Special Issue

Novel Actuation, Sensing, and Intelligent Control in Medical Robotic Systems

Message from the Guest Editors

Medical robotic systems are transforming modern healthcare by enabling precise, minimally invasive interventions and improving patient outcomes. This Special Issue focuses on recent advances in actuation technologies, sensing modalities, and intelligent control strategies that could empower the next generation of medical robots. From manipulator design and novel actuation methods to AI-guided control, emerging innovations are addressing long-standing clinical challenges such as safe navigation in constrained environments, real-time tissue interaction feedback, and autonomous decision-making during procedures. We welcome the submission of original research and review articles that explore novel actuation designs, sensor fusion techniques, AI-enhanced control algorithms, and real-world clinical validations. The topics of interest for this Special Issue include, but are not limited to, the following:

- medical robotics
- smart sensors
- magnetic actuation
- sensor fusion
- AI in surgical control
- soft robotics
- continuum robots
- flexible sensors
- image-guided navigation
- human–robot interaction

Guest Editors

Dr. Changyan He

Dr. Majid Roshanfar

Dr. Leo Wu

Deadline for manuscript submissions

31 March 2026

Sensors

an Open Access Journal by MDPI

Impact Factor 3.5
CiteScore 8.2
Indexed in PubMed

mdpi.com/si/248246

Sensors
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
sensors@mdpi.com

mdpi.com/journal/sensors

Sensors

an Open Access Journal by MDPI

Impact Factor 3.5
CiteScore 8.2
Indexed in PubMed

mdpi.com/journal/sensors

About the Journal

Message from the Editor-in-Chief

Sensors is a leading journal devoted to fast publication of the latest achievements of technological developments and scientific research in the huge area of physical, chemical and biochemical sensors, including remote sensing and sensor networks. Both experimental and theoretical papers are published, including all aspects of sensor design, technology, proof of concept and application. Sensors organizes Special Issues devoted to specific sensing areas and applications each year.

Editor-in-Chief

Prof. Dr. Vittorio M. N. Passaro
Dipartimento di Ingegneria Elettrica e dell'Informazione (Department of Electrical and Information Engineering), Politecnico di Bari, Via Edoardo Orabona n. 4, 70125 Bari, Italy

Author Benefits

Open Access:

free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility:

indexed within Scopus, SCIE (Web of Science), PubMed, MEDLINE, PMC, Ei Compendex, Inspec, Astrophysics Data System, and other databases.

Journal Rank:

JCR - Q2 (Instruments and Instrumentation) / CiteScore - Q1 (Instrumentation)