

知能システム学特論レポート

(DL2 班) Caffe on Ubuntu

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2 進行状況

2.1 理論調査

DeeoLearning を使って何をするか. 宇宙ゴミの検出

2.2 プログラミング

- ソフトウェアのダウンロードとコンパイルはできた.
- サンプルの実行方法がまだわからない.

```
sudo apt-get install build-essential
```

```
sudo apt-get install -y libprotobuf-dev libleveldb-dev libsnappy-dev  
libopencv-dev libboost-all-dev libhdf5-serial-dev protobuf-compiler gfortran libjpeg62  
libfreeimage-dev libatlas-base-dev git python-dev python-pip  
libgoogle-glog-dev libbz2-dev libxml2-dev libxslt-dev libffi-dev  
libssl-dev libgflags-dev liblmdb-dev python-yaml
```

```
sudo easy_install pillow
```

```
git clone https://github.com/BVLC/caffe.git  
cd caffe
```

```
cat python/requirements.txt | xargs -L 1 sudo pip install
```

```
sudo ln -s /usr/include/python2.7/ /usr/local/include/python2.7  
sudo ln -s /usr/local/lib/python2.7/dist-packages/numpy/core/include/numpy/  
/usr/local/include/python2.7/numpy
```

```
cp Makefile.config.example Makefile.config
gedit Makefile.config
```

```
## Refer to http://caffe.berkeleyvision.org/installation.html
# Contributions simplifying and improving our build system are welcome!

# cuDNN acceleration switch (uncomment to build with cuDNN).
# USE_CUDNN := 1

# CPU-only switch (uncomment to build without GPU support).
# CPU_ONLY := 1
```

```
CPU_ONLY := 1
```

```
# 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
```

```
make pycaffe
make all
make test
```

```
./scripts/download_model_binary.py models/bvlc_reference_caffenet
./data/ilsvrc12/get_ilsvrc_aux.sh
```

```
I0615 15:54:24.737364 17294 upgrade_proto.cpp:626] Successfully upgraded file specified
using deprecated V1LayerParameter
Traceback (most recent call last):
  File "python/classify.py", line 138, in <module>
    main(sys.argv)
  File "python/classify.py", line 110, in main
    channel_swap=channel_swap)
  File "/home/ry0/caffe/python/caffe/classifier.py", line 34, in __init__
    self.transformer.set_mean(in_, mean)
  File "/home/ry0/caffe/python/caffe/io.py", line 255, in set_mean
    raise ValueError('Mean shape incompatible with input shape.')
ValueError: Mean shape incompatible with input shape.
```

```
if ms != self.inputs[in_][1:]:
    raise ValueError('Mean shape incompatible with input shape.')
```

```
if ms != self.inputs[in_][1:]:
    print(self.inputs[in_])
    in_shape = self.inputs[in_][1:]
    m_min, m_max = mean.min(), mean.max()
    normal_mean = (mean - m_min) / (m_max - m_min)
    mean = resize_image(normal_mean.transpose((1,2,0)), in_shape[1:]).transpose((2,0,1))
    * (m_max - m_min) + m_min
```

```
import sys, numpy

categories = numpy.loadtxt(sys.argv[1], str, delimiter="\t")
```

```
scores = numpy.load(sys.argv[2])
top_k = 3
prediction = zip(scores[0].tolist(), categories)
prediction.sort(cmp=lambda x, y: cmp(x[0], y[0]), reverse=True)
for rank, (score, name) in enumerate(prediction[:top_k], start=1):
    print('%d | %s | %4.1f%%' % (rank, name, score * 100))
```