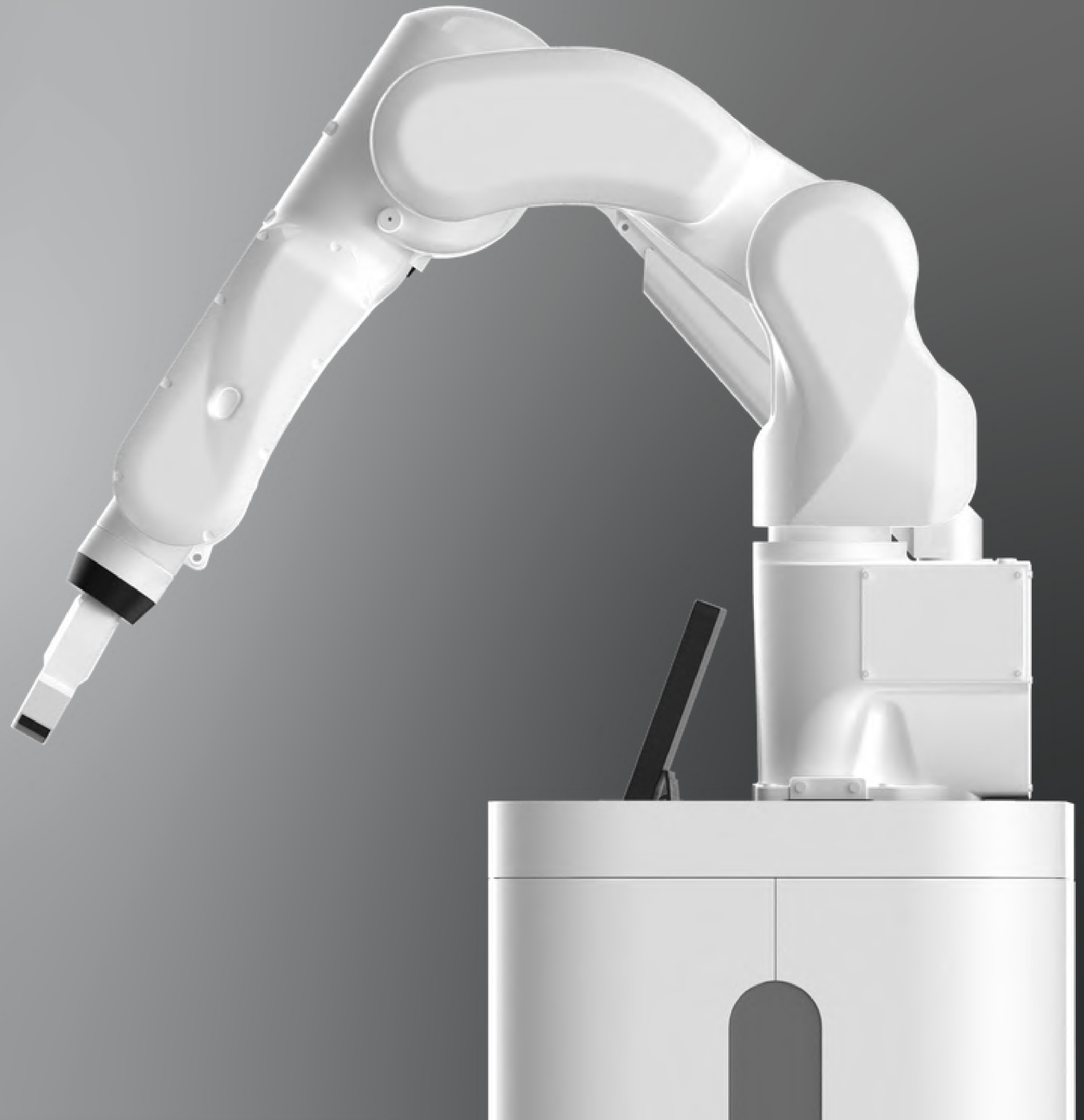
RoboScan

Robotic autonomous complex for automated ultrasound scanning

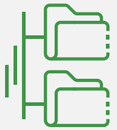


Problem

MARKED OPERATOR-DEPENDENCE

The need for physical presence of the ultrasound doctor during the examination

WEAK STANDARDIZATION AND FORMALIZATION OF ULTRASOUND



LACK OF COLLECTION AND ACCUMULATION OF PRIMARY INFORMATION IN ROUTINE ULTRASOUND PRACTICE

EXTENDED PROCEDURE DURATION

Because of the need for repeated manipulation of the physician during the examination

THE RISK OF INFECTING A PHYSICIAN

Because of the need to be in close proximity to an infected patient

HIGH COST OF THE PROCEDURE

Because of expensive specialists

Solution

Separation of ultrasound data acquisition and analysis processes

1. Ultrasound data collection	
Automated examination mode	Robot + Assistant
Remote access	Robot + Assistant
Separation of data collection and analysis of results	Robot + Assistant
2. Saving initial data in DICOM	
3. Data research	
Expert data analysis	Physician
Decision Support System	AI + Physician
Automated analysis process	AI

Advantages

SAVING RESOURCES

The possibility of ultrasound without or with minimal involvement of a human operator (assistant)

SAVING TIME

Routine work (data collection) is formalized and standardized

QUALITY IMPROVEMENT

By automating the screening process and forming centers of excellence using telemedicine technologies

REMOTE ACCESS

Allows physicians to work with hard-to-reach regions and eliminates the need for direct contact with infected patients

