tensorflow: run model evaluation over multiple checkpoints

In my current project I train a model and save checkpoints every 100 iteration steps. The checkpoint files are all saved to the same directory (model.ckpt-100, model.ckpt-200 , model.ckpt-300 etc). And after that I would like to evalute the model based on validation data for all the saved checkpoints, not just the latest one.

Currently my piece of code for restoring the checkpoint file looks like this:

```
ckpt = tf.train.get_checkpoint_state(FLAGS.checkpoint_dir)
ckpt_list = saver.last_checkpoints
print(ckpt_list)
if ckpt and ckpt.model_checkpoint_path:
    print("Reading model parameters from %s" % ckpt.model_checkpoint_path)
```

```
    saver.restore(sess, ckpt.model_checkpoint_path)
    # extract global_step from it.
    global_step = ckpt.model_checkpoint_path.split('/')[-1].split('-')[-1]
    print('Succesfully loaded model from %s at step=%s.' %
          (ckpt.model_checkpoint_path, global_step))
else:
    print('No checkpoint file found')
    return
```

However, this restores only the latest saved checkpoint file. So how do I write a loop over all saved checkpoint files? I tried to get a list of the checkpoint files with saver.last_checkpoints, however, the returned list is empty.

Any help would be highly appreciated, thanks in advance!

python tensorflow

edited Mar 1 at 15:32

Jacques Gaudin
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asked Mar 1 at 12:42

TheJude
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How do you save the model exactly? Are you building up the name for the output file yourself or do you use the `global_step` parameter when calling `saver.save(..)` ? – kaufmanu Mar 1 at 13:45

2 Answers

You can iterate through the files in the directory :

```
import os

dir_path = './' #change that to wherever your files are
ckpt_files = [f for f in os.listdir(dir_path) if os.path.isfile(
    os.path.join(dir_path, f)) and 'ckpt' in f]

for ckpt_file in ckpt_files:
    saver.restore(sess, dir_path + ckpt_file)
    global_step = ckpt.model_checkpoint_path.split('/')[-1].split('-')[-1]
    print('Succesfully loaded model from %s at step=%s.' %
          (ckpt.model_checkpoint_path, global_step))

    # Do your thing
```

add more conditions in the above list comprehension to be more selective like : `and 'meta' not in f` and so on depending on what's in that dir and the saver version you have

answered Mar 1 at 15:09

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Thanks for that. However I get the error

"NotFoundError (see above for traceback): Key conv2/biases/ExponentialMovingAverage not found in checkpoint"

where conv2/biases is a variable scope. I use the saver version v2.

Meanwhile I tried a different (bit more simpler code) and got the same error:

```
    fileBaseName = FLAGS.checkpoint_dir + '/model.ckpt-'

    for global_step in range(0,100,10): # range over the global steps where
checkpoints were saved
     x_str = str(global_step)
    fileName = fileBaseName+x_str
    print(fileName)
    ckpt = tf.train.get_checkpoint_state(FLAGS.checkpoint_dir)

    #restore checkpoint file
    saver.restore(sess, fileName)
```

The error actually occurs in this piece of code (at variables_to_restore=):

```
# Restore the moving average version of the learned variables for eval.
variable_averages = tf.train.ExponentialMovingAverage(
    MOVING_AVERAGE_DECAY)
variables_to_restore = variable_averages.variables_to_restore()
saver = tf.train.Saver(variables_to_restore)
```

I have no clue how to solve this error. Could it have something to do with the saver version? Or must be the error in the part where the checkpoints are saved?

Thanks a lot. TheJude

edited Mar 9 at 13:55

answered Mar 9 at 13:43

TheJude
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