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Teacher Brother Sister Father Mother Friend Artificial Intelligence Algorithm (TBSFMFAIA)

Satish Gajawada
IIT Roorkee Alumnus

Abstract*—Swarm intelligence is an active area of research. A new algorithm titled Teacher Brother Sister Father Mother Friend Artificial Intelligence Algorithm (TBSFMFAIA) is proposed in this article. The proposed TBSFMFAIA Artificial intelligence algorithm belongs to Human Swarm Optimization (HSO) field.*
Keywords—Artificial Intelligence, Swarm Intelligence, Teacher, Brother, Sister, Father, Mother, Friend, TBSFMFAIA

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I. INTRODUCTION

Relevant Artificial Intelligence literature is shown in articles [1] to [8]. A unique and novel algorithm titled Teacher Brother Sister Father Mother Friend Artificial Intelligence Algorithm (TBSFMFAIA) is designed in this article. Section 2 shows designed TBSFMFAIA algorithm. Conclusions are made in section 3 followed by References.

II. TEACHER BROTHER SISTER FATHER MOTHER FRIEND ARTIFICIAL INTELLIGENCE ALGORITHM

Population Initialization is done in lines 1 to 6. Coefficients are set in lines 7 to 12. Probabilities are initialized in lines 13 to 19. Human Population is initialized in line no. 20. Generation is set to 0. For each Human loop is started in line no. 22. Based on random number generated and probabilities, Human moves towards either Teacher or Brother or Sister or Father or Mother or Friend. Line no. 25 shows Direction of movement towards Teacher. This Direction is converted to unit vector. Line no. 27 shows position update equation. The Human moves towards Teacher along Direction and magnitude of this movement is Towards_Teacher_Coefficient multiplied by Step value. Lines 28 to 31 shows movement of Human towards Brother. Lines 32 to 47 shows other movement of Human towards Sister, Father, Mother and Friend respectively. Lines 48 to 49 shows idle movement. The position remains as it is. In line no. 50. For each Human loop is ended. Generation counter is incremented by 1. Teacher, Brother, Sister, Father, Mother and Friend populations are Updated in lines 52 to 57. This process is continued until termination condition is reached in line no. 58.

Procedure: Teacher Brother Sister Father Mother Friend Artificial Intelligence Algorithm (TBSFMFAIA)
1) Initialize Teacher Population
2) Initialize Brother Population
3) Initialize Sister Population
4) Initialize Father Population
5) Initialize Mother Population
6) Initialize Friend Population
7) Towards_Teacher_Coefficient = 0.3
8) Towards_Brother_Coefficient = 0.4
9) Towards_Sister_Coefficient = 0.4
10) Towards_Father_Coefficient = 0.5
11) Towards_Mother_Coefficient = 0.5
12) Towards_Friend_Coefficient = 0.3
13) Teacher_Probability = 0.15
14) Brother_Probability = 0.15
15) Sister_Probability = 0.15
16) Father_ Probability = 0.15
17) Mother_ Probability = 0.15
18) Friend_ Probability = 0.15
19) Idle_Probability=0.1

20) Initialize Human Population
21) Generation = 0
22) for each Human loop:
23) Generate random number “R”
24) If 0 < R < 0.15 then
25) Direction = Teacher – Human
26) Convert Direction to unit vector
27) Position = position + Direction* Towards_Teacher_Coefficient*Step
28) If 0.15 < R < 0.30 then
29) Direction = Brother – Human
30) Convert Direction to unit vector
31) Position = position + Direction* Towards_Brother_Coefficient*Step
32) If 0.30 < R < 0.45 then
33) Direction = Sister – Human
34) Convert Direction to unit vector
35) Position = position + Direction* Towards_Sister_Coefficient*Step
36) If 0.45 < R < 0.6 then
37) Direction = Father – Human
38) Convert Direction to unit vector
39) Position = position + Direction* Towards_Father_Coefficient*Step
40) If 0.6 < R < 0.75 then
41) Direction = Moother – Human
42) Convert Direction to unit vector
43) Position = position + Direction* Towards_Mother_Coefficient*Step
44) If 0.75 < R < 0.9 then
45) Direction = Friend – Human
46) Convert Direction to unit vector
47) Position = position + Direction* Towards_Friend_Coefficient*Step
48) If 0.9 < R < 1 then
49) Position = position
50) End for each Human loop
51) Generation = Generation + 1
52) Update Teacher Population
53 Update Brother Population
54) Update Sister Population
55) Update Father Population
56) Update Mother Population
57) Update Friend Population
58) Loop until termination condition is reached

III. CONCLUSIONS

An interesting algorithm titled Teacher Brother Sister Father Mother Friend Artificial Intelligence Algorithm (TBSFMFAIA) is designed and shown in this article. There is scope to change Towards_Teacher_Coefficient and other coefficients. One can try and experiment with different probabilities like Teacher_Probability that are present in TBSFMFAIA algorithm. This is just the beginning of Teacher Brother Sister Father Mother Friend Artificial Intelligence Algorithm (TBSFMFAIA) algorithm. One may create several unique and new algorithms by taking inspiration from TBSFMFAIA algorithm designed in this article.

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