image-classification

July 6, 2024

[1]:

```
pip install opencv-python
```

```
Requirement already satisfied: opencv-python in
c:\users\home\anaconda3\lib\site-packages (4.10.0.82)Note: you may need to
restart the kernel to use updated packages.

Requirement already satisfied: numpy>=1.21.2 in
c:\users\home\anaconda3\lib\site-packages (from opencv-python) (1.26.4)
```

[200]:

```
import os
import numpy as np
import cv2
import matplotlib.pyplot as plt
import pickle
import random
from sklearn.model_selection import train_test_split
from sklearn.svm import SVC
```

[163]:

```
dir = 'C:\\Users\\Home\\Desktop\\Tasks\\ImageClassif\\PetImages\\PetImages'
```

[164]:

```
categories= ['Cat', 'Dog']

data=[]
```

[188]:

```
for category in categories:
    path=os.path.join(dir,category)
    label=categories.index(category)
    for img in os.listdir(path):
            imgpath=os.path.join(path,img)
            pet_img=cv2.imread(imgpath,0)
            try:
                pet_img=cv2.resize(pet_img,(50,50))
                image=np.array(pet_img).flatten()
                data.append([image,label])
            except Exception as e:
                pass
```

[189]:

```
pick_in=open('data1.pickle','wb')
pickle.dump(data,pick_in)
pick_in.close()
```

[190]:

```
pick_in=open('data1.pickle','rb')
data=pickle.load(pick_in)
pick_in.close()
```

[199]:

```
random.shuffle(data)
features=[]
labels=[]

for feature, label in data:
    features.append(feature)
    labels.append(label)
```

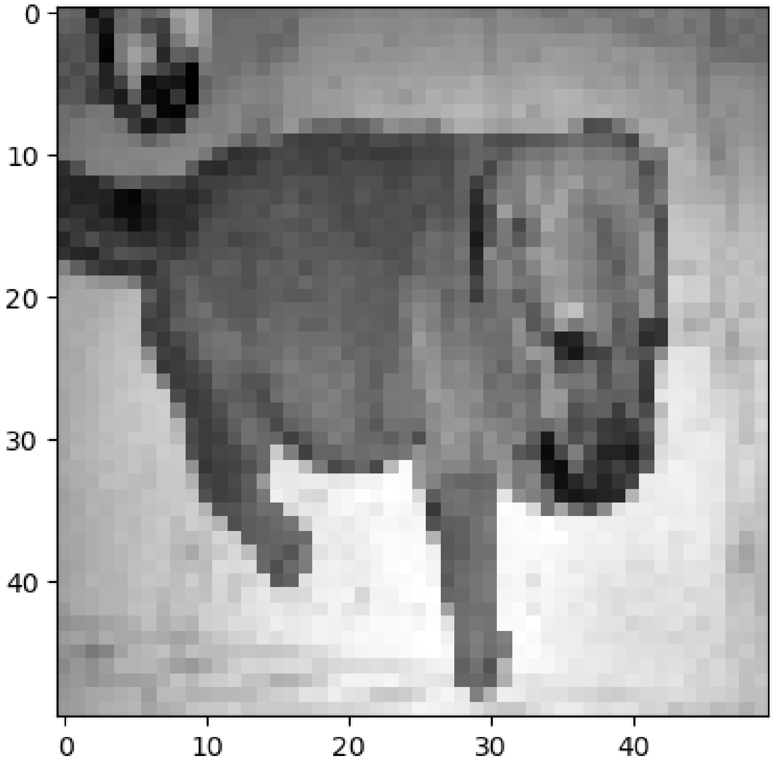
[198]:

```
xtrain, xtest, ytrain,ytest= train_test_split(features, labels, test_size=0.01)
```

[209]:

```
#model= SVC(C=1, kernel='poly', gamma='auto')
#model.fit(xtrain, ytrain)


pick=open('model.sav','rb')
model=pickle.load(pick)
pick.close()
prediction=model.predict(xtest)

accuracy=model.score(xtest,ytest)

categories=['Cat', 'Dog']

print('Accuracy is: ', accuracy)
print('Prediction is: ', categories[prediction[0]])

mypet=xtest[0].reshape(50,50)
plt.imshow(mypet, cmap='gray')
plt.show()
```

```
Accuracy is:  0.6613226452905812
Prediction is:  Dog
```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