

# deep-lstm

April 10, 2019

## 0.0.1 Deep LSTM

```
In [1]: import sys
        sys.path.insert(0, '..')

        import d2l
        from mxnet import nd
        from mxnet.gluon import rnn

        (corpus_indices, char_to_idx, idx_to_char, vocab_size) = d2l.load_data_time_machine()

In [2]: num_inputs, num_hiddens, num_layers, num_outputs = vocab_size, 256, 2, vocab_size
        ctx = d2l.try_gpu()
        num_epochs, num_steps, batch_size, lr, clipping_theta = 3000, 35, 32, 100, 1e-2
        pred_period, pred_len, prefixes = 500, 50, ['traveller', 'time traveller']
        lstm_layer = rnn.LSTM(hidden_size = num_hiddens, num_layers=num_layers)
        model = d2l.RNNModel(lstm_layer, vocab_size)

In [3]: d2l.train_and_predict_rnn_gluon(model, num_hiddens, vocab_size, ctx, corpus_indices,
        idx_to_char, char_to_idx, num_epochs, num_steps, lr, clipping_theta,
        batch_size, pred_period, pred_len, prefixes)

epoch 500, perplexity 10.935834, time 1.03 sec
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epoch 1000, perplexity 2.045100, time 1.17 sec
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epoch 1500, perplexity 1.154009, time 1.03 sec
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epoch 2000, perplexity 1.104603, time 1.07 sec
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epoch 2500, perplexity 1.082747, time 1.06 sec
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epoch 3000, perplexity 1.292862, time 1.03 sec
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