Abstract

In our daily life, we often use some forecasting techniques to predict weather, temperature, stock, earthquake, economy, etc. Based on these forecasting results, we can prevent damages to occur or get benefits from the forecasting activities. The initial work of L.A. Zadeh concerning fuzzy set theory has been applied to a several diverse areas. Song and Chissom presented the concepts of fuzzy time series based on the fuzzy set theory. They proposed the time-invariant fuzzy time series model and the time-variant fuzzy time series model to forecast the historical enrollments of the University of Alabama. Both the time-invariant fuzzy time series model and time-variant fuzzy time series model used max-min operations for reasoning. The drawback of these two models is that they take a large amount of computation time. Therefore, Chen presented a method to forecast the enrollments of the University of Alabama by using a simple fuzzy time series prediction model to get better prediction results. In recent years, a number of techniques have been proposed for forecasting based on fuzzy set theory methods. But most of these models do not provide good results. Moreover the length of each interval in the universe of discourse also affects the forecasting results. So a new method is proposed here based on clustering to cluster the historical data into intervals of different lengths and two different weights are used for forecasting in order to increase the forecasting accuracy rate of prediction. The proposed method gets higher average forecasting accuracy rates than the existing methods.