DATA ANALYSIS

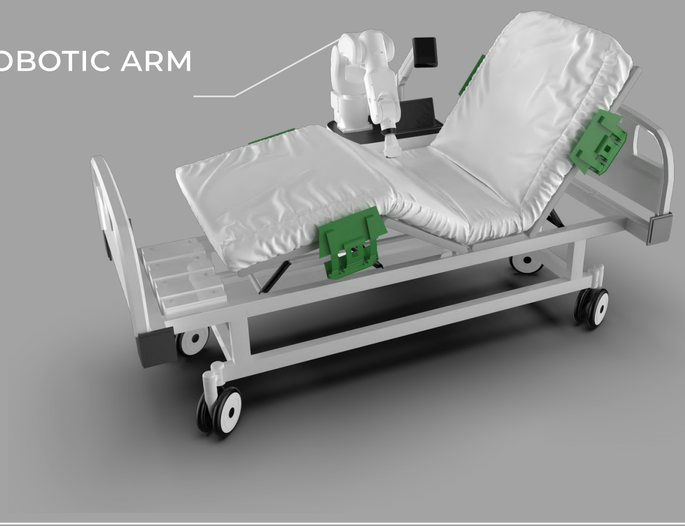
Data accumulation, storage, and analysis will allow: faster examinations, prediction of diagnosis and treatment options

CREATING NEW SOLUTIONS

Forming an extensive dataset for research, new product creation, development and training of medical programs based on Machine Learning

Composition of the complex

Diagnostic site



- Collaborative robotic manipulator, which implements the screening process in an automated mode according to a predetermined trajectory, depending on the examination area

Doctor's workplace

- Converting received data to DICOM
- 3D modeling of the examined organ
- Physician's work interface with the display of the marked data of the ultrasound
- Accumulation, storage and analysis of examination results

Target markets

B2B

Private
medical centers

Medical equipment
manufacturers

Manufacturers
of medical complexes

B2G

State medical
institutions

Defense
structures

MES

Current status

MVP, capable of performing automated examination of the pelvic area

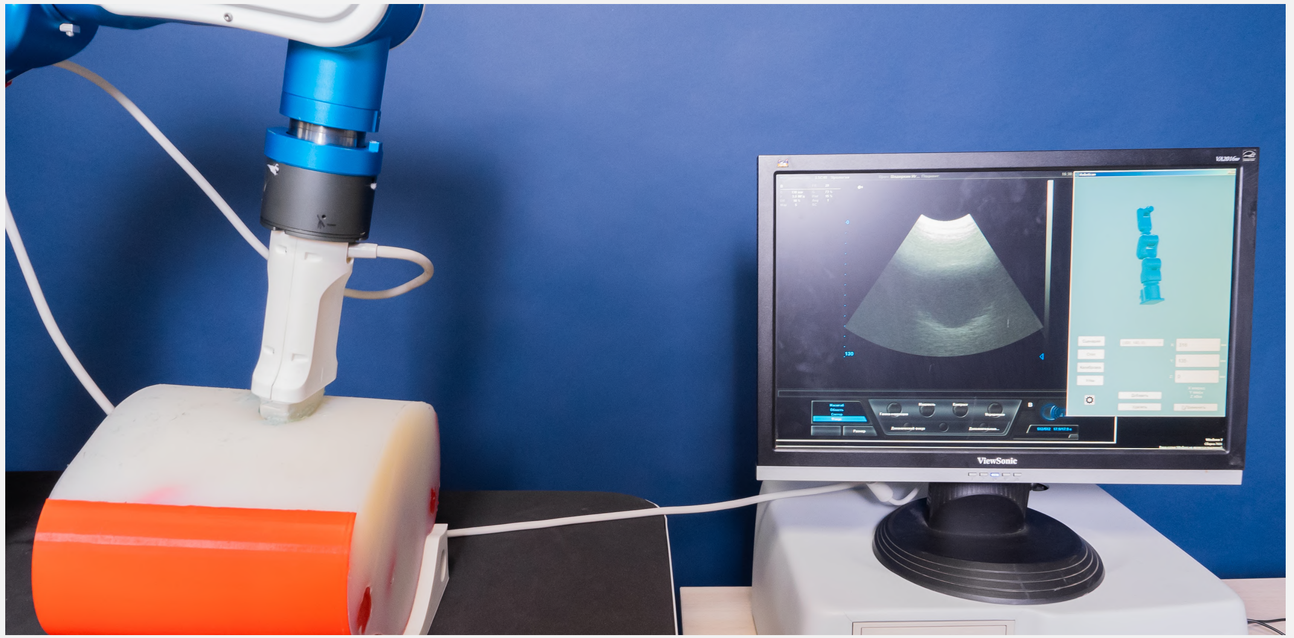
Algorithms of formation and automatic analysis of ultrasound images

A platform for secure storage, processing and visualization of medical data

Strain gauge to regulate the degree of pressure

Developed ergonomic solutions

Current status



MVP, capable of performing automated examination of the pelvic area

Team

Artem Badriev
CEO

Managing Partner
at Exom Venture Studio

Igor Shaderkin
Medical Expert

Candidate of Medical Sciences. Head of Laboratory, Institute of Digital Medicine, Sechenov University. Expert in the field of ultrasound diagnostics

Denis Antonov
Technical Director

Co-founder of mRobotics LLC – robotic surgical instruments, robotic surgical complex. Co-founder of iMotus LLC – robotic rehabilitation simulators

Alexey Lisin
Senior Software Engineer

More than 10 years of experience in designing control systems for automated lines. Author of control software for a robotic surgical system – an analogue of the da Vinci robot

Sergey Smirnov
Chief Designer

Associate Professor. Director of the Scientific and Educational Center for Research and Innovative Developments at the Stroganov Academy.
CEO at Smirnov Design LLC

+ 15

A team of developers, engineers and industrial designers

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Artem Badriev

+7 (911) 273-97-71
a.badriev@roboscan.pro

WWW.ROBOSCAN.PRO