**一，环境配置**

**1. 首先准备python环境，ubuntu自带了python2.7.6，不用重新安装，但可能缺几个库： cython, python-opencv, easydict 等。**

**首先通过 sudo apt-get install python-pip 安装 pip管理工具， 然后安装cython, python-opencv,easydict**

**sudo apt-get install python-pip**

**pip install cython  
pip install easydict**

**apt-get install python-opencv**

**sudo apt-get install build-essential cmake libgtk2.0-dev pkg-config python-dev python-numpy libavcodec-dev** **libavformat-dev libswscale-dev**

**2. 安装caffe的依赖库，如boost，leveldb等， 此时执行以下命令，安装依赖库，** [**http://www.cnblogs.com/dupuleng/articles/4213834.html**](http://www.cnblogs.com/dupuleng/articles/4213834.html)

**sudo apt-get install libprotobuf-dev libleveldb-dev libsnappy-dev libopencv-dev libboost-all-dev libhdf5-serial-dev libgflags-dev libgoogle-glog-dev liblmdb-dev protobuf-compiler**

**sudo apt-get install libatlas-base-dev**

**3.安装python其他依赖项**

**sudo apt-get install ipython**

**sudo apt-get install ipython-notebook**

**sudo apt-get install python-sklearn**

**sudo apt-get install python-skimage**

**sudo apt-get install python-protobuf**

**sudo apt-get install python-yaml**

**二，安装SSD**

1. **下载代码**

**git clone https://github.com/weiliu89/caffe.git**

**cd caffe**

**git checkout ssd**

1. **编译caffe**

**先进入caffe的根目录下，即进入caffe文件夹**

**配置Makefile.config文件，主要要做如下修改：**

**CPU\_ONLY := 1**

**#CUDA\_ARCH := -gencode arch=compute\_20,code=sm\_20 \**

**# -gencode arch=compute\_20,code=sm\_21 \**

**# -gencode arch=compute\_30,code=sm\_30 \**

**# -gencode arch=compute\_35,code=sm\_35 \**

**# -gencode arch=compute\_50,code=sm\_50 \**

**# -gencode arch=compute\_50,code=compute\_50**

**# In your Makefile.config, make sure to have this line uncommented**

**WITH\_PYTHON\_LAYER := 1**

**# Unrelatedly, it's also recommended that you use CUDNN**

**#USE\_CUDNN := 1**

**然后执行编译，-j8表示同时按8线程编译，取决于你的机器。**

**# Modify Makefile.config according to your Caffe installation.**

**cp Makefile.config.example Makefile.config**

**。。。**

**make -j8**

**# Make sure to include $CAFFE\_ROOT/python to your PYTHONPATH.**

**export PYTHONPATH=$PYTHONPATH:/root/caffe/python**

**make pycaffe**

**make test -j8**

**make runtest -j8**

1. **可能遇到的错误**

**（1）如果出现以下错误**

**In file included from ./include/caffe/util/device\_alternate.hpp:40:0,**

**from ./include/caffe/common.hpp:19,**

**from ./include/caffe/blob.hpp:8,**

**from ./include/caffe/net.hpp:10,**

**from src/caffe/solver.cpp:7:**

**./include/caffe/util/cudnn.hpp:8:34: fatal error: caffe/proto/caffe.pb.h: No such file or directory**

**#include "caffe/proto/caffe.pb.h"**

**^**

**compilation terminated.**

**缺少caffe.pb.h文件，执行以下命令，**

**$ protoc src/caffe/proto/caffe.proto --cpp\_out=.**

**$ mkdir include/caffe/proto**

**$ mv src/caffe/proto/caffe.pb.h include/caffe/proto**

**【补充】装GPU环境:**

1.安装cuda

(1) 首先在官网上下载cuda安装包，本人下载deb本地安装文件， 2g左右。（下载deb文件为cuda-repo-ubuntu1404-8-0-local\_8.0.44-1\_amd64.deb）：

(2)下载完后，按照下面命令进行安装

sudo dpkg -i cuda-repo-ubuntu1404-8-0-local\_8.0.44-1\_amd64.deb

sudo apt-get update

sudo apt-get install cuda

(3)设置设置环境变量

打开系统文件/etc/profile，在最后加入以下两句  
export PATH=/usr/local/cuda-8.0/bin:$PATH  
export LD\_LIBRARY\_PATH=/usr/local/cuda-8.0/lib64:$LD\_LIBRARY\_PATH

2.安装cuDNN，cuDNN是GPU加速计算深层神经网络的库。

(1) 首先在官网上下载，本人的下载文件是：cudnn-8.0-linux-x64-v5.1-tgz

（2）在终端中切换到cudnn所在文件夹，解压该tgz文件，并拷贝cudnn库到系统路径下：

$ sudo tar xvf cudnn-8.0-linux-x64-v5.1-tgz

$ cd cuda/include

$ sudo cp \*.h /usr/local/include/

$ cd ../lib64

$ sudo cp lib\* /usr/local/lib/

（3）在终端中切换到系统路径下，建立软链接：

$ cd /usr/local/lib

$ sudo chmod +r libcudnn.so.5.1.5

$ sudo ln -sf libcudnn.so.5.1.5 libcudnn.so.5

$ sudo ln -sf libcudnn.so.5 libcudnn.so

$ sudo ldconfig

1. 编译caffe

进入caffe的根目录下，修改**Makefile.config文件，修改点如下：**

**（1）关闭cpu开关**

**#CPU\_ONLY := 1**

**（2）打开cuda相关的设置**

**CUDA\_DIR := /usr/local/cuda**

**CUDA\_ARCH := -gencode arch=compute\_20,code=sm\_20 \**

**-gencode arch=compute\_20,code=sm\_21 \**

**-gencode arch=compute\_30,code=sm\_30 \**

**-gencode arch=compute\_35,code=sm\_35 \**

**-gencode arch=compute\_50,code=sm\_50 \**

**（3）打开cudnn的开关**

**USE\_CUDNN := 1**

**（4）如果gcc,g++版本太低，升级到5.3，**

sudo add-apt-repository ppa:ubuntu-toolchain-r/test

sudo apt-get update

sudo apt-get install software-properties-common

sudo apt-get install gcc-5 g++-5

cd /usr/bin

sudo rm gcc

sudo ln -s gcc-5 gcc

sudo rm g++

sudo ln -s g++-5 g++

**（5）重新编译**

make –j8

export PYTHONPATH=$PYTHONPATH:/home/caffe/python

make pycaffe

make test -j8

make runtest -j8