International Journal of Computational Research in Science and Technology
E-ISSN: 3108-0871, Volume 2 Issue 2
Mar-Apr 2026, PP 46-54

Artificial Intelligence Blockchain Based Fake News Discrimination

I.Sravani[1], N. Nageswari[2], M. Sravanthi[3], P. Chandrasekhar[4], S.Sameer Hussain[5]
[1]Assistant Professor, Department of Computer Science and Engineering, Sai Rajeswari Institute of Technology
[2,3,4,5]UG students, Department of Computer Science and Engineering, Sai Rajeswari Institute of Technology

Abstract. This paper minimizes fake news, which has been a hot topic recently, using blockchain and artificial intelligence technology, and verifies it with blockchain. Also, using Artificial Intelligence technology, we want to create an algorithm that predicts how fake news will spread in the future. You can see various attempts at a news media platform based on Blockchain technology. However, the Blockchain news media platform is still not getting the market response we expected. It is questionable whether the reason is simply because it is a new technology, so it takes a long time to gain trust from consumers, whether consumers are not yet expecting an innovative news media platform, or whether the explosive growth of the Blockchain news media platform is difficult for other reasons. Research to answer this or direct research between Blockchain and media platforms is still lacking. In addition, the method of verifying fake news using artificial intelligence was verified, ANN, CBR, and MDA were changed, and the experiment was verified for progress. In addition, the use of 5-fold cross-validation as a comparative method was added as described above to more closely examine the possibility of its usefulness even in general situations. Also, through various fields of artificial intelligence and blockchain, verification work was done with blockchain, and fake news prediction was made using artificial intelligence. Various experiments were conducted and performance tests were performed, while the performance of about 5,000 TTPS was recorded through the third experiment. In the future, we think it is necessary to combine Artificial Intelligence and blockchain technology.

Keywords: Marketing, SEO, advertising, social media.

I. Introduction

Fake news and rumors are increasingly spreading through online networks, often by tampering with original news content hosted on centralized servers. This manipulation not only misleads the public but also raises significant challenges in detecting and controlling tampered news content. Centralized systems lack robust mechanisms to verify the authenticity of information, leaving room for widespread misinformation.

To address this issue, the proposed approach leverages Blockchain technology combined with Artificial Intelligence (AI) algorithms to ensure secure and accurate detection of fake news. Blockchain, a decentralized and tamper-proof ledger system, guarantees data integrity by storing each news record as a transaction with a unique hash code, making it resistant to unauthorized alterations. Parallel processing in Blockchain further ensures efficient handling of high transaction volumes across multiple channels.

To verify whether uploaded news on Blockchain is real or fake, advanced AI algorithms like Artificial Neural Networks (ANN), Long Short-Term Memory (LSTM), and Case-Based Reasoning (CBR) are employed. These algorithms analyze patterns in news content and make predictions based on training datasets. Furthermore, the system integrates a web server to execute these AI algorithms, ensuring real-time analysis of news authenticity.

The proposed system comprises four entities: news publishers, news subscribers, a private Blockchain for secure storage, and a web server for managing requests using parallel processing. The system emphasizes scalability and accuracy by calculating Total Transactions Per Second (TTPS) to optimize Blockchain performance. Additionally, extensions like Bi-Directional GRU and XGBoost algorithms are introduced to enhance fake news detection accuracy to over 98%, demonstrating the potential of integrating advanced machine learning techniques with Blockchain technology.

Objective

- The objective is to establish a secure Blockchain-based system for the immutable storage of news articles, preventing unauthorized modifications and ensuring data integrity
- The goal is to leverage advanced Artificial Intelligence algorithms to analyze and classify news articles, determining their authenticity and identifying fake content effectively.
- The objective is to develop a streamlined user interface that allows news publishers and subscribers to easily access, upload, and verify news content, fostering transparency and user engagement
- The goal is to assess the impact of the proposed solution on public trust in news media by evaluating the performance to measure the system's effectiveness in mitigating the spread of fake news.

