عنوان مقاله:

(Parameter optimization and feature selection for support vector machine by Multi-Objective IPO algorithm (MOIPO

محل انتشار:

کنفرانس بین المللی یافته های نوین پژوهشی درمهندسی برق و علوم کامپیوتر (سال: 1394)

تعداد صفحات اصل مقاله: 14

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خلاصه مقاله:

Support vector machine is a new classifier, based on the structured risk minimization principle. The performance of the SVM, depends on different parameters such as: penalty factor, C, and the kernel factor, σ. Also choosing an appropriate kernel function can improve the Recognition Score and lower the amount of computation. Furthermore selecting, the useful features among several features in the dataset not only increases the performance of the SVM, but also reduces the computation time and complexity. So this is an optimization problem which can be solved by a heuristic algorithm. In some cases besides the Recognition Score, the Reliability of the classifier's output, is important. So in such cases a multi-objective optimization algorithm is needed. In this paper we have got the MOIPO3 algorithm to optimize the parameters of the SVM, choose appropriate kernel function and select the best features simultaneously in order to increase the Recognition Score and the Reliability of the SVM. Three different datasets, from UCI machine learning repository, are used to evaluate the power and the effectiveness of the proposed method (MOIPO-SVM). The results of the proposed method are compared to those which are achieved by RBF and MLP .neural networks

کلمات کلیدی:

Support Vector Machines, Inclined planes optimization, Multi-objective optimization, Pattern Recognition neural networks, Multilayer perceptron, Radial basis function

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