Abstract

Feature selection is the process by which relevant features are selected from large datasets in order to improve the performance of the classification systems. There are various approaches that are used for feature selection such as Soft Computing, Hill Climbing etc. Particle Swarm Optimization is now a days popularly used soft computing technique for feature selection due to its searching ability, simplicity and low computation cost. But the main problem with Particle Swarm Optimization is premature convergence which in turn affects the classification performance. In this paper, a modified Particle Swarm Optimization is proposed for feature selection. To handle the problem of premature convergence, a flipping operator is introduced before the updation of velocity and position of the particle. Fitness of each particle is computed using Support Vector Machine based fitness function. To establish the effectiveness of proposed approach, testing is done on various benchmark datasets like wine, zoo, sonar etc. Results obtained on these datasets are compared with the standard approach and satisfactory improvements are observed.
References


Index Terms

Computer Science  Information Sciences

Keywords

Feature Selection, Particle Swarm Optimization, Classification, Support Vector Machine.