# Webinar on Healthcare IoT
## The Fifth Edition

IEEE Communication Society
Technical Committee on eHealth: Special Interest Group on "IoT for eHealth"
and
Technical Committee Green Computing and Communications: Special Interest Group on "Pandemics"


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**Title:** Molecular Communications as a Novel Avenue for Future Healthcare


**Abstract:** The emerging field of molecular communication aims to create artificial communication systems from biological components as well as characterize natural systems that are found in nature. In the natural system case, molecular signals and its interactions between biological cells can be characterized as a communication system, where they can provide new perspectives and insights to address healthcare challenges. This can result in novel tools that can assist future biotechnologists in developing novel therapeutic solutions for treatments. This seminar will start with a general introduction into the field of molecular communications before it dives into a number of examples for healthcare applications. This includes modeling the respiratory viral propagation, digestive system propagation of nutrients, multi-species communications in the Gut Bacteriome, as well as natural Boolean logic computing through calcium signaling. Lastly, the seminar will touch on future challenges and the concept of Internet of Bio-Nano Things that will interface between the cyber domain and molecular communication and computing systems.



Dr. **Sriparna Saha**
Associate Professor
Department of Computer Science and Engineering
Indian Institute of Technology Patna
Bihta, Patna -801103, Bihar, India


**Title:** AI/ML Applications in Digital Health


**Abstract:** In recent years we are working on developing several AI-based assistants to help improve the physical and mental health issues of common people of the society. In order to support telemedicine facilities, we have developed some virtual doctors which can conduct symptom investigations and can replace junior doctors in a hospital. In general in a hospital, when patients report, firstly a junior doctor used to conduct a symptom investigation by asking some relevant questions, and finally, a senior doctor takes the decision about the illness based on the symptoms investigated. We have developed a virtual doctor with the support of AL, ML, and NLP techniques which can conduct symptom investigation. This conversational agent is capable of detecting symptoms either from textual responses of the patients or the images shown by the patient. I will discuss about the research challenges faced during this virtual doctor development in the first part of my talk. Second part of my talk will discuss the research challenges faced for the development of a motivational chat-bot which will act as the first point of contact for patients suffering from mental distress. This conversational agent generates emphatetic and motivational utterances to help in boosting the morale of the patients who are suffering from some mental disorders.



Dr. **Shahid Mumtaz**
CEng, FIET, SMIEEE
Instituto de Telecomunicações (IT) Portugal


**Title:** 6G: Industrial AI Perspectives


**Abstract:** Intelligence is the ability to model our thinking and sensing processes through various intelligent models. In industrial AI, engineers develop and deploy AI algorithms consistently and systematically to achieve repeatable and consistent results. Therefore, in this talk, I will explain the different trends of Industrial AI and how it is different from Industry 4.0. Moreover, different societal versions will explain in comparison with Industrial AI. In the end, other vital challenges and use case will be described. In addressing the real-world implementation of Industrial AI, this research will guide and roadmap for researchers and industries


Hosts: **Dr. Arijit Roy, IIIT Sri City, India**
**Dr. Ayan Mondal, IIT Indore, India**
**Mr. Kounteya Sarkar, IIT Kharagpur, India**
**Prof. Sudip Misra, IIT Kharagpur, India**

More details can be found **here**
Date: **October 16, 2022**
Time: **5:00 PM - 7:00 PM, Indian Time (IST)**

All participants need to pre-register by October 15, 2022, by filling up the following form: **Registration Link**
Zoom sign-in details will be shared with the registered participants using the email address provided in the registration form.