Caffe-SSD 安装教程

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一、准备资料

软件版本：ubuntu16.04 启动盘、cuda-9.1 deb 安装包、openCV2.4.13

Caffe-ssd 压缩包、Anaconda2.5 安装包, cudnn7.1.1.tar

二、安装系统

注意：安装 ubuntu 时，尽量将 ubuntu 独立安装在一个硬盘内，双硬盘双系统，安装 Ubuntu 时，尽量将 windows 所在硬盘拔掉（笔记本党请忽略），装好 Ubuntu 后再将 windows 硬盘装上，这样两个系统的引导文件分别位于两个硬盘，互不影响。

按安装系统后，将 caffe-ssd run.sh cuda-9.1deb, Anaconda2 的安装包放在 home 目录下。

注：若安装系统后出现无法联网的问题，解决办法：

vi /etc/network/interfaces 文件，

添加 dns-nameserver 114.114.114.114
然后使用指令

vi /etc/resolvconf/resolv.conf.d/base
在这个文件后面追加 nameserver 114.114.114.114

vi /etc/resolv.conf

添加 nameserver 114.114.114.114
然后重启网络即可

三、安装依赖库

安装 caffe 依赖库：不用自己输入，Caffe 所有依赖库的安装代码我都已经整理好，封装在 run.sh 文件里，打开终端，输入以下指令：

sudo sh run.sh

等待完成，保险起见，最好再运行一次

```
#!/usr/bin/env sh
sudo apt-get update
sudo apt-get upgrade
sudo apt-get dist-upgrade
echo "系统更新完成"
sudo apt-get install build-essential
sudo apt-get install doxygen cmake git libgtk2.0-dev pkg-config libavcodec-dev libavformat-dev libswscale-dev
sudo apt-get install python-dev python-numpy python-pip libtbb-dev libjpeg-dev libpng12-dev libtiff5-dev libjasper-dev libdc1394-22-dev
sudo apt-get install libatlas-base-dev gfortran
sudo apt-get install cmake-qt-gui
sudo apt-get install libprotobuf-dev libleveldb-dev libsnappy-dev libopencv-dev libboost-all-dev
sudo apt-get install libhdf5-serial-dev libgflags-dev libgoogle-glog-dev liblmdb-dev protobuf-compiler

echo "python依赖库安装完成"
```

四、cuda 的安装

打开终端，输入以下指令，等待完成。。。。

1. `sudo dpkg -i cuda-repo-ubuntu1604_9.1.85-1_amd64.deb`
2. `sudo apt-key adv --fetch-keys http://developer.download.nvidia.com/compute/cuda/repos/ubuntu1604/x86_64/7fa2af80.pub`
3. `sudo apt-get update`
4. `sudo apt-get install cuda`

完成以后，在终端输入 nvidia-smi 若调出显卡信息，则说明驱动安装成功。

然后，在终端输入以下指令

sudo gedit /etc/profile

在打开的文件最后加上以下指令，注：将下面代码的 cuda-8.0 改为 cuda-9.1

```
export PATH=/usr/local/cuda-8.0/bin:$PATH
export LD_LIBRARY_PATH=/usr/local/cuda-8.0/lib64:$LD_LIBRARY_PATH
```

重启电脑，虔诚祈祷不要出现循环启动的问题。

打开终端，进入 /usr/local/cuda-9.1/samples/1_utilities/deviceQuery

然后 sudo make -j6

(6 是我电脑的线程数，改成你自己电脑处理器下线程数）

然后 ./ deviceQuery

出现类似以下结果则表明 CUDA 安装成功：

```
/deviceQuery Starting...

 CUDA Device Query (Runtime API) version (CUDART static linking)

Detected 1 CUDA Capable device(s)

Device 0: "GeForce GTX 1060"
  CUDA Driver Version / Runtime Version          8.0 / 8.0
  CUDA Capability Major/Minor version number:    6.1
  Total amount of global memory:                 6064 MBytes (6358892544 bytes)
  (10) Multiprocessors, (128) CUDA Cores/MP:     1280 CUDA Cores
  GPU Max Clock rate:                            1733 MHz (1.73 GHz)
  Memory Clock rate:                             4004 Mhz
  Memory Bus Width:                              192-bit
  L2 Cache Size:                                 1572864 bytes
  Maximum Texture Dimension Size (x,y,z)         1D=(131072), 2D=(131072, 65536), 3D=(16384, 16384, 16384)
  Maximum Layered 1D Texture Size, (num) layers  1D=(32768), 2048 layers
  Maximum Layered 2D Texture Size, (num) layers  2D=(32768, 32768), 2048 layers
  Total amount of constant memory:               65536 bytes
  Total amount of shared memory per block:       49152 bytes
  Total number of registers available per block: 65536
  Warp size:                                     32
  Maximum number of threads per multiprocessor:  2048
  Maximum number of threads per block:           1024
  Max dimension size of a thread block (x,y,z): (1024, 1024, 64)
  Max dimension size of a grid size    (x,y,z): (2147483647, 65535, 65535)
  Maximum memory pitch:                          2147483647 bytes
  Texture alignment:                             512 bytes
  Concurrent copy and kernel execution:          Yes with 2 copy engine(s)
  Run time limit on kernels:                     Yes
  Integrated GPU sharing Host Memory:            No
  Support host page-locked memory mapping:       Yes
  Alignment requirement for Surfaces:            Yes
  Device has ECC support:                        Disabled
  Device supports Unified Addressing (UVA):      Yes
  Device PCI Domain ID / Bus ID / location ID:   0 / 1 / 0
  Compute Mode:
     < Default (multiple host threads can use ::cudaSetDevice() with device simultaneously) >

deviceQuery, CUDA Driver = CUDART, CUDA Driver Version = 8.0, CUDA Runtime Version = 8.0, NumDevs = 1, Device0 = GeForce GTX 1060
Result = PASS
```

五、cudnn 的安装

将 home 目录下的 cudnn 安装包解压

然后开启终端输入以下指令

```
sudo cp cuda/include/cudnn.h /usr/local/cuda/include
sudo cp cuda/lib64/libcudnn* /usr/local/cuda/lib64
sudo chmod a+r /usr/local/cuda/include/cudnn.h
/usr/local/cuda/lib64/libcudnn*
```

然后切换至目录/usr/local/cuda/lib64

```
sudo ldconfig
```

六、anaconda2 的安装

```
sdugnn@sdugnn-P65xHP:~$ bash Anaconda2-4.4.0-Linux-x86_64.sh

Welcome to Anaconda2 4.4.0 (by Continuum Analytics, Inc.)

In order to continue the installation process, please review the license
agreement.
Please, press ENTER to continue
>>>
```

此处直接按“Enter”键

接下来会有安装协议，直接按“Ctrl+c”跳过阅读

```
Do you approve the license terms? [yes|no]
>>>
```

此处“yes”

```
Anaconda2 will now be installed into this location:
/home/robert/anaconda2

  - Press ENTER to confirm the location
  - Press CTRL-C to abort the installation
  - Or specify a different location below

[/home/robert/anaconda2] >>>
```

此处“Enter”

```
creating default environment...
installation finished.
Do you wish the installer to prepend the Anaconda2 install location
to PATH in your /home/robert/.bashrc ? [yes|no]
[no] >>>
```

此处“yes”

七、caffe 的编译

sudo unzip caffe-ssd

将修改后的 Makefile.config 复制到 caffe-ssd 目录下

然后 make -j6 等待完成

make py

然后 make runtest -j6