J-BHI Special Issue on "Intelligent nanorobots for a Smart and Sustainable Healthcare System"

The latest trends and developments in artificial intelligence (AI) have paved the way for a wide range of applications. In healthcare applications, robots are becoming increasingly prevalent to improve our quality of life, thanks to the latest trends in AI. As a result, the role of robotics and intelligent medical technologies in intensive care units has attracted the attention of researchers. With modern scientific capabilities, it is now possible to attempt the production of nanorobotic devices and link them with the macro world to automate complex processes in real-time. At the nanoscale, nanorobots are capable of actuating, sensing, signaling, information processing, and intelligence. These devices are extremely beneficial in the distribution of drugs, bone restorations, cancer treatment, removal of blood clots, elimination of dental plaque, glucose monitoring in diabetes patients, peptide drug delivery system, and nerve regeneration, among others. Intelligent nanorobots in precision medicine from the laboratory to clinical trials and as drug delivery and cell carrier devices are shown in Fig. 1.
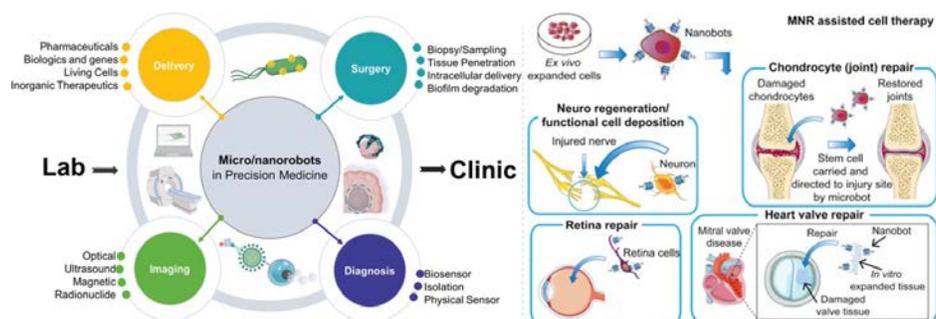

Fig. 1. Intelligent nanorobots in precision medicine as a drug and cell carrier

These robots have the ability to improve our quality of life and have a pivotal role in maintaining a sustainable health system. However, there are a number of challenges that need to be addressed for the smooth integration of nanorobots into our healthcare ecosystem. These challenges include the higher cost of the robots, the resource-constrained nature of these robots, and the use of complex algorithms at the expense of higher resources, which are few to mention. This special issue aims to address these challenges. The topic of interest includes but is not limited to

- Designing lightweight algorithms for advanced medical sensing using nanorobots
- Self-propelled autonomous nanorobots for a smart healthcare ecosystem
- Accuracy of sensed medical data using nanorobots
- Hardware and software designing for nanorobots for medical applications
- Auxiliary Hardware and Imaging System Requirements
- 3D printing using nanorobotics
- Cost-effective techniques for designing nanorobots
- Seamless communication of sensed medical data using nanorobots
- Security, privacy, and trust of sensed medical data using nanorobots
- AI-enabled Internet of nanorobotics for healthcare systems
- Internet of Things based Health Nanorobitics

Guest Editors
- Dr. Fazlullah Khan, RoZetta Institute Sydney, Australia, fazlullah@ieee.org
- Dr. Mian Jan, Northwestern Polytechnical University, China, mianjan@nwpu.edu.cn
- Dr. Gautam Srivastava, Brandon University, Canada, srivastavag@brandonu.ca

Key Dates
- Submission deadline: **June 30, 2023**
- First reviews due: **August 31, 2023**
- Revised manuscript due: **September 30, 2023**
- Final decision: **November 30, 2023**
- Camera ready version: **December 31, 2023**