



Journal of Medical Signals and Sensors (JMSS)

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## ***Special issue on Secure Data Processing and Management in Intelligent Healthcare Systems***

Healthcare systems have been revolutionised over the past few years with the emergence of cutting-edge technologies such as AI, big data, and the Internet of Things (IoT). The next-generation intelligent healthcare systems will transform hospital-centered medical care into proactive and personalised care. Smart healthcare devices have become more prevalent for real-time patient monitoring that allows monitoring patients' physical, psychological, and environmental conditions. Recent innovations in healthcare include integrated solutions, regulations, wearable devices, and real-time data analytics that help build more concrete answers for diagnosing and preventing a myriad of rare diseases. It improves the quality of medical treatment in numerous ways, including early detection of diseases, reducing treatment costs, and avoiding preventable diseases. On the other hand, it becomes highly vulnerable to cyber-attacks since it handles patients' sensitive information about personal identity, medical history, insurance coverage, and lab test results.

Since healthcare organisations experience more security breaches than any other sector, ensuring data security is a must to prevent data theft which will cause harm to its owner and will charge penalties for the healthcare providers. EHR (Electronic Health Records) incorporates a considerable amount of healthcare information transferred among various healthcare providers for diagnosis, leading to better healthcare decisions. Significantly, hackers are increasingly targeting the weakest points to compromise healthcare devices. There are multiple kinds of security threats such as ransomware, phishing attacks, and man-in-middle attacks that hinder the privacy and security of EHR systems. Hence, addressing the potential security threats and protecting patient data with adequate cybersecurity measures comply with data privacy regulations. Effective security techniques should be implemented in all healthcare systems, such as multi-factor authentication, data wiping, continuous application testing, frequent backup, SSL (Secure Socket Layer), access control mechanisms, vital cryptographic techniques, anti-malware software. Two-factor authentication is the most widely used method that prevents unauthorised access by ensuring their identity. In addition, leveraging modern technologies like Artificial Intelligence, machine learning, cloud computing, and blockchain into healthcare software is much needed in recent days to improve the user experience.



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However, hackers will continue to find new ways to attack our systems as they are also attempting to create AI-based viruses and malware.

This special issue addresses the current and existing security threats in this fast-evolving intelligent healthcare domain. Future research is expected to focus on designing and developing cost-effective security solutions following all security standards that ensure maximum data privacy, data integrity, and reliability to overcome the risk mentioned above factors. We invite high-quality submissions and article proposals from both academia and industries in this regard.

***Topics of inters:***

- Intelligent and secured data processing methods in healthcare systems and management
- The role of data security in healthcare applications.
- Intelligent healthcare systems for real-time patient monitoring.
- Privacy and security challenges in modern healthcare systems.
- Ethical use of Electronic Health and Medical Records in various healthcare organizations.
- Recent advances and state of the art security methods in healthcare systems.
- Advanced cryptographic techniques for healthcare applications.
- Role of wearable sensors in remote patient monitoring: Issues and prospects.
- Secure data processing in the cloud computing environment.



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- Cybersecurity best practices to prevent a data breach in healthcare software.
- Impact of advanced AI-based security threats in modern healthcare applications.
- Continuous risk assessment for ensuring data privacy and security in novel healthcare systems.

#### ***Important Dates:***

- ✓ **First Submission Deadline: 15 Oct. 2023**
- ✓ **Notification of First Round Decision: 15 Jan. 2024**
- ✓ **Revised Paper Submission Deadline: 20 April, 2024**
- ✓ **Notification of Final Decision: 20 July, 2024**

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The authors should register in <https://review.jow.medknow.com/jmss> to submit their work to JMSS. It's a self-explanatory and simple two-step process.

**NOTE:** Authors should mention in the cover letter which special issue their article is related to.