CVISIONLAB

# Artificial intelligence for radiologists

cvl-ct.cvisionlab.com

# CVisionLab is a MedTech company focused on AI applications for diagnostics

CVISIONLAB

**13 years**
Experience of software development in AI domain

**100+**
Successful project delivered to international customers

**88**
Hospitals connected to our services

**100k+**
CT Scans processed in 2022

**2k**
CT Scans processed per day

**2 min**
Time to process Chest CT scan

# We work with customers worldwide

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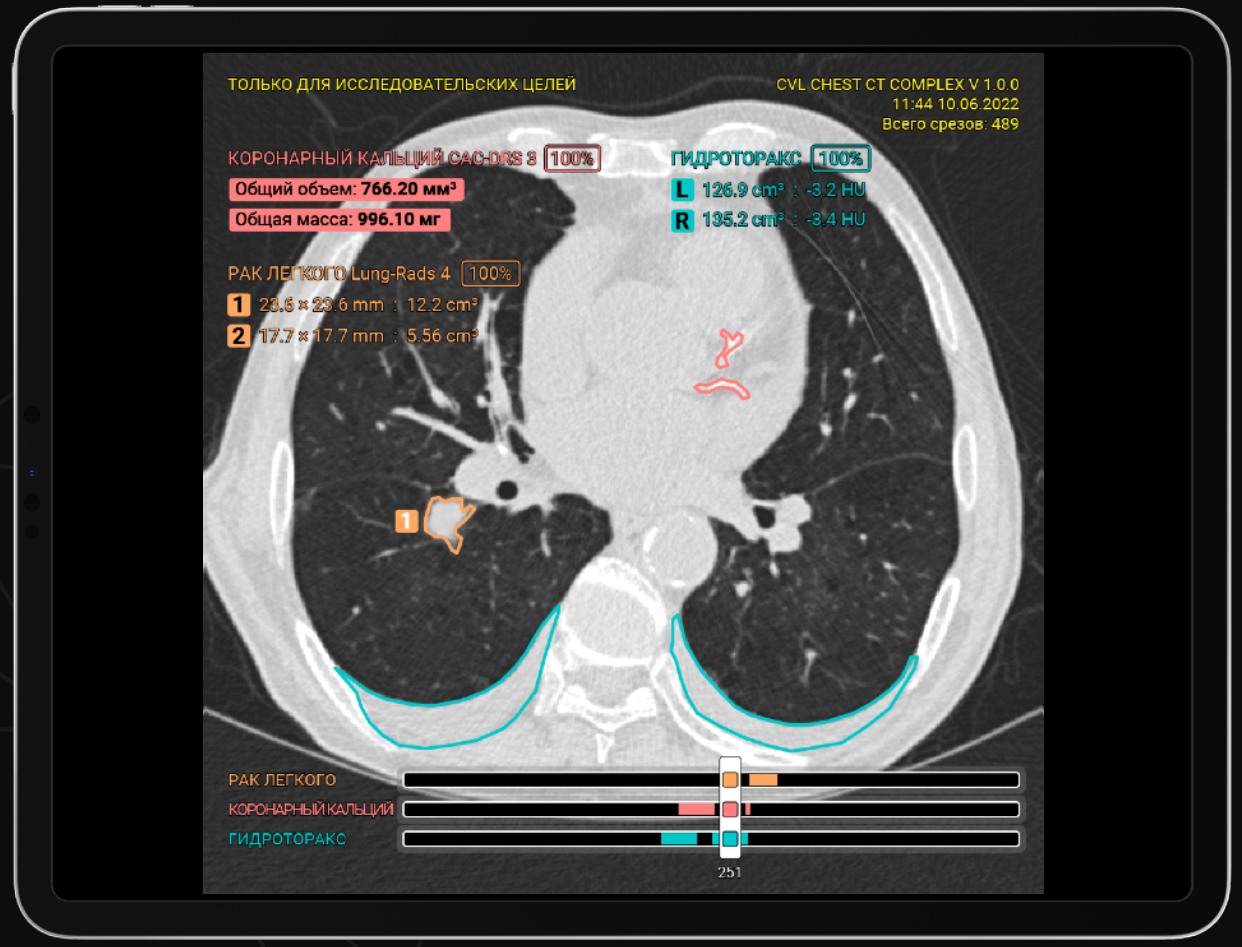
01

