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Identifikasi dan Estimasi Runtun Waktu Model AR Menggunakan Algoritma Simulated Annealing

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ABSTRACT

When fitting a Autoregressive (AR) model to real data, the correct model order and the model parameter often unknown. Our aim is to find estimators of the order and the parameter based on the data. In this paper the model identification and parameter estimation for AR model is posed within a Bayesian framework. Within this framework the unknown order and parameter are assumed to be distributed according to a prior distribution, which incorporates all the available information about the process. All the information concerning the order and parameter characterising the model is then contained in the posterior distribution. Obtaining the posterior model order probabilities and the posterior model parameter probabilities requires integration of the resulting posterior distribution, an operation which is analytically intractable. Here stochastic simulated annealing algorithm is developed to perform the required integration by simulating from the posterior distribution. The methods developed are evaluated in simulation studies on number of synthetic and real data sets.

Keywords : simulated annealing, autoregressive, order identification, parameter estimation.