

MODELLING AIR POLLUTION BY NEURAL NETWORK AND SUPPORT VECTOR REGRESSION WITH PARAMETER SELECTION

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Almost all human activities encounter the hard problem of forecasting. Although several time series prediction methods have been developed, each of them has certain limitations. The so-called “inductive learning algorithms” in the field of artificial intelligence can be well applied to the solution of automated and adaptable regression problems and, hence, to the assessment of time series, as well. Forecasts were made by using artificial neural networks, as mostly used method recently, as well as the related support vector regression techniques. These methods are able to perform proper non-linear function fitting, which essential in case of practical non-linear assessment problems. If we combine the methods mentioned above, we can get more precise decisions for the future data. In either case, the efficiency of learning depends on a good choice of the learning algorithms' parameters. For this reason, parameters are selected by simulated annealing. The aim of this paper is to compare the above mentioned prediction techniques in several hours forecast of NO and NO₂ concentrations at a busy cross-road in Szeged (Hungary). For this object, meteorological parameters predicted with given error on their actual values were used.