Surgical robotics aims at improving surgical practice and its outcome, by providing the surgical team with new tools for improved safety, reproducibility, gestural performance and ergonomics. Millions of patients have benefitted from robotically assisted surgical procedures during the past two decades, with a recent explosion of market cleared systems for a wide variety of procedures, after years of a quasi-monopolistic situation dedicated to a very limited set of indications. Still a lot is to be done in terms of research, with three concurrent aims:

- extending the benefit of robot-assisted manipulation to new indications for a wider impact on health;
- simplifying concepts and devices to spread surgical robots to more clinical centers across the World – and not only in rich countries' centers of excellence
- opening new possibilities to allow surgeons inventing new procedures, notably through miniaturization, minimal invasiveness, and partial autonomy.

In this 12th edition, communications are expected to relate advances in the following fields: virtual and augmented reality techniques applied to training, planning and assisted guidance; new techniques to introduce effective haptic feedback; new devices, technologies and procedures for less invasive surgery and to facilitate the execution of complex surgical tasks; and artificial intelligence for planning, guidance and autonomous operations.

Extended abstracts (2 pages) discussing new technologies for computer/robot assisted surgery are solicited. Topics of interest include (but are not limited to) the following:

- Machine learning and cognitive surgical robotics
- Registration, segmentation, modelling and data mining
- Synergies and clustering
- Motion compensation and active guidance
- Human-robot collaboration and shared control
- Workflow analysis and episode segmentation
- Surgical skill assessment
- Usability and user-acceptance
- Robotics in medical diagnosis
- Robotic systems in orthopedics
- Rehabilitation and assistive technologies
- Surgical training
- Tactile and haptic feedback
- Novel robotic hardware and sensors
- Variable stiffness robotic systems
- Interventional catheters
- Novel instruments
- Novel interfaces
- Standardization and regulation
- Surgery automation
- System integration
- Safety and dependability
- Robotics in Radiology
- Visionary works and roadmaps

Paper submission:

A 2 pages extended abstract template is available at the conference website:

https://cras-eu.org/cras-2023/

Submission deadline: May 15th, 2023