Tensorflow 目标检测库安装手册

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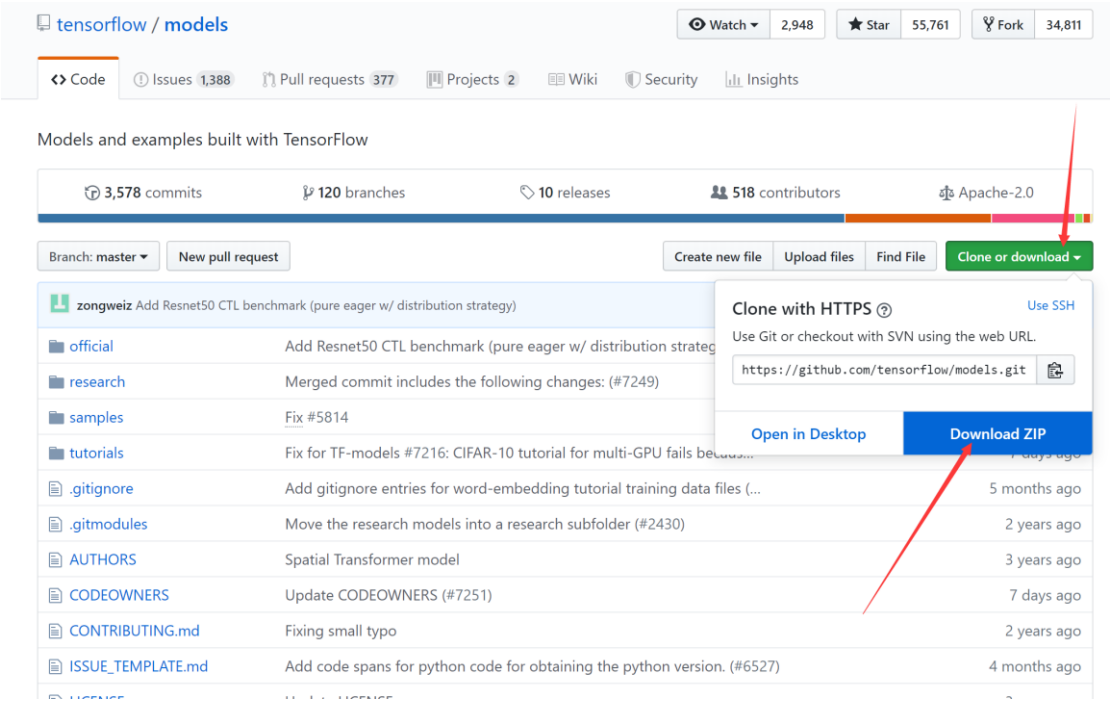
下载 TensorFlow Model 模型库

下载地址：https://github.com/tensorflow/models



配置 Model 环境

下载后，解压到~/tensorflow 目录下，为了与 github 目录结构一致，我们将 models-master 目录重命名为 models

得到如下目录结构~/tensorflow/models/research/object_detection

Tensorflow 的路径不清楚可以使用一下方法找到对应位置

$ python3

$ import tensorflow as tf

$ tf

如图可以查看到对应文件位置

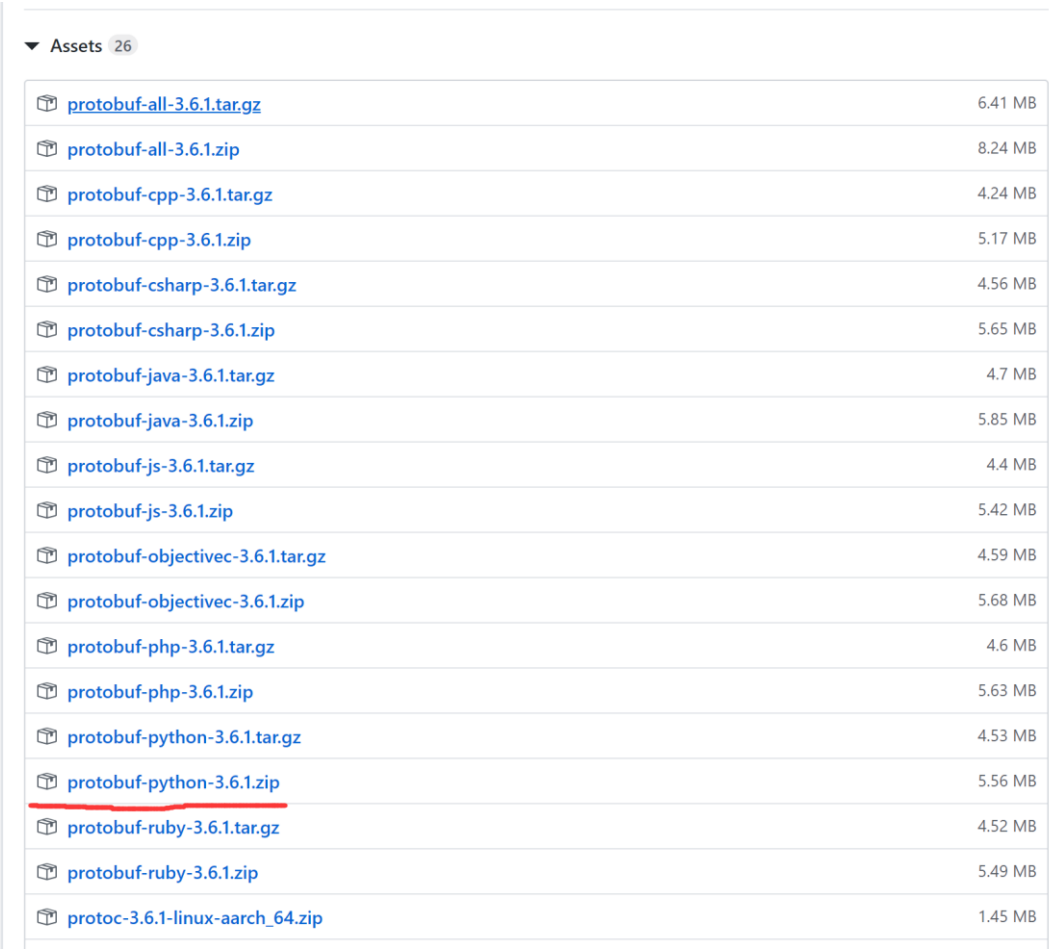
```
[root@localhost ~]# python3
Python 3.5.0 (default, Jul 22 2019, 16:06:17)
[GCC 4.8.5 20150623 (Red Hat 4.8.5-36)] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> import tensorflow
>>> tensorflow
<module 'tensorflow' from '/usr/local/lib/python3.5/site-packages/tensorflow/__init__.py'>
>>>
```

