

About

TensorFlow

TensorFlow™ is an open source software library for numerical computation using data flow graphs. TensorFlow was originally developed for the purposes of conducting machine learning and deep neural networks research, but the system is general enough to be applicable in a wide variety of other domains as well.

Skflow

Scikit Flow provides a set of high level model classes that you can use to easily integrate with your existing Scikit-learn pipeline code. Scikit Flow is a simplified interface for TensorFlow, to get people started on predictive analytics and data mining. Scikit Flow has been merged into TensorFlow since version 0.8 and now called TensorFlow Learn.

Keras

Keras is a minimalist, highly modular neural networks library, written in Python and capable of running on top of either TensorFlow or Theano

Installation

How to install new package in Python:

```
pip install <package-name>
```

Example: `pip install requests`

How to install tensorflow?

device = **cpu/gpu**

python_version = **cp27/cp34**

```
sudo pip install
```

```
https://storage.googleapis.com/
tensorflow/linux/$device/tensorflow-
0.8.0-$python_version-none-linux_x86
_64.whl
```

How to install Skflow

```
pip install sklearn
```

How to install Keras

```
pip install keras
```

update ~/.keras/keras.json - replace

"theano" by "tensorflow"

Helpers

Python helper

Important functions

type(object)

Get object type

help(object)

Get help for object (list of available methods, attributes, signatures and so on)

dir(object)

Get list of object attributes (fields, functions)

str(object)

Transform an object to string

object?

Shows documentations about the object

globals()

Return the dictionary containing the current scope's global variables.

locals()

Update and return a dictionary containing the current scope's local variables.

id(object)

Return the identity of an object. This is guaranteed to be unique among simultaneously existing objects.

```
import __builtin__
```

```
dir(__builtin__)
```

Other built-in functions

TensorFlow

Main classes

```
tf.Graph()
```

```
tf.Operation()
```

```
tf.Tensor()
```

```
tf.Session()
```

Some useful functions

```
tf.get_default_session()
```

```
tf.get_default_graph()
```

```
tf.reset_default_graph()
```

```
ops.reset_default_graph()
```

```
tf.device("/cpu:0")
```

```
tf.name_scope(value)
```

```
tf.convert_to_tensor(value)
```

TensorFlow Optimizers

```
GradientDescentOptimizer
```

```
AdadeltaOptimizer
```

```
AdagradOptimizer
```

```
MomentumOptimizer
```

```
AdamOptimizer
```

```
FtrlOptimizer
```

```
RMSPropOptimizer
```

Reduction

```
reduce_sum
```

```
reduce_prod
```

```
reduce_min
```

```
reduce_max
```

```
reduce_mean
```

```
reduce_all
```

```
reduce_any
```

```
accumulate_n
```

Activation functions

```
tf.nn?
```

```
relu
```

```
relu6
```

```
elu
```

```
softplus
```

```
softsign
```

```
dropout
```

```
bias_add
```

```
sigmoid
```

```
tanh
```

```
sigmoid_cross_entropy_with_logits
```

```
softmax
```

```
log_softmax
```

```
softmax_cross_entropy_with_logits
```

```
sparse_softmax_cross_entropy_with_logits
```

```
weighted_cross_entropy_with_logits
```

etc.

Skflow

Main classes

```
TensorFlowClassifier
```

```
TensorFlowRegressor
```

```
TensorFlowDNNClassifier
```

```
TensorFlowDNNRegressor
```

```
TensorFlowLinearClassifier
```

```
TensorFlowLinearRegressor
```

```
TensorFlowRNNClassifier
```

```
TensorFlowRNNRegressor
```

TensorFlowEstimator

Each classifier and regressor have following fields

n_classes=0 (Regressor), n_classes are expected to be input (Classifiers)

batch_size=32,

steps=200, // except

TensorFlowRNNClassifier - there is 50

optimizer='Adagrad',

learning_rate=0.1,