2017 SAIL 暑期培训

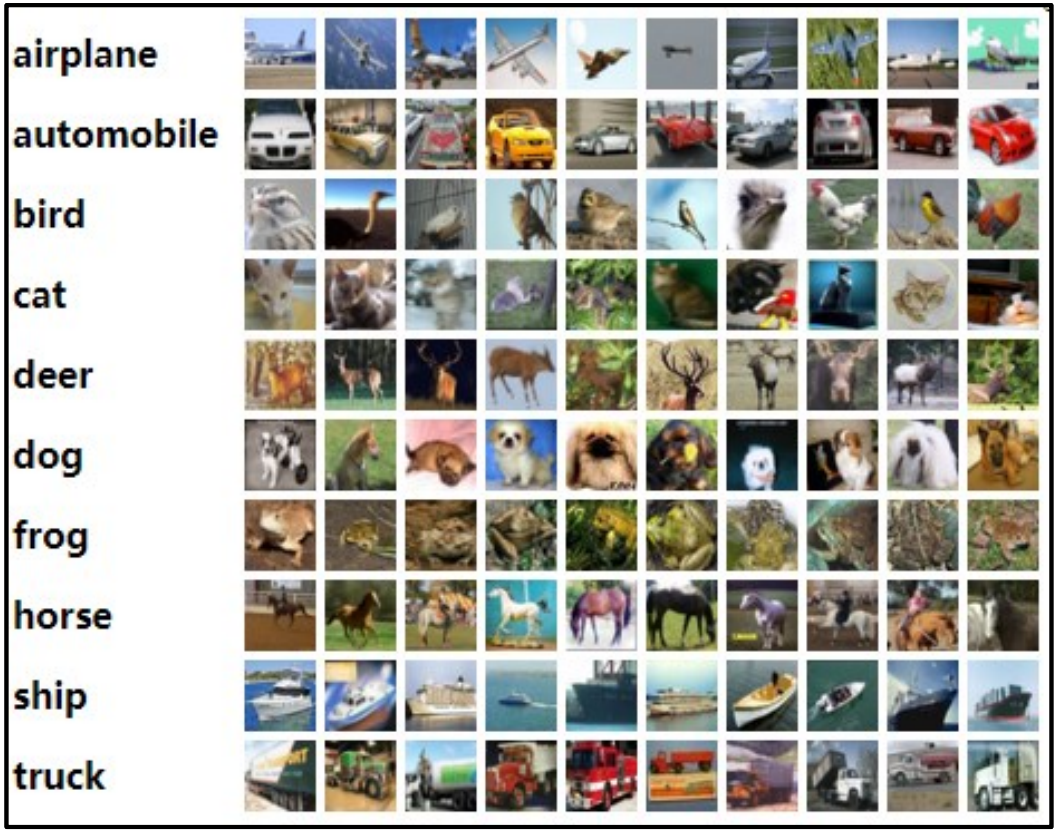
CIFAR-10 竞赛

庄壮伟

2017.07.28

数据集介绍

- 官网：https://www.cs.toronto.edu/~kriz/cifar.html
- **60k**张图片，**10**个类别，每个类别**6k**张图片
- 训练集包括**50k**张图片，测试集包括**10k**张图片



要求

评价标准：

- 方法不限，平台不限（建议用PyTorch或者Caffe）
- 根据测试集的准确率进行排名，精确到**0.001**
- 准确率相同，则根据时间进行排名, 精确到**0.01s**
- 排名第一得**100**分，最后一名为**10**分，其他为**0**分

- 使用Caffe需要在/home/test01/caffe-1.0/路径下运行命令
- 使用Caffe的python接口，需要将/home/test01/caffe-1.0/python/添加到PYTHONPATH

要求

附加说明：

- 请单独写好测试文件
- 最多使用**1**个GPU
- 测试时间**>10s**的模型不予考虑（减去初始化时间），测试时间的代码请在程序中写好
- 测试出错或者运行方式过于复杂的程序不予考虑
- 输出结果不合规范的程序不予考虑

要求

结果提交：

- 程序（Caffe: .prototxt, PyTorch: .py）
- 模型文件(Caffe: .caffemodel, PyTorch: .pkl)
- 说明文档
- 其他（自己认为可以对实验进行说明的文件）
- 打包发送到刘璟邮箱

邮件要求：

- Email: liujing_95@outlook.com
- Subject： 第X次作业_姓名_大学_导师

要求

时间计算

```
//模型搭建
//载入模型参数
//...
t = start_time
for (x, y) in enumerate(test_loader):
    //testing
t = end_time-t
//保存结果
```

要求

- 结果保存在txt文件中： result_name_school_supervisor.txt
- 内容：method testing_time accuracy

