

Special Issue

Advanced Sensing Technologies in Robotic Surgery

Message from the Guest Editors

Robotic surgical systems integrate advanced sensing technology with high surgical precision, facilitating minimally invasive procedures that enhance patient outcomes and accelerate recovery. New sensing technologies play a critical role in robotic surgery by being intelligent, multimodal, miniaturized, and tightly integrated with AI-driven robotic systems.

This Special Issue welcomes original research and review articles on all aspects in theory, methods and applications of advanced sensing technologies applied in robotic surgery. Topics of interest for this Special Issue include, but are not limited to, the following:

- AR/VR for surgical robots;
- Advanced endoscopic robots with 3D vision sensing systems;
- Force, tactile, and haptic sensing for robotic surgery;
- Tissue property sensing, including stiffness, elasticity, and impedance;
- AI-based digital twins in the operating theatre;
- Minimally invasive robotic telesurgery;
- Smart surgical instruments;
- Autonomous systems and mobile robots in clinical logistics;
- Sensing technologies for soft and bio-inspired surgical robots;
- Multimodal imaging for robotic surgery (OCT, ultrasound, fluorescence, hyperspectral imaging).

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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.

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