

AI, Blockchain and Edge Computing for Industrial Predictive Maintenance

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Abstract

Artificial Intelligence (AI) is the driving force of growth in the world and therefore it is an extremely topical subject nowadays [1-25]. The ever-greater developments in the field of artificial intelligence have sparked conversations of its potential in different sectors (society, business, government, etc). AI has been here for ages but now we have all we need to make it a reality; computing power, storage capacities, communications technology and man power. With all these resources we can become more efficient by incorporating AI into our daily activities [26-80].

Blockchain is the technology behind bitcoin, ether and most of the other cryptocurrencies. Blockchain is essentially a form of record keeping and can be used in almost any product that uses some form of record keeping or database management [81-107]. Blockchain is ideal for protecting any data that must be unalterable and indestructible.

Edge Computing streamlines the flow of traffic from IoT devices and provides real-time local data analysis. Instead of a centralized data-processing warehouse, this paradigm processes the data near the edge of the network, where the data is being generated [108-140]. Edge computing accelerates data-streaming, including real-time data processing without latency. It allows smart applications and devices to respond to data as they are being created, this almost instantaneous response eliminates lag time. This is critical for technologies such as self-driving cars and has equally important benefits for business [141-176]. Edge computing, therefore, allows for efficient data processing near the source, reducing Internet bandwidth usage, this both eliminates costs and ensures that applications can be used effectively in remote locations. In addition, the ability to process data without ever storing it in a public cloud is another layer of security, useful for sensitive data [177-206].

AI, blockchain and edge computing are allies and complement each other. AI models should be adapted to satisfy the needs of IoT Blockchain based distributed systems and this key note will provide some alternatives that merge these three technologies in industrial environments where predictive maintenance is a critical issue.

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