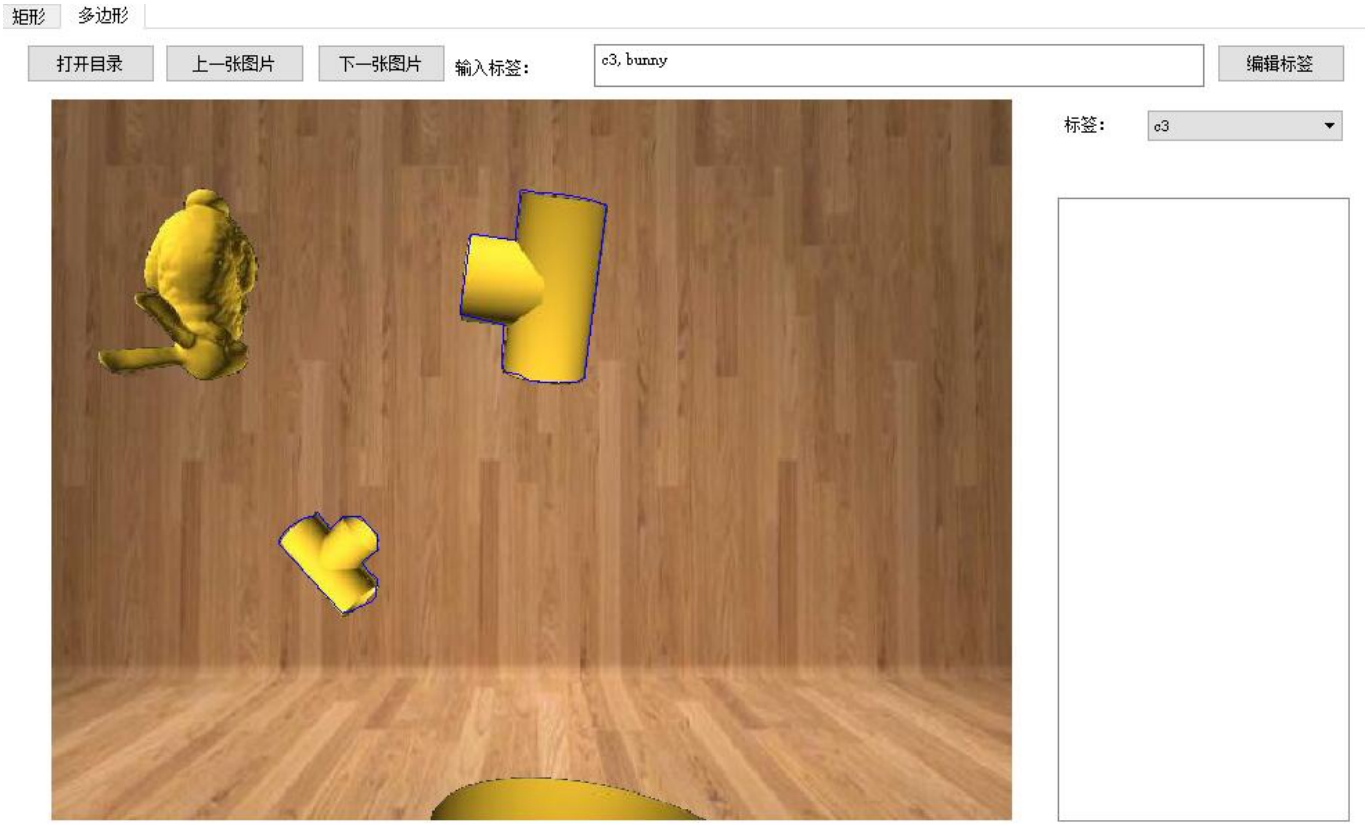
poly-yolo

1 标定

1.1 Poly Mask

首先需要使用多边形进行数据标定，如下图所示



1.2 Mask Data Type

标定得到的数据应为如下所示格式

```
<absolute-path-to-your-image>
bbox_x_min,bbox_y_min,bbox_x_max,bbox_y_max,label_index,poly_1_x,poly_1_y,poly_2_x
,poly_2_y,...,poly_n_x,poly_n_y
example:
E:/chLi/FilterSocket1/test/14.jpg
300,61,400,92,0,300,80,305,70,307,72,330,61,400,65,370,92,330,88,332,70
```

