Machine Learning and Deep Learning-Based Fault Detection and Diagnosis

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Deadline for manuscript submissions:
20 July 2024

Message from the Guest Editors

Modern systems tend to be more complicated than ever before, facilitated by novel design concepts and advancements in new technologies such as sensing, materials, communication, and systems (or functions) integrity. Fault detection and diagnosis are the core of healthy state awareness and prediction, as well as fault prevention. Fault detection and diagnosis of modern systems, however, are difficult to implement owing to (i) it being a coupling subject involving performance analysis, sensor placement and communication, data collection and analysis, as well as benefits evaluation and decision-making; and (ii) it requiring a comprehensive and deep understanding of the working states of complicated systems and their interactive mechanisms with variable (even unpredicted, for some cases) environmental factors. Machine learning and deep learning have emerged and represent promising ways of solving detection and diagnosis problems of modern systems. These novel tools are subverting traditional model-based concepts.

mdpi.com/si/178798

SpecialIssue

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Message from the Editor-in-Chief

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