示例：
result_zhuangzhuangwei_scut_zhujinhui.txt

ResNet 1.8524 0.935

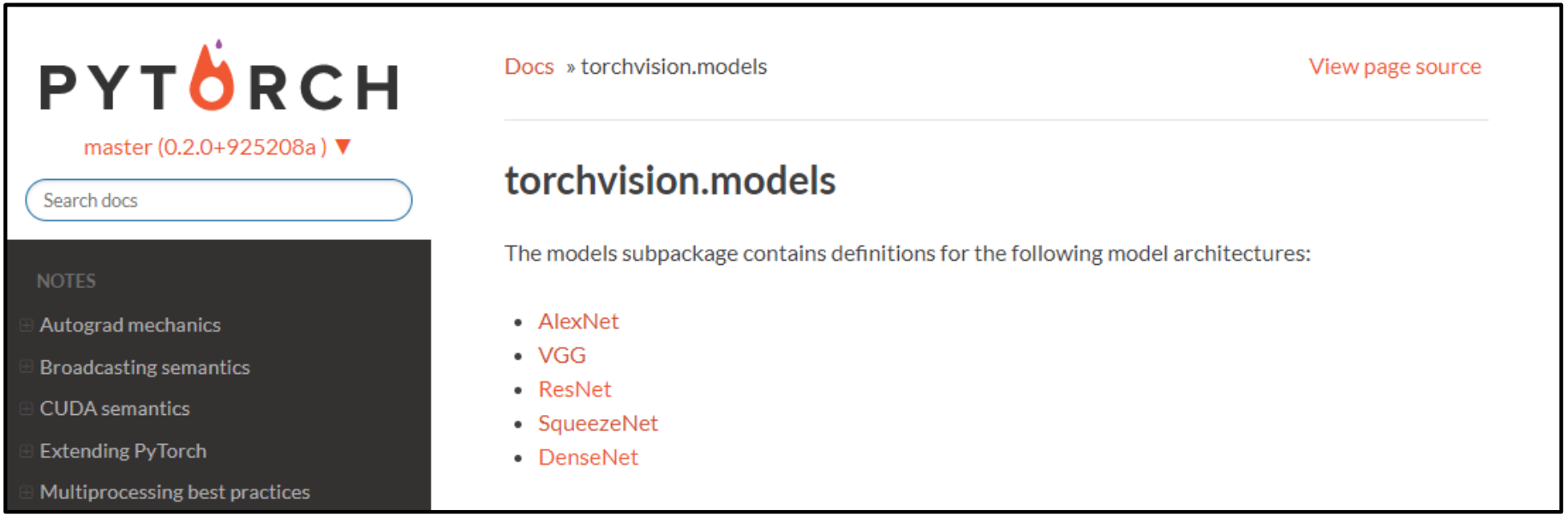
方法比较

Result	Method	Venue
96.53%	Fractional Max-Pooling	arXiv 2015
95.59%	Striving for Simplicity: The All Convolutional Net	ICLR 2015
94.16%	All you need is a good init	ICLR 2016
94%	Lessons learned from manually classifying CIFAR-10	unpublished 2011
93.95%	Generalizing Pooling Functions in Convolutional Neural Networks: Mixed, Gated, and Tree	AISTATS 2016
93.72%	Spatially-sparse convolutional neural networks	arXiv 2014
93.63%	Scalable Bayesian Optimization Using Deep Neural Networks	ICML 2015
93.57%	Deep Residual Learning for Image Recognition	arXiv 2015
93.45%	Fast and Accurate Deep Network Learning by Exponential Linear Units	arXiv 2015
93.34%	Universum Prescription: Regularization using Unlabeled Data	arXiv 2015

参考模型

- PyTorch:

