1. 环境搭建——pip命令安装tensorflow

华为设备环境

python版本：

```
root@davinci-mini:/home# python3 -V
Python 3.10.12
```

安装pip命令：

```
apt-get install python-pip
```

安装tensorflow

```
pip install tensorflow
```

因为tensorflow安装包比较大，在线安装过程中经常网络下载失败，因为手动下载后再安装

`pip install tensorflow_cpu_aws-2.15.0-cp310-cp310-manylinux_2_17_aarch64.manylinux2014_aarch64.whl`

在安装过程中还会出现很多交大的依赖包下载失败导致安装失败，针对下载失败的分别手动下载安装。

安装ai_benchmark

```
pip install ai-benchmark
```

通样的安装过程中很多依赖的相关包下载不下来，就手动下载安装

通过常青的ssh翻墙下载了如下离线的安装包

```
root@ying-VirtualBox:/home/ying/Downloads/hw_ai_benchmark# ls -l
total 280148
-rw-rw-r-- 1 ying ying  21549595 11月 20 14:50 ai_benchmark-0.1.2-py3-none-any.whl
-rw-rw-r-- 1 ying ying   5078307 11月 20 14:25 grpcio-1.59.3-cp310-cp310-manylinux_2_17_aarch64.whl
-rw-rw-r-- 1 ying ying  22179482 11月 20 14:20 libclang-16.0.6-py2.py3-none-manylinux2014_aarch64.whl
-rw-rw-r-- 1 ying ying  14211889 11月 20 14:29 numpy-1.26.2-cp310-cp310-manylinux_2_17_aarch64.manylinux2014_aarch64.whl
-rw-rw-r-- 1 ying ying   3475329 11月 20 14:53 Pillow-10.1.0-cp310-cp310-manylinux_2_28_aarch64.whl
-rw-rw-r-- 1 ying ying   5539710 11月 20 14:21 tensorboard-2.15.1-py3-none-any.whl
-rw-rw-r-- 1 ying ying 211832105 11月 20 11:32 tensorflow_cpu_aws-2.15.0-cp310-cp310-manylinux_2_17_aarch64.manylinux2014_aarch64.whl
-rw-rw-r-- 1 ying ying   2978557 11月 20 14:16 tensorflow_io_gcs_filesystem-0.34.0-cp310-cp310-manylinux_2_17_aarch64.manylinux2014_aarch64.whl
```

2. 运行benchmark

1)编写py脚本，内容如下运行

```
from ai_benchmark import AIBenchmark
benchmark = AIBenchmark()
```

```
results = benchmark.run()
```

运行结果显示

```
root@davinci-mini:/home# vi ai_benchmark_run.py
root@davinci-mini:/home# python3 ai_benchmark_run.py

AI-Benchmark-v.0.1.2
Let the AI Games begin..

Traceback (most recent call last):
File "/home/ai_benchmark_run.py", line 2, in <module>
benchmark = AIBenchmark()
File "/usr/local/lib/python3.10/dist-packages/ai_benchmark/init.py", line 18, in init
np.warnings.filterwarnings('ignore')
File "/usr/local/lib/python3.10/dist-packages/numpy/init.py", line 333, in getattr
raise AttributeError("module {!r} has no attribute "
AttributeError: module 'numpy' has no attribute 'warnings'. Did you mean: 'hanning'?
```

解决办法：

将 "/usr/local/lib/python3.10/dist-packages/ai_benchmark/**init**.py", 中的 np.warnings.filterwarnings('ignore')给注释掉，再次运行（不知道会有什么影响，按时没发现）

