BDDL 2018 HW 02 Parallax

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Overview

The main goal of this project is to get familiar with distributed deep learning training with Vanilla TensorFlow, Horovod, and Parallax.

Execution (Same as default commands)

- `cd BD18F-JihoChoi/hw2_parallax/hw2_rnn`

- **TensorFlow**

```
>> python rnn_tf.py --ps_hosts=localhost:12345 --
worker_hosts=localhost:12346,localhost:12347,localhost:12348 --job_name=ps --task_index=0 --
max_steps=500
>> python rnn_tf.py --ps_hosts=localhost:12345 --
worker_hosts=localhost:12346,localhost:12347,localhost:12348 --job_name=worker --task_index=0 --
max_steps=500
>> python rnn_tf.py --ps_hosts=localhost:12345 --
worker_hosts=localhost:12346,localhost:12347,localhost:12348 --job_name=worker --task_index=1 --
max_steps=500
>> python rnn_tf.py --ps_hosts=localhost:12345 --
worker_hosts=localhost:12346,localhost:12347,localhost:12348 --job_name=worker --task_index=2 --
max_steps=500
```

- **Horovod**

```
>> mpirun --mca btl_vader_single_copy_mechanism none --allow-run-as-root -bind-to none -map-by slot -mca
orte_base_help_aggregate 0 -x NCCL_DEBUG=INFO -np 2 -H localhost:2 python rnn_horovod.py --max_steps=500
```

- **Parallax**

```
>> python rnn_parallax.py --max_steps=200
```

Execution (Same as default commands)

I been implementing the distributed deep learning model with GAN (Generative Adversarial Networks) which generates image by learning the dataset. Unfortunately, I wasn't able to fully debug the GAN model with distributed TensorFlow. However, to do the performance evaluation, I switched to RNN model which was not the suited dataset for this project.

References

GAN model by Aymeric Damien

- https://github.com/aymericdamien/TensorFlow-Examples/blob/master/examples/3_NeuralNetworks/gan.py

RNN / LSTM

- https://github.com/aymericdamien/TensorFlow-Examples/blob/master/examples/3_NeuralNetworks/gan.py
- https://ratsgo.github.io/natural%20language%20processing/2017/03/09/rnnlstm/