

Correction

Correction: Jiang et al. A DAE-BiLSTM-Based Fault Diagnosis Method for Principal Drive Shaft Bearings: A Case Study Using Case Western Reserve University Bearing Data. *Processes* 2025, 13, 202

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There was an error in the original publication. With this correction, the Editorial Office together with the authors have made the following amendments to the published article [1]. This correction was approved by the Academic Editor. The original publication has also been updated :

Title:

The title has been changed to “A DAE-BiLSTM-Based Fault Diagnosis Method for Principal Drive Shaft Bearings: A Case Study Using Case Western Reserve University Bearing Data”.

Text Correction:

For the combination of DAE and BiLSTM, necessary theoretical explanations and elaborations on the advantages of the method were added.

A correction has been made to Algorithmic Foundations, The Principle of the Autoencoder, Paragraph 7:

This architecture leverages the unsupervised feature extraction capability of DAE to remove noise and reduce the dimensionality of the input data, enabling BiLSTM to focus on critical temporal features. BiLSTM’s bidirectional learning captures both past and future states of the sequence, which is essential for identifying the gradual evolution of faults in machinery. The training process of the autoencoder can be represented by the flowchart shown in Figure 4.

A correction has been made to Bearing Fault Diagnosis, Verification, and Analysis, Experimental Data and Parameter Settings, Paragraph 6:

The loss rate curves for the DAE training and validation sets are shown in Figure 11. After 300 training iterations, the loss function stabilizes, indicating that the model has converged. Following the encoder’s encoding process, the original sample data is reconstructed into 400-dimensional data. Additionally, we used the validation set to adjust the model’s hyperparameters and prevent overfitting. The integration of DAE significantly reduces the input dimensionality, which lowers the computational burden for BiLSTM while maintaining a high level of diagnostic accuracy. In addition, the denoising effect of DAE enhances the robustness of the model in real-world scenarios, allowing BiLSTM to process more reliable and fault-related features even in the presence of substantial background noise. Generally, the activation function and loss function for the autoencoder are ReLU and MSE, respectively. Regarding parameter selection, there is no fixed standard for choosing the



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number of layers and the dimensionality of each layer in a deep autoencoder. The layer-by-layer greedy training approach allows the pre-trained network to approximate the structure of the original data to some extent, enabling the network to obtain appropriately tuned feature values and facilitating faster convergence during the supervised training phase.

Reference

1. Jiang, X.; Zhang, Z.; Yuan, H.; He, J.; Tong, Y. A DAE-BiLSTM-Based Fault Diagnosis Method for Principal Drive Shaft Bearings: A Case Study Using Case Western Reserve University Bearing Data. *Processes* **2025**, *13*, 202. [[CrossRef](#)]

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