Executive Summary

Transmission Method of Smart Grid Based on CNN–LSTM Model

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The energy situation has gotten worse as China's industrialization has progressed, and environmental awareness has gradually grown among the populace. The benefits of smart grids include great efficiency, cleanliness, and energy savings. The development of smart grids has taken place in an advantageous development form and has advanced to the level of national strategic importance. The growth of smart grids combines the state of China's electric power communication development and the state grid's communication network building, both of which have made significant progress. The issue in building smart grids is the development of communication systems, not the smart distribution network or the collection of information on electricity usage.

This study examines the CNN-LSTM model-based high-frequency information transmission technique used by smart grids. This technique minimizes the amount of text input while combining CNN's feature-extraction capabilities with LSTM's memory capabilities to fully learn the global properties of a high-frequency data platform. This approach can simplify the system, enable long-distance transmission, and successfully lower the client buffer of a smart grid platform. To some extent, society's ongoing development has aided in the advancement of information technology, and the old forms of communication are no longer adequate for the country's further development.

The carrying services become more varied and complex as the electric power communication network becomes more complex, and the topological structure, communication technology, networking equipment, service types, fault protection, and recovery methods of the electric power communication network have all changed significantly. Research on service transmission channels, particularly research on service channel reliability, is crucial given the varied development of network-based services. The traditional research methodologies of business importance are then re-examined in this work considering the idea and judging standards of business important.

The study of power-consumption information-acquisition systems is progressively becoming a hot topic because of the thorough growth of smart grid construction and the ongoing advancement of communication technology. The selection of communication mode is critical to the precise, dependable, and cost-effective operation of the system since it serves as the route for data transmission in power information-acquisition systems. CNN is used in this paper's research on the CNN-LSTM model-based high-frequency information-transmission technique for smart grids to analyse multisource data and extract useful characteristics.

The primary benefit is that the CNN-LSTM model technique has an overall transmission efficiency of 89% when transmitting high-frequency data without the addition of any additional artificial features. This obviously increases processing speed while also significantly enhancing data security. The CNN-LSTM model algorithm has a stronger classification effect than conventional algorithms.

Source: Information

KEYWORDS

CNN-LSTM; smart grid; high-frequency information; single transmission; multiple transmission