International Journal of Software Computing and Testing

Home > Vol 7, No 2 (2021) > **Rajesh**

📄 Open Access   🔒 Subscription or Fee Access

For Analyzing Fraud in Credit Cards, Fuzzy Particle Swarm Optimization (FPSO) with Enhanced Support Vector Machine (ESVM) Classifier

B. M. Rajesh, Antony Selvadoss Thanamani, B. Chithra, A. Finny Belwin, A. Linda Sherin

Abstract

Credit cards are extremely significant in today's economy. However, as the number of Credit Card clients grew, so did the number of Credit Card fraud instances. To fight the upward thrust in credit score card fraud, a number of techniques were recommended. In previous study, a unique fraud detection system was presented that uses similar cardholders' behavioural patterns to construct a recent behavioural profile of a cardholder in order to avoid credit card fraud. The selection of appropriate features from samples and the decision cost for accuracy, on the other hand, become the most pressing issues. To shed light on these challenges, the proposed research project proposes a five-phased fraud detection technique. To improve a cardholder's behavioural styles, first use the cardholder's past transaction data to classify all cardholders into distinct groups, with members in the same group having similar transaction habits. To aggregate the transactions in each group, the window-sliding approach is provided. In addition, it provides a novel feature selection based on Fuzzy Particle Swarm Optimization (FPSO) for improving credit card fraud detection. An ensemble category is achieved through an Enhanced Kernel primarily based totally Support Vector Machine after deciding on the great and handiest functions the usage of a prolonged wrapper method (EKSVM). The external quality measures Accuracy, Recall, FFDR, and CDDR are used in this proposed work. The dataset utilized is from the University of California, Irvine. The analytical metrics used to assess the effectiveness of the fraud detection approach in question. The simulation results suggest that this proposed fraud detection method outperforms other fraud detection techniques in terms of accuracy.

Full Text:

PDF 🔒

References

Dal Pozzolo, A., Boracchi, G., Caelen, O., Alippi, C., & Bontempi, G. (2017). Credit card fraud detection: a realistic modeling and a novel learning strategy. IEEE transactions on neural networks and learning systems, 29(8), 3784-3797.

Zojaji, Z., Atani, R. E., & Monadjemi, A. H. (2016). A survey of credit card fraud detection techniques: Data and technique oriented perspective. arXiv preprint arXiv:1611.06439.

Raj, S. B. E., & Portia, A. A. (2011, March). Analysis on credit card fraud detection methods. In 2011 International Conference on Computer, Communication and Electrical Technology (ICCCET) (pp. 152-156). IEEE.