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Artificial Intelligence Algorithm for Optimal Time Series Data Model

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Abstract: *In order to solve the limitation of a large number of literatures on the study of modeling, simulation and prediction of time series data, there is no model selection, and a certain model is directly used for analysis. For three types of artificial intelligence models often applied to time series analysis: hidden Markov Carrier model, artificial neural network model and autoregressive moving average model are used to study model selection based on simulation comparison method. The study of nonlinear integration methods, using intelligent system methods to learn the weighting mode, has made the model's generalization ability and the degree is of fit to the sample data have been significantly improved. At the same time, numerical simulations are performed on various models, and the characteristics of the time series generated by various models are investigated. Based on the characteristics, the theory and algorithm of model selection are proposed. The model selection theory and algorithm in this paper is used for empirical analysis. For the artificial intelligence models commonly used in time series analysis such as autoregressive moving average model, artificial neural network model, hidden Markov model, etc., when selecting the research model, the method of simulation comparison can be used. The experimental results show that the time series data generated by various models have different mathematical and physical characteristics, which provide a basis for model selection. At the same time, the selection theory is practical. The model selected by the theory has a good fit and prediction effect. The generation of different models has different mathematical characteristics of time series data, which also provides a basis for selecting models.*

Keywords: Time series, data model, artificial intelligence algorithm, weight pattern, generalization ability

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