II. Methodology / Design

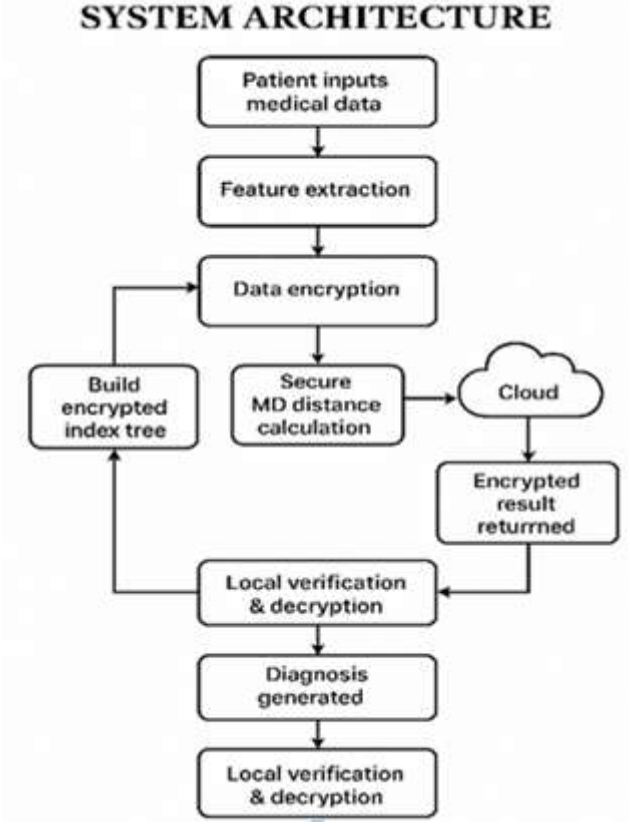
Objective Identification Define the project's primary goal: minimizing the impact of fake news using Artificial Intelligence and Blockchain technologies. Establish the role of Blockchain for secure and tamper-proof storage of news data and AI for analyzing misinformation propagation.

AI Model Development Implement: AI algorithms such as Artificial Neural Network (ANN), Case-Based Reasoning (CBR), and Long Short-Term Memory (LSTM) to predict the spread of fake news. Train the models using labeled datasets of real and fake news articles.

Fake News Detection Extension: Incorporate advanced AI techniques like Bi-directional GRU (Gated Recurrent Unit) and XGBOOST to improve detection accuracy. Use Bi-directional GRU to analyze temporal patterns and language nuances for contextual understanding. Employ XGBOOST for robust classification using ensemble learning to detect evolving misinformation trends.

International Journal of Computational Research in Science and Technology
E-ISSN: 3108-0871, Volume 2 Issue 2
Mar-Apr 2026, PP 46-62

Testing and Validation: Test the system using real-world datasets of news articles to evaluate detection accuracy. Validate the Blockchain system for security, transparency, and tamper-proof storage.



Admin:
The admin can log in to the system using the username and password as 'admin and admin.' After logging in, the admin can view the list of news publishers and subscribers. Admin can also monitor the TTPS (Total Transactions Per Second) graph and analyze the Blockchain performance to ensure efficient operations.

Subscriber Sign-Up:
Subscribers can sign up with the system by providing their details like name, email, and password. All sign-up details will be securely stored in the Blockchain, and each record will be assigned a unique SHA256 hash for tamper-proof security.

Subscriber Login:
Subscribers can log in using their credentials. Once logged in, they can browse and access all news articles stored in the Blockchain. The system ensures that only authorized subscribers can view the verified news content.

Publisher Sign-Up:
Publishers can sign up with the system by providing their organization details and creating credentials. All publisher information will be securely stored in the Blockchain for authenticity and verification purposes.

Publisher Login and News Upload:
Publishers can log in to the system using their credentials. After logging in, publishers can upload news articles to the Blockchain. Each news article will be stored as a block with a unique hash code, ensuring tamper-proof and secure storage.

AI-Based Fake News Detection:
Once news is uploaded, the system uses AI algorithms such as ANN, LSTM, Bi-Directional GRU, and XGBoost to detect whether the news is real or fake. The results of the prediction are stored along with the news data in the Blockchain.

View News:
Subscribers can securely view all news articles stored in the Blockchain. The system displays the authenticity of each news article based on AI predictions, ensuring subscribers can trust the information they access.

Performance Monitoring:
The system calculates Total Transactions Per Second (TTPS) to monitor Blockchain performance. If processing slows down, additional channels are introduced to enhance performance and handle requests efficiently.

III. Implementation

This section presents the partial implementation of the Artificial intelligence blockchain based fake news discrimination. The implementation focuses on Artificial Neural Networks(ANN),Case Based Reasoning(CBR) and scalability and accuracy by calculating Total Transactions Per Second(TTPS)These modules demonstrate the core working of the system while full integration will be completed in later stages.

