**ABSTRACT**

Vulnerability in banking systems has exposed us to fraudulent acts, which cause severe damage to both customers and the bank in terms of loss of money and reputation. Financial fraud in banks is estimated to result in a significant amount of financial loss annually. Early detection of this helps to mitigate the fraud, by developing a counter strategy and recovering from such losses. A machine learning-based approach is proposed in this paper to contribute to fraud detection successfully. The artificial intelligence (AI) based model will speed up the check verification to counteract the counterfeits and lower the damage. In this paper, we analyzed numerous intelligent algorithms trained on a public dataset to find the correlation of certain factors with fraudulence. The dataset utilized for this research is resampled to minimize the high class of imbalance in it and analyzed the data using the proposed algorithm for better accuracy.