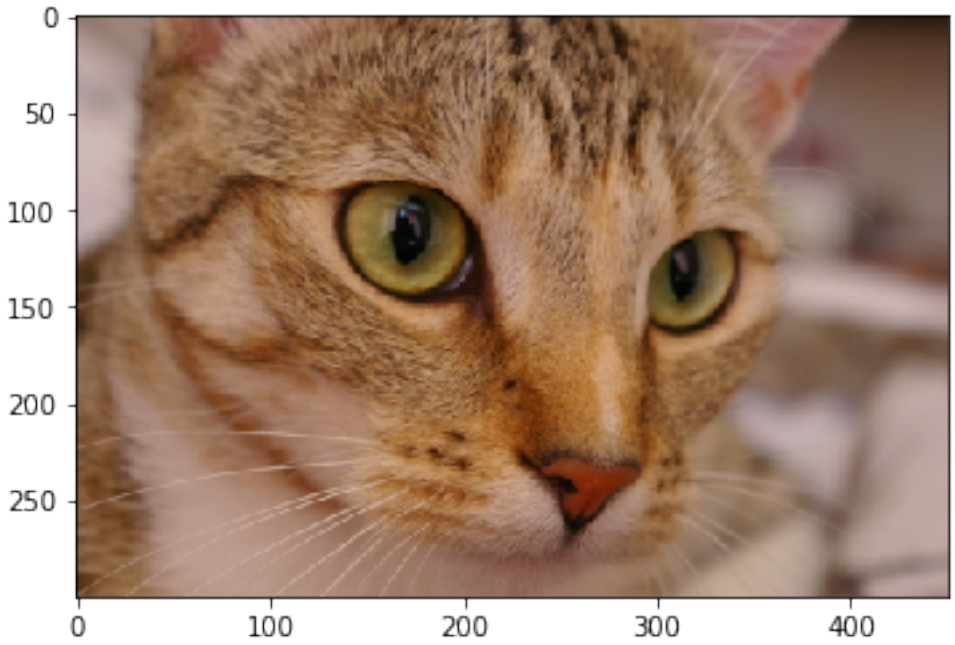
[18]:
```
import skimage.data
from PIL import Image
from matplotlib import pyplot as plt
import numpy as np
from scipy import ndimage
```

Reading the image

[19]:
```
img = skimage.data.chelsea()
print(img.shape)
```

```
(300, 451, 3)
```

[20]:
```
plt.imshow(img, interpolation='nearest')
plt.show()
```

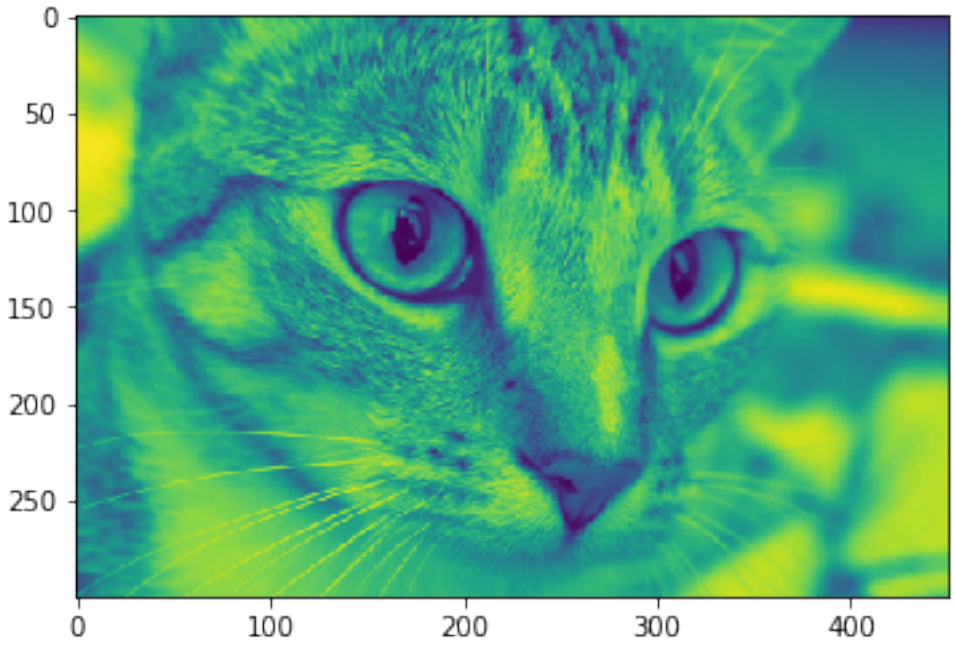


Converting the image into gray

[21]:
```
img = skimage.color.rgb2gray(img)
print(img.shape)
```

```
(300, 451)
```

[22]:
```
plt.imshow(img,interpolation='nearest')
plt.show()
```



[23]:
```
img.shape
```

[23]: (300, 451)

