



Advanced Signal Processing Methods and Deep Neural Networks for Machine Fault Diagnosis

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Message from the Guest Editors

Based on prior fault mechanisms, advanced signal processing are used to extract fault features from machine condition monitoring signals. Compared to this classical fault diagnosis paradigm, deep neural networks (DNN) can directly extract implicit fault features and identify the operating status of the machine. As a purely data-driven diagnostic method, DNN sometimes lack interpretability in their mechanisms and output results. Hence, researchers have used classical signal processing theories to explain the working mechanisms and output results of neural networks, developing a series of interpretable DNN.

This Special Issue aims to collect theoretical and applied research for diagnosis on advanced signal processing methods, deep neural networks, and interpretability of deep neural networks based on signal processing theory. Potential research topics include, but are not limited to, the following:

- Machinery fault mechanisms;
- Advanced signal processing methods and their applications in machinery fault diagnosis;
- Fault evaluation indicators;
- DNN methods and their applications in machinery fault diagnosis;
- Interpretability of DNN based on signal processing theory.





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Message from the Editor-in-Chief

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There are, in addition, unique features of this journal: Manuscripts regarding research proposals and research ideas will be particularly welcomed; Electronic files or software regarding the full details of the calculation and experimental procedure - if unable to be published in a normal way can be deposited as supplementary material.

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