咕泡科技
GUPAO TECH

剪枝和再次训练

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我们的使命
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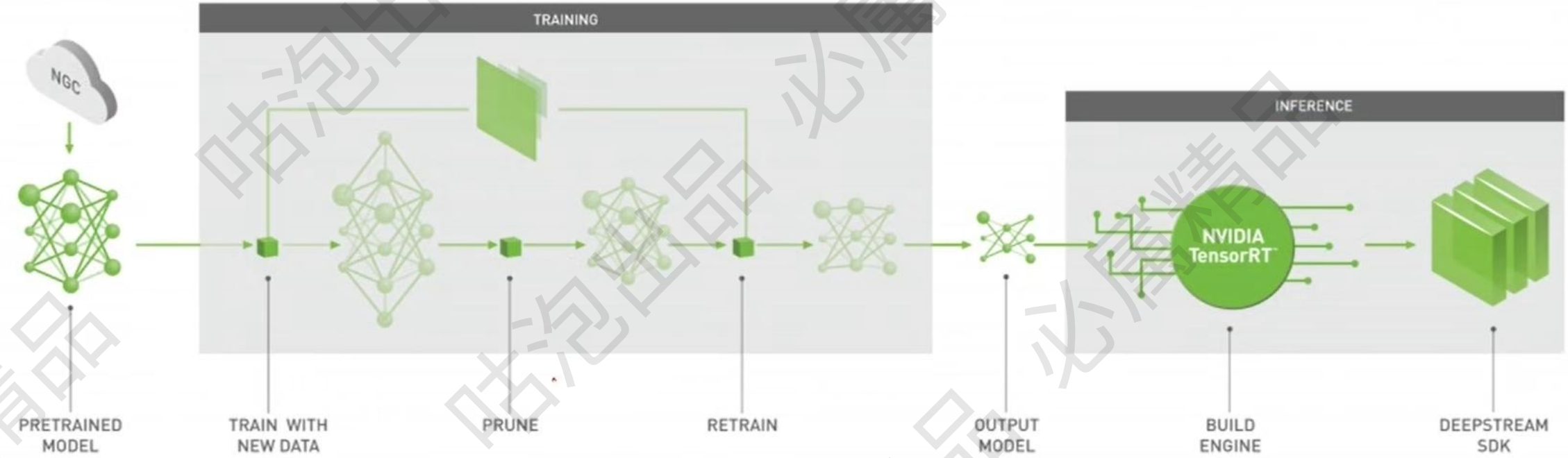
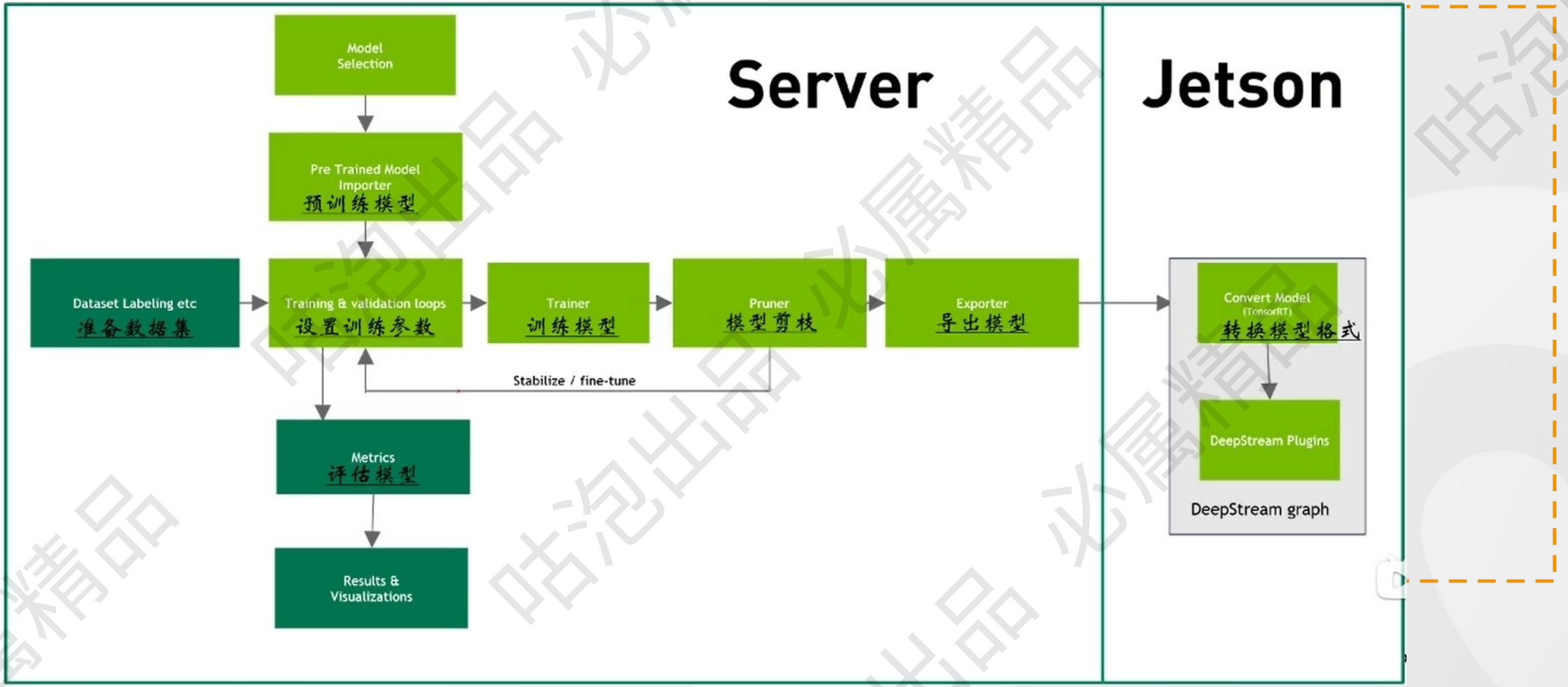
TAO 架构图