1. Contract Name
"contractName": "FakeNews"
This indicates the smart contract name.
The contract appears to be designed for a Fake News Detection / News Storage system where:

- Users can register
- News articles can be uploaded
- News data can be retrieved from blockchain

2. Events
Events are triggered when certain actions happen in the contract.
Event: newsCreated
"name": "newsCreated"
Triggered when a new news article is created.

Parameter:
• _newsId → ID of the news
Event: userCreated
"name": "userCreated"
Triggered when a new user is registered.
Parameter:

- _userId → ID of the user

3. State Variables (View Functions)
These functions only read data from blockchain.
newsCount
Returns total number of news articles.
newsCount()
userCount
Returns total number of users.
userCount()

4. News Storage Structure
News data is stored in:
newsList(uint256)
Each news item contains:

Field	Meaning
articleId	News ID
author	Author name
article	News content
uploaddate	Upload date
articletype	Type of article

5. User Storage Structure
Users are stored in:
usersList(uint256)
Each user contains:

Field	Meaning
username	User name
email	Email ID
password	Password
phone	Phone number
home_address	Address
user_type	Admin/User

6. Create News Function
```
createNews(
  aid,
  aname,
  a,
  ud,
  atype
)
```
Parameters:

Parameter	Meaning
aid	Article ID

Parameter	Meaning
aname	Author name
a	Article content
ud	Upload date
atype	Article type

This function stores a news article on blockchain.

7. Get News Information
These functions retrieve individual news details.
getArticleId(i)
getAuthor(i)
getArticle(i)
getDate(i)
getType(i)
i = index of the news article.

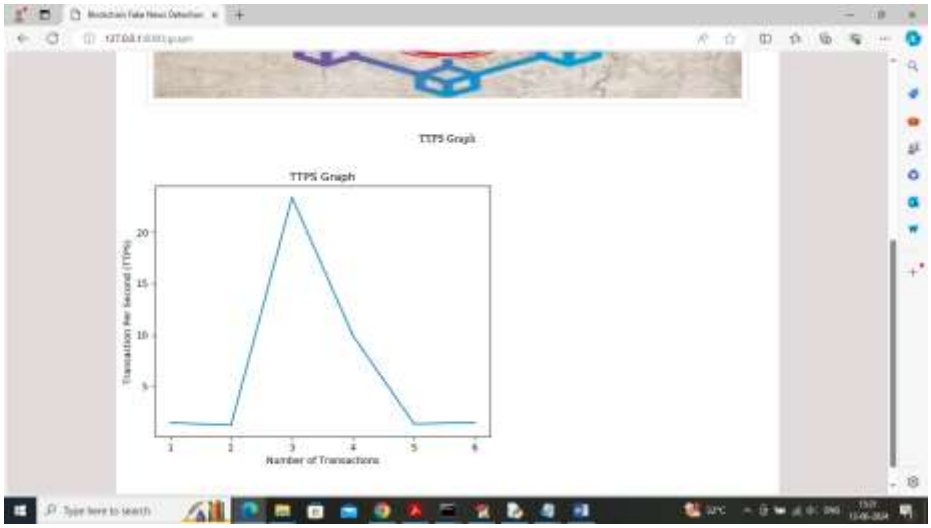
8. Create User Function
createUser(
_username,
_email,
_password,
_phone,
_address,
utype
)
This function registers a new user.
User type could be:
- Admin
- Reporter
- User

9. Get User Details
Functions to retrieve user information:
getUserCount()
getUserType(i)
getUsername(i)
getPassword(i)
getEmail(i)
getPhone(i)

10.Network Information
"networkType": "ethereum"
This contract runs on the Ethereum blockchain.

project outcome:

In above screen news article is predicted as 'Real' and similarly you can upload any number of news and now click on 'TTPS Graph' link to get below graph



IV. Conclusion

In conclusion, this project leverages the integration of Blockchain technology and Artificial Intelligence to provide a secure, tamper-proof, and efficient system for fake news detection. By utilizing Blockchain's decentralized and immutable nature, the system ensures the integrity of uploaded news articles, while AI algorithms like ANN, LSTM, Bi-Directional GRU, and XGBoost enhance the accuracy of fake news detection. The implementation of parallel processing in Blockchain improves transaction efficiency, and the system's modules cater to both publishers and subscribers for seamless

news management. This approach not only addresses the challenges of fake news dissemination but also sets a robust foundation for secure content management in online networks.