# Cloud-based SaaS solutions for processing X-Ray and CT Scans

Classification of studies, Findings localisation, Automated measurements

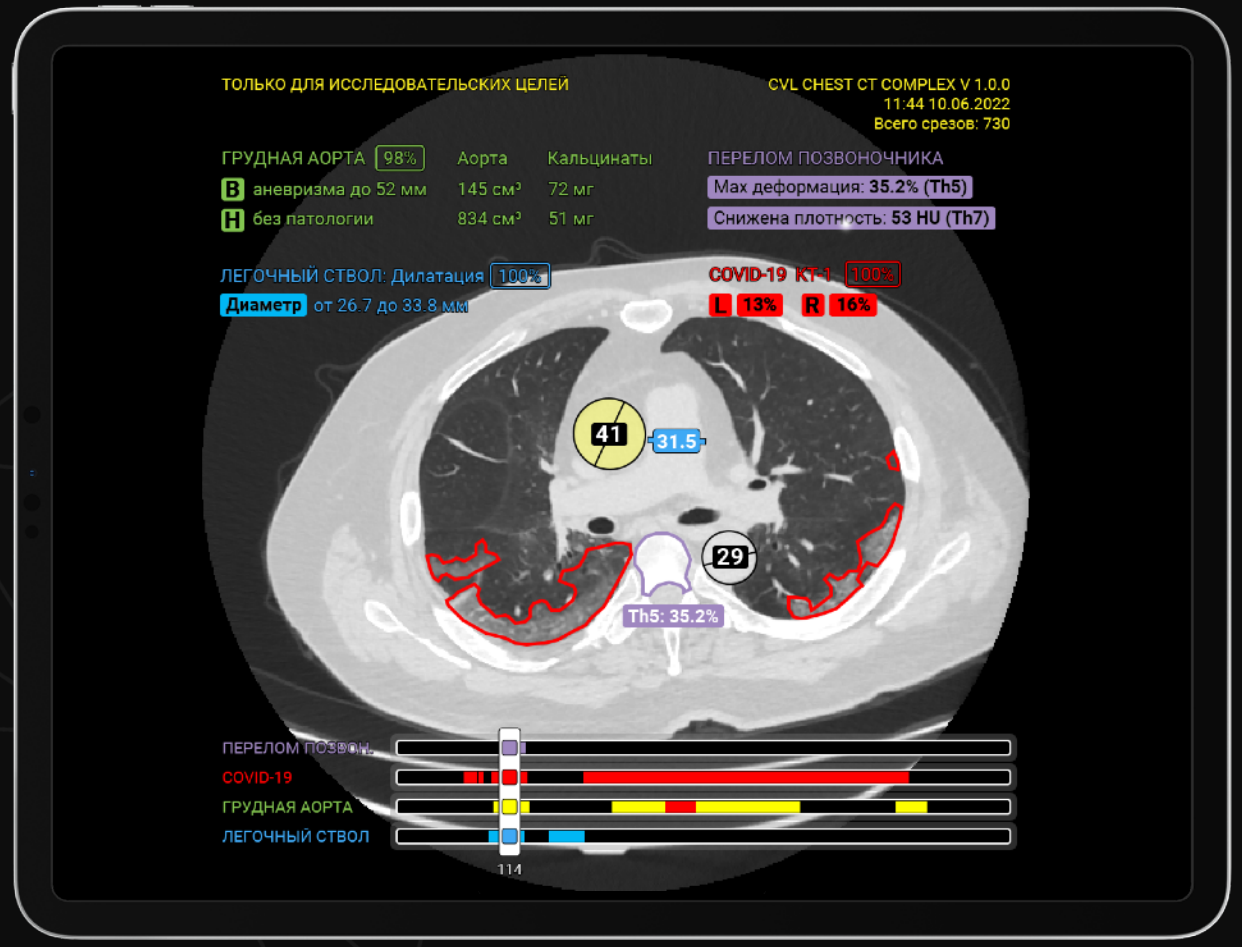
# Complex solution for Chest CT Scans




**Classification and localisation finding for 7 nosologies**

→ Lung cancer
→ Covid-19
→ Hydrothorax
→ Aortic aneurysm
→ Pulmonary trunk hypertension
→ Coronary Calcium
→ Vertebral fractures

