Predictive Analytics: Time-Series Forecasting with GRU and BiLSTM in TensorFlow

# A step-by-step tutorial on building GRU and Bidirectional LSTM for Time-series forecasting

Recurrent Neural Networks are designed to handle the complexity of sequence dependence in time-series analysis. In this tutorial, I build GRU and BiLSTM for a univariate time-series predictive model. Gated Recurrent Unit (GRU) is a new generation of Neural Networks and is pretty similar to Long Short Term Memory (LSTM). Whereas, the idea of Bidirectional LSTMs (BiLSTM) is to aggregate input information in the past and future of a specific time step in LSTM models.

The following article serves a good introduction to LSTM, GRU and BiLSTM.

# What is the time-series analysis?

Unlike regression analysis, in time-series analysis, we do not have strong evidence of what affects our target. A time-series analysis uses time as one of the variables in order to see if there is a change over time.

# What is the time-series forecasting?

The purpose of time-series forecasting is fitting a model on historical data and using it to predict future observations. This post is dedicated to time-series forecasting using deep learning methods.