References

1. E. Androulaki et al., ‘‘Hyperledger fabric: A distributed operating system for permissioned blockchains,’’ in Proc. 30th EuroSys Conf. ACM, 2018, pp. 1–8.
2. J.Lind,O.Naor,I.Eyal,F.Kelbert, E. G.Sirer, and P. Pietzuch, ‘‘Teechain: Asecurepaymentnetworkwithasynchronousblockchainaccess,’’inProc. 27th ACM Symp. Operating Syst. Princ., Oct. 2019, pp. 1–7.
3. A. Chaer, K. Salah, C. Lima, P. P. Ray, and T. Sheltami, ‘‘Blockchain for 5G: Opportunities and challenges,’’ in Proc. IEEE Globecom Workshops (GC Wkshps), Dec. 2019, pp. 1–6.
4. G. Wood, ‘‘Ethereum: A secure decentralised generalised transaction ledger,’’ Ethereum Project Yellow Paper, vol. 151, no. 2014, pp. 1–32, Apr. 2014.
5. C. Gorenflo, S. Lee, L. Golab, and S. Keshav, ‘‘FastFabric: Scaling hyper ledger fabric to 20,000 transactions per second,’’ 2019, arXiv:1901.00910.
6. P. Thakkar, S. Nathan, and B. Viswanathan, ‘‘Performance benchmarking and optimizing hyperledger fabric blockchain platform,’’ in Proc. IEEE 26th Int. Symp. Model., Anal., Simul. Comput. Telecommun. Syst. (MAS COTS), Sep. 2018, pp. 264–276.
7. Hyperledger is Blockchain. Accessed: Sep. 12, 2023. [Online]. Available: https://sawtooth.hyperledger.org/
8. S. Matetic, K. Wüst, M. Schneider, K. Kostiainen, G. Karame, and S. Capkun, ‘‘BITE: Bitcoin lightweight client privacy using trusted exe cution,’’ in Proc. 28th USENIX Security Symp., 2019, pp. 5–17.
9. M. Yin, D. Malkhi, M. K. Reiter, G. G. Gueta, and I. Abraham, ‘‘Hot Stuff: BFT consensus with linearity and responsiveness,’’ in Proc. ACM Symp. Princ. Distrib. Comput., Jul. 2019, pp. 347–356.
10. How Reuters’s Revolutionary AI System Gathers Global News. Accessed: Jun. 3, 2023. [Online]. Available: https://www.technologyreview.com/s/609558/how
11. H. R. Jung, S. Kim, J. M. Gil, and U. M. Kim, ‘‘Processing continuous range queries with non-spatial selections,’’ in Proc. Mobile, Ubiquitous, Intell. Comput., in Lecture Notes in Electrical Engineering, vol. 274, Springer, 2014, pp. 31–38.
12. j. Ma,Y.Jo,andC.Park,‘‘Redesigninghyperledger fabric blockchain with append-only ledger,’’ in Proc. 13th USENIX Symp. Operating Syst. Design Implement., 2018, pp. 45–56.
13. Y. Jo and C. Chanik, ‘‘Delegated Byzantine fault tolerance using trusted execution environment,’’ in Proc. 27th USENIX Secur. Symp., 2018, pp. 23–34.
14. Y. Jo and C. Park, ‘‘Codit: Collaborative auditing for BaaS,’’ in Proc. 3rd Workshop Scalable Resilient Infrastructures Distrib. Ledgers, Dec. 2019, pp. 11–12.
15. M. Castro and B. Liskov, ‘‘Practical Byzantine fault tolerance,’’ in Proc.

OSDI, vol. 99, 1999, pp. 56–59.
16. D. Ongaro and J. Ousterhout, ‘‘In search of an understandable consensus algorithm,’’ in Proc. USENIX Annu. Tech. Conf., 2014.
17. World Economic Forum. Building Block(Chain)s for a Better Planet. Accessed: Jun. 7, 2023. [Online]. Available: http://www3.weforum.org/docs/WEF_Building-Blockchains.pdf
18. Intel and Microsoft Collaborate to Deliver Industry-First Enterprise Blockchain Service. Accessed: Aug. 9, 2023. [Online]. Available: https://newsroom.intel.com/news/intel-microsoft-enterprise-blockchain service/#gs.57SUp5U2