萌萌安装新的源（否则leveldb-devel 和 hdf5-devel找不到）
yum install -y https://dl.fedoraproject.org/pub/epel/epel-release-latest-7.noarch.rpm
即可

```
yum install protobuf-devel leveldb-devel snappy-devel  boost-devel hdf5-devel
不用安装 opencv-devel
yum remove  opencv-devel*
 pkg-config --modversion opencv
yum install gflags-devel glog-devel lmdb-devel
```

BLAS via ATLAS, MKL, or OpenBLAS.
安装OpenBLAS
==========
Boost >= 1.55
用rpm -qa boost 查看CentOS的boost版本
boost-1.53.0-27.el7.x86_64
删除Linux自带的boost
rpm -e boost-devel-1.53.0-27.el7.x86_64 （删除依赖）
rpm -e boost-1.53.0-27.el7.x86_64

[root@bogon my_build_dir]# rpm -qa boost （只是查看安装包的版本）
boost-1.53.0-27.el7.x86_64
==========
1.下载 boost
2. 将文件解压在/usr/local/目录下
tar -xzvf boost_1_68_0.tar.gz
3. 进入/usr/local/boost/ 目录， 在terminal中输入
./bootstrap.sh
4.
./b2 install --prefix=/usr/local/ （暂时用这个，将boost安装到路径下面的lib和include）
5.
添加环境变量（刚改完要重启或者注销一下来更新刚修改过的环境变量）
两种方法：

（1）修改/etc/profie文件 末尾添加
export BOOST_INCLUDE=/usr/local/include/boost
export BOOST_LIB=/usr/local/lib
source /etc/profie

如何用程序调用boost，输出版本？？？？？
验证boost的版本是否满足>=1.55(暂时查不到)
==========
安装boost Python3
==========
6.下载Caffe
git clone git://github.com/BVLC/caffe.git
7.安装Caffe
cd caffe
cp Makefile.config.example Makefile.config

Adjust Makefile.config (for example, if using Anaconda Python, or if cuDNN is desired)
注意要首先配置Makefile.config文件

vi /etc/profile
LD_LIBRARY_PATH=/opt/OpenBLAS/lib:/usr/local/lib64
export LD_LIBRARY_PATH
source /etc/profile

vi ~/.bashrc
export LD_LIBRARY_PATH="/root/anaconda3/lib:$LD_LIBRARY_PATH"
source ~/.bashrc

cp /root/anaconda3/lib/libicui18n.so.58 /usr/lib
make clean
make all
成功
make pycaffe
成功

==========
加入环境变量，
vi /etc/profile
LD_LIBRARY_PATH=/opt/OpenBLAS/lib:/usr/local/lib64:/usr/local/lib
source /etc/profile
==========
Python路径
vi ~/.bashrc
export PYTHONPATH=/opt/installFile/caffe/python:$PYTHONPATH
export PYTHONPATH=/usr/include:$PYTHONPATH
source ~/.bashrc
验证
Python
import google.protobuf不报错

pip install protobuf
vi ~/.bashrc
export PYTHONPATH=/root/anaconda3/lib/python3.7/site-packages/google:$PYTHONPATH
source ~/.bashrc

mv /opt/installFile/caffe/python/caffe/proto/caffe_pb2.py /opt/installFile/caffe/python/caffe/proto/caffe_pb2.py.bak1

cp caffe_pb2.py /opt/installFile/caffe/python/caffe/proto/

python
import caffe
成功!
cd /opt/installFile/open_nsfw-master
vi /root/anaconda3/lib/python3.7/site-packages/skimage/io/_io.py 注释掉warn
  warn(`as_grey` has been deprecated in favor of `as_gray`')
python picRecg.py
==========以下不用

make test

make runtest

错误提示：找不到libopencv_core.so.3.4

[root@bogon caffe]# find / -name libopencv_core.so.3.4

/usr/local/lib64/libopencv_core.so.3.4

于是在/etc/profile 里面加上

LD_LIBRARY_PATH=/opt/OpenBLAS/lib:/usr/local/lib64

export LD_LIBRARY_PATH

成功！！！

安装python caffe过程中遇到的一些问题以及对应的解决方案

修改Makefile.config　关于Python3的设置

```
# NOTE: this is required only if you will compile the python interface.
# We need to be able to find Python.h and numpy/arrayobject.h.
PYTHON_INCLUDE := /usr/include/python2.7 \
		/usr/lib/python2.7/dist-packages/numpy/core/include
# Anaconda Python distribution is quite popular. Include path:
# Verify anaconda location, sometimes it's in root.
ANACONDA_HOME := $/root/anaconda3
# PYTHON_INCLUDE := $(ANACONDA_HOME)/include \
		# $(ANACONDA_HOME)/include/python2.7 \
		# $(ANACONDA_HOME)/lib/python2.7/site-
packages/numpy/core/include

# Uncomment to use Python 3 (default is Python 2)
PYTHON_LIBRARIES := boost_python3 python3.7m
#PYTHON_INCLUDE := /usr/include/python3.5m \
#		/usr/lib/python3.5/dist-packages/numpy/core/include
PYTHON_INCLUDE :=$(ANACONDA_HOME)/include \
		$(ANACONDA_HOME)/include/python3.7m \
		$(ANACONDA_HOME)/lib/python3.7/site-packages/numpy/core/include
```

