IJDACR
ISSN: 2319-4863

IJDACR
International Journal Of Digital Application & Contemporary Research

International Journal of Digital Application & Contemporary Research
Website: www.ijdacr.com (Volume 14, Issue 1, August 2025)

Neural Network-Based Credit Card Fraud Detection Using Machine Learning

Diksha Tatavat
Assistant Professor
Computer Engineering Department
Shri G. S. Institute of Technology and Science, Indore (M.P.), India
Email ID: diksha_tatavat@sgsits.ac.in
ORCID ID: 0009-0004-3948-3385

Abstract – **Detecting credit card frauds in financial sector has become a burning issue with the increase in the volume of transactions and the frauds taking more advanced forms. Dynamic, high-dimensional, and imbalanced financial data cannot be analyzed using traditional and rule-based models, as well as statistical ones. This paper focuses on artificial neural networks (ANNs) as a way of real-time fraud detection using a nonlinear pattern recognition and deep feature learning framework. The ANN performance is compared with other models using scenario-based evaluation, such as Logistic Regression and the Support Vector machines and the Random Forests. The literature review is based on using insights of Generative AI application in the finances sphere, evolutionary optimization of deep learning parameters, synthetic image generation by GANs, and anomaly detection in the financial markets. Findings indicate that ANNs are more effective than traditional ML models in recall and fraud detection accuracy, which are some of these problems like imbalance between different classes, nonlinear behaviour and concealed fraud patterns. The study mentions the future of deep learning, neural-generated fake samples of frauds, and integrated models that involve both LLM and ANN-based anomaly detection tools.**

Keywords – **ANN, GAN, Random Forest, SVM.**