Sequence Projection Models

This repository contains implementation of the following papers.

- *PRADO: Projection Attention Networks for Document Classification On-Device*
- *Self-Governing Neural Networks for On-Device Short Text Classification*

Description

We provide a family of models that projects sequence to fixed sized features. The idea behind is to build embedding-free models that minimize the model size. Instead of using embedding table to lookup embeddings, sequence projection models computes them on the fly.

History

August 24, 2020

- Add PRADO and SGNN implementation.

Authors or Maintainers

- Prabhu Kaliamoorthi
- Yicheng Fan (@thunderfyc)

Requirements

Training

Train a PRADO model on civil comments dataset

```
bazel run -c opt :trainer -- \
--config_path=$(pwd)/configs/civil_comments_prado.txt \
--runner_mode=train --logtostderr --output_dir=/tmp/prado
```

Train a SGNN model to detect languages:

```
bazel run -c opt sgnn:train -- --logtostderr --output_dir=/tmp/sgnn
```

Evaluation

Evaluate PRADO model:

```
bazel run -c opt :trainer -- \
--config_path=$(pwd)/configs/civil_comments_prado.txt \
--runner_mode=eval --logtostderr --output_dir=/tmp/prado
```

Evaluate SGNN model:

```
bazel run -c opt sgnn:run_tflite -- --model=/tmp/sgnn/model.tflite "Hello world"
```

References

1. **Batch Normalization: Accelerating Deep Network Training by Reducing Internal Covariate Shift**
   Sergey Ioffe, Christian Szegedy
   [link]. In ICML, 2015.

2. **Quantization and Training of Neural Networks for Efficient Integer-Arithmetic-Only Inference**
   Benoit Jacob, Skirmantas Kligys, Bo Chen, Menglong Zhu, Matthew Tang, Andrew Howard, Hartwig Adam, Dmitry Kalenichenko
   [link]. In CVPR, 2018.

3. **PRADO: Projection Attention Networks for Document Classification On-Device**
   Prabhu Kaliamoorthi, Sujith Ravi, Zornitsa Kozareva
   [link]. In EMNLP-IJCNLP, 2019

4. **Self-Governing Neural Networks for On-Device Short Text Classification**
   Sujith Ravi, Zornitsa Kozareva
   [link]. In EMNLP, 2018

License