

Tsang *et al.* (2008) developed extended the CVM algorithm through raising presenting a new constrained MEB problem, and suggested an  $(1+\epsilon)^2$ -approximation algorithm for extracting the maximum margin discriminant analysis

(MMDA) features—suggested an  $(1+\epsilon)^2$ -approximation algorithm. Extensive comparisons with Comparing the original MMDA, kernel Fisher discriminant analysis (KFD), and kernel principal component analysis (KPCA) on a few of large data sets reveals that the recommended feature extractor can make classification accuracy better, and also by over an order of magnitude is faster than these kernel-based methods.

(1)

#### 5.2.5. Termination condition:

The whole CLPSO algorithm is finished and the outputs are obtained as the result. When when the fitness difference between the two last populations are less than 0.001 for 10 generations for the best public positions is less than 0.001 for 10 generations, the whole CLPSO algorithm is finished and outputs the result. In addition, the process is will be enforced to stop while the number of generations is over 100.

**Table 12:** Classification results of proposed nonlinear kernel combination method and other methods

Dataset Name	EKCVM	EKSVM	RBF	Polynomial	Laplacian	Grid
						algorithm
Iris	98.33±1.67	98.17±1.83	86.67	75.33	87.33	96.14
Wine	98.74 ± 1.26	98.72±1.28	94.44	88.57	94.29	97.19

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