# Complex solution for Chest CT Scans



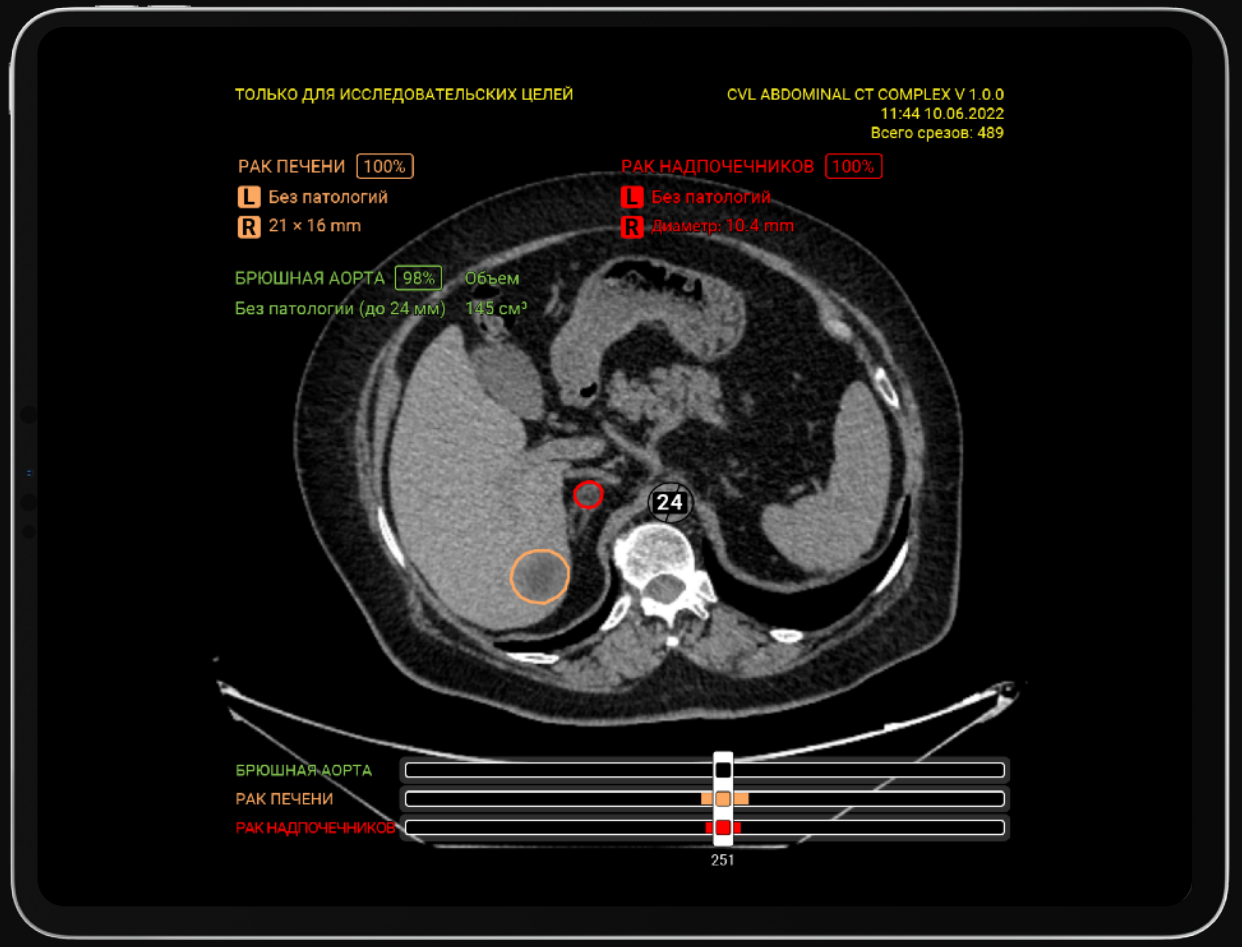

## Functional Features

- → **Localisation of findings**
- → Highlight area of pathological changes
- → Precise measurements
- → Prediction of Lung-Rads and CAC-DRS