运行结果如下：

```
root@davinci-mini:/home# python3 ai_benchmark_run.py

>>   AI-Benchmark-v.0.1.2
>>   Let the AI Games begin..

*  TF Version: 2.15.0
*  Platform: Linux-5.10.0+-aarch64-with-glibc2.35
*  CPU: N/A
*  CPU RAM: 11 GB

The benchmark is running...
The tests might take up to 20 minutes
```

```
Please don't interrupt the script

1/19. MobileNet-V2

1.1 - inference | batch=50, size=224x224: 1890 ± 38 ms
1.2 - training  | batch=50, size=224x224: 6047 ± 112 ms

2/19. Inception-V3

2.1 - inference | batch=20, size=346x346: 5632 ± 6 ms
2.2 - training  | batch=20, size=346x346: 19821 ± 12 ms

3/19. Inception-V4

3.1 - inference | batch=10, size=346x346: 5693 ± 55 ms
3.2 - training  | batch=10, size=346x346: 19578 ± 62 ms

4/19. Inception-ResNet-V2

4.1 - inference | batch=10, size=346x346: 6201 ± 3 ms
4.2 - training  | batch=8, size=346x346: 17442 ± 42 ms

5/19. ResNet-V2-50

5.1 - inference | batch=10, size=346x346: 3363 ± 3 ms
5.2 - training  | batch=10, size=346x346: 11396 ± 5 ms

6/19. ResNet-V2-152

6.1 - inference | batch=10, size=256x256: 5189 ± 6 ms
6.2 - training  | batch=10, size=256x256: 18235 ± 12 ms

7/19. VGG-16

7.1 - inference | batch=20, size=224x224: 10304 ± 4 ms
7.2 - training  | batch=2, size=224x224: 5414 ± 29 ms

8/19. SRCNN 9-5-5

8.1 - inference | batch=10, size=512x512: 8630 ± 5 ms
```

```
8.2 - inference | batch=1, size=1536x1536: 7894 ± 3 ms
8.3 - training  | batch=10, size=512x512: 40353 ± 46 ms

9/19. VGG-19 Super-Res

9.1 - inference | batch=10, size=256x256: 16090 ± 19 ms
9.2 - inference | batch=1, size=1024x1024: 25620 ± 6 ms
9.3 - training  | batch=10, size=224x224: 46199 ± 5 ms

10/19. ResNet-SRGAN

10.1 - inference | batch=10, size=512x512: 12654 ± 47 ms
10.2 - inference | batch=1, size=1536x1536: 11442 ± 8 ms
10.3 - training  | batch=5, size=512x512: 21686 ± 19 ms

11/19. ResNet-DPED

11.1 - inference | batch=10, size=256x256: 14132 ± 37 ms
11.2 - inference | batch=1, size=1024x1024: 22591 ± 19 ms
11.3 - training  | batch=15, size=128x128: 20706 ± 13 ms

12/19. U-Net

12.1 - inference | batch=4, size=512x512: 31036 ± 72 ms
12.2 - inference | batch=1, size=1024x1024: 31171 ± 25 ms
12.3 - training  | batch=4, size=256x256: 25510 ± 43 ms

13/19. Nvidia-SPADE

13.1 - inference | batch=5, size=128x128: 12390 ± 18 ms
13.2 - training  | batch=1, size=128x128: 9698 ± 69 ms

14/19. ICNet

14.1 - inference | batch=5, size=1024x1536: 5662 ± 14 ms
14.2 - training  | batch=10, size=1024x1536: 13373 ± 15 ms

15/19. PSPNet

```

```
15.1 - inference | batch=5, size=720x720: 63383.0 ± 0.0 ms
15.2 - training  | batch=1, size=512x512: 20346 ± 26 ms

16/19. DeepLab

16.1 - inference | batch=2, size=512x512: 13278 ± 10 ms
16.2 - training  | batch=1, size=384x384: 12379 ± 7 ms

17/19. Pixel-RNN

17.1 - inference | batch=50, size=64x64: 5253 ± 20 ms
17.2 - training  | batch=10, size=64x64: 2825 ± 15 ms

18/19. LSTM-Sentiment

/usr/local/lib/python3.10/dist-packages/ai_benchmark/models.py:12: UserWarning: `tf.nn.rnn_cell.BasicLSTMCell` is deprecated and will be removed in a future version. This class is equivalent as `tf.keras.layers.LSTMCell`, and will be replaced by that in Tensorflow 2.0.
  lstmCell = tf.compat.v1.nn.rnn_cell.BasicLSTMCell(1024)
18.1 - inference | batch=100, size=1024x300: 23975 ± 28 ms
18.2 - training  | batch=10, size=1024x300: 27057 ± 91 ms

19/19. GNMT-Translation

19.1 - inference | batch=1, size=1x20: 5651 ± 28 ms

Device Inference Score: 133
Device Training Score: 192
Device AI Score: 325

For more information and results, please visit http://ai-benchmark.com/alpha
```