Special Issue

Defect and Fault Tolerance in Computing and Applications: Integrating Prognostic and Health Management (PHM) Approaches

Message from the Guest Editors

With the rapid development of artificial intelligence, the integration of large-scale models has brought new opportunities for intelligent operations and maintenance, achieving breakthroughs in accuracy, adaptability, and decision support. This Special Issue is dedicated to high-quality research on the theory, methods, and applications of fault tolerance and failure management in the context of PHM. We particularly encourage research that integrates advanced computing, fault-tolerant design, and large-model-driven intelligent operations and maintenance for next-generation industrial systems.

This Special Issue will publish original research papers in the following interdisciplinary areas:

Data-driven Prognostic and Health Management (PHM);
Fault Mechanism Analysis;
Intelligent Fault Monitoring and Diagnosis;
Prediction of Remaining Useful Life;
Large-Language-Model-Driven Intelligent Operation and Maintenance;
Digital Twins for PHM Systems;
Applications of PHM in Aerospace, Energy, Transportation, and Manufacturing;
Explainable Anomaly Detection Methods;
Reliability Modeling and Assessment of Complex Systems.

Guest Editors

Dr. Zisheng Wang

Dr. Dun Li

Dr. Huan Wang

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Applied Sciences
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
applsci@mdpi.com

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Message from the Editor-in-Chief

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal *Applied Sciences* has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

Editor-in-Chief

Prof. Dr. Giulio Nicola Cerullo
Dipartimento di Fisica, Politecnico di Milano, Piazza L. da Vinci 32, 20133 Milano, Italy

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