

企业简介

CoMPANY PRoFILE

Edge Tech Co., Ltd specializes in the design, development and application of surgical robots. It is committed to providing robotic solutions for medical users in all fields and empowering the development of the intelligent medical industry with scientific and technological innovation.

Based on data algorithms, artificial intelligence, high-precision control and other cutting-edge technologies, we have developed a core technology platform for surgical robots. We strategically laid out five fields of surgical robot application: orthopedics, laparoscopic, percutaneous puncture, natural orifice transluminal endoscopic, and intraoperative imaging.

Spinal Surgery Robot - An Efficient Tool for Hard Tissue Surgery

One of the smallest robots of its kind known

Intended Use Used for open or percutaneous spinal surgery, with the help of a robotic arm to position surgical instruments and implants



CLINICAL ADVANTAGES

- Precision** Clinical positioning accuracy can reach sub-millimeter level
- Micro** Reduce surgical trauma and intra operative radiation
- Visible** Intuitive planning based on perspective images, what you think is what you get
- Standard** Robotic arm positioning guidance, filtering out human interference

PRODUCT ADVANTAGES

- More convenient surgical operation**
 - The robot + imaging equipment is fully self-developed and integrated with the design
 - The robot preparation steps are reduced by 70%
- Higher surgical precision**
 - Full-link precision control
 - technology improves surgical accuracy by 20%
- Better clinical adaptability**
 - Fusion double trolley design Less
 - floor space required, efficient inter-operative transfer Fewer cable connections

CORE TECHNOLOGY

Medical Image Processing	Multimodal medical image enhancement, reconstruction, segmentation, registration and other analysis and processing technologies
Environmental perception technology	Patient space, image space, and system space fusion and modeling based on multi-source data
Robotic arm control	Robotic arm motion planning, control and collision detection
Reliability Management	Systemic safety strategy group to ensure patient surgical safety

Orthopedic general surgery robot – smart partner for spine trauma and joint departments

Dfferent ated and eff c ent a n one reg strat on p atform, too v sua zat on to ensure surg ca safety



CLINICAL ADVANTAGES

- Safety** Tool tracing is fully visible enabling high-speed drilling navigation to reduce the risk of bone slippage
- Precision** Clinical positioning accuracy can reach sub-millimeter level improving the quality of life of patients after surgery
- Efficient** Hyper-convergent robot and imaging equipment intercommunication technology reduces the time of intra operative registration
- Low radiation** Differentiated compatibility without image registration reducing unnecessary preoperative imaging examinations for patients

PRODUCT ADVANTAGES

Wider clinical applications

- One machine with multiple uses improves equipment turnover rate and
- is more cost-effective; 360° tracking meets more complex clinical positioning requirements and provides higher surgical accessibility;

More efficient surgical procedures

- Intuitive design, easy to operate;
- Free point cloud registration, image-free registration, and CT-3D registration are used to improve surgical efficiency in knee replacement;

Safer product performance

- Visual control of spinal trauma surgery tools, joint
- issue balance module design; execution path simulation, real-time path avoidance by the robotic arm to improve surgical safety;

CORE TECHNOLOGY

Medical Image Processing Technology	Intelligent image segmentation, reconstruction, and rendering algorithms
Registration technology	Integrates CT-3D, intraoperative 3D, Imageless point cloud registration and other technologies
Robotic arm control technology	Intelligent planning, control and collision detection of robotic arm motion efficiency adaptive large tracking technology

Laparoscopic surgical robot - the "jewel" in the crown of surgical robots

Core technology with fully independent intellectual property rights, breaking the foreign technology monopoly



CLINICAL ADVANTAGES

- Minimally invasive** Go beyond the limits of hands and eyes to reduce bleeding and complications
- Efficient** More flexible and precise, same-direction operation, shortened operation time
- Reliable** Stepped torque transmission, vibration filtering, stable operation
- Convenient** Remote control of the control car reduces operator fatigue

