Particle Swarm Optimization

A parallelized approach

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Introduction

Particle Swarm Optimization

Particle Swarm Optimization is an optimization algorithm for nonlinear functions based on bird swarms.
A particle is characterized by a position x, a velocity component v and a performance measure $f(x)$. Each particle needs to percieve the neighbors position, where z is the position of the best neighboring particle, while y is the particle personal best.
At each step, each particle updates:

$$v' = w \cdot v + \phi_1 U_1 \cdot (y - x) + \phi_2 U_2 \cdot (z - x)$$

$$x' = x + v'$$

Double column slide

References I

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