Special Issue

Artificial Intelligence for Smart Fault Diagnosis and Fault Tolerant Control

Message from the Guest Editor

This Special Issue aims to showcase original research and comprehensive reviews on cutting-edge Artificial Intelligence (AI) methodologies, including machine learning (ML), deep learning (DL), hybrid, and multimodal approaches for smart fault detection, isolation, diagnosis (FDI), and fault-tolerant control (FTC). **Topics of interest include (but are not limited to) the following:**

- Supervised and unsupervised learning for fault detection and diagnosis;
- Reinforcement learning for adaptive and fault-tolerant control;
- Federated, distributed, and online learning approaches;
- Digital twin-based fault diagnosis and control;
- Interpretable and explainable AI for safety-critical systems;
- Hybrid and multi-model learning strategies;
- Multimodal sensor fusion for FDI;
- AI-enhanced condition monitoring and anomaly detection.

Application areas include the following:

- Autonomous and intelligent transportation systems;
- Smart grids and renewable energy systems;
- Industrial automation, manufacturing, and robotics;
- Cyber–physical systems and intelligent infrastructure;
- Water distribution and environmental monitoring;
- Air quality monitoring and climate control systems.

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Message from the Editor-in-Chief

Technologies, provides a single focus for reporting on developments of all technologies, regardless of their application. It is our intention that *Technologies* becomes the journal of choice for both researchers wanting to publish their work and technologists wishing to exploit the high quality research across a wide range of potential applications. Through its open access policy, its quick publication cycle, *Technologies* will facilitate the rapid uptake and development of the research presented, ultimately providing benefit to the wider society.

Editor-in-Chief

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