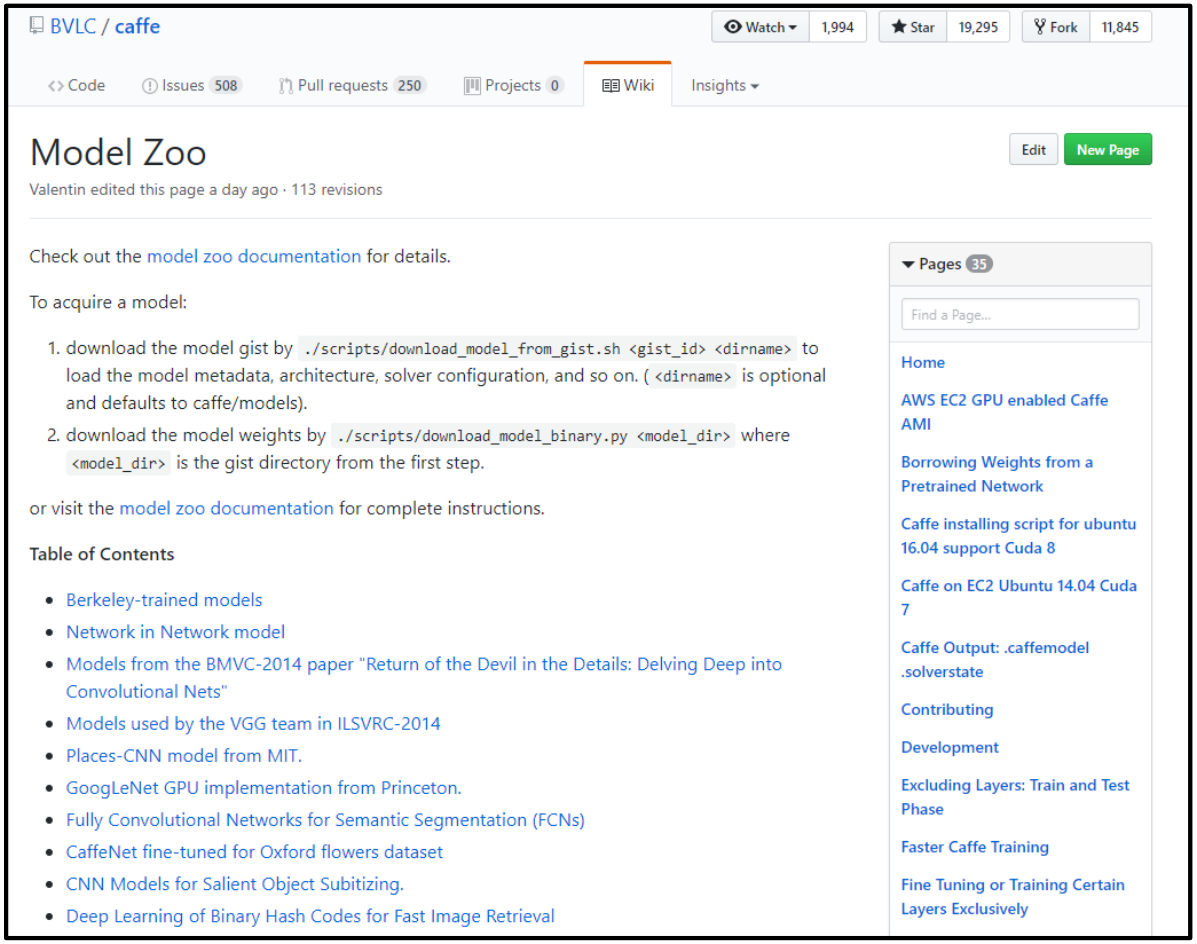
http://pytorch.org/docs/master/torchvision/models.html



参考模型

- Caffe:

https://github.com/BVLC/caffe/wiki/Model-Zoo



BVLC / caffe

Watch 1,994 Star 19,295 Fork 11,845

Code Issues 508 Pull requests 250 Projects 0 Wiki Insights

Model Zoo

Edit New Page

Valentin edited this page a day ago · 113 revisions

Check out the model zoo documentation for details.

To acquire a model:

1. download the model gist by `./scripts/download_model_from_gist.sh <gist_id> <dirname>` to load the model metadata, architecture, solver configuration, and so on. (`<dirname>` is optional and defaults to caffe/models).
2. download the model weights by `./scripts/download_model_binary.py <model_dir>` where `<model_dir>` is the gist directory from the first step.

or visit the model zoo documentation for complete instructions.

Table of Contents

- Berkeley-trained models
- Network in Network model
- Models from the BMVC-2014 paper "Return of the Devil in the Details: Delving Deep into Convolutional Nets"
- Models used by the VGG team in ILSVRC-2014
- Places-CNN model from MIT.
- GoogLeNet GPU implementation from Princeton.
- Fully Convolutional Networks for Semantic Segmentation (FCNs)
- CaffeNet fine-tuned for Oxford flowers dataset
- CNN Models for Salient Object Subitizing.
- Deep Learning of Binary Hash Codes for Fast Image Retrieval

Pages 35

Find a Page...

Home

AWS EC2 GPU enabled Caffe AMI

Borrowing Weights from a Pretrained Network

Caffe installing script for ubuntu 16.04 support Cuda 8

Caffe on EC2 Ubuntu 14.04 Cuda 7

Caffe Output: .caffemodel .solverstate

Contributing

Development

Excluding Layers: Train and Test Phase

Faster Caffe Training

Fine Tuning or Training Certain Layers Exclusively