继续

make clean
make all

CXX tools/caffe.cpp
CXX/LD -o .build_release/tools/caffe.bin
/root/anaconda3/lib/libicui18n.so.58: undefined reference to
`__cxa_throw_bad_array_new_length@CXXABI_1.3.8'
/root/anaconda3/lib/libicui18n.so.58: undefined reference to `operator
delete(void*, unsigned long)@CXXABI_1.3.9'
collect2: error: ld returned 1 exit status
make: *** [.build_release/tools/caffe.bin] Error 1

yum whatprovides libstdc++.so.6
然后会提示哪个安装包有这个库文件如下（安装最新的update版本）
yum install libstdc++-4.8.5-28.el7_5.1.i686（不管用）

vi ~/.bashrc
export LD_LIBRARY_PATH="/root/anaconda3/lib:$LD_LIBRARY_PATH"
source ~/.bashrc

vi /etc/profile（增加了/root/anaconda3/lib）（不管用-又改了回去）
LD_LIBRARY_PATH=/opt/OpenBLAS/lib:/usr/local/lib64:/root/anaconda3/lib
source /etc/profile

cp /root/anaconda3/lib/libicui18n.so.58 /usr/lib
make clean
make all
竟然成功了！！！
==========
Python
import caffe
找不到模块
To compile the Python and MATLAB wrappers do `make pycaffe` and `make matcaffe` respectively. Be sure to set your MATLAB and Python paths in `Makefile.config` first!

make pycaffe 找不到Python。h
注释掉PYTHON_INCLUDE := /usr/include/python2.7 \
ANACONDA_HOME := /root/anaconda3 这个原来写错了

继续make pycaffe：
CXX/LD -o python/caffe/_caffe.so python/caffe/_caffe.cpp
/usr/bin/ld: cannot find -lboost_python3

找不到boost_python3
find　找到 /usr/lib64/libboost_python.so.1.53.0
vi /etc/profile
LD_LIBRARY_PATH=/opt/OpenBLAS/lib:/usr/local/lib64:/usr/lib64
source /etc/profile

继续make pycaffe:（不管用）
cp /usr/lib64/libboost_python.so.1.53.0 /usr/lib
继续make pycaffe:（不管用）
makeFile里面uncomment
PYTHON_LIB := $(ANACONDA_HOME)/lib
继续make clean ，make all
make pycaffe（不管用）

LIBRARY_DIRS := $(PYTHON_LIB) /usr/local/lib /usr/lib
增加/usr/lib64？？（不管用）

PYTHON_LIBRARIES := boost_python3 python3.7m
Pycaffe and Matcaffe interfaces have their own natural needs.

- For Python Caffe: Python 2.7 or Python 3.3+, numpy (>= 1.7), boost-provided boost.python

首先去/usr/lib/x86_64-linux-gnu目录下查看是否有python3版本的libboost，如果有类似libboost_python35.so但是没有libboost_python3.so则需要手动建立连接。

[root@bogon caffe]# find / -name libboost_python*
/usr/lib64/libboost_python-mt.so.1.53.0

/usr/lib64/libboost_python.so.1.53.0
好像不是Python3的boost版本
安装了boost Python3之后，成功了！！

To import the `caffe` Python module after completing the installation, add the module directory to your `$PYTHONPATH` by `export PYTHONPATH=/path/to/caffe/python:$PYTHONPATH` or the like. You should not import the module in the `caffe/python/caffe` directory!

在路径目录/opt/installFile/caffe/python中，运行import caffe
报错：
ImportError: libboost_python37.so.1.68.0: cannot open shared object file: No such file or directory
原因是没有加入环境变量，在vi etc/profile
LD_LIBRARY_PATH=/opt/OpenBLAS/lib:/usr/local/lib64:/usr/local/lib
source一下即可
出现新的问题：
ModuleNotFoundError: No module named 'google'

直接设置环境变量即可？
vi ~/.bashrc
export PYTHONPATH=/opt/installFile/caffe/python:$PYTHONPATH
source ~/.bashrc

python,import caffe
ModuleNotFoundError: No module named 'google'
export PYTHONPATH=/usr/include:$PYTHONPATH
解决，出现新的问题：
ModuleNotFoundError: No module named 'google.protobuf.internal'
`yum install protobuf-devel`
`Package protobuf-devel-2.5.0-8.el7.x86_64 already installed and latest version`

