Improving Security in Healthcare Applications Using Federated Learning System With Blockchain Technology

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Abstract : Data security is of the utmost importance in the healthcare area, as sensitive patient information is constantly sent around and analyzed by many different parties. The use of federated learning, which enables data to be evaluated locally on devices rather than being transferred to a central server, has emerged as a potential solution for protecting the privacy of user information. To protect against data breaches and unauthorized access, federated learning alone might not be adequate. In this context, the application of blockchain technology could provide the system extra protection. This study proposes a distributed federated learning system that is built on blockchain technology in order to enhance security in healthcare. This makes it possible for a wide variety of healthcare providers to work together on data analysis without raising concerns about the confidentiality of the data. The technical aspects of the system, including as the design and implementation of distributed learning algorithms, consensus mechanisms, and smart contracts, are also investigated as part of this process. The technique that was offered is a workable alternative that addresses concerns about the safety of healthcare while also fostering collaborative research and the interchange of data.

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