# Complex solution for abdomen CT scans

**Localisation and measurement of 6 nosologies:**

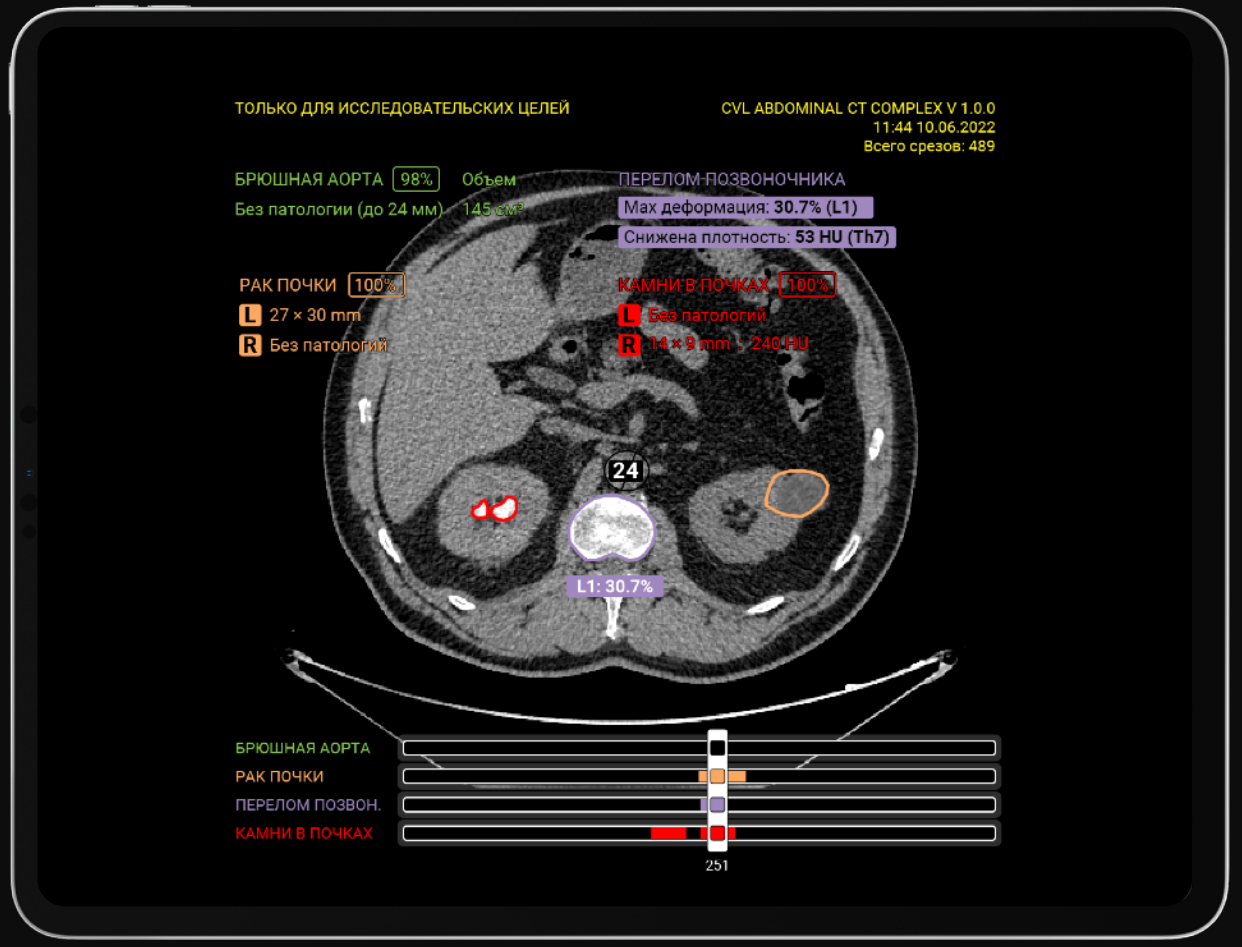
- → Abdomen aorta
- → Vertebral fractures
- → Liver cancer
- → Adrenal cancer
- → Kidney cancer
- → Kidney stones