2. anaconda来配置python环境（python2.7）

- **先使用pip install -r requirements.txt 来安装pycaffe所需依赖库**

对比python/requirements.txt 安装还没安装的，其中leveldb不要装，不然会和上面的冲突。**其中protobuf千万不要用conda install来安装，要用~/anaconda2/bin/pip install protobuf 安装，不然import caffe会出现ImportError: No module named google.protobuf.internal**

尝试安装protobuf： **pip install protobuf**

find / -name protobuf

/root/anaconda3/lib/python3.7/site-packages/google/protobuf

vi ~/.bashrc

export PYTHONPATH=/root/anaconda3/lib/python3.7/site-packages/google:$PYTHONPATH

source。。。。

解决，出现新问题

File "/root/anaconda3/lib/python3.7/site-packages/google/protobuf/descriptor.py", line 878, in __new__

return _message.default_pool.AddSerializedFile(serialized_pb)

TypeError: expected bytes, str found

Seems like python3-protobuf and protobuf are incompatible.

卸载yum remove protobuf

yum list installed |grep protobuf

yum remove protobuf*

解决，出现新的问题：

ImportError: libprotobuf.so.8: cannot open shared object file: No such file or directory

yum install protobuf-devel

解决了上述问题，但是又出现了TypeError: expected bytes, str found

原因：编译生成的caffe_pb2.py有问题

解决：找一份正确的caffe_pb2.py替换原来的caffe/python/caffe/proto/caffe_pb2.py即可

之前我在Ubnutu安装成功了，这次是centos系统的服务器，直接把之前的caffe/python/caffe/proto/caffe_pb2.py拿过来替换了。再次import caffe 成功。替换文件我已上传到我的百度云：https://pan.baidu.com/s/1OB1KUeQvtAcyrywX4wRnlA

另一种：升级protoc（不管用）

```
$protoc --version
libprotoc 3.2.0
```

升级之后重新编译试试

```
make  pycaffe无法运行
make clean
make all 错误
.build_release/src/caffe/proto/caffe.pb.h:23:35: fatal error:
google/protobuf/arena.h: No such file or directory
```

再更改为原来的protoc 版本吧。。。

```
[root@bogon installFile]# protoc --version
yum remove protobuf*
 yum install protobuf-devel
```

版本恢复

```
make clean
make all
make pycaffe
```

import caffe还是不管用

/opt/installFile/caffe/python

sh installLjm.sh 安装官网的requirement，然后运行Python，竟然出错

```
Traceback (most recent call last):
  File "<stdin>", line 1, in <module>
  File "/opt/installFile/caffe/python/caffe/__init__.py", line 1, in <module>
    from .pycaffe import Net, SGDSolver, NesterovSolver, AdaGradSolver,
RMSPropSolver, AdaDeltaSolver, AdamSolver, NCCL, Timer
  File "/opt/installFile/caffe/python/caffe/pycaffe.py", line 15, in <module>
    import caffe.io。。。。。。。。。。。
```

重新make pycaffe试试

```
[root@bogon caffe]# make pycaffe
```

make: Nothing to be done for `pycaffe'.
make clean
make all
make pycaffe
还是出错
pip install python-dateutil --upgrade
解决了

是不是应该用pip3 安装啊**pip3 install protobuf？？？**

==========
安装好以后我们就可以试着在mnist上跑一下lenet了。
1.首先获取mnist数据
cd caffe
./data/mnist/get_mnist.sh
2.然后创建lenet
./examples/mnist/create_mnist.sh
注意一定要在caffe的根目录下运行以下命令，否则会
报“ build/examples/mnist/convert_mnist_data.bin: not found”的错误，参见这里。
3.训练cnn
没有gpu的话要记得把caffe/examples/mnist/lenet_solver.prototxt中的solver_mode设置成solver_mode: CPU。然后在根目录下执行：
./examples/mnist/train_lenet.sh

解决了atlas的问题，出现新的opencv的问题
//usr/local/lib64/libopencv_core.so.3.4: error adding symbols: DSO missing from command line
collect2: error: ld returned 1 exit status
make: *** [.build_release/examples/cpp_classification/classification.bin] Error 1
[root@bogon lib]# find / -name opencv2
/usr/include/opencv2

/usr/local/include/opencv2
系统自带了opencv2，库文件冲突

you have two versions of opencv installed 3.2 and 2.4 and all are pointed on libopencv_imgcodecs.so symlic,you either have to unink one of them..escpeically if in your caffe Makefile you are using opencv=3 then you have to remove 2.4,good luck – Eliethesaiyan May 23 '17 at 2:21

```
yum list installed |grep opencv*
opencv.x86_64                2.4.5-3.el7              @base
opencv-core.x86_64           2.4.5-3.el7              @base
opencv-devel.x86_64          2.4.5-3.el7              @base
```

Package opencv was not found in the pkg-config search path.
然后Python3，import cv2，仍然成功
>>> print(cv2.__version__)
3.4.3版本是opencv3

make clean
make all
通过