Abstract

The present work deals with an improved back-propagation algorithm based on Gauss-Newton numerical optimization method for fast convergence. The steepest descent method is used for the back-propagation. The algorithm is tested using various datasets and compared with the steepest descent back-propagation algorithm. In the system, optimization is carried out using multilayer neural network. The efficacy of the proposed method is observed during the training period as it converges quickly for the dataset used in test. The requirement of memory for computing the steps of algorithm is also analyzed.

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UCI Machine Learning Repository : Iris Data Set - http://archive.ics.uci.edu/ml/datasets/Iris
- UCI Machine Learning Repository : Wine Data Set - http://archive.ics.uci.edu/ml/datasets/Wine

**Index Terms**

Computer Science

Artificial Intelligence
Keywords

Back-propagation  Neural Network  Numerical optimization  Fast convergence algorithm