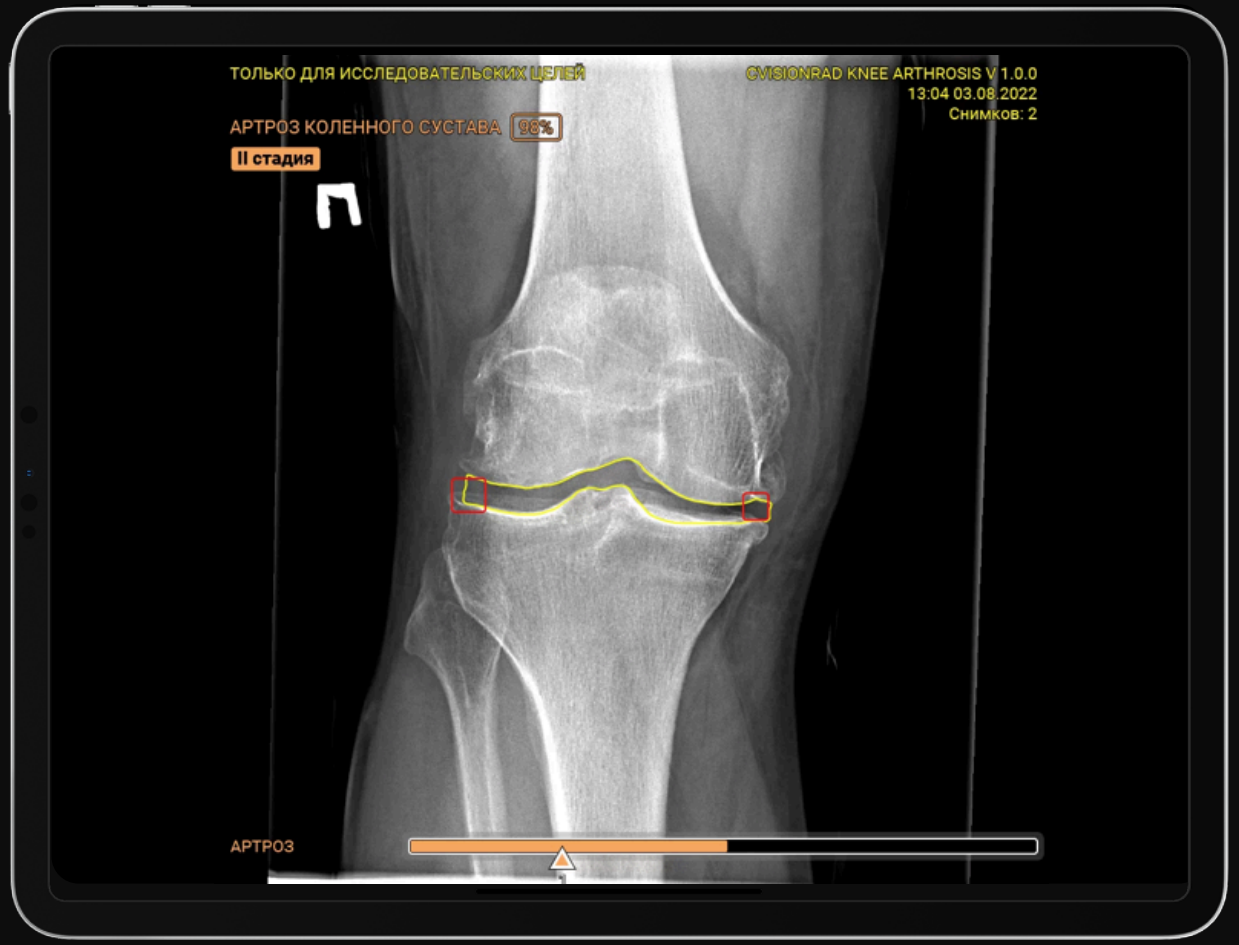
# Комплексный сервис для КТ брюшной полости

**Functional Features**

- → Finding localisation and measurement
- → Highlighting go pathological changes
- → Precise measurements of area and density of findings



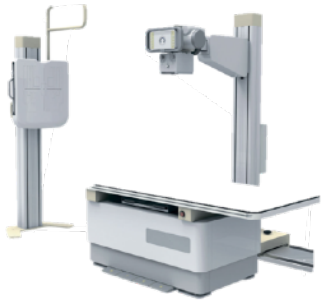
# Knee Arthrosis prediction in X-ray images




Automatic localisation and precise measurements of findings related to knee arthrosis

