



Image Classification Using CNN And Data Augmentation



Usage Guide

The main files for running this code are:

`Train.py`

`Test.py`

`templates/index.html`



Training the model

Run the file train.py as:

```
Python train.py 30
```

30 : number of epochs.

After training the model will be saved in model folder which will be used for prediction in run time

```

C:\Users\rahul\Documents\FlowerClassification>python train.py 30
C:\Users\rahul\Anaconda3\lib\site-packages\h5py\_init__.py:36: FutureWarning: Conversion of the second argument of issubdtype from `float` to `np.floating` is deprecated. In
oat64 == np.dtype(float).type`.
    from ._conv import register_converters as _register_converters
Using TensorFlow backend.

#####Resizing images#####

Browsing directory: daisy
Max height : 500
Max width : 375

Browsing directory: rose
Max height : 500
Max width : 375

Browsing directory: sunflower
Max height : 500
Max width : 375

#####Train Test Split#####
X_train shape (245, 128, 128, 3) . Y_train shape (245,)
X_test shape (105, 128, 128, 3) . Y_test shape (105,)

#####Get the model#####
2019-01-29 09:51:53.077352: I tensorflow/core/platform/cpu_feature_guard.cc:141] Your CPU supports instructions that this TensorFlow binary was not compiled to use: AVX2
2019-01-29 09:51:53.822921: I tensorflow/core/common_runtime/gpu/gpu_device.cc:971] Found device 0 with properties:
name: GeForce 940MX major: 5 minor: 0 memoryClockRate(GHz): 1.189
pciBusID: 0000:01:00.0
totalMemory: 2.00GiB freeMemory: 1.66GiB
2019-01-29 09:51:53.828321: I tensorflow/core/common_runtime/gpu/gpu_device.cc:1490] Adding visible gpu devices: 0
2019-01-29 09:51:54.886342: I tensorflow/core/common_runtime/gpu/gpu_device.cc:971] Device interconnect StreamExecutor with strength 1 edge matrix:
2019-01-29 09:51:54.889929: I tensorflow/core/common_runtime/gpu/gpu_device.cc:977] 0
2019-01-29 09:51:54.892045: I tensorflow/core/common_runtime/gpu/gpu_device.cc:990] 0: N
2019-01-29 09:51:54.894459: I tensorflow/core/common_runtime/gpu/gpu_device.cc:1103] Created TensorFlow device (/job:localhost/replica:0/task:0/device:GPU:0 with 1409 MB memory)
GeForce 940MX, pci bus id: 0000:01:00.0, compute capability: 5.0)
train.py:130: UserWarning: Update your `Model` call to the Keras 2 API: `Model(inputs=Tensor("in...", outputs=Tensor("de..."))`
combinedModel = Model(input = model.input, output = predictions)

#####Execute the model#####
Running for epochs : 30

```



Starting the service for predictions

Run the file test.py as:

```
Python test.py
```

This will start the service at <http://127.0.0.1:5000>

```
:\\Users\\rahul\\Documents\\FlowerClassification>python test.py
:Users\\rahul\\Anaconda3\\lib\\site-packages\\h5py\\__init__.py:36: FutureWarning: Conversion of the second argument of issubdtype from `float` to `np.floating` is deprecated. In futur
at64 == np.dtype(float).type`.
from ._conv import register_converters as _register_converters
sing TensorFlow backend.
019-01-29 09:42:50.041848: I tensorflow/core/platform/cpu_feature_guard.cc:141] Your CPU supports instructions that this TensorFlow binary was not compiled to use: AVX2
019-01-29 09:42:50.782355: I tensorflow/core/common_runtime/gpu/gpu_device.cc:1411] Found device 0 with properties:
ame: GeForce 940MX major: 5 minor: 0 memoryClockRate(GHz): 1.189
ciBusID: 0000:01:00.0
otalMemory: 2.00GiB freeMemory: 1.66GiB
019-01-29 09:42:50.787960: I tensorflow/core/common_runtime/gpu/gpu_device.cc:1490] Adding visible gpu devices: 0
019-01-29 09:42:51.838922: I tensorflow/core/common_runtime/gpu/gpu_device.cc:971] Device interconnect StreamExecutor with strength 1 edge matrix:
019-01-29 09:42:51.842661: I tensorflow/core/common_runtime/gpu/gpu_device.cc:977]      0
019-01-29 09:42:51.845340: I tensorflow/core/common_runtime/gpu/gpu_device.cc:990] 0:  N
019-01-29 09:42:51.847124: I tensorflow/core/common_runtime/gpu/gpu_device.cc:1103] Created TensorFlow device (/job:localhost/replica:0/task:0/device:GPU:0 with 1409 MB memory) ->
GeForce 940MX, pci bus id: 0000:01:00.0, compute capability: 5.0)
oaded Model from disk
* Serving Flask app "test" (lazy loading)
* Environment: production
  WARNING: Do not use the development server in a production environment.
  Use a production WSGI server instead.
* Debug mode: off
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
```



Starting the user interface

Open the file `templates/index.html`

Flower Classification

Name:

Size:

Type:

Prediction:

Probabilities:



Browse



Predict



Refresh

Uploaded images

Predicted:

IMAGE

Predicted:

IMAGE

Predicted:

IMAGE

Predicted:

IMAGE

Predicted:

IMAGE

Predicted:

IMAGE



Rest of the slides demonstrate some sample predictions

Flower Classification

Name:162362896_99c7d851c8_n.jpg

Size:33 KB

Type:image/jpeg

Prediction:

Probabilities:

 Browse

 Predict

 Refresh

Uploaded images

Predicted:



Predicted:



Predicted:



Predicted:



Predicted:



Predicted:



Flower Classification

Name:162362896_99c7d851c8_n.jpg

Size:33 KB

Type:image/jpeg

Prediction: Daisy

Probabilities: Daisy : 1.0||Rose : 1.3168916e-34||Sunflower : 5.343522e-21||

 Browse

 Predict

 Refresh

Uploaded images

Predicted:Daisy



Predicted:



Predicted:



Predicted:



Predicted:



Predicted:



Flower Classification

Name:6732261031_861a1026fa_n.jpg

Size:16 KB

Type:image/jpeg

Prediction:

Probabilities:

 Browse

 Predict

 Refresh

Uploaded images

Predicted:Daisy



Predicted:



Predicted:



Predicted:



Predicted:



Predicted:



Flower Classification

Name:6732261031_861a1026fa_n.jpg

Size:16 KB

Type:image/jpeg

Prediction: Rose

Probabilities: Daisy : $1.1251666e-23$ ||Rose : 1.0||Sunflower : $4.890409e-16$ ||



Browse



Predict



Refresh

Uploaded images

Predicted:Daisy



Predicted:Rose



Predicted:



Predicted:



Predicted:



Predicted:



Flower Classification

Name:7492109308_bbbb982ebe_n.jpg

Size:33 KB

Type:image/jpeg

Prediction:

Probabilities:



Browse



Predict



Refresh

Uploaded images

Predicted:Daisy



Predicted:Rose



Predicted:



Predicted:



Predicted:



Predicted:



Flower Classification

Name:7492109308_bbbb982ebe_n.jpg

Size:33 KB

Type:image/jpeg

Prediction: Sunflower

Probabilities: Daisy : 0.0||Rose : 0.0||Sunflower : 1.0||

 Browse

 Predict

 Refresh

Uploaded images

Predicted:Daisy



Predicted:Rose



Predicted:Sunflower



Predicted:



Predicted:



Predicted:





Thank you!!!