Preserving Privacy and Optimizing Neural Network Classification by using a Mix of Soft Computing Techniques

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Abstract

An Artificial Neural Network (ANN) commonly called as Neural Network (NN) is a mathematical tool that is used in data mining for the analysis of data. Inherently human brain has its own limitations, the inability to handle large volumes of data being one of them. NNs with its power to handle large volumes of data along with imitation of human brain provides good solutions where the size of data is too large, beyond human interpretation capacity or beyond the capacity of conventional computational methods. NNs find applicability in healthcare among other fields like business, genetics, bioinformatics, pharmaceuticals, etc. NNs are mostly not used in data mining due to the reason that it takes lots of time for training of the networks. But as far as the utility of NNs in data mining is concerned, it is a valuable technique. Data mining in general and NNs in particular are being used in various areas where privacy of individuals is at stake. This study attempts to optimize the results of NN classification on one hand and address the problem of training time consumption on the other along with preserving privacy of the stakeholders.

References


Index Terms

Computer Science | Networks

Keywords
Privacy, NNs, fuzzification, rough sets, confusion matrix, fuzzy membership function