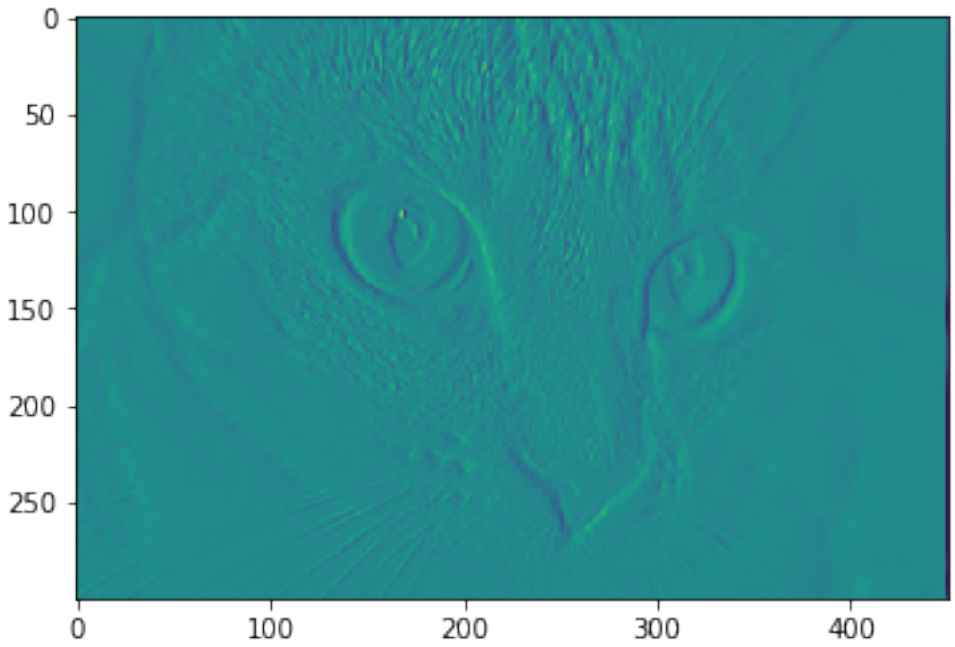
[24]:
```
def apply_kernel(img,kernel):
    return(ndimage.convolve(img,kernel,mode="constant",cval=0.0))
```

[25]:
```
kernel = np.array([[1,0,-1],[2,0,-2],[1,0,-1]])
img = apply_kernel(img,kernel)
```

[26]:
```
print(img.shape)
```

```
(300, 451)
```

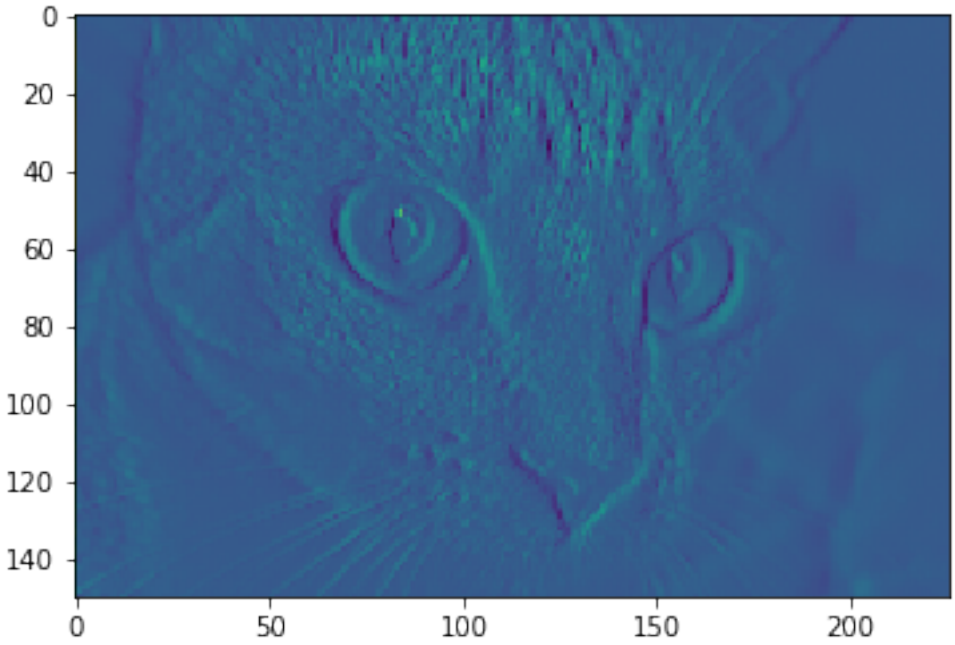
[27]:
```
plt.imshow(img,interpolation='nearest')
plt.show()
```



[30]:
```
pool_image = skimage.measure.block_reduce(img,(2,2),np.max)
print(pool_image.shape)
```

```
(150, 226)
```

[31]:
```
plt.imshow(pool_image,interpolation='nearest')
plt.show()
```



[32]:
```
flattened_image = pool_image.reshape(-1,1)
```

[33]:
```
flattened_image.shape
```

[33]: (33900, 1)

[ ]:
```

```