Abstract

The effective forecast of container volumes can provide decision support for port scheduling and operating. In this work, by deep learning the historical dataset, the long short-term memory (LSTM) recurrent neural network (RNN) is used to predict daily volumes of containers which will enter the storage yard.

The raw dataset of daily container volumes in a certain port is chosen as the training set and preprocessed with box plot. Then the LSTM model is established with Python and Tensorflow framework.

The comparison between LSTM and other prediction methods like ARIMA model and BP neural network is also provided in this study, and the prediction gap of LSTM is lower than other methods. It is promising that the proposed LSTM is helpful to predict the daily volumes of containers.

The comparison of the real data with the predicted data by LSTM of four years.