DEV-CDM MXNet

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BDA401 Deep Dive into Apache MXNet on AWS

1. 1. © 2017, Amazon Web Services, Inc. or its Affiliates. All rights reserved. Joseph Spisak | Mgr, Product Mgmt | Deep Learning Guy Ernest | Sr. BD Manager | AmazonAI April 18, 2017 Scalable Deep Learning on AWS Using Apache MXNet

From <https://www.slideshare.net/AmazonWebServices/bda401-deep-dive-into-apache-mxnet-on-aws>

MXNet Model Zoo

MXNet features fast implementations of many state-of-the-art models reported in the academic literature. This Model Zoo is an ongoing project to collect complete models, with python scripts, pre-trained weights as well as instructions on how to build and fine tune these models.

From <http://mxnet.io/model_zoo/index.html>

Here are the commands you need to type inside the anaconda environment (after activation of the environment):

1. conda install pip
2. pip install opencv-python
3. conda install scikit-learn
4. conda install jupyter notebook
5. pip install mxnet

Classifying traffic signs with MXNet: An introduction to customizing a neural network

From <https://github.com/manujeevanprakash/mxnet-ccn-samples>

Preparing your environment Here's how to get set up: 1. Install the OpenCV-python library, a powerful computer vision library. We will use this to process our image. To install OpenCV inside the Anaconda environment, use 'pip install opencv-python'. You can also build from source. (Note: conda install opencv3.0 does not work.) 2. Next, install scikit learn, a general-purpose scientific computing library. We'll use this preprocess our data. You can install it with 'conda install scikit-learn'. 3. And finally, get MXNet, an open source deep learning library.	
[administrator@dev-cdm-spark02 ~]$ **cd $HOME** **sudo pip3 install opencv-python** **sudo pip3 install -U scikit-learn** **sudo pip3 install mxnet** **sudo pip3 install graphviz** **sudo yum install tkinter** **sudo yum install openblas openblas-devel** **sudo yum install atlas atlas-devel** **sudo yum install lapack lapack-devel** **sudo yum install opencv opencv-devel** **sudo pip3 install requests jupyter** **sudo pip3 install matplotlib**	Use pip3 to install
[administrator@dev-cdm-spark02 ~]$ **sudo bash** **cd $HOME** **git clone --recursive https://github.com/dmlc/mxnet** **cd mxnet** **make -j $(nproc) USE_OPENCV=1 USE_BLAS=openblas USE_LAPACK=1**	Git clone

cd python **pip3 install -e .**	
## The data set In order to learn about any deep neural network, we need data. For this notebook, we use a data set already stored as a NumPy array. You can also load data from any image file. We'll show that process later in the notebook. The data set we'll use is the German Traffic Sign Recognition Benchmark (J. Stallkamp, M. Schlipsing, J. Salmen, and C. Igel. "The German Traffic Sign Recognition Benchmark: A multi-class classification competition." In *Proceedings of the IEEE International Joint Conference on Neural Networks*, pages 1453–1460. 2011.). This data set consists of **39,209 training samples and 12,630 testing samples**, representing 43 different traffic signs—stop signs, speed limits, various warning signs, and so on). We'll use a pickled version of the data, training.p and valid.p. Each image in the dataset is 32*32 size with three channel (RGB) color, and it belongs to a particular image class. The image class is an integer label between 0 and 43. The 'signnames.csv' file contains the mapping between the sign name and the class labels.	
[administrator@dev-cdm-spark02 ~]$ **Ftp training.p, valid.p,signames.csv /usr/local/share/dsLab/datasets/trafffic-data** **Ftp/upload cnn-mxnet.ipnyb /usr/local/share/dsLab/jupyterHub/MXNet**	Pickle it