Nonlinear Time Series Forecast Using Radial Basis Function Neural Networks

ZHENG Xin and CHEN Tian-Lun

Institute of Physics, Nankai University, Tianjin 300071, China
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Abstract: In the research of using Radial Basis Function Neural Network (RBF NN) forecasting nonlinear time series, we investigate how the different clusterings affect the process of learning and forecasting. We find that k-means clustering is very suitable. In order to increase the precision we introduce a nonlinear feedback term to escape from the local minima of energy, then we use the model to forecast the nonlinear time series which are produced by Mackey-Glass equation and stocks. By selecting the k-means clustering and the suitable feedback term, much better forecasting results are obtained.

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