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J-BHI Special Issue on “Responsible Internet of Things for Safe and Responsible Management of Biomedical Data and Applications”

Healthcare biomedical sciences have become increasingly data-intensive professions, necessitating advanced data mining techniques to extract accessible data. For instance, data analysis techniques are used for biomedical datasets, particularly DNA microarray or Maybe next Gen sequence alignment information, to predict treatment results in children with Acute Lymphoblastic Leukemia. Additionally, clustering techniques are regularly employed to deduce the role of corresponding genes involved in cellular and metabolic activity. Biomedical data analysis presents difficulties, exceptionally high dimensionality, class imbalance, and small sample sizes. While the present investigation in this discipline has yielded encouraging findings, significant research uncertainty remains. Hence the need to investigate features extraction strategies enabling robust genetic selections to enhance prediction performance and interpretation. Additionally, there's no need to analyze big data in biological and medical services investigations. An expanding stream of information characterized the modern healthcare system and biomedical sciences.

Healthcare information comes in various forms, comprising quantitative, written summaries, impulses, and pictures, and it originates from such a wide range of sources. A fascinating feature is the integration of several information providers into data analysis that necessitates using current domain expertise through publicly accessible resources. Ontologies, tagging libraries, and domain specialists' assessments may be used as information sources. IoT devices have been used to monitor healthcare outcomes, address different emergencies, and manage patients intelligently. While integrating principles like cooperation on sensors, bio-sensors, e-healthcare and virtual medical services, etc., IoT is used in remote patient monitoring, remote health services, information transfer, monitoring, and diagnostics. It covers the challenges of heart monitoring in e-healthcare, and use of connected devices to address specific patient difficulties, and the use of Microcontroller components to transport information to the cloud for internet-based applications. Additionally, the IoT's function in magnetic resonance imaging (MRI) and electroencephalogram (EEG), although both are critical in biomedical application fields.

Microelectronics-based modern innovations have the potential to influence the area of healthcare profoundly. Electronic component miniaturization, combined with the development of computational analytics, machine learning, and telecommunication services, catalyze new medicinal applications, resulting in a breakthrough in biomedical research. In addition to that, customization of medical therapy following individual demands and the growing pathological arrangement throughout time. Additionally, diagnostic accuracy is unmatched. Sustained condition monitoring may offer long-term data on developing physiological markers such as hypertension, pulse rate, insulin sensitivity, and electrocardiograms. Simultaneously, non-invasive treatment is becoming increasingly exact, particularly in cancer. Finally, in-vivo biomaterials have become a reality: not only do participants enable for perpetual tracking that is ultimately affiliated with appropriate care, for instance, a behind in pacemaker, and yet those who may also be able to perform the purpose of a missing or ill part of the body, like the retina, kidney, or perhaps even the cardiovascular system, in the not-too-distant future as well.

Topics of interest include, but are not limited to, the following:

- Integration of bio-sensors, devices, and controls with IoT for Biomedical applications
- IoT enabled big data analytics for biomedical datasets and informatics
- Edge computation for decentralized biomedical data understanding
- Advancement Mobile Sensor Data for biomedical health informatics
- Evolutionary computing enabled IoT for enhanced bioinformatics
- IoT based Predictive analytics on biomedical enabled health informatics
- Data-driven AI for Information Retrieval of biomedical Images
- NLP enabled IoT for Semantic-based biomedical Image data mining
- Health big data acquisition enabled IoT through advanced visualization analytics for Biomedical applications
- IoT based Computer-aided diagnosis and detection for biomedical health informatics

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