Special Issue

Advanced Neural Architectures for Anomaly Detection in Sensory Data

Message from the Guest Editors

With the advent of novel neural architectures new advances have been made in anomaly detection, especially in complex and high-dimensional datasets. Modern neural architectures, such as autoencoders, graph neural networks, and transformers, offer the ability to learn hierarchical, contextual, and relational features, making them highly effective for identifying subtle anomalies. These architectures can uncover hidden dependencies, handle unstructured data like images or text, and adapt to real-time data streams. Furthermore, innovations in attention mechanisms and generative models enable more precise and interpretable anomaly detection, enhancing trust in critical applications like cybersecurity, finance, and healthcare.

This Special Issue will focus on the latest theoretical developments and applications of advanced neural architectures for anomaly detection acquired from a vast range of sensors in the form of time-series, image-based, and hyper-dimensional data. Articles focusing of multisensory systems, health care, and human-computer interactions are highly encouraged.

Guest Editors

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Deadline for manuscript submissions

31 August 2025

Sensors

an Open Access Journal by MDPI

Impact Factor 3.5
CiteScore 8.2
Indexed in PubMed

mdpi.com/si/227659

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mdpi.com/journal/sensors

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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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