

# A Literature Survey on Transaction and Phishing URL Fraud Detection in Bitcoin

Chandana C<sup>1</sup>, Anshika V<sup>2</sup>, Dr Kavita Patil<sup>3</sup>

Students, Department of Information Science and Engineering<sup>1,2</sup>

Professor, Department of Information Science and Engineering<sup>3</sup>

Global Academy of Technology, Bengaluru, India

**Abstract:** *The literature survey provides a comprehensive overview of the complexities surrounding cryptocurrencies, focusing on fraud detection and regulation within the global financial system. It traces the historical evolution of monetary systems, the emergence of cryptocurrencies, and regulatory approaches. Significant findings include the application of machine learning algorithms like LGBM and random forest in Ethereum fraud detection, and the effectiveness of unsupervised learning for anomaly mining in Bitcoin transactions. Novel frameworks for fraud detection through ensemble stacking models are also highlighted. The survey underscores the need for effective approaches to combat fraudulent activities within blockchain platforms, such as Ponzi schemes and phishing scams. Proposed solutions utilize methodologies like graph neural networks and ensemble learning, exhibiting high accuracy. Regulatory measures, classification technique refinement, and future research directions are emphasized to enhance fraud detection models. Overall, the survey illuminates the potential impact of cryptocurrencies on the global financial system, the challenges of unregulated circulation, and promising advancements in fraud detection and regulatory efforts within the digital economy.*

**Keywords:** Cryptocurrencies, Fraud Detection, Regulatory Strategies, Blockchain Technology, Machine Learning Algorithms, Ponzi Schemes, Ethereum, Financial Security, Digital Economy, Phishing scam

## REFERENCES

- [1]. G. Luchkin, O. L. Lukashova, N. E. Novikova, V. A. Melnikov, A. V. Zyatkov, and E. V. Yarotskaya, "Cryptocurrencies in the global financial system: Problems and ways to overcome them," in Proc. Russian Conf. Digit. Economy Knowl. Manag. (RuDEcK), 2020.
- [2]. K. Lašas, G. Kasputytė, R. Užupytė, and T. Krilavičius, "Fraudulent behaviour identification in Ethereum blockchain," in Proc. CEUR Workshop, Inf. Soc. Univ. Stud., Kaunas, Lithuania, 23, Apr. 2020.
- [3]. Q. Yuan, B. Huang, J. Zhang, J. Wu, H. Zhang, and X. Zhang, "Detecting phishing scams on Ethereum based on transaction records," in Proc. IEEE Int. Symp. Circuits Syst. (ISCAS), Oct. 2020.
- [4]. R. M. Aziz, M. F. Baluch, S. Patel, and A. H. Ganie, "LGBM: A machine learning approach for Ethereum fraud detection," Int. J. Inf. Technol., vol. 14, no. 7, pp. 3321–3331, Dec. 2022, doi: 10.1007/s41870-022-00864-6
- [5]. G. D. Arya, K. V. S. Harika, D. V. Rahul, S. Narasimhan, and A. Ashok, "Analysis of unsupervised learning algorithms for anomaly mining with Bitcoin," in Machine Intelligence and Smart Systems. Berlin, Germany: Springer, 2021.
- [6]. Mwanza, Charity, "Graph neural networks for ethereum fraud detection" (2023). Theses. 449, <https://louis.uah.edu/uah-theses/449>
- [7]. Xuezhi He, Tan Yang, and Liping Chen "CTRF: Ethereum-Based Ponzi Contract Identification", Hindawi, Security and Communication Networks, Volume 2022, Article ID 1554752, <https://doi.org/10.1155/2022/1554752>
- [8]. M. Bhowmik, T. S. S. Chandana, and B. Rudra, "Comparative study of machine learning algorithms for fraud detection in blockchain," in Proc. 5th Int. Conf. Comput. Methodologies Commun. (ICCMC), Apr. 2021.

- [9]. W. Chen, Z. Zheng, E. C.-H. Ngai, P. Zheng, and Y. Zhou, "Exploiting blockchain data to detect smart Ponzi schemes on Ethereum," IEEE Access, vol. 7, pp. 37575–37586, 2019.
- [10]. Ross Phillips and Heidi Wilder, "Tracing Cryptocurrency Scams: Clustering Replicated Advance-Fee and Phishing Websites", 2020, IEEE
- [11]. Ogundokun, R.O., Arowolo, M.O., Damaševičius, R. and Misra, S., 2023, May. Phishing Detection in Blockchain Transaction Networks Using Ensemble Learning. In Telecom. Ashfaq, T, Khalid, R. Yahaya, A.S.; Aslam, S.; Azar, A.T.;
- [12]. Alsafari, S, Hameed, I.A. "A Machine Learning and Blockchain Based Efficient Fraud Detection Mechanism.", Sensors 2022, 22, 7162. <https://doi.org/10.3390/s22197162>
- [13]. Bartoletti, Massimo & Carta, Salvatore & Cimoli, Tiziana & Saia, Roberto. (2017). Dissecting Ponzi schemes on Ethereum: identification, analysis, and impact.
- [14]. Bartoletti, Massimo & Lande, Stefano & Loddo, Andrea & Pompianu, Livio & Serusi, Sergio. (2021). Cryptocurrency Scams: Analysis and Perspectives. IEEE Access. 9. 1-1. 10.1109/ACCESS.2021.3123894.
- [15]. Nayyer, Noor & Javaid, Nadeem & Akbar, Mariam & Aldegheishem, Abdulaziz & Alrajeh, Nabil & Jamil, Mohsin. (2023). A New Framework for Fraud Detection in Bitcoin Transactions Through Ensemble Stacking Model in Smart Cities. 10.1109/ACCESS.2023.3308298.