Special Issue

Sensor Technologies for Fault Detection, Classification and Fault Tolerance Within Industry 4.0

Message from the Guest Editors

Industry 4.0 integrates automation, self-monitoring, and control, relying on sensors for real-time condition monitoring and fault detection (FDI). Sensors enable continuous data capture, supporting planning, control, and decision-making. Equipping systems with hardware and software sensory capabilities, including redundancy, is crucial for effective FDI. In this regard, sensors, from their technologies, accuracy, and placement, have been under considerable attention, which can be categorized under the generic term "sensor technologies". Taking this into account, the new research directions are as follows:

- Advances in real-time monitoring and fault detection;
- FDI techniques for complex industrial systems;
- Redundant sensor systems (hardware and software redundancy);
- Integration of AI and machine learning with model-based FDI;
- Sensor placement and calibration for optimal performance;
- Integration of FDI and fault-tolerant control.

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Message from the Editor-in-Chief

Sensors is a leading journal devoted to fast publication of the latest achievements of technological developments and scientific research in the huge area of physical, chemical and biochemical sensors, including remote sensing and sensor networks. Both experimental and theoretical papers are published, including all aspects of sensor design, technology, proof of concept and application. Sensors organizes Special Issues devoted to specific sensing areas and applications each year.

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