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Comparison between Scaled conjugate gradient and Resilient backpropagation algorithm for diabetes diagnosis

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Abstract

Diabetes is a chronic and lifelong disease that may result in several dangerous health disorders. It is really critical to diagnose this disease in primary level. For this reason, different methods have been proposed to increase the accuracy of diagnosis in previous articles. In this study, two novel procedures have been tested to perform exact and reliable pattern recognition for diabetes dataset. In this way, two artificial multilayer feed-forward neural networks are applied with different algorithms including scaled conjugate gradient and resilient backpropagation algorithm. Pima Indian diabetes dataset was used for network train. There are eight parameters for each patient entered the network as an input, such as : number of pregnancies, glucose, blood pressure, Skin Thickness, Insulin, BMI, Diabetes Pedigree Function, Age. The outputs could be zero or one (normal or diabetic). They are tested, compared and made proper and acceptable results. For complete study, the results are compared with conventional methods and better convergence and smaller error was noticed.

Keywords: “feed-forward”, “pattern recognition”, “backpropagation”, “neural network”, “scaled conjugate gradient”, “resilient backpropagation algorithm”.