Special Issue

Early Detection Techniques for Sensor Aging/Biasing/Degrading/Faulty Issues

Message from the Guest Editors

Digital twins and edge computing have enabled the application of overall control systems and made them much smarter than ever before. This is also referred to as “digital twin enabled smart control engineering (SCE)” (e.g., [1]). Some essential techniques are needed to make the sensors much smarter, which mostly involve running online using real-time analytics based on advanced signal processing techniques. This Special Issue makes an attempt to detail such new techniques toward the early detection of sensor aging/biasing/degrading/faulty issues, such that we can claim “smart sensors” within the emerging SCE framework [1].

- Model-based methods;
- Rule-based methods;
- Deep-learning-based methods;
- Tiny-machine-learning-based methods;
- Wavelet or other time-frequency representations;
- Dynamical mode decomposition (DMD);
- Empirical mode decomposition (EMD);
- Entropy, mutual information, and information metrics (AIC, BIC, etc.);
- Fractional order signal processing (FOSP) techniques;
- ETC

[1] https://doi.org/10.1109/IAI50351.2020.9262203

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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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