Forecasting the Temperature at a Weather Station Using Deep Neural Networks

Authors : Debneil Saha Roy

Abstract : Weather forecasting is a complex topic and is well suited for analysis by deep learning approaches. With the wide availability of weather observation data nowadays, these approaches can be utilized to identify immediate comparisons between historical weather forecasts and current observations. This work explores the application of deep learning techniques to weather forecasting in order to accurately predict the weather over a given forecast horizon. Three deep neural networks are used in this study, namely, Multi-Layer Perceptron (MLP), Long Short Tunn Memory Network (LSTM) and a combination of Convolutional Neural Network (CNN) and LSTM. The predictive performance of these models is compared using two evaluation metrics. The results show that forecasting accuracy increases with an increase in the complexity of deep neural networks.