

1. Waleed A. Maguid Ahmed, El sayed M. Saad, El Sayed A. Aziz, "Modified backpropagation algorithm for learning Artificial Neural Networks" Eighteenth National radio science conference, No. C 17, pp. 345- 352, March 2001.

Abstract:

The Backpropagation algorithm has played an important role in training multilayer Artificial Neural Networks. It has a mathematical foundation that is strong if not highly practical. Despite its limitation, Backpropagation has dramatically expanded the range of problems to which Artificial Neural Networks can be applied.

There exist many disadvantages and limitations in the backpropagation algorithm such as:

1. The optimal value of learning rate, the initial values of weights and biases aren't determined exactly by mathematical rule, but by trials.
2. The optimal number of hidden layer and Necessary number of hidden neurons aren't determined exactly.

This paper tries to solve some of the above problems and suggest other modification in the steepest descent method, which is the main idea of the backpropagation algorithm that should make that algorithm more general and eliminate some heuristics existing in that algorithm