

# 2021 IEEE International Conference on Industrial Informatics (INDIN2021)

**Special Session on**

**SS 05 - Informatics Methods in Internet of Things (IoT) enabled  
Healthcare**

**organized by**

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## Call for Papers

Recently, significant advancements in the Internet of Things have generated a large amount of opportunities for innovation across both academic and industrial communities, particularly in healthcare field [1]. Due to the exponential growth of wearable devices and mobile apps, a promising trend in healthcare field appears that the Internet of Things enabled technology is transforming the traditional hubs of healthcare, such as hospitals and clinics, to the personalized healthcare systems and especially the mobile environment. Current estimates [2] are that over 30% of IoT devices are found in healthcare, and their deployment can potentially drive down costs from clinical and operations inefficiencies by roughly 25% per year.

Internet of Things (IoT) enabled Healthcare is defined as a specific research area focusing on the utilization of IoT enabled techniques to offer high quality health services, including faster and safer preventive care, lower overall cost, improved patient-centred practice and enhanced sustainability. Current work on IoT enabled healthcare is highly interdisciplinary involving methodologies from computing, engineering, information science, behaviour science, as well as many different areas in medicine and public health. A promising trend in these studies appears to

be developing sophisticated techniques that will enable: (i) Integrating different smart wearable devices into a unified system for intelligently sensing daily human health information.

(ii) The design and development of IoT enabled healthcare system or applications for efficiently delivering specific health services. (iii) Effectively and efficiently managing, analysing and exploring a sheer volume of long-term health data for supporting wise clinical decision-making.

However, addressing this trend is still significantly challenging due to an array of factors that include: shortage of cost-effective and accurate smart medical sensors, unstandardized IoT system architectures, heterogeneity of wearable devices connected, multi-dimensionality and high volume of data generated, and high demand for interoperability. Additionally, successfully empowering the utility of IoT enabled technology in healthcare will need an interoperable IoT environment for care delivery and research, tightly-coupled health data mining applications, adequate data and knowledge standards of self-empowerment and sound clinical decision-making foundation. These challenges and needs require the design and development of a series of innovative and comprehensive informatics methods in IoT enabled healthcare.

The goal of this special session is to bring together researchers and practitioners from both academia and industry into a forum, to show the state-of-the-art research on developing new informatics methods in Internet of Things enabled healthcare. We are soliciting original high-quality papers that deal with the development of new methodologies and technologies that are relevant to four themes: smart sensing technologies for IoT enabled healthcare, network communication for IoT enabled healthcare, IoT healthcare data exploration and management, innovative IoT healthcare systems and technologies. The special session aims to publish original, significant and visionary automation papers that present ideas, innovations, and applications of utilizing new informatics methods for improving the efficiency, sustainability and reliability of IoT enabled healthcare systems. Submissions of scientific results from experts in academia and industry worldwide are strongly encouraged.

Potential topics for contributions to this session include, but are not limited to, the following areas:

1. Smart sensing technologies for IoT enabled healthcare: Submissions that address issues around the collection, observation and recording of IoT enabled healthcare information, in an automatic, intelligent, unobtrusive, non-invasive and cost-effective way, are sought.
2. Network communication for IoT enabled healthcare: Papers that study problems on how to interconnect large-scale heterogeneous network elements and transmit healthcare Information efficiently in an IoT environment are solicited.
3. IoT healthcare data exploration and management: Articles that concern issues on managing, extracting, analyzing, visualising and communicating complex and diverse IoT healthcare data and how to convert data into knowledge for clinic decision support and disease management.
4. Innovative IoT healthcare systems and technologies: Submissions that concentrate on using interdisciplinary knowledge for the design, modelling, development and evaluation of innovative IoT healthcare system framework, architecture and applications.

**Submissions Procedure:** All the instructions for paper submission are included in the conference website <https://2021.ieee-indin.org/>