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Abstract

This work investigates the performance of five pattern classification algorithms in predicting natural contributions flow in a hydropower generation network, using a database of historical hydrological data. Wecompared the use of a multilayer perceptron, trained with the Resilient Backpropagation (RPROP) algorithm, vs four well-known machine-learning techniques, as part of a software framework adapted to hydropower system assessment. The framework uses variable prediction algorithms to support rule-based decision processes. Ourresults are that the use of a neural network far outweighs the other approaches in terms of prediction accuracy

Keywords: Knowledge-based systems, data mining, neural networks, machine learning, variable prediction, cluster analysis, hydropower system.