Special Issue

Advanced Deep Learning Techniques for Intelligent Sensor Systems

Message from the Guest Editors

Recently, diverse deep learning techniques have been developed based on sensor configurations and application goals in robotics, autonomous driving, smart factories, healthcare, and more. As massive sensor data are collected and processed, deep learning models grow more complex and integrated. This Special Issue aims to present advanced models and frameworks of deep learning for intelligent sensor systems. Potential topics include, but are not limited to:

- Deep learning-based sensor simulation;
- Deep learning-driven control loops with sensor feedback;
- Natural language interface for sensor querying;
- Sensor data fusion with large multimodal models;
- Human–AI interaction, Human–Agent collaboration for sensor monitoring and data analysis;
- Multi-agent system for sensor monitoring and data analysis;
- Potential biases of agentic AI in decision making with sensors;
- Anomaly detection in sensor setworks using LLMs;
- Sensor simulation with deep learning or generative LLMs;
- Potential hallucination of LLM/LLM-based sensor analysis;
- Instruction tuning methods/datasets for constructing large sensor-language models;
- Reasoning models for sensor data analysis/querying;
- Application of large sensor-language models.

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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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