IJNRD.ORG ISSN : 2456-4184
INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT (IJNRD) | IJNRD.ORG
An International Open Access, Peer-reviewed, Refereed Journal

Blockchain With Ai

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Abstract: Use of the term “Blockchain” is a digital database that stores information in a chain of blocks, making it a decentralized, public and immutable ledger of transactions. It is used to record transactions, track assets, and share information securely. It's the technology behind bitcoin and other virtual currencies. It is a type of shared database that differs from a typical database in the way it stores information; blockchains store data in blocks linked together via cryptography. “AI” stands for Artificial Intelligence, which is the ability of computer systems to perform tasks that usually require human intelligence. These tasks include learning, problem-solving, and decision-making. This paper aims to determine the current state of the art within the field of Blockchain technology with AI. In particular, we investigated the latest articles on this integration and carried out an analysis to determine what applications can benefit from it. A blockchain network can track orders, payments, accounts, production and much more. Blockchain and AI can be used together to create more efficient, secure, and transparent systems. Blockchain and AI together bring new value to business through authenticity, augmentation and automation.

Keywords: Blockchain technology, Artificial Intelligence, Data management, Data privacy, Authenticity Augmentation, automation

Introduction: Blockchain and AI are two powerful technologies.” Blockchain” is a distributed ledger technology that allows data to be stored across a decentralized network of computers. Each "block" of data is linked to the previous one, forming a secure, tamper-proof chain of records. “AI” refers simulation of human intelligence in machines, particularly in systems that can learn from data, recognize patterns, make decisions, and solve problems.

Blockchain is a decentralized and tamper proof technology that has revolutionized data security and transparency. Blockchain and AI are being integrating in different applications domain, such as power distribution, business and finance, supply chain management, IoT, and many others. The rapid advancement and increasing ubiquity of Blockchain and AI raise significant questions around security, ethics, and trust. Understanding the challenges and opportunities inherent in the integration of these technologies is critical to leveraging their benefits while minimizing potential risks.

Blockchain and artificial intelligence are combining to upgrade everything from food supply chain logistics and healthcare record sharing to media royalties and financial security. Blockchain can even be used to create trackable, traceable AI by using the same methods used to protect food and health care logistics. The integration of AI and Blockchain affects many aspects, including Security – AI and blockchain will offer a double shield against cyber-attacks. Blockchain helps to effectively remove bugs and fraudulent data sets. New classifiers and patterns created by AI can be verified on a decentralized blockchain infrastructure and verify their authenticity. Data acquired from the customers through blockchain infrastructure can be used to create marketing automation through AI.

Research methodology:

The present study is conceptual and purely based on the secondary data which is collected from book, journal, published reports and other websites.

Objectives:

1. To study and examine the Effect of Blockchain with AI on Authenticity.
2. To study and examine the Effect of Blockchain with AI on Tokenization of Assets.
3. To study and examine the Effect of Blockchain with AI on Augmentation.
4. To study and examine the Effect of Blockchain with AI on Decision-Making Processes.
5. To study and examine the Effect of Blockchain with AI on Automation.
6. To study and examine the Effect of Blockchain with AI on Fraud Detection.
7. To study and examine the Effect of Blockchain with AI on Efficiency.
8. To study and examine the Effect of Blockchain with AI on Storage:

1. **To study and examine the Effect of of Blockchain with AI on Authenticity.**

Blockchain's digital record offers insight into the framework behind AI and the provenance of the data that it is using, addressing the challenge of explainable AI. This insight helps improve trust in data integrity and in the recommendations that AI provides. Using blockchain to store and distribute AI models provides an audit trail, and pairing blockchain and AI can enhance data security.

2. **To study and examine the Effect of cyber security on Tokenization of Assets**

Asset Tokenization involves representing physical assets as digital tokens on a Blockchain. AI plays a pivotal role in this process by enabling the identification, valuation, and management of these tokens with unprecedented precision. Traditional assets like real estate, stocks, or even artwork can be tokenized into divisible digital units. AI algorithms analyze various factors, including market trends, asset condition, and historical data, to determine the value of each token. This ensures that even high-value assets become accessible to a broader range of investors.

3. **To study and examine the Effect of blockchain with AI on Augmentation.**

AI can rapidly and comprehensively read, understand and correlate data at incredible speed, bringing a new level of intelligence to blockchain-based business networks. By providing access to large volumes of data from within and outside of the organization, blockchain helps AI scale to provide more actionable insights, manage data usage and model sharing, and create a trustworthy and transparent data economy.

4. **To study and examine the Effect of blockchain with AI on Decision-Making Processes**

The integration of blockchain with AI can create synergistic benefits that further enhance business models and decision-making. For example, AI algorithms can analyze data stored on blockchain networks, providing insights that improve predictive analytics and risk assessment.

