

An Optimization Method for Support Vector Machines Training Based on Particle Swarms

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Abstract

In machine learning, the classification problem is one of the most significant and difficult problems. Support vector machine (SVM) is a relatively new technique that has recently gained popularity as a successful approach to solving classification problems; however, the parameters chosen for it are primarily what determine its effectiveness. It is notoriously hard to use traditional optimization methods like the least squares approach to solve parameter selection problems for support vector machines (SVM). This is because of problems with overfitting and local optimums. This is due to the fact that SVMs themselves are notoriously complex in nature. In light of this, the authors of this study present an approach called particle swarm optimization for automatically choosing the parameters of a support vector machine (SVM) while dealing with a classification problem. The LS-SVM algorithm was used, and the results showed that the suggested technique has superior generalization performance than the LS-SVM algorithm. Additionally, the proposed method is more accurate and effective than the LS-SVM algorithm.

(Keywords:)

Particle Swarm Optimization (PSO), Support Vector Machine (SVM) ,Least Squares algorithm

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