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Letter to Editor

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ISVHAAI Letter No. 3

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ABSTRACT
Very Highly Advanced Artificial Intelligence (VHAAI) is a recently coined field and International Society for VHAAI (ISVHAAI) is an International Society which uses VHAAI for solving problems. This is the Letter No. 3 of ISVHAAI Artificial Intelligence Society Letters. In this Letter No. 3, a unique algorithm titled Summer Season Energy Drink Particle Swarm Optimization (SSEDPSO) has been designed.

Keywords: AI, PSO, VHAAI, Summer Season, Energy Drink, Summer Season Energy Drink PSO, SSEDPSO, ISVHAAI.

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Introduction

The strength and effectiveness of Particle Swarm Optimization (PSO) algorithm can be observed from articles [1-13]. In this letter, a novel algorithm titled Summer Season Energy Drink Particle Swarm Optimization (SSEDPSO) is designed. PSO is described in Section 2. SSEDPSO is shown in Section 3. Conclusions are made in fourth section followed by references.

Particle Swarm Optimization

Line no. 1 shows velocity update equation and line no. 2 shows position update equation. V is the velocity of the particle. W is inertia weight. Constant c1 is cognitive acceleration coefficient and c2 is social acceleration coefficient. Constants r1 and r2 are random numbers generated between 0 and 1. pbest is the local best of particle and gbest is the global best of all particles. In line no 1 velocity is calculated and this velocity is added to position in line no.2 to get new position of particle.

Procedure

Particle Swarm Optimization (PSO)
1) V=W*V + c1*r1*(pbest-x) + c2*r2*(gbest-x)
2) x=x+ V

Summer Season Energy Drink Particle Swarm Optimization

This section explains Summer Season Energy Drink Particle Swarm Optimization (SSEDPSO). SSEDPSO is inspired by the movement of birds in summer season. The search space consists of 8 Energy Drinks. As summer is hot, particles consume one of these 8 Energy Drinks and there is probability of consumption for each Energy Drink. The position update equation depends on the Energy Drink consumed by the particle in the hot summer season. Line no. 1 shows velocity update equation. Line no. 2 to line no. 9 shows that there are 8 Energy Drinks available in search space and probability that each energy drink is consumed by the particle is 0.125. A random number is generated in line no. 10. Line no. 11 to line no.18 shows that based on random number generated, one of the 8 Energy Drinks is consumed by the particle. Line no. 19 to line no. 26 shows different position update equations for different Energy Drinks consumed.

For example, if random number generated in line no. 10 is 0.8 then this falls between 0.75 and 0.875 in line number 17. Hence particle consumed Energy Drink 7. In line no. 25 the position update equation is given for Energy Drink 7. Hence constant 1.75 is multiplied with velocity and added to position to get new position of particle.

Procedure

Summer Season Energy Drink Particle Swarm Optimization (SSEDPSO)

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1) V=W*V + c1*r1*(pbest-x) + c2*r2*(gbest-x)
2) P1=Energy Drink one probability=0.125
3) P2=Energy Drink two probability=0.125
4) P3=Energy Drink three probability=0.125
5) P4=Energy Drink four probability=0.125
6) P5=Energy Drink five probability=0.125
7) P6=Energy Drink six probability=0.125
8) P7=Energy Drink seven probability=0.125
9) P8=Energy Drink eight probability=0.125
10) R=Generate random number between 0 and 1
11) If 0<R<0.125 then:
    Particle consumed Energy Drink one
12) If 0.125<R<0.250 then:
    Particle consumed Energy Drink two
13) If 0.250<R<0.375 then:
    Particle consumed Energy Drink three
14) If 0.375<R<0.500 then:
    Particle consumed Energy Drink four
15) If 0.500<R<0.625 then:
    Particle consumed Energy Drink five
16) If 0.625<R<0.750 then:
    Particle consumed Energy Drink six
17) If 0.75<R<0.875 then:
    Particle consumed Energy Drink seven
18) If 0.875<R<1 then:
    Particle consumed Energy Drink eight
19) If particle consumed Energy Drink one then:
x=x+ 0.25*V
20) Else if particle consumed Energy Drink two then:
x=x+0.5*V
21) Else if particle consumed Energy Drink three then:
x=x+0.75*V
22) Else if particle consumed Energy Drink four then:
x=x+V
23) Else if particle consumed Energy Drink five then:
x=x+ 1.25*V
24) Else if particle consumed Energy Drink six then:
x=x+1.5*V
25) Else if particle consumed Energy Drink seven then:
x=x+1.75*V
26) Else if particle consumed Energy Drink eight then:
x=x+2*V

Conclusions

A new algorithm titled Summer Season Energy Drink Particle Swarm Optimization (SSEDPSO) is designed in this article. There is scope to change number of Energy Drinks and probability of each energy drink. In addition to this, there is possibility to change constant factors multiplied to velocity in position update equations.

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