COMPARATIVE ANALYISIS OF SIMULATION OF PSO AND SVM IN MATLAB

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ABSTRACT: The implementation of PSO and SVM IN POKER has been proposed here. The efficient Particle Swarm Optimization approach for poker has been discussed with integration of Support Vector Machine. The performance of the Proposed Approach in poker is also considered here. The paper also provides the compare the performance of Existing Approach (Genetic Algorithm and Support Vector Machine) with the Proposed Approach for poker. The performance of SVM based PSO is better as compared to SVM based GA in POKER. The blue curve represents the time taken by SVM based PSO and red curve represents SVM based GA. SVM based GA is taking more time as compare to SVM based PSO POKER SYSTEM. Thus it could be considered that the performance of SVM based PSO is better as compare to SVM based GA POKER SYSTEM. The research work would be beneficial to resolve the issues related to warm particle based implementation with such integration for poker.

KEYWORDS: AI, PSO, SVM, Genetic algorithm, GA

[1] INTRODUCTION

Artificial intelligence

AI works in the same way as done by person. To achieve this, we first adopt the features of persons. After that we implemented it as a formula in a computer responsive technique. Computers are basically compatible to bring out mechanical calculation. Flat program rules are utilized by them to do this function. It allows artificial machine to carry out uncomplicated repetitive responsibilities professionally and consistently. Human beings are not able to carry out this feat. Artificial intelligence is field which is associated with science. Its main objective is to resolve the multifaceted matters with the help of machine. All the researches which are related to artificial intelligence is highly practical and particular. One of the fundamental complications in artificial intelligence is that how computer programming has been done for some definite characteristic such as: understanding, analysis, Problem solving, awareness, education, Planning, Ability to manipulate and move objects. Knowledge engineering is considered as the fundamental part of AI research. Approaches involved arithmetic procedure, calculation cleverness, and flexible calculation along with conventional representational AI. Some approach is exploited in AI, involved type exploration along with arithmetical growth methods which enlighten prospect along with financial matters

Usage of AI

AI has been prevailing in variety of areas which is as follows

- Gaming:-An important function in strategic games is played by AI. Chess, poker, tic-tac-toe, etc are the few examples of strategic games. In this it is thought that machine could perform a large no. of function on the basis of trial and error method.

- Expected Language Dispensation: - It is practicable to work simultaneously with computer which are skilled of recognize ordinary language spoken by humans.

- Systems of Expert:- An skilled system is a processor course which is created to perform as a specialist in an exacting domain or we can say that in an area of expertise.

- Computer Vision Systems:- With the help of vision the human beings generally detects the situation. We watch more often in comparison to listen, snuff along with sense. The main intention behind the investigation of computer vision system is to furnish computers with this influential skill. Due to this computers are capable of understanding their situation. In this the computer are assisted by the artificial intelligence so that they can recognize what they see through attached cameras. A robot is a electro mechanical device which is able to execute responsibilities given by a human. In other words we can say that it is a

designed multipurpose manipulator which is capable of transport material, parts and tools.

[2]SUPPORT VECTOR MACHINE

A Support Vector Machine is a supervised learning model. It contains learning algorithm. Information required for the purpose of organization and decay examination is survey by them. It is a machine learning approach. They analyze a large amount of data to identify patterns from them. Concept of finding a hyper plane is used as a base for the creation of SVM. It exploits for mathematical and engineering problems. For example handwriting number detection, item recognition, speaker discovery, faces classification in descriptions and target detection. In coding exercise it is observed by us that how the accuracy of SVM is improved by doing modification in these parameters.
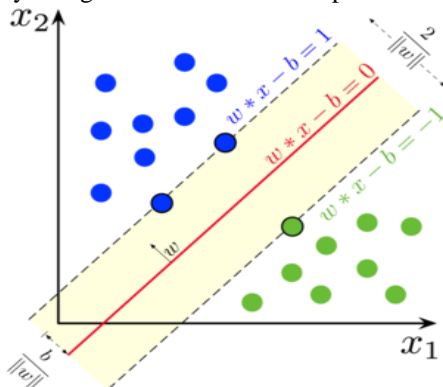

Fig 1 Support vector machine

Genetic Algorithms

These are the techniques required to resolve multifaceted problems. Encryption of variables in series is done for the operation of G.A. Encryption discreatizes the search space constantly for each function. On the other hand it comes in to notice that simply proper encryption of the difficulty can translate into a precise explanation. In GA, function value at isolated point is required. Therefore it is feasible to manage isolated along with irregular function. Relation between the string arrangements is detected by G.A. Therefore it is feasible to obtain the worldwide excellent explanation. GA is a people based investigation algorithm. Therefore it is feasible to gather multiple most favorable explanations. For the operation of GA knowledge of item function worth is more than sufficient.

## [3] OBJECTIVES

The objectives of research are as follow:

1. To develop efficient Particle Swarm Optimization approach for poker with integration of Support Vector Machine.
2. To check the performance of the Proposed Approach in poker.
3. To compare the performance of Existing Approach (Genetic Algorithm and Support Vector Machine) with the Proposed Approach for poker
   4.

[4]PROBLEM STATEMENT

Support Vector Machine has been considered as an effective classification mechanism that has been used in poker. It is does not obtaining feature importance directly. Accuracy of Support Vector Machine might be raised using Support Vector Machine with integration of any optimized algorithm. Support Vector Machine is used with Genetic Algorithm in poker For feature selection. It is capable to minimize computation time. It also raises accuracy. But it has been observed that there are lot of issues with Genetic Algorithm. Such mechanism is not capable to obtain the optimal feature subset. There are issues in local optimum while searching space is complex procedure.

Particle Swarm optimization has been considered better global optimization ability. It has lower computing complexity as compare to GA or Hybrid GA. It is frequently utilized in order to perform selection of features.