PROTOBUF 编译（非常重要）

下载地址：https://github.com/protocolbuffers/protobuf/releases/tag/v3.6.1

因为需要将.proto 文件编译成.py 文件因此需要下载对应的关于 python 的协议编译器

最后的 3.6.1 是 protocbuf 版本，与 python 版本无关



下载完成后，解压压缩包依次执行一下命令

$ unzip protobuf-python-3.6.1.zip

$ cd protobuf-3.6.1

$ ./configure

$ make

$ make check

$ make install

安装完成

查看安装是否成功，显示如图安装成功

$ protoc –version

```
[root@localhost protobuf-3.6.1]# protoc --version
libprotoc 3.6.1
```

安装完成进入~/tensorflow/models/research 目录下执行命令

$ protoc object_detection/protos/*.proto --python_out=.

进入 protos 里看到生成对应的.py 文件说明安装成功

```
[root@localhost research]# ll object_detection/protos/
总用量 708
-rw-r--r--. 1 root root   6955 7月  26 11:02 anchor_generator_pb2.py
-rw-r--r--. 1 root root    747 7月  25 14:32 anchor_generator.proto
-rw-r--r--. 1 root root   4522 7月  26 11:02 argmax_matcher_pb2.py
-rw-r--r--. 1 root root   1151 7月  25 14:32 argmax_matcher.proto
-rw-r--r--. 1 root root   2198 7月  26 11:02 bipartite_matcher_pb2.py
-rw-r--r--. 1 root root    350 7月  25 14:32 bipartite_matcher.proto
-rw-r--r--. 1 root root   6315 7月  26 11:02 box_coder_pb2.py
-rw-r--r--. 1 root root    656 7月  25 14:32 box_coder.proto
-rw-r--r--. 1 root root  37366 7月  26 11:02 box_predictor_pb2.py
-rw-r--r--. 1 root root   7365 7月  25 14:32 box_predictor.proto
-rw-r--r--. 1 root root  22834 7月  26 11:02 calibration_pb2.py
-rw-r--r--. 1 root root   2644 7月  25 14:32 calibration.proto
-rw-r--r--. 1 root root  12911 7月  26 11:02 eval_pb2.py
-rw-r--r--. 1 root root   3363 7月  25 14:32 eval.proto
-rw-r--r--. 1 root root   3552 7月  26 11:02 faster_rcnn_box_coder_pb2.py
-rw-r--r--. 1 root root    531 7月  25 14:32 faster_rcnn_box_coder.proto
-rw-r--r--. 1 root root  24113 7月  26 11:02 faster_rcnn_pb2.py
-rw-r--r--. 1 root root   8061 7月  25 14:32 faster_rcnn.proto
-rw-r--r--. 1 root root   6335 7月  26 11:02 flexible_grid_anchor_generator_pb2.py
-rw-r--r--. 1 root root    816 7月  25 14:32 flexible_grid_anchor_generator.proto
-rw-r--r--. 1 root root   4866 7月  26 11:02 graph_rewriter_pb2.py
-rw-r--r--. 1 root root    847 7月  25 14:32 graph_rewriter.proto
-rw-r--r--. 1 root root   5301 7月  26 11:02 grid_anchor_generator_pb2.py
-rw-r--r--. 1 root root   1020 7月  25 14:32 grid_anchor_generator.proto
-rw-r--r--. 1 root root  27101 7月  26 11:02 hyperparams_pb2.py
-rw-r--r--. 1 root root   4061 7月  25 14:32 hyperparams.proto
```