为应用在计算机视觉领域的深度学习工作流程，提供了全方位的便利工具



TAO 架构图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剪枝模型

```
!mkdir -p $LOCAL_EXPERIMENT_DIR/experiment_dir_pruned
```

```
!tao yolo_v4_tiny prune -m $USER_EXPERIMENT_DIR/experiment_dir_unpruned/weights/yolov4_cspdarknet_tiny_epoch_$EPOCH.tlt \
                -e $SPECS_DIR/yolo_v4_tiny_train_kitti.txt \
                -o $USER_EXPERIMENT_DIR/experiment_dir_pruned/yolov4_cspdarknet_tiny_pruned.tlt \
                -eq intersection \
                -pth 0.1 \
                -k $KEY
```

在训练剪枝模型配置

7. Retrain pruned models

- Model needs to be re-trained to bring back accuracy after pruning
- Specify re-training specification
- WARNING: training will take several hours or one day to complete

```
# Printing the retrain spec file.
# Here we have updated the spec file to include the newly pruned model as a pretrained weights.
!sed -i 's,EXPERIMENT_DIR,"$USER_EXPERIMENT_DIR",' $LOCAL_SPECS_DIR/yolo_v4_tiny_retrain_kitti.txt
!cat $LOCAL_SPECS_DIR/yolo_v4_tiny_retrain_kitti.txt
```

```
!mkdir -p $LOCAL_EXPERIMENT_DIR/experiment_dir_retrain
```

在训练剪枝模型配置2

```
batch_size: 1

image_directory_path: "/workspace/tao-
experiments/data/pingpang.v2i.coco/"

image_extension: "jpg"
target_class_mapping {
    key: "pingpang"
    value: "pingpang"
}
```

用剪枝后的模型做预训练模型在次训练

```
# Retraining using the pruned model as pretrained weights
!tao yolo_v4_tiny train --gpus 1 \
                  -e $SPECS_DIR/yolo_v4_tiny_retrain_kitti.txt \
                  -r $USER_EXPERIMENT_DIR/experiment_dir_retrain \
                  -k $KEY
```

```
# Listing the newly retrained model.
!ls -rlt $LOCAL_EXPERIMENT_DIR/experiment_dir_retrain/weights
```

```
# Now check the evaluation stats in the csv file and pick the model with highest eval accuracy.
!cat $LOCAL_EXPERIMENT_DIR/experiment_dir_retrain/yolov4_training_log_cspdarknet_tiny.csv
%set_env EPOCH=080
```

评估模型

8. Evaluate retrained model

```
!tao yolo_v4_tiny evaluate -e $SPECS_DIR/yolo_v4_tiny_retrain_kitti.txt \
                           -m $USER_EXPERIMENT_DIR/experiment_dir_retrain/weights/yolov4_cspdarknet_tiny_epoch_$EPOCH.tlt \
                           -k $KEY
```

验证推理数据准备

data

推理数据

9. Visualize inferences

In this section, we run the `infer` tool to generate inferences on the trained models and visualize the results.

```
# Copy some test images
!mkdir -p $LOCAL_DATA_DIR/test_samples
!cp $LOCAL_DATA_DIR/testing/image_2/00000* $LOCAL_DATA_DIR/test_samples/
```

```
# Running inference for detection on n images
!tao yolo_v4_tiny inference -i $DATA_DOWNLOAD_DIR/test_samples \
                            -o $USER_EXPERIMENT_DIR/yolo_infer_images \
                            -e $SPECS_DIR/yolo_v4_tiny_retrain_kitti.txt \
                            -m $USER_EXPERIMENT_DIR/experiment_dir_retrain/weights/yolov4_cspdarknet_tiny_epoch_$EPOCH.tlt \
                            -l $USER_EXPERIMENT_DIR/yolo_infer_labels \
                            -k $KEY
```

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谢谢观赏

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