Sensitivity: **81%**
Specificity: **96%**
AUC: **0.91**

# Cloud-bases SaaS solution: How it works



X-Ray

DICOM

DICOM

PACS

Anonymised DICOM

CVL Cloud

DICOM SR
DICOM SC

CT Scan

DICOM SR
DICOM SC

Radiologist

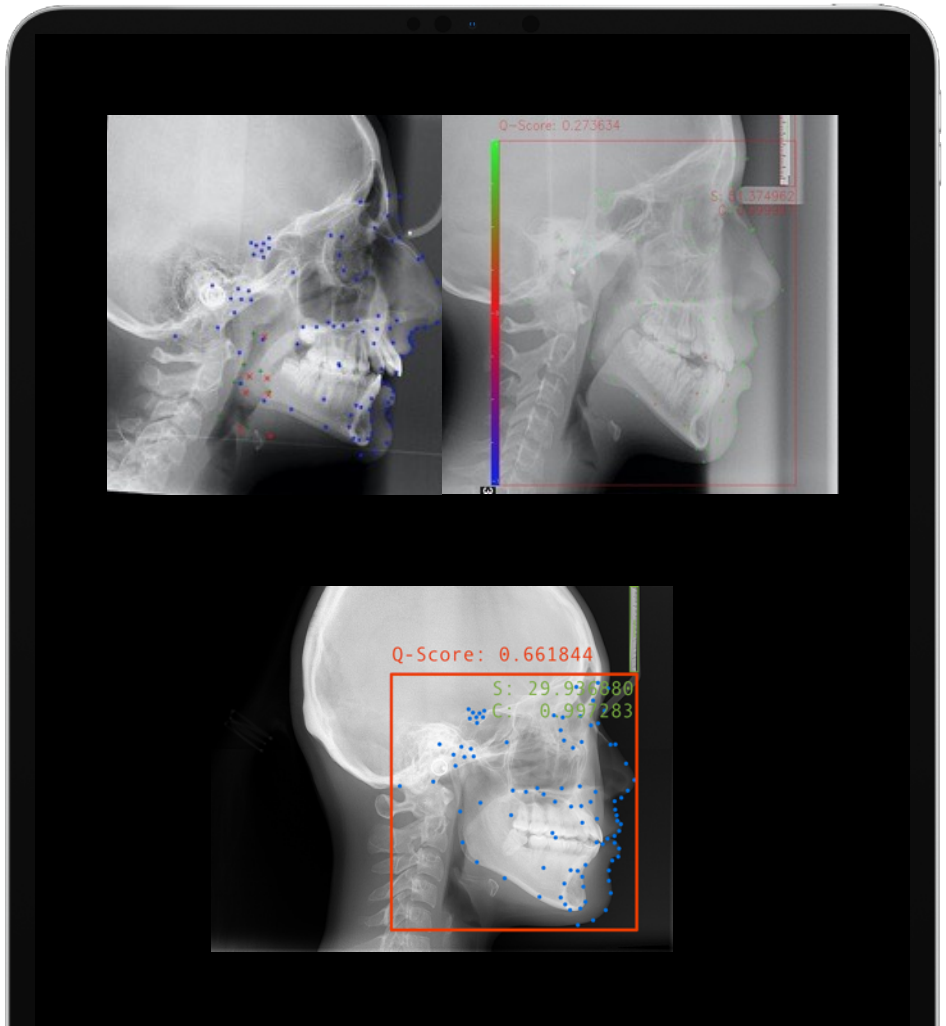
CVISIONLAB

02

# CVisionLab solutions developed of third-party MedTech companies

Case #1

# X-ray Cephalometric image analysis




Automatic localisation of 100+ landmarks in cephalometric image

Automatic estimation of the scull position and orientation, scan quality, confidence level for predictions

Average accuracy of automatic localisation is higher than for human

Customer time for getting results decreased from few days to few seconds.

Our client has a b2c business for description of cephalometric X-ray scans for patients. Originally they annotated scans manually: doctor manually put about 100 landmarks on image and based on this landmarks report was prepared. This process usually took about a week due to high demand and lack of qualified doctors.

**We have implemented cloud-based SaaS solution built on the top of AI algorithms which automatically process up to 99.5% of incoming cases. Processing takes just few seconds.**

