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GOD Devotee Human Swarm Optimization (GDHSO) - ISVHAAI AI Society Letters

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Abstract

The short form of Very Highly Advanced Artificial Intelligence is VHAAI. The short form of International Society for VHAAI is ISVHAAI. VHAAI field is used by ISVHAAI Artificial Intelligence Society to address various problems. GOD Devotee Human Swarm Optimization (GDHSO) is the novel algorithm designed in this Letter No. 13 of ISVHAAI AI Society Letters.

Keywords: Artificial Intelligence, AI, VHAAI, ISVHAAI, Humans, Swarm, Human Swarm Optimization, HSO, GOD, Devotees, GOD Devotee HSO, GDHSO

Introduction

Articles shows Swarm Intelligence literature [1-5]. A novel and unique algorithm titled GOD Devotee Human Swarm Optimization (GDHSO) has been designed in this article. GDHSO is shown in Section 2. Section 3 shows the Conclusions made. References are shown at the end.

GOD Devotee Human Swarm Optimization

GOD Devotee Human Swarm Optimization (GDHSO) is explained in this Section. Population of Humans is initialized in line no. 1. Devotee_NonDevotee_Array and Movement_Magnitude_Array are initialized in line no. 2. Generation count is set to 0. Generation_Devotional_Probability is set to 0.5. Devotional Generation is shown in lines 6 to 16. Normal Generation is shown in lines 17 to 22. Based on random number D and Generation_Devotional_Probability, the Current Generation is identified as either Devotional Generation or Normal Generation. In Devotional Generation, Devotees move towards the Best Devotee and Non-Devotees move towards the Best Non-Devotee. As shown in lines 11 and 15, Devotees and Non-Devotees move along the Movement Direction and magnitude of this movement is Movement_Magnitude_Array [Human] multiplied by Step value. In Normal Generation there is no concept of Devotion and all Humans move towards the Best Human. Line no. 21 shows position update equation in Normal Generation. Human moves along movement Direction and magnitude of this movement is Movement_Magnitude_Array [Human] multiplied by Step value. Generation counter is incremented by one in line no. 23. This process continues until termination condition is reached in line no. 24.

Procedure: GOD Devotee Human Swarm Optimization (GDHSO)

- Initialize Population of Humans
- Initialize Devotee_NonDevotee_Array and Movement_Magnitude_Array
- Generation = 0
- Generation_Devotional_Probability = 0.5
- Generate random number D
- If $0 < D < 0.5$ then:
- For each Human in Devotional Generation:
- If Devotee then:
- Movement_Direction = Best_Devotee - Devotee
- Convert Movement_Direction into Unit Vector
- Position = Position + Movement_Direction * Movement_Magnitude_Array [Human] * Step
- Else If NonDevotee then:

- $Movement_Direction = Best_NonDevotee - NonDevotee$
- Convert $Movement_Direction$ into Unit Vector
- $Position = Position + Movement_Direction * Movement_Magnitude_Array[Human] * Step$
- End For each Human in Devotional Generation loop
- Else If $0.5 < D < 1$ then:
- For each Human in Normal Generation:
- $Movement_Direction = Best_Human - Human$
- Convert $Movement_Direction$ into Unit Vector
- $Position = Position + Movement_Direction * Movement_Magnitude_Array[Human] * Step$
- End For each Human in Normal Generation
- $Generation = Generation + 1$
- Continue this process until termination condition is reached

Conclusions

A unique algorithm titled GOD Devotee Human Swarm Optimization (GDHSO) has been designed in this article. One can explore different probabilities for $Generation_Devotional_Probability$. There is scope to explore different number of Devotees in the Human population. This is just the beginning of GOD Devotee Human Swarm Optimization (GDHSO) algorithms. There is scope to invent new and unique algorithms moving in the direction shown in this article.

References

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