J-BHI Special Issue on "XAI Based Biomedical Big Data Privacy and Security"

Benefiting from the development of artificial intelligence, Internet of things and information and communication technology, smart healthcare has brought substantial changes to people's lives. At the same time, the privacy and other ethical issues of biomedical big data in smart healthcare system have attracted much attention. In a broad sense, biomedical data includes images, audio and biological signals. With the wide popularity of wearable health monitoring devices and the improvement of people's attention to health, biomedical data has entered the era of big data. Biomedical data are faced with data leakage and data tampering in all links of collection, processing and transmission. It has a great negative impact on personal reputation, personal privacy and public opinion. In order to solve the problem of biomedical big data leakage and tampering in the process of acquisition, management and transmission in smart healthcare system, improving the privacy protection and security guarantee in smart healthcare system is one of the hot topics today. It is urgent to find a way to comprehensively understand these problems and find the solution mechanism to these problems, so as to ensure that the benefits of these technologies outweigh the disadvantages.

With the understanding of artificial intelligence, people are no longer satisfied with treating artificial intelligence as a black-box problem. Explainable AI (XAI) is a domain in which technologies are developed to explain predictions made by AI systems. The development of XAI can produce more interpretable models, improve the prediction accuracy of the model, and enable users to understand, trust and make effective use of artificial intelligence. Through XAI, people can more clearly understand the internal mechanism of falsifying biomedical data, detecting falsification, data acquisition, management, and transmission, improve the privacy protection and security of biomedical data in smart healthcare from the perspectives of falsification, detection, and utilization.

The intended focus of the special issue is all in explainable artificial intelligence technologies that improve the privacy and security of biomedical big data in smart healthcare system. In today's trending field of smart healthcare system and intelligent information processing, this special issue is expected to promote research in relevant fields, improve the detection ability of forgery biomedical data and the prevention ability of data leakage, and provides a safer and more stable environment for the next generation of smart healthcare system.

Topics of interest include, but are not limited to, the following:
- Research on generalization of detection methods based on XAI
- Detection methods of forgery biomedical data based on XAI
- Research on forgery biomedical data methods based on XAI
- Collection, benchmark, and establishment of biomedical datasets
- Application of AI technologies in smart healthcare based on XAI
- Data quality, screening, and interpretability in smart healthcare system
- IoT communication security and protection in smart healthcare system
- Research on XAI-based adversarial attack in smart healthcare system
- XAI-based reinforcement learning and natural language processing in smart healthcare system

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Key Dates

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