Chapter 12
Convergence of Blockchain to Artificial Intelligence Applications

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ABSTRACT

In the era of modern technology, blockchain is out of harm's way in making proceedings ample of its reliability trademark, and chiefly for its immutability, and it doesn't hang on any mediator network while any transaction happens. The use of this technology helped solve many problems in society by detecting the problem which happens in the industry sphere, similarly trust, unambiguously, security, and reliability of statistics processing. The objective of the article is to review the blockchain technologies with the focus of reviewing blockchain in artificial intelligence (AI) applications. With the exception of cryptocurrency, blockchain technology can also avail oneself of financial and social services and healthcare facilities, which is risk-free.

INTRODUCTION

Blockchain is a system in which a curriculum vitae of proceedings that are made in Bitcoin, Ethereum, or other cryptocurrencies are maintained across multitudinous computers that are bracketed in a peer-to-peer network. Blockchain technology is the fastest-growing network in the field of digitalizing sector, due to its purveying of secure data and sharing services with detectability, non-repudiation, and well established than other platforms. The blockchain method has undergone various changes in operational management, identifying impuissant codes, poor ascendable, and the detection of evil-intentioned be-

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havior in the system of blockchain data. Blockchain is earning ample attention due to its reliability and dispersed resource-sharing manner.

The modern development of Artificial Intelligence has played a major role in the burgeoning of blockchain technology (Dinh & Thai, 2018). Now, these technologies are used for business, banking, and so on. Blockchain and AI tend to adequately through which affiliates both the innovative systems (Panarello et al., 2018; Marwala & Xing, 2018). Blockchain technology is one of the secure methods for protecting data, in which there is no single point of failure. Hacking into one part of the system won't affect the other parts of the system, because one of the particular data is stored in many systems. As a result, proactive and autonomic actions can be made to prevent blockchain from disruptive or illicit actions. Blockchain is entirely a chain-like data structure, in which proceedings are verified by a majority of vertex throughout the entire network (Landa, 1994).

Blockchain works with the peer-to-peer transfer of digital assets without intermediates (Aste et al., 2017). The focus of this blockchain technology is to safeguard and prop up the cryptocurrency (Bitcoin). Bitcoin was organized in the year 2008. Then in January 2009, Satoshi Nakamoto implemented the bitcoin software as open-source code. On 3rd January 2002, the bitcoin network was created when Satoshi Nakamoto mined the starting block of the chain, known as the genesis block (Wolff-Mann, 2018). In recent times the world is only looking around the global businesses, the finance sectors, and many sectors are trying to implement their business in their start-ups without depending on other third parties for their privacy contents. As Alcazar (2017) perceived, "Blockchain as a technology continues to evolve, yielding new types and potential uses" (Alcazar 2017), and now the refinement in the technology is not long ago leading the construction sector too (Ramage, 2018). A blockchain is a chain of blocks that stores all the transactions that are made, using a public ledger (Salah et al., 2019). These chains grow rapidly when new blocks conjoin them. Blockchain works in a decentralized environment that is enabled by legion core technologies, such as cryptographic hash, digital signatures, encrypted documents, and distributed consensus algorithms. Every transaction is monitored in a decentralized manner that demands the requirements for any intermediates to validate and verify the transactions if the transaction arises any queries (Litke et al., 2019).

Blockchain has smattering key characteristics, to the same degree as decentralization, unambiguously, immutability, and audibility (Kouhizadeh & Sarkis, 2018). Blockchain is mostly pre-owned in the application of bitcoin. There is some other software that uses this technology to protect their data and the data that are provided by the individuals. Afterward, it sanctions payments to be finalized without any interrupts from the bank or any intermediates, blockchain technology can be utilized in various financial sectors, such as online payments, proceedings, and digital assets (Peters et al.,2015). Blockchain is a praised innovative technology in which a large number of data can be maintained privately. This reputation is attributed to its worldly goods of accessing mutually mistrusting entities to exchange financial statistics and interact without relying on any trusted third parties or other unauthorized third parties. A blockchain provides integrity-protected data storage and allows it to provide processes unambiguously without any involvement of other sites and securities (Wood, 2014). Due to these properties blockchain technology is adopted by many other countries all over the world to maintain their transactions privacy and the data are maintained in cloud storage, smart property, Internet of Things (IoT), supply chain management, healthcare, ownership, and royalty distribution, and decentralized autonomous organizations just to name a few among them (Brown, 2016).

At this moment in time, blockchain has been universally perturbed, but there is no ensign definition for it. Howbeit there are certain theories and indagating that are prospering rapidly. Melanie Swan