Case #2

# Teeth and nerve canal segmentation in CBCT scans

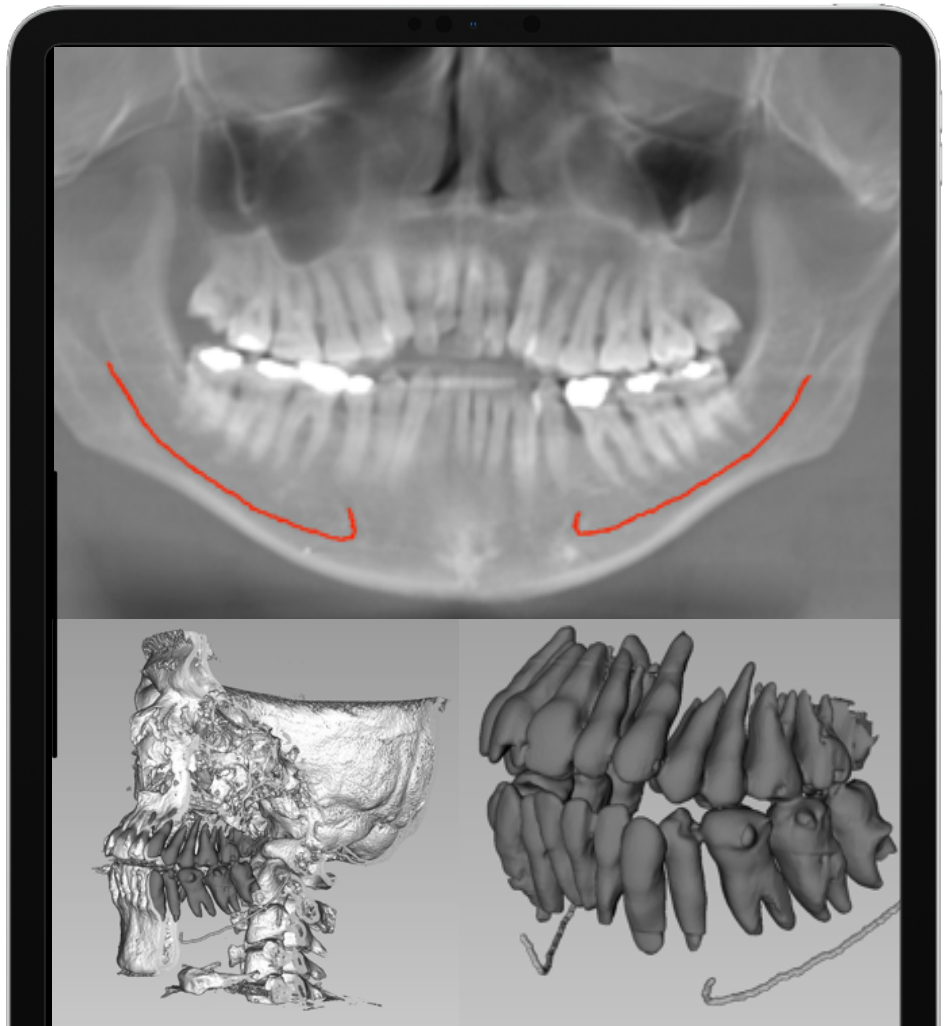
Our software helps dentists to turn CBCT scan into structured 3D model where nerve canals and every tooth precisely segmented and represented as polygonal mesh. It enables dentists to interact with the CBCT scan like with CAD-model. One can select from database 3D models of implants, put them in right place and make sure implants are perfectly and securely fitted to exact case.

Build panoramic images by CBCT scan and highlight nerve canal.

The solution is based on neural networks trained on 20k+ CBCT scans (DICOM).

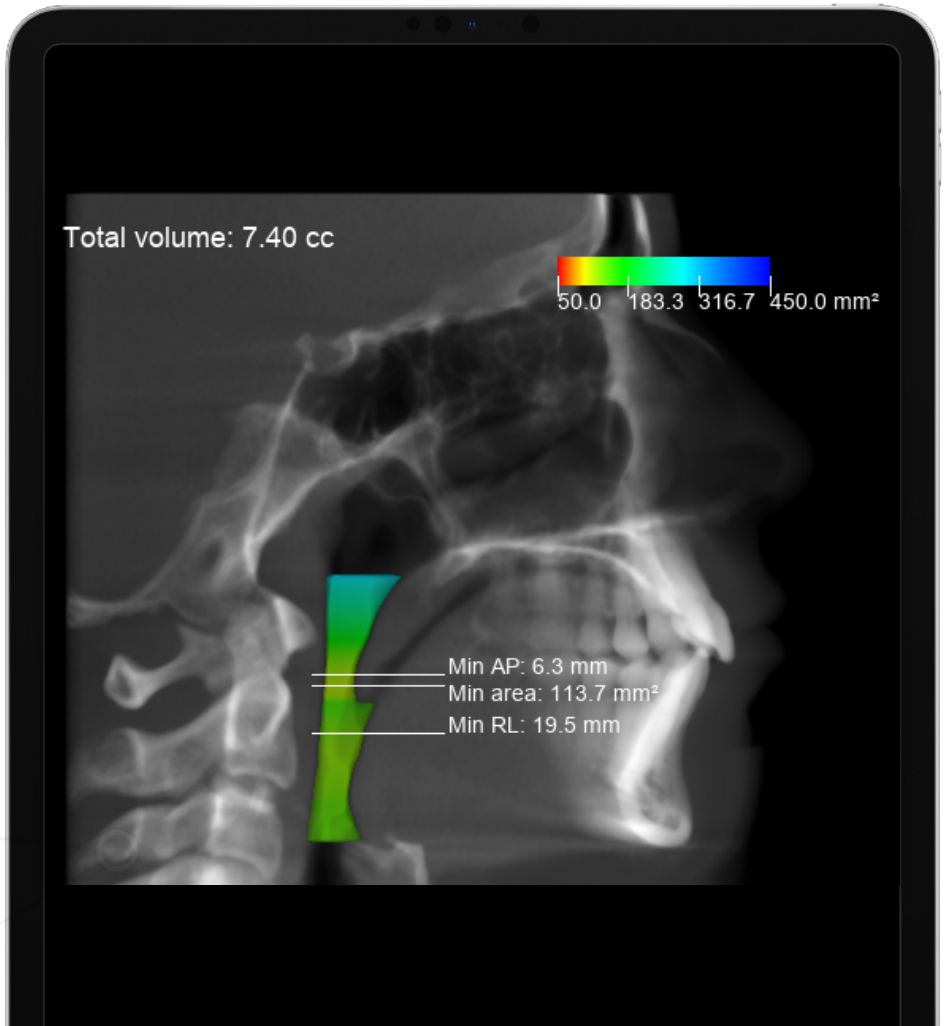
Proper processing of cases with various FOV.