<absolute-path-to-your-image> bbox_x_min,bbox_y_min,bbox_x_max,bbox_y_max,label_index,poly_1_x,poly_1_y,poly_2_x,poly_2_y,...,poly_n_x,poly_n_y
example:
E:/chLi/FilterSocket1/test/14.jpg 300,61,400,92,0,300,80,305,70,307,72,330,61,400,65,370,92,330,88,332,70

并逐行排列写到名为 train.txt 的文本文件中

2 Environment

配置环境具有版本依赖的库包括：

```
tensorflow-gpu
keras
CUDA
CUDNN
```

经测试 tensorflow-gpu==1.15.0 与 keras==2.3.1 与 CUDA 10.0 与 CUDNN 7.6.5 for CUDA 10.0 可以成功运行GPU训练

2.1 tensorflow-gpu & keras

版本对应关系为

TensorFlow 2.2	tensorflow-2.2	TensorFlow 2.2.0 + Keras 2.3.1 on Python 3.7.
TensorFlow 2.1	tensorflow-2.1	TensorFlow 2.1.0 + Keras 2.3.1 on Python 3.6.
TensorFlow 2.0	tensorflow-2.0	TensorFlow 2.0.0 + Keras 2.3.1 on Python 3.6.
TensorFlow 1.15	tensorflow-1.15	TensorFlow 1.15.0 + Keras 2.3.1 on Python 3.6.
TensorFlow 1.14	tensorflow-1.14	TensorFlow 1.14.0 + Keras 2.2.5 on Python 3.6.
TensorFlow 1.13	tensorflow-1.13	TensorFlow 1.13.0 + Keras 2.2.4 on Python 3.6.
TensorFlow 1.12	tensorflow-1.12	TensorFlow 1.12.0 + Keras 2.2.4 on Python 3.6.
	tensorflow-1.12:py2	TensorFlow 1.12.0 + Keras 2.2.4 on Python 2.
TensorFlow 1.11	tensorflow-1.11	TensorFlow 1.11.0 + Keras 2.2.4 on Python 3.6.
	tensorflow-1.11:py2	TensorFlow 1.11.0 + Keras 2.2.4 on Python 2.
TensorFlow 1.10	tensorflow-1.10	TensorFlow 1.10.0 + Keras 2.2.0 on Python 3.6.
	tensorflow-1.10:py2	TensorFlow 1.10.0 + Keras 2.2.0 on Python 2.
TensorFlow 1.9	tensorflow-1.9	TensorFlow 1.9.0 + Keras 2.2.0 on Python 3.6.

	tensorflow-1.9:py2	TensorFlow 1.9.0 + Keras 2.2.0 on Python 2.
TensorFlow 1.8	tensorflow-1.8	TensorFlow 1.8.0 + Keras 2.1.6 on Python 3.6.
	tensorflow-1.8:py2	TensorFlow 1.8.0 + Keras 2.1.6 on Python 2.
TensorFlow 1.7	tensorflow-1.7	TensorFlow 1.7.0 + Keras 2.1.6 on Python 3.6.
	tensorflow-1.7:py2	TensorFlow 1.7.0 + Keras 2.1.6 on Python 2.
TensorFlow 1.5	tensorflow-1.5	TensorFlow 1.5.0 + Keras 2.1.6 on Python 3.6.
	tensorflow-1.5:py2	TensorFlow 1.5.0 + Keras 2.1.6 on Python 2.
TensorFlow 1.4	tensorflow-1.4	TensorFlow 1.4.0 + Keras 2.0.8 on Python 3.6.
	tensorflow-1.4:py2	TensorFlow 1.4.0 + Keras 2.0.8 on Python 2.
TensorFlow 1.3	tensorflow-1.3	TensorFlow 1.3.0 + Keras 2.0.6 on Python 3.6.
	tensorflow-1.3:py2	TensorFlow 1.3.0 + Keras 2.0.6 on Python 2.
TensorFlow 1.2	tensorflow-1.2	TensorFlow 1.2.0 + Keras 2.0.6 on Python 3.5.
	tensorflow-1.2:py2	TensorFlow 1.2.0 + Keras 2.0.6 on Python 2.

