Original Article

Student Mobile Phone Human Swarm Optimization (SMPHSO): ISVHAAI AI Society Letters

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Abstract: *VHAAI means Very Highly Advanced Artificial Intelligence. ISVHAAI means International Society for VHAAI. This is ISVHAAI Artificial Intelligence Society Letter No. 11. In this Letter, a novel algorithm titled Student Mobile Phone Human Swarm Optimization (SMPHSO) has been designed.*

Keywords: *AI, Vhaai, Isvhaai, Humans, Student, Teacher, Swarm, Optimization, Mobile Phone, Human Swarm Optimization, Hso, Student Mobile Phone Hso, Smphso.*

I.INTRODUCTION

Teachers and Students were already taken as inspiration for designing optimization algorithms as shown in articles [1] to [5]. In this article, a unique algorithm titled Student Mobile Phone Human Swarm Optimization (SMPHSO) is designed. SMPHSO is explained in second section. Third section shows conclusions made followed by references.

II. STUDENT MOBILE PHONE HUMAN SWARM OPTIMIZATION

In this Section, Student Mobile Phone Human Swarm Optimization (SMPHSO) is explained. Students move in the search space and each student has a Mobile Phone. In each generation Student attempts to call the Teacher with Mobile Phone and Probability that the Mobile Phone gets connected is 0.75. If the call is not connected then Student is not motivated to move in search space and does nothing in the current generation. If the Student's Phone call to Teacher is connected then Teacher motivates Student to move in the search space. The Student gets motivated to move in search space and there are four types of Motivation with probability 0.25 each. Each Motivation type has different Coefficient of motivation associated with it. The Position Update equation depends on whether Student's call to Teacher gets connected or not. Once Student's call to Teacher gets connected, the Position Update equation depends on the type of Motivation that the Student gets by the Teacher on Phone Call. Each Student moves in the direction of the Best Student where Best Student has the Best fitness value.

A. Procedure: Student Mobile Phone Human Swarm Optimization (SMPHSO)
- Students Population Initialization
- Generation = 0
- Probability_Mobile_Phone_Call_Connected = 0.75
- Probability_Motivation_One= 0.25
- Probability_Motivation_Two = 0.25
- Probability_Motivation_Three = 0.25
- Probability_Motivation_Four = 0.25
- Loop for each Student:
- direction_of_movement = (Student_best - Student)
- direction_of_movement = direction_of_movement / magnitude(direction_of_movement)
- Random number R is generated
- If 0<R<0.75 then: Mobile Phone Call is Connected
- Else if 0.75<R<1 then: Mobile Phone Call not Connected and Student does nothing and go to next Student
- Random number R2 is generated
- If 0<R2<0.25 then: Student gets Motivation_One
- Else if 0.25<R2<0.5 then: Student gets Motivation_Two
- Else if 0.5<R2<0.75 then: Student gets Motivation_Three
- Else if 0.75<R2<1 then: Student gets Motivation_Four
- Coefficient_of_motivation1 = 0.5
- Coefficient_of_motivation2 = 1
- Coefficient_of_motivation3 = 1.5
- Coefficient_of_motivation4 = 2

- If Student gets Motivation_One then:
- Pos = Pos + direction_of_movement* Coefficient_of_motivation1*Step
- Else if Student gets Motivation_Two then:
- Pos = Pos + direction_of_movement * Coefficient_of_motivation2*Step
- Else if Student gets Motivation_Three then:
- Pos = Pos + direction_of_movement * Coefficient_of_motivation3*Step
- Else if Student gets Motivation_Four then:
- Pos = Pos + direction_of_movement * Coefficient_of_motivation4*Step
- Loop for each Student is ended
- Generation = Generation + 1
- This process is continued until termination condition reached is true

III. CONCLUSIONS

Student Mobile Phone Human Swarm Optimization (SMPHSO) is the unique and novel algorithm designed in this letter. There is scope to change Probability of Mobile Phone Call Connected and Probability of Motivations. One can experiment with different values for Coefficient of Motivations in the position update equations. One can design new and unique algorithms by taking inspiration from Students and Teachers as shown in this article.

IV. REFERENCES

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