J-BHI Special Issue on "Emerging Technologies for 6G-enabled Smart Healthcare and Biomedical Security."

The advent of 6G and the Internet of Things (IoT) holds enormous promise in revolutionizing miscellaneous sectors, with healthcare and biomedical fields at the forefront of adaptation. As we progress towards the 6G era, it becomes increasingly prominent that integrating advanced technologies such as Blockchain, Federated Learning (FL), Digital Twin (DT), Artificial Intelligence (AI), and others into healthcare strategies will play a pivotal role in enhancing patient care and security, optimizing resource and data allocation, and ensuring data security. It has become increasingly prevalent, and robust security measures are essential. One of the primary objectives of this special issue is to elucidate the potential of 6G-enabled Smart Healthcare Solutions in managing the evolving needs and challenges of modern healthcare delivery. The possibilities are vast and transformative, from remote patient monitoring and telemedicine to personalized medicine and predictive analytics. Moreover, incorporating biomedical security measures within these technologies, including Blockchain, Federated Learning (FL), Digital Twin (DT), Artificial Intelligence (AI), and others, is imperative to safeguard sensitive patient data, maintain privacy preservation, and mitigate cybersecurity threats. The motivation behind a special issue on "Emerging Technologies for 6G-enabled Smart Healthcare and Biomedical Security (6GSHBS)" derives from the urgent need to explore and comprehend the multifaceted implications of these cutting-edge innovations. With IoT devices permeating various aspects of medical practice, from wearable health monitors to networked medical instruments and patient records management systems, the potential attack surface for cyber threats expands exponentially. By delving into this realm, we strive to foster a deeper acquaintance of how emerging technologies such as Artificial Intelligence (AI), Edge Computing (EC), Blockchain, and Advanced Encryption Algorithms (AEA) can be harnessed to create secure, efficient, and patient-centric healthcare ecosystems. Therefore, this special issue explores innovative solutions, advanced technologies, and best practices to fortify the 6G-enabled Smart Healthcare and Biomedical Security (6GSHBS).

This special session explores the latest advancements in Emerging Technologies for 6G-enabled Smart Healthcare and Biomedical Security (6GSHBS). SI's main objective is to serve as a comprehensive resource for researchers, practitioners, and policymakers striving to navigate the complex landscape of 6G-enabled Smart Healthcare and Biomedical Security. By combining cutting-edge research and practical insights, we seek to advance knowledge and promote the adoption of secure and resilient healthcare technologies that prioritize patient well-being and data integrity. The special issue will be comprised of extensions of some of the best works announced in the workshop, along with papers submitted within the open call, also taking into account the target audience of the JBHI journal.

Topics of interest include, but are not limited to, the following:
- Machine Learning and AI for 6G-enabled Smart Healthcare and Biomedical Security
- Privacy-Preserving Data Sharing Mechanisms for 6G-enabled Smart Healthcare and Biomedical Security
- Threat Analysis in 6G-enabled Smart Healthcare and Biomedical Security
- Cybersecurity Measures for 6G-enabled Smart Healthcare and Biomedical Security
- Edge Computing Security for IoT-enabled Smart Healthcare and Biomedical Environment
- Biometric Authentication for Patient Identification in 6G-enabled Smart Healthcare
- Blockchain-based Secure Scheme for 6G-enabled Smart Healthcare and Biomedical Environment
- IoT-enabled Remote Patient Monitoring for 6G-enabled Smart Healthcare
- Digital Twin-based Virtual Environment for 6G-enabled Smart Healthcare and Biomedical Security

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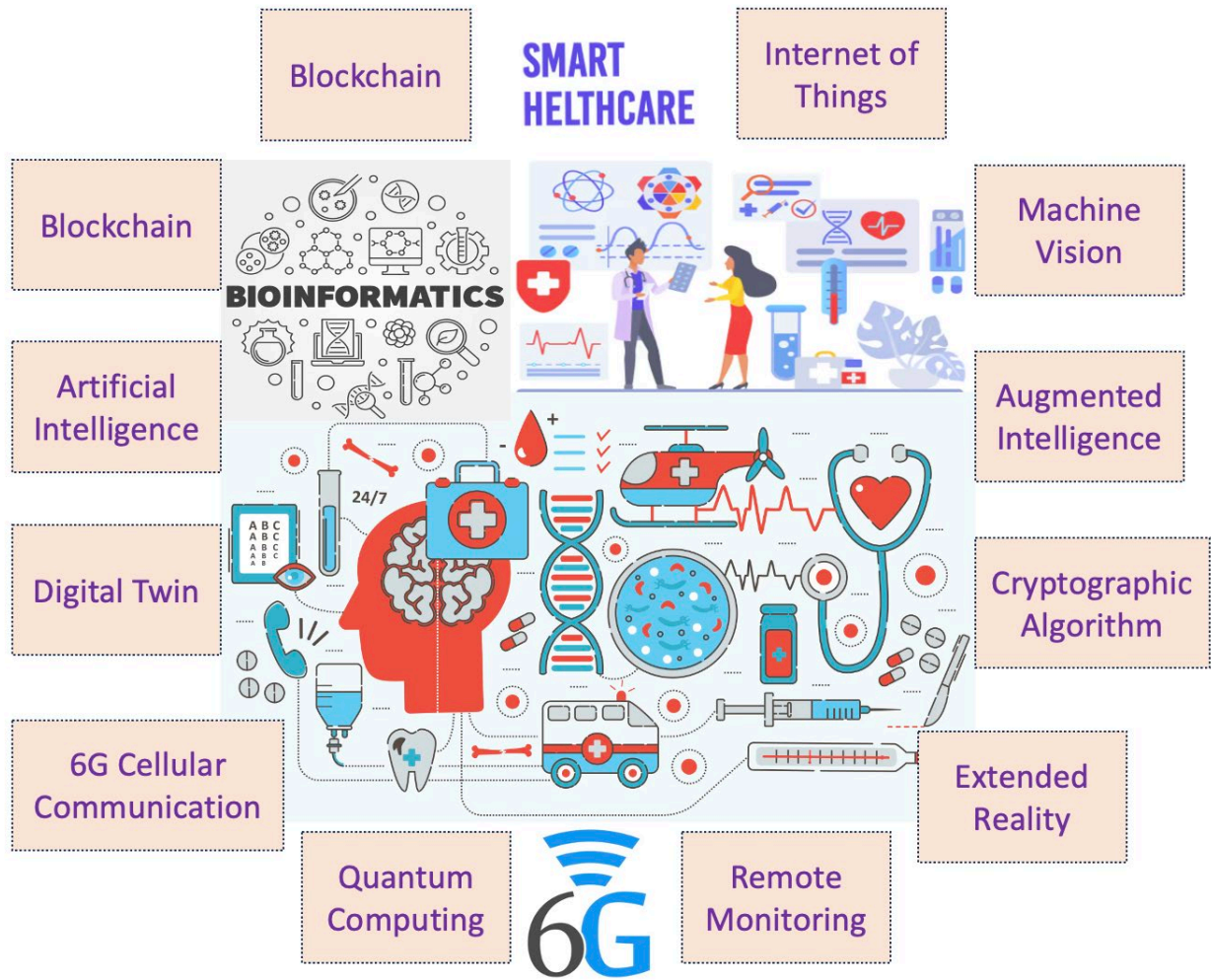Final Decision: 30 December 2024

Fig. 1: Emerging Technologies for 6G-enabled Smart Healthcare and Biomedical Security