TensorFlow 1.1	tensorflow	TensorFlow 1.1.0 + Keras 2.0.6 on Python 3.5.
	tensorflow:py2	TensorFlow 1.1.0 + Keras 2.0.6 on Python 2.
TensorFlow 1.0	tensorflow-1.0	TensorFlow 1.0.0 + Keras 2.0.6 on Python 3.5.
	tensorflow-1.0:py2	TensorFlow 1.0.0 + Keras 2.0.6 on Python 2.
TensorFlow 0.12	tensorflow-0.12	TensorFlow 0.12.1 + Keras 1.2.2 on Python 3.5.
	tensorflow-0.12:py2	TensorFlow 0.12.1 + Keras 1.2.2 on Python 2.

2.2 tensorflow-gpu & CUDA & CUDNN

版本对应关系为

GPU

版本	Python 版本	编译器	构建工具	cuDNN	CUDA
tensorflow_gpu-1.12.0	3.5-3.6	MSVC 2015 update 3	Bazel 0.15.0	7	9
tensorflow_gpu-1.11.0	3.5-3.6	MSVC 2015 update 3	Bazel 0.15.0	7	9
tensorflow_gpu-1.10.0	3.5-3.6	MSVC 2015 update 3	Cmake v3.6.3	7	9
tensorflow_gpu-1.9.0	3.5-3.6	MSVC 2015 update 3	Cmake v3.6.3	7	9
tensorflow_gpu-1.8.0	3.5-3.6	MSVC 2015 update 3	Cmake v3.6.3	7	9
tensorflow_gpu-1.7.0	3.5-3.6	MSVC 2015 update 3	Cmake v3.6.3	7	9
tensorflow_gpu-1.6.0	3.5-3.6	MSVC 2015 update 3	Cmake v3.6.3	7	9
tensorflow_gpu-1.5.0	3.5-3.6	MSVC 2015 update 3	Cmake v3.6.3	7	9
tensorflow_gpu-1.4.0	3.5-3.6	MSVC 2015 update 3	Cmake v3.6.3	6	8
tensorflow_gpu-1.3.0	3.5-3.6	MSVC 2015 update 3	Cmake v3.6.3	6	8
tensorflow_gpu-1.2.0	3.5-3.6	MSVC 2015 update 3	Cmake v3.6.3	5.1	8
tensorflow_gpu-1.1.0	3.5	MSVC 2015 update 3	Cmake v3.6.3	5.1	8
tensorflow_gpu-1.0.0	3.5	MSVC 2015 update 3	Cmake v3.6.3	5.1	8

3 Code Editing

```
def _main():
    #把标定好的数据集分为两类，可以随机选取80%作为训练集放入train.txt，剩下20%作为测试机放入cal.txt
    annotation_path = 'E:/chLi/FilterSocket1/Server_DataBase/train_dataset/poly_yolo_dataset/train.txt'
    validation_path = 'E:/chLi/FilterSocket1/Server_DataBase/train_dataset/poly_yolo_dataset/val.txt'

    log_dir = os.getcwd() + '/poly_yolo/models/'
    classes_path = os.getcwd() + '/poly_yolo/yolo_classes.txt'
    anchors_path = os.getcwd() + '/poly_yolo/yolo_anchors.txt'

    ...

    batch_size = 6 #根据显存大小调整，越大占用显存越多训练收敛越快
```