





Spinal Surgery Robot - An Efficient Tool for Hard Tissue Surgery

One of the sma est robots of ts k nd known

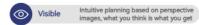
Intended Use Used for open or percutaneous spinal surgery, with the help of a robotic arm to position surgical instruments and implants



CLINICAL ADVANTAGES









PRODUCT ADVANTAGES

More convenient surgical operation

 The robot + imaging equipment is fully selfdeveloped 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 interoperative transfer Fewer cable connections

Medical Image Processing	Mul i modal medical image enhancemen , recons ruc ion, segmen a ion, regis ra ion and o her analysis and processing echnologies
Environmen al percep ion echnology	Pa ien space, image space, and sys em space usion and modeling based on mul i-source da a
Robo ic arm con rol	Robo ic arm mo ion planning, con rol and collision de ec ion
Reliabili y Managemen	Sys ema ic sa e y s ra egy group o ensure pa ien surgical sa e y





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

D fferent ated and efficient a in one registration platform, too iv sualization to ensure surgical safety



CLINICAL ADVANTAGES

e the
quality
nology
iry

PRODUCT ADVANTAGES

Wider c inica app ications

- One machine wi h mul iple uses improves equipmen urnover ra e and
- is more cos -e ec ive; 360 racking mee s more complex clinical posi ioning requiremen s and provides higher surgical accessibility;

More efficient surgica procedures

- In erac ive design, easy o opera e;
- Free poin cloud regis ra ion, image- ree regis ra ion, and CT-3D regis ra ion are used o improve surgical e iciency in knee replacemen;

CORE TECHNOLOGY

Medical Image Processing Technology	In elligen image segmen a ion, recons ruc ion, and rendering algori hms
Regis ra ion echnolog	, In egra es CT-3D, in raopera ive 3D, Imageless poin cloud regis ra ion and o her echnologies
Robo ic arm con rol echnology	In elligen planning, con rol and collision de ec ion o robo ic arm mo ion e icien adap ive arge racking echnology

Safer product performance

- Visual con rol o spinal rauma surgery ools, join so
- issue balance module design; execu ion pa h simula ion, real- ime pa ien avoidance by he robo ic arm o improve surgical sa e y;





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

Core techno ogy w th fu y ndependent nte ectua property r ghts, break ng the fore gn techno ogy monopo y



CLINICAL ADVANTAGES



Minimally Go beyond he limi s o hands and invasive eyes o reduce bleeding and complica ions



More lexible and precise, same-direc ion opera ion, shor ened opera ion ime



Reliable S epped orque ransmission, vibra ion il ering, s able opera ion



Convenien Remo e con rol o he con rol car reduces opera or

PRODUCT ADVANTAGES

Fully self-developed Core technology More efficient surgical procedures

- Breaking the technology monopoly, higher
- product cost performance, better hardware consistency and product operation reliability
- 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

3D Endoscopy Technology	UI ra-high-de ini ion 3D visual imaging and color managemen
RCM Robo ic Arm	Telecen ric manipula or con igura ion and collabora ive con rol echnology
Mas er-slave con rol echnology	FPGA-based low-la ency con rol and mo ion racking echnology
Servo drive echnology	Drive con rol echnology wi h high synchroniza ion and precision
Surgical ip echnology	Flexible erminal con igura ion, wire ransmission and o her echnologies





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

Dua $\,$ source compos te resp ratory gat ng techno ogy, h gh y custom zed act ve robot c arm, fu $\,$ y se f $\,$ deve oped core components



CLINICAL ADVANTAGES



Safety Targe ed precision punc ure elimina es he risk o hemop ysis and pneumo horax



Precision Improve he success ra e o single needle inser ion



w diation Reduce in raopera ive radia ion use



Visualization Recons ruc lung movemen and grasp he precise iming o punc ure

PRODUCT ADVANTAGES

Improved positioning accuracy

- Optical tracking active robotic arm
- precision control Optical pressure dualsource respiratory gating technology

Short learning curve

 Highly autonomous guidance Simplified
surgical steps Discrete control and multimode human-machine interaction

Strong scalability

- · he core components are all self-developed, with
- higher cost performance he open instrument interface can meet the needs of various departments

Medical Image Processing Technology	CT image enhancemen , recons ruc ion, segmen a ion, regis ra ion and o her processing echnologies
Brea hing Modeling Technology	Respira ion model recons ruc ion and posi ion es ima ion based on op ical and image space usion
Robo ic arm con rol echnology	Robo ic arm con igura ion and mo ion con rol echnology
Reliabili y Managemen	Sys ema ic sa e y s ra egy group o ensure pa ien surgical sa e y





Prostate puncture surgery robot——holographic real-time precise puncture

Magnet c resonance mag ng and u trasound mage fus on + bu t n 3D u trasound + ghtwe ght post on ng arm des gn, accurate d agnos s



CLINICAL ADVANTAGES



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

Modular operation process can be quickly familiarized in a short time shortening the learning curve and improving surgery difficult the consistency and accuracy of biopsy surgery



Specially used for transperineal puncture surgery the puncture frame and the overall mechanical structure are easy Reduce infection to disinfect greatly reducing the risk of surgical infection for the beneficiary

PRODUCT ADVANTAGES

Integrated design

• In egra ed 3D ul rasound sys em, easy o opera e, quick o se up, reducing he doc or's opera ing skills requiremen s

Improve biopsy accuracy

Compared wi h he radi ional manual punc ure • based on cogni ive usion, he punc ure planning and punc ure rame guide he coaxial biopsy needle o per orm punc ure, which improves he accuracy o biopsy

Full process management solution

• From diagnosis o rea men and hen o pos rea men ollow-up, we can achieve early screening, early diagnosis and early rea men o pros a e cancer and preven over rea men

Image regis ra ion and usion echnology	he 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
Au oma ic Ou lining	Au oma ically iden i ies issue and provides an in ui ive 3D model, allowing doc ors o visualize he pros a e and lesions in real ime
Multi-degree-of-freedom lightweight positioning arm	Easily loca e he ul rasound probe and punc ure pa h, simple, por able and easy o use