

一、TensorFlow:

各种安装方式参见: https://tensorflow.google.cn/install/install_linux

Installing with Virtualenv

Take the following steps to install TensorFlow with Virtualenv:

1. Install pip and Virtualenv by issuing one of the following commands:
 \$ sudo apt-get install python-pip python-dev python-virtualenv # for Python 2.7
 \$ sudo apt-get install python3-pip python3-dev python-virtualenv # for Python 3.n
 (Redhat 系列: apt-get 换成 yum)

2. Create a Virtualenv environment by issuing one of the following commands:
 \$ virtualenv --system-site-packages targetDirectory # for Python 2.7
 \$ virtualenv --system-site-packages -p python3 targetDirectory # for Python 3.n

where *targetDirectory* specifies the top of the Virtualenv tree. Our instructions assume that *targetDirectory* is `~/tensorflow`, but you may choose any directory.

3. Activate the Virtualenv environment by issuing one of the following commands:
 \$ source ~/tensorflow/bin/activate # bash, sh, ksh, or zsh
 \$ source ~/tensorflow/bin/activate.csh # csh or tcsh

The preceding source command should change your prompt to the following:
(tensorflow)\$

4. Ensure pip \geq 8.1 is installed:
(tensorflow)\$ easy_install -U pip
5. Issue one of the following commands to install TensorFlow in the active Virtualenv environment:
(tensorflow)\$ pip install --upgrade tensorflow # for Python 2.7
(tensorflow)\$ pip3 install --upgrade tensorflow # for Python 3.n
(tensorflow)\$ pip install --upgrade tensorflow-gpu # for Python 2.7 and GPU
(tensorflow)\$ pip3 install --upgrade tensorflow-gpu # for Python 3.n and GPU

If the above command succeeds, skip Step 6. If the preceding command fails, perform Step 6.

6. (Optional) If Step 5 failed (typically because you invoked a pip version lower than 8.1), install TensorFlow in the active Virtualenv environment by issuing a command of the following format:
(tensorflow)\$ pip install --upgrade tfBinaryURL # Python 2.7
(tensorflow)\$ pip3 install --upgrade tfBinaryURL # Python 3.n

where *tfBinaryURL* identifies the URL of the TensorFlow Python package. The

appropriate value of *tfBinaryURL* depends on the operating system, Python version, and GPU support. Find the appropriate value for *tfBinaryURL* for your system [here](#). For example, if you are installing TensorFlow for Linux, Python 3.4, and CPU-only support, issue the following command to install TensorFlow in the active Virtualenv environment:

```
(tensorflow)$ pip3 install --upgrade \
https://storage.googleapis.com/tensorflow/linux/cpu/tensorflow-1.7.0-cp34-cp34m-linux\_x86\_64.whl
```

If you encounter installation problems, see [Common Installation Problems](#).

二、Keras:

安装

Keras 使用了下面的依赖包，三种后端必须至少选择一种，我们建议选择 tensorflow。

- numpy, scipy
- pyyaml
- HDF5, h5py（可选，仅在模型的 save/load 函数中使用）
- 如果使用 CNN 的推荐安装 cuDNN

当使用 TensorFlow 为后端时：

·[TensorFlow](#)

当使用 Theano 作为后端时：

·[Theano](#)

当使用 CNTK 作为后端时：

·[CNTK](#)

“后端”翻译自 backend，指的是 Keras 依赖于完成底层的张量运算的软件包。

1. 源码安装

从源码安装 Keras 时，首先 git clone keras 的代码：
`git clone https://github.com/fchollet/keras.git`

接着 cd 到 Keras 的文件夹中，并运行下面的安装命令：
`sudo python setup.py install`

2. 使用 PyPI 来安装 Keras

```
sudo pip install keras
```

如果你用的是 virtualenv 虚拟环境，不要用 sudo 就好。

详细的 Windows 和 Linux 安装教程请参考“Keras 新手指南”中给出的安装教程: [http://keras-cn.readthedocs.io/en/latest/# 2](http://keras-cn.readthedocs.io/en/latest/#2)

内容：

Example: 在 MNIST 数据集上训练一个简单的深度神经网络，参见 https://github.com/gaussian/keras-examples/blob/master/mnist_mlp/mnist_mlp.py
神经网络进阶内容：

<https://morvanzhou.github.io/tutorials/machine-learning/tensorflow/>

Q-learning 的方法实现一个小例子在世界寻找宝藏：

https://github.com/MorvanZhou/Reinforcement-learning-with-tensorflow/blob/master/contents/1_command_line_reinforcement_learning/treasure_on_rig ht.py

参考：

莫烦视频教程：<https://morvanzhou.github.io/tutorials/machine-learning/keras/>

详解 MNIST 数据集：

https://blog.csdn.net/simple_the_best/article/details/75267863
<https://blog.csdn.net/u010874976/article/details/78571788>