

Evaluation of Particle Swarm Optimization for Support Vector Machine Training

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Abstract

It is simple to use particle swarm optimization to optimize a function with a set of linear equalities. For this specific purpose, the converging linear particle swarm optimization algorithm was devised. Support vector machine training necessitates the resolution of a quadratic optimization problem that is linearly constrained. Support vector machines are notoriously bad at handling large datasets because they have a hard time dealing with the combinatorial proliferation that happens when they try to solve many instances of this quadratic optimization problem. A different way to train support vector machines that can handle large datasets has been suggested. It uses the converging linear particle swarm optimization algorithm and a decomposition strategy. This article lists a number of problems and issues that could happen when the converging linear particle swarm optimization algorithm is used to train support vector machines. For example, a problem with early convergence that happened because of the clamping method used in the first algorithmic implementations is emphasized. To address these issues, a proposed solution is provided. Subsequently, an evaluation concerning the scalability of the suggested methodology is performed.

(Keywords:)

Particle Swarm Optimisation,Support Vector Machines,Convex Optimisation

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