Chapter_2_Section_8_Tensorboard

February 2, 2019

1 Ch 02: Concept 08

1.1 Using TensorBoard

TensorBoard is a great way to visualize what's happening behind the code.

In this example, we'll loop through some numbers to improve our guess of the average value. Then we can visualize the results on TensorBoard.

Let's just set ourselves up with some data to work with:

```
In [1]: import tensorflow as tf
        import numpy as np
        from datetime import datetime

        raw_data = np.random.normal(100, 10, 100)
```

The moving average is defined as follows:

```
In [2]: alpha = tf.constant(0.05)
        curr_value = tf.placeholder(tf.float32)
        prev_avg = tf.Variable(0.)

        update_avg = alpha * curr_value + (1 - alpha) * prev_avg
```

Here's what we care to visualize:

```
In [3]: avg_hist = tf.summary.scalar("running_average", update_avg)
        value_hist = tf.summary.scalar("incoming_values", curr_value)

        merged = tf.summary.merge_all()
        # Create a directory everytime so that tensorboard displays each job individually
        now = datetime.now()
        currentDir= "./logs/" + now.strftime("%Y%m%d-%H%M%S") + "/"
        writer = tf.summary.FileWriter(currentDir)
```

Time to compute the moving averages. We'll also run the `merged` op to track how the values change:

```
In [4]: init = tf.global_variables_initializer()

        with tf.Session() as sess:
            sess.run(init)
            for i in range(len(raw_data)):
                summary_str, curr_avg = sess.run([merged, update_avg], feed_dict={curr_value: r
                sess.run(tf.assign(prev_avg, curr_avg))
                writer.add_summary(summary_str, i)
```

Check out the visualization by running TensorBoard from the terminal:

```
$ tensorboard --logdir=path/to/logs
```

```
In [5]: #made the logs be written successfully
        writer.close()
```

```
In [6]: sess.close()
```