Abstract

Anomaly detection is one of the major requirements of the current age that witnesses a huge increase in online transactions. Data imbalance also poses a huge challenge in the detection process. This paper presents a hybrid metaheuristic algorithm that performs effective anomaly detection on highly imbalanced data. Particle Swarm Optimization is used as the operating algorithm. This algorithm is hybridized by modifying the probabilistic selection using Simulated Annealing. A comparison study was carried out and it was observed that the simulated annealing based PSO showed much prominence when operated on both dominant and submissive data.

References

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**Index Terms**

Computer Science  
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**Keywords**

PSO; Simulated Annealing; Credit Card Fraud Detection; Data Imbalance; Anomaly Detection.