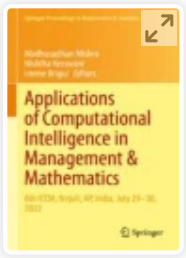

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Identification and Detection of Credit Card Frauds Using CNN

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Abstract

Phishing, vishing, spamming, ransomware, cybersquatting, and other forms of financial frauds have been committed on credulous people for years now. With this lockdown which pushed millions of people to make online transactions through credit cards with less provision for security, fraudsters found

a big population of preys to target. This COVID-19 pandemic made the world population to stay home and purchase their basic needs in e-commerce sites through their cards in simple steps. This ease of transactions made by technological development also makes it easy for fraudsters attempting to abuse the card. To restrict the fraudster's actions, the main step is the verification of credit card transactions and identifying between the fraud and the genuine transactions. Traditional methods employ rule-based expert systems to identify fraud transactions without considering the diverse scenarios and extremely unbalanced feature samples. Here, we propose the credit card fraud detector using CNN with smart matrix algorithm suitable for large-sized real-time datasets. The pre-processing of dataset is performed using random under sampling for effective training of the model. This pre-processed dataset is normalized for acquiring standardized input. The feature sequencing for feature selection is performed by the smart matrix algorithm. When compared to other machine learning methods such as Naive Bayes and K-nearest neighbor, the three-layered CNN model performs better. The performance is evaluated using parameters such as confusion matrix, false alarm rate, sensitivity, Matthew's correlation coefficient, balanced classification rate, and F1 score.

Keywords

Credit card fraud detector

Random under sampling

Convolutional neural network

Three-layered max pooling model

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