5. **To study and examine the Effect of blockchain with AI on Automation.**

Blockchain with AI can bring new value to business processes that span multiple parties — removing friction, adding speed and increasing efficiency. It helps in recommend expired products to recall, execute transactions such as re-orders, payments or stock purchases based on set thresholds and events, resolve disputes, select the most sustainable shipping method.

6. **To study and examine the Effect of blockchain with AI on Fraud Detection**.

Blockchain technology has been used for the past few years to provide security and privacy in various networks. Despite the fascinating features of blockchain, it is still vulnerable to fraudulent activities. The malicious entities may perform invalid and fraudulent transactions using various methods, such as a double-spending attack. Thus blockchain is combined with AI to solve this problem. The database of bitcoin

transactions is used in the underlying work, and the proposed AI model is trained on the dataset. The pattern of transactions stored in the database is analyzed for further use.

7. To study and examine the Effect of Blockchain with AI on Efficiency:

AI can help optimize calculations to reduce miner load which results in less network latency for faster transactions. AI enables to reduce the carbon footprint of blockchain technology. The cost that is applied upon miners would also be reduced together with the energy spent if AI machines replace the work done by miners. As the data on blockchains grows by the minute, AI's data pruning algorithms can also be applied to the blockchain data which automatically prunes the data which is not required for future use. AI can introduce even new decentralized learning systems such as federated learning or new data-sharing techniques that make the system much more efficient.

8. To study and examine the Effect of Blockchain with AI on storage:

Blockchains are ideal for storing the highly sensitive, personal data which, when smartly processed with AI, can add value and convenience. Smart healthcare systems that make accurate diagnoses based on medical scans and records are a good example of that.

Literature review:

Blockchain and AI are very promising technologies and could potentially shape the future of energy and provide solutions to some of the challenges faced by the energy sector as blockchain provides solutions with decentralization and AI provides intelligent autonomous optimization . Blockchain with AI models to secure and ensure the integrity of the underlying data and streamline workflows by integrating smart contracts into their function. Blockchain can also utilize AI to structure large data sets for smart contracts and speed up the delivery of tasks.

Findings:

1. Blockchain and AI in the pharmaceutical industry can add visibility and traceability to the drug supply chain while dramatically increasing the success rate of clinical trials.
2. Blockchain and AI are transforming the financial services industry by enabling trust, removing friction from multiparty transactions and accelerating the speed of transactions.
3. Blockchain and AI are transforming supply chains across industries and creating new opportunities. For example, a manufacturer can track carbon emissions data at the product or parts level, adding accuracy and intelligence to decarbonisation efforts.
4. Blockchain's digital record provides insights into the AI framework and the provenance of the data which is used, it also addresses the challenges of explainable AI. It helps you in improving your trust in data integrity .
5. Blockchain with AI will bring newer values to business processes that span different parties like adding, removing friction, and increasing speed and efficiency.

Suggestions:

- Enriching the data.
- Improving data quality
- Leveraging data augmentation.
- Improve the algorithm
- Improve scalability
- Delete old blocks which are not needed now
- Maintain proper network bandwidth
- Improve the architecture
- Scaling model size
- Scaling data
- Monitor performance

Conclusion:

Nowadays, blockchain is the latest and most secure technology that covers various research areas related to security. Blockchain development is based on digital currencies and is used to secure digital financial transactions. It protects financial systems from fraudulent attacks. Therefore, a blockchain-based AI algorithm is proposed to secure digital transactions. The proposed model predicts whether the incoming transaction in the blockchain is fraudulent or not.

AI can be used to detect and prevent fraudulent activities, secure smart contracts, and identify anomalies in the network. AI algorithms can automate complex processes by learning from historical data and making predictions.

Blockchain and AI fosters enhanced data security, transparency, and traceability, crucial factors in the evolving digital economy. By leveraging AI algorithms, industries can derive actionable insights from the wealth of data stored in blockchain ledgers, enabling smarter decision-making and predictive analytics. This not only optimizes operational processes but also contributes to resource efficiency and cost reduction. The decentralized and tamper-resistant nature of blockchain ensures the integrity of data, mitigating the risk of fraud and unauthorized access. Smart contracts, enabled by blockchain, automate and enforce agreements, reducing the need for intermediaries and streamlining business processes. From supply chain optimization to fraud prevention and healthcare data management, the applications of AI in Blockchain are vast and promising. Embracing these advancements is not just a choice; it’s a necessity in the evolving landscape of technology. The collaboration between Blockchain and AI continues to rewrite the rules, offering solutions that not only enhance efficiency but also boost security and transparency.

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