PSO is a evolutionary method inspired by the social behavior of individuals with in swarms in nature. The particles move within the virtual space of possible solution. The movement of the particles is conducted by the inertia, its memory and the attraction of the positions with the best performance. Each particle has associated a position in the solution space and a velocity or rate of change. The particles remember at which position they achieved their highest performance. Each particle communicates with a subset of the swarm that constitutes its neighbourhood that can change dynamically. Every particle can also get which particle achieved the best overall position in its neighbourhood

The PSO was initially proposed as a procedure to solve optimization problems with continuous variables.

In PSO, the potential solutions, so-called particles, move around in a multi-dimensional search space with a velocity, which is constantly updated by the particle’s own experience and the experience of the particle’s neighbors or the experience of the whole swarm.

Particles move to multidimensional spaces with a velocity which is constantly updated by the particle’s own experience.

PSO has been shown to be effective in optimizing difficult multidimensional problems in a variety of fields.

J. Kennedy and R. Eberhart first introduced the concept of so called Particle Swarm Optimization (PSO), applied it to optimization of continuous nonlinear functions and showed the effectiveness of the algorithm.

Furthermore, the information among individuals is communized in the swarm and the information between individuals and their swarm is also shared. Finally, the swarm approaches to the optimal behavior.

Bird flock behavior on computers by maintaining an optimal distance between their neighbors.

PSO has roots in two main component methodologies;

Artificial life in general,

Swarming theory in particular.