[5] PROPOSED WORK

The proposed work consists of implementation of Support vector machine with integration of PSO for poker. On other side the implementation of genetic algorithm would be performed with integration of Support vector machine
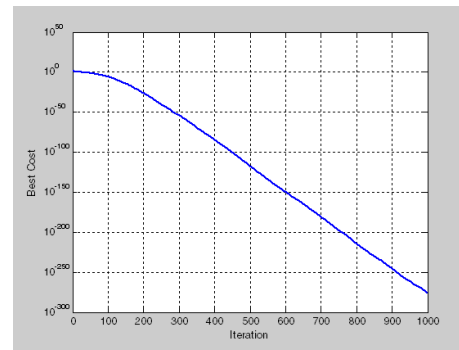

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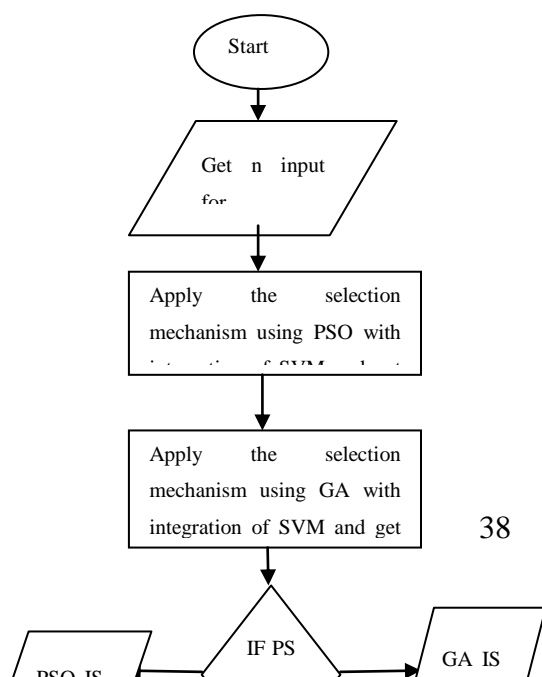
Fig 5 output of Best cost in case of SVM based PSO

FIG 2 PROPOSED MODEL

[6] RESULT AND DISCUSSION

Implementation of basic SVM MODEL using MATLAB has been made here. SVM output representing Positive and negative class is shown by the following figure:
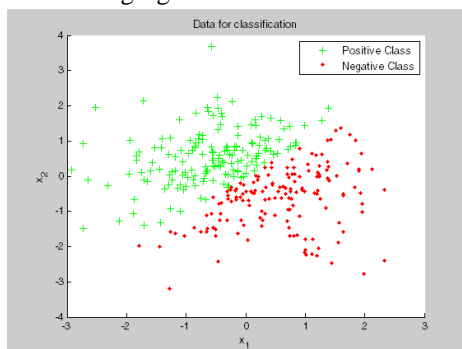

Fig 3 SVM output representing Positive and negative class

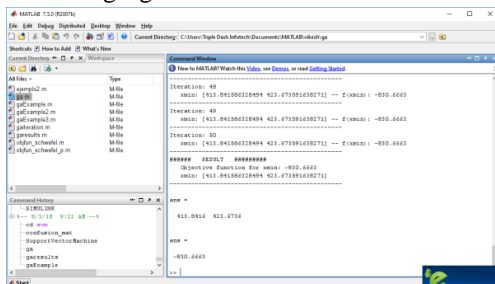Implementation of Genetic Algorithm is defined in the following figure:

Fig 4 Implementation of Genetic Algorithm

Output of Best cost in case of SVM based PSO has been shown here:

The time taken during decision in case of SVM based PSO and GA has been discussed in following table

Table 1 Performance of SVM based PSO

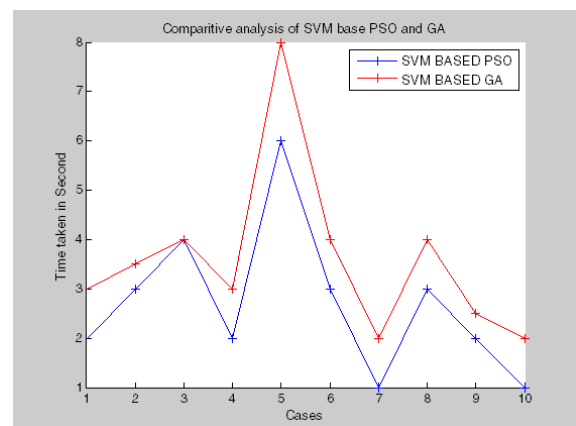| Case	Time taken in case of SVM based PSO POKER SYSTEM (In second)	Time taken in case of SVM based GA POKER SYSTEM (In second)
1	2	3
2	3	3.5
3	4	4
4	2	3
5	6	8
6	3	4
7	1	2
8	3	4
9	2	2.5
10	1	2

Fig 6 Comparative analysis of SVM based PSO and SVM based GA in poker

[6]CONCLUSION

From the above implementation it has been concluded that the performance of SVM based PSO is better as compared to SVM based GA in POKER. The blue curve represents the time taken by SVM based PSO and red curve represents SVM based GA. SVM based GA is taking more time as compare to SVM based PSO POKER SYSTEM. Thus it could be considered that the performance of SVM based PSO is better as compare to SVM based GA POKER SYSTEM.

[7]FUTURE SCOPE

Swarm particle based implementation with such integration for poker could better perform in order to solve problems by having a population of candidate solutions, here dubbed particles, and moving these particles around in case of search-space according to simple mathematical formulae over the particle's position and velocity. In order to develop more efficient particle based implementation with integration of vector machine in poker is a challenging process. Support Vector Machine is considered supervised machine learning algorithm which is used for both classification and regression challenges.

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