ABSTRACT

Credit card application fraud detection has been an extensive research area in the past two decades and still continues to be the area of interest in various sectors of data mining. Various detection algorithms and techniques have been proposed for fraud detection producing results with varying efficiency and accuracy. The algorithms range from a simple to varying levels of implementation and structural complexity, each employing their own detection techniques. Further, what these techniques have in common is that they all aim at analyzing a single revision of software. The motivation behind this research is the fraud detection through various hybrid techniques. Moreover, the research focuses on detecting fraud through refactoring techniques and consistent modification of fraud.

In the first stage of the work endeavours to focus the hybrid Fast Throughput Multi-Pattern Matching algorithm (FTMPM), which is used to match the large amount of attributes. The main target that focused on this FTMPM is to safeguard the credit application in the initial stage of the credit life cycle. The implementation of Multi pattern matching algorithm in order to compare the attributes makes the identification process reliable with less time complexity. Here the two main challenges are time constraints and accuracy have been achieved with balanced data load. This FTMPM has not achieved the optimization level, because it worked along with the CD and SD approaches. To improve the performance in terms of the optimization, the second stage of the work introduces the new approach called as an Improved Sheep Flock Heredity Algorithm.
The second stage of the work proposes an Improved Sheep Flock Heredity Algorithm (ISFHA), which improves the efficiency of the credit card application fraud detection method by verifying and validating the optimized parameters, such as single and multiple attributes. The attributes of every application [offline/online] are verified by using a newly developed procedure MLMA-[Multi-Level-Multi-Agent] and it is verified all the attribute values are best one or not. For optimizing the attributes the ISFH-[Improved Sheep Flock Heredity] algorithm is used and those attributes are validated according to the time and response with optimal value.

The final stage of the work proposes the Hybrid Elephant Swarm Optimization Algorithm (HESOA), which increases the speed of fraud detection. The main aim of the work is to detect and prevent the credit card application fraud. In this method, based on the attributes of credit card application validation is performed, the prevention of fraud transaction and for analyzing the system performance, the uses of hybrid elephant swarm optimization are proposed based on the heuristic search algorithm for the credit card fraud detection. The search algorithm is used to find the similarity among the neighboring attributes and elephant swarm optimization is used for finding the optimal path and best fitness. Proposed system gives the best accuracy results and shows the data handling capacity for large databases. Results show the accuracy of 99.32% in terms of detection which is comparatively improved compared to other existing methods.

Keywords: BL, CD, Data Mining, EBS, FTMPM, HESOA, ISFHA, JMI, RBS, SD, WL