PRODUCT ADVANTAGES

- Fully self-developed Core technology**
 - Breaking the technology monopoly, higher product cost performance, better hardware consistency and product operation reliability
- More efficient surgical procedures**
 - One-click positioning technology improves efficiency
 - Autonomous path planning balances efficiency and safety
- Safer clinical use**
 - Multiple intraoperative safety reminders and protection measures
 - Main hand electric balance assistance and boundary feedback

CORE TECHNOLOGY

3D Endoscopy Technology	Ultra-high-definition 3D visual imaging and color management
RCM Robotic Arm	Telecentric manipulation configuration and collaborative control technology
Master-slave control technology	FPGA-based low-latency control and motion tracking technology
Servo drive technology	Drive control technology with high synchronization and precision
Surgical tip technology	Flexible terminal configuration, wire transmission and other technologies

Percutaneous puncture surgical robot - breaking through the "life forbidden zone" of puncture biopsy

Dual source composite respiratory gating technology, highly customized active robotic arm, fully self-developed core components



CLINICAL ADVANTAGES

- Safety** Targeted precision puncture eliminates the risk of hemorrhysis and pneumothorax
- Precision** Improve the success rate of single needle insertion
- Low radiation** Reduce intraoperative radiation use
- Visualization** Reconstruct lung movement and grasp the precise imaging of puncture

PRODUCT ADVANTAGES

- Improved positioning accuracy**
 - Optical tracking active robotic arm
 - precision control Optical pressure dual-source respiratory gating technology
- Short learning curve**
 - Highly autonomous guidance Simplified surgical steps Discrete control and multi-mode human-machine interaction
- Strong scalability**
 - the core components are all self-developed, with higher cost performance the open instrument interface can meet the needs of various departments

CORE TECHNOLOGY

Medical Image Processing Technology	CT image enhancement, reconstruction, segmentation, registration and other processing technologies
Breathing Modeling Technology	Respiration model reconstruction and positioning estimation based on optical and image space fusion
Robotic arm control technology	Robotic arm configuration and motion control technology
Reliability Management	Systemic safety strategy group to ensure patient surgical safety

Prostate puncture surgery robot—holographic real-time precise puncture

Magnetic resonance imaging and ultrasound image fusion + built-in 3D ultrasound + lightweight positioning arm design, accurate diagnosis



CLINICAL ADVANTAGES

- Improve image quality** MRI-US fusion technology combined with real-time 3D ultrasound imaging combines the advantages of both imaging methods improves the recognition of lesion areas and holographic monitoring
- Reduce the surgery difficulty** Modular operation process can be quickly familiarized in a short time shortening the learning curve and improving the consistency and accuracy of biopsy surgery
- Reduce infection** Specially used for transperineal puncture surgery the puncture frame and the overall mechanical structure are easy to disinfect greatly reducing the risk of surgical infection for the beneficiary

PRODUCT ADVANTAGES

- Integrated design**
 - Integrated 3D ultrasound system, easy to operate, quick to set up, reducing the doctor's operating skills requirements
- Improve biopsy accuracy**
 - Compared with the traditional manual puncture based on cognitive vision, the puncture planning and puncture frame guide the coaxial biopsy needle to perform puncture, which improves the accuracy of biopsy
- Full process management solution**
 - From diagnosis of prostate and then to post-operative follow-up, we can achieve early screening, early diagnosis and early treatment of prostate cancer and prevent over-treatment

CORE TECHNOLOGY

Image registration and fusion technology	The software algorithm is used to fuse the prostate and lesion models generated by the MRI image and the ultrasound image to complete the prostate and lesion identification and automatic delineation
Automatic outlining	Automatically identifies the issue and provides an intuitive 3D model, allowing doctors to visualize the prostate and lesions in real time
Multi-degree-of-freedom lightweight positioning arm	Easily locate the ultrasound probe and puncture path, simple, portable and easy to use