添加环境变量 PYTHONPATH

~/tensorflow/models/research/ 和 ~/tensorflow/models/research/slim 目录 需要添加到 PYTHONPATH 环境变量中

将以下代码添加到环境变量中 （注意：红字部分需要修改为对应的 python 路径）

export PYTHONPATH=$PYTHONPATH:/usr/local/lib/python3.5/site-packages/tensorflow/models/research:/usr/local/lib/python3.5/site-packages/tensorflow/models/research/slim

在~/tensorflow/models/research/路径执行命令查看 models 安装是否成功

$ python3 object_detection/builders/model_builder_test.py

```
[root@localhost research]# python3 object_detection/builders/model_builder_test.py
WARNING: Logging before flag parsing goes to stderr.
W0726 11:32:18.219308 139713721423680 lazy_loader.py:50]
The TensorFlow contrib module will not be included in TensorFlow 2.0.
For more information, please see:
  * https://github.com/tensorflow/community/blob/master/rfcs/20180907-contrib-sunset.md
  * https://github.com/tensorflow/addons
  * https://github.com/tensorflow/io (for I/O related ops)
If you depend on functionality not listed there, please file an issue.

W0726 11:32:18.403767 139713721423680 deprecation_wrapper.py:119] From /usr/local/lib/python3.5/site-p
 Please use tf.compat.v1.GraphKeys instead.

W0726 11:32:18.473580 139713721423680 deprecation_wrapper.py:119] From /usr/local/lib/python3.5/site-p
d. Please use tf.nn.avg_pool2d instead.

Running tests under Python 3.5.0: /usr/local/bin/python3
[ RUN      ] ModelBuilderTest.test_create_faster_rcnn_model_from_config_with_example_miner
[       OK ] ModelBuilderTest.test_create_faster_rcnn_model_from_config_with_example_miner
[ RUN      ] ModelBuilderTest.test_create_faster_rcnn_models_from_config_faster_rcnn_with_matmul
[       OK ] ModelBuilderTest.test_create_faster_rcnn_models_from_config_faster_rcnn_with_matmul
[ RUN      ] ModelBuilderTest.test_create_faster_rcnn_models_from_config_faster_rcnn_without_matmul
[       OK ] ModelBuilderTest.test_create_faster_rcnn_models_from_config_faster_rcnn_without_matmul
[ RUN      ] ModelBuilderTest.test_create_faster_rcnn_models_from_config_mask_rcnn_with_matmul
[       OK ] ModelBuilderTest.test_create_faster_rcnn_models_from_config_mask_rcnn_with_matmul
[ RUN      ] ModelBuilderTest.test_create_faster_rcnn_models_from_config_mask_rcnn_without_matmul
[       OK ] ModelBuilderTest.test_create_faster_rcnn_models_from_config_mask_rcnn_without_matmul
[ RUN      ] ModelBuilderTest.test_create_rfcn_model_from_config
[       OK ] ModelBuilderTest.test_create_rfcn_model_from_config
[ RUN      ] ModelBuilderTest.test_create_ssd_fpn_model_from_config
[       OK ] ModelBuilderTest.test_create_ssd_fpn_model_from_config
[ RUN      ] ModelBuilderTest.test_create_ssd_models_from_config
[       OK ] ModelBuilderTest.test_create_ssd_models_from_config
[ RUN      ] ModelBuilderTest.test_invalid_faster_rcnn_batchnorm_update
[       OK ] ModelBuilderTest.test_invalid_faster_rcnn_batchnorm_update
[ RUN      ] ModelBuilderTest.test_invalid_first_stage_nms_iou_threshold
[       OK ] ModelBuilderTest.test_invalid_first_stage_nms_iou_threshold
[ RUN      ] ModelBuilderTest.test_invalid_model_config_proto
[       OK ] ModelBuilderTest.test_invalid_model_config_proto
[ RUN      ] ModelBuilderTest.test_invalid_second_stage_batch_size
[       OK ] ModelBuilderTest.test_invalid_second_stage_batch_size
[ RUN      ] ModelBuilderTest.test_session
[  SKIPPED ] ModelBuilderTest.test_session
[ RUN      ] ModelBuilderTest.test_unknown_faster_rcnn_feature_extractor
[       OK ] ModelBuilderTest.test_unknown_faster_rcnn_feature_extractor
[ RUN      ] ModelBuilderTest.test_unknown_meta_architecture
[       OK ] ModelBuilderTest.test_unknown_meta_architecture
[ RUN      ] ModelBuilderTest.test_unknown_ssd_feature_extractor
[       OK ] ModelBuilderTest.test_unknown_ssd_feature_extractor
----------------------------------------------------------------------
Ran 16 tests in 0.091s

OK (skipped=1)
[root@localhost research]#
```

如上为安装成功