Oil field power load prediction based on LSTM under abnormal data cleaning technology

Yang Yang[1] and li wei[2]

[1]China University of Petroleum East China - Dongying Campus
[2]Technical Testing Center of Shengli Oilfield Company

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Abstract

In view of the massive load data ofoilfield distribution network contains various types of outliers, which is not conducive to load prediction, electric energy decision-making, dispatching and production, it is very necessary to identify and correct abnormal loads to improve the validity and reliability of load data and establish a safe, efficient and sustainable power system.Based on the above reasons, this paper proposes a data anomaly identification and scene generation method combining boxplot and generative adversance network (WGAN). This method firstly uses boxplot method to complete anomaly identification of active power, reactive power, current and other data of oilfield grid.Then, wasserstein-based generative Adversation network (WGAN) algorithm was used to achieve data fitting and generation, which provided data support for subsequent long-and-short Term Memory (LSTM) based load prediction model. Finally, the effectiveness of the proposed algorithm and model was verified by an example of an oilfield power grid.Through the intelligent identification, sequence generation and load prediction of oil field load data, the purpose of deep mining and analysis of oil field production behavior is realized.

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