2016/11/14, Monday, Cloudy

```
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```

1. Install cuda

```
1. download .deb from website
2. sudo dpkg -i cuda-repo-ubuntu1404-8-0-local-8.0.44-1_amd64.deb
3. sudo apt-get update
4. sudo apt-get install cuda
```

Error info:

```
The following packages have unmet dependencies:
 unity-control-center : Depends: libcheese-gtk23 (>= 3.4.0) but it is not
going to be installed
                        Depends: libcheese7 (>= 3.0.1) but it is not going
 to be installed
```

Solved by:

```
sudo apt-get install libglew-dev libcheese7 libcheese-gtk23 libclutter-gst
-2.0-0 libcogl15 libclutter-gtk-1.0-0 libclutter-1.0-0
```

2. Install scikit-learn according to the installation documentation

3. Install bcnn

1. download bcnn: `git clone https://bitbucket.org/tsungyu/bcnn.git`
   download bcnn-package: `git clone https://bitbucket.org/tsungyu/bcnn-package.git`
   download vlfeat: `git clone https://github.com/vlfeat/vlfeat.git`
   download matconvnet: `git clone https://github.com/vlfeat/matconvnet.git`

2. move `bcnn-package` , `vlfeat` , and `matconvnet` to bcnn directory:

```
--bcnn
    --bcnn-package
    --vlfeat
    --matconvnet
    ...
```

3. install `vlfeat` :

```
cd /path/to/bcnn/vlfeat
sudo make
matlab
> run ./toolbox/vl_setup
> vl_demo
```

4. install `matconvnet` (must already installed cuda):

```
cd /path/to/bcnn/matconvnet
matlab
> run ./matlab/vl_compilenn.m
```

info:

```
A lot of complaints that `gcc/g++-4.8.3` are not supported. However,
it said 'compile succeeded'.
```

setup `matconvnet` :

```
> run ./matlab/vl_setupnn.m
```

5. install `bcnn` :

```
cd /path/to/bcnn
matlab
> run ./setup.m
```

download `bcnn-cub-dm.mat` , and put it under `/path/to/bcnn/data/ft_models` .
download `svm-cub-vdm.mat` , and put it under `/path/to/bcnn/data/models`

```
> run bird_demo.m
```

4. install caffe dependencies

```
sudo apt-get install libprotobuf-dev libleveldb-dev libsnappy-dev libopenc
v-dev libhdf5-serial-dev protobuf-compiler
sudo apt-get install --no-install-recommends libboost-all-dev
sudo apt-get install libatlas-base-dev
sudo apt-get install python-dev
sudo apt-get install libgflags-dev libgoogle-glog-dev liblmdb-dev
```

Install Opencv3.1:

```
[compiler] sudo apt-get install build-essential
[required] sudo apt-get install cmake git libgtk2.0-dev pkg-config libavco
dec-dev libavformat-dev libswscale-dev
[optional] sudo apt-get install python-dev python-numpy libtbb2 libtbb-dev
 libjpeg-dev libpng-dev libtiff-dev libjasper-dev libdc1394-22-dev

cd ~/<my_working_directory>
git clone https://github.com/opencv/opencv.git

cd ~/<my_working_directory>/opencv
mkdir <cmake_binary_dir> # any name you like
cd <cmake_binary_dir>
cmake -D CMAKE_BUILD_TYPE=RELEASE -D CMAKE_INSTALL_PREFIX=/usr/local ..
make
sudo make install
```

Install cudnn5.1 (not verified, expected to failed)

```
download cudnn from website:
    cudnn-8.0-linux-x64-v5.1.tgz
tar -xzvf cudnn-8.0-linux-x64-v5.1.tgz
sudo cp cuda/ /usr/local/cudnn5_1 -r
```

5. On making `/path/to/bcnn/run_experiments_bcnn_train.m` run

The architecture of a bcnn is typically:

```
two CNNs -> bilinearpool -> sqrt_norm -> l2_norm -> conv_classifier -> sof
```

```
tmaxloss
```

If the two CNNs which are pre-trained models on the `imagenet dataset` are the same, the bcnn is saied to be symmetric, otherwise asymmetric.
Either two `imagenet-vgg-m.mat` or `imagenet-vgg-verydeep-16.mat` models sharing the same weights or one of each is tested.

Under `/path/to/bcnn/data/models`, `imagenet-vgg-m.mat` is seems to be broken, while the other is complete.

It seems that `run_experiments_bcnn_train.m` by default uses the setting of two `imagenet-vgg-m.mat`. To make it run:

Attemptation 1.

- change `/path/to/bcnn/run_experiments_bcnn_train.m`:

  ```
  encoderList = {{bcnnvdvd}}
  ```

- change `/path/to/bcnn/model_setup.m` (according to `run_experiments_bcnn_train.m`):

  ```
  % opts.model = 'imagenet-vgg-m.mat'
  % opts.modela = 'imagenet-vgg-m.mat'
  % opts.cropSize = 227/256
  % opts.model = 'imagenet-vgg-verydeep-16.mat'
  % opts.modela = 'imagenet-vgg-verydeep-16.mat'
  ```

```
> run run_experiments_bcnn_train.m
```

output info:

```
         layer|      0|         1|      2|
          type|  input|      conv|softmxl|
          name|    n/a|classifier|   loss|
    ----------|-------|----------|-------|
       support|    n/a|         1|      1|
      filt dim|    n/a|    262144|    n/a|
    filt dilat|    n/a|         1|    n/a|
     num filts|    n/a|       200|    n/a|
        stride|    n/a|         1|      1|
           pad|    n/a|         0|      0|
```

```
----------|-------|----------|-------|
   rf size|    n/a|         1|      1|
 rf offset|    n/a|         1|      1|
 rf stride|    n/a|         1|      1|
----------|-------|----------|-------|
 data size|NaNxNaN|   NaNxNaN|NaNxNaN|
data depth|    NaN|       200|      1|
  data num|    256|       256|      1|
----------|-------|----------|-------|
  data mem|    NaN|       NaN|    NaN|
 param mem|    n/a|     200MB|     0B|

parameter memory|200MB (5.2e+07 parameters)|
     data memory|  NaN (for batch size 256)|

cnn_train: resetting GPU
Clearing mex files
  CUDADevice with properties:

                      Name: 'GeForce GTX TITAN X'
                     Index: 1
         ComputeCapability: '5.2'
            SupportsDouble: 1
             DriverVersion: 8
            ToolkitVersion: 7
        MaxThreadsPerBlock: 1024
          MaxShmemPerBlock: 49152
        MaxThreadBlockSize: [1024 1024 64]
               MaxGridSize: [2.1475e+09 65535 65535]
                 SIMDWidth: 32
               TotalMemory: 1.2800e+10
           AvailableMemory: 1.2623e+10
       MultiprocessorCount: 24
              ClockRateKHz: 1076000
               ComputeMode: 'Default'
      GPUOverlapsTransfers: 1
    KernelExecutionTimeout: 0
          CanMapHostMemory: 1
           DeviceSupported: 1
            DeviceSelected: 1

train: epoch 01:   1/ 24:Error using load
Unable to read file 'data/checkgpu/cub-seed-01/nonftbcnn/bcnn_nonft_07
```

```
031'. No such file or directory.

    Error in initializeNetworkSharedWeights>getBatch_bcnn_fromdisk (line 2
01)
        load(fullfile(imdb.imageDir, imdb.images.name{batch(i)}));
```

ERROR OCCURED!!

In addition to the ‘No such file or directory’ error, the network seems not to be constructed correctly.