

IEEE JOURNAL OF BIOMEDICAL AND HEALTH INFORMATICS

J-BHI Special Issue on “Contactless Sensing and Intelligent Processing for Health Monitoring and Early Disease Detection”

Health monitoring and early disease detection hold immense significance in contemporary healthcare, offering a paradigm shift from reactive to proactive and preventive approaches. Detecting health issues in their nascent stages allows for timely intervention, often before symptoms manifest. However, traditional disease detection methods often involve invasive procedures or require individuals to be tethered to monitoring devices. Contactless sensing technologies, such as infrared sensors, radar, and computer vision, enable the non-intrusive collection of vital health data. For instance, wearable devices equipped with these sensors can monitor parameters like heart rate, respiratory rate, and body temperature in real-time, providing a continuous stream of data without disrupting the user's daily activities. At the same time, intelligent processing, fueled by artificial intelligence (AI) and machine learning (ML) algorithms, plays a pivotal role in making sense of the vast amounts of data generated by contactless sensing devices. Combining contactless sensing with intelligent processing technologies can greatly benefit future healthcare. In light of this potential, this special section provides a venue to cover comprehensively algorithms, frameworks, technologies, and applications of contactless sensing and intelligent processing for health monitoring and early disease detection.

This special issue focuses on the crossroads among scientists, industry practitioners, and researchers from the domains in smart healthcare, wireless communication, internet of things, artificial intelligence, big data, smart sensing, etc. This special issue will cover comprehensively algorithms, frameworks, and technologies for advanced contactless sensing and intelligent processing technologies. Technical scope of the proposal includes, but not limited to:

- ❖ Contactless sensing for remote health monitoring
- ❖ Sensor fusion for comprehensive health monitoring
- ❖ Intelligent communications for health sensor data
- ❖ Intelligent communication and processing for disease detection
- ❖ Explainable AI for health monitoring and disease detection
- ❖ Real-time monitoring and feedback systems for health monitoring
- ❖ Machine/Deep learning algorithms for anomaly detection for disease detection
- ❖ Federated learning approaches for health monitoring and disease detection
- ❖ Large language models and its applications in health monitoring and disease detection
- ❖ User-friendly and culturally sensitive contactless health monitoring devices
- ❖ IoT system architectures in health monitoring and early disease detection
- ❖ Security, trust and privacy computing for health monitoring and disease detection
- ❖ Real-world applications of health monitoring and disease detection

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Key Dates

Deadline for Submission: 31 Dec, 2024

First Reviews Due: 05 Feb, 2025

Revised Manuscript Due: 01 Mar, 2025

Final Decision: 01 May, 2025