Separate segmentation of each nerve canal.



Case #3

# Airway volume analysis




The solution is based on segmentation convolutional networks which were trained on the dataset of 5,000 CBCT scans and evaluated on 2,000 CBCT scans.

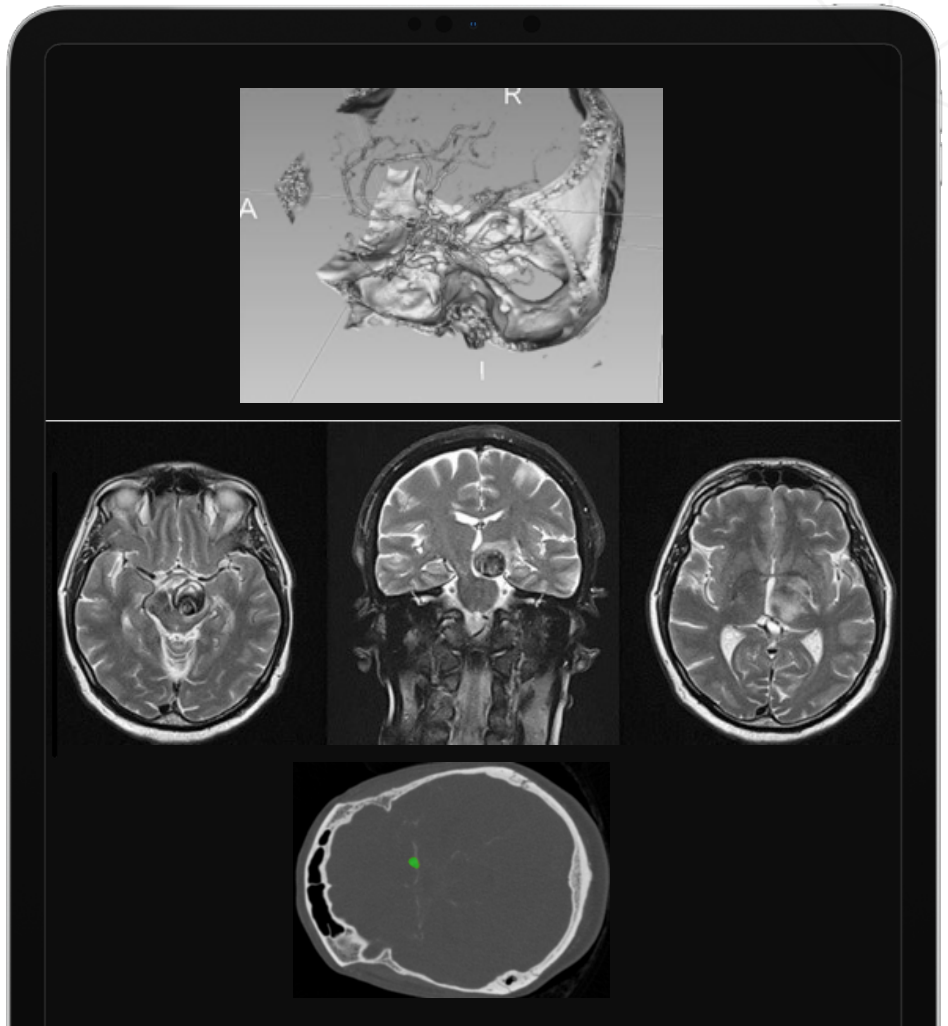
Cephalometric image with airways segmented with some measurements and projections. It enables doctors to diagnose and predict oral and maxillofacial problems accurately.

Solution for airways segmentation and measurement in CBCT scans

Case #4

# Aneurisms segmentation in CT and MRI scans

The solution process CT or MRI head scans for precise segmentation of vessels and detection of aneurisms. It helps to radiologists find small aneurisms starting from 2 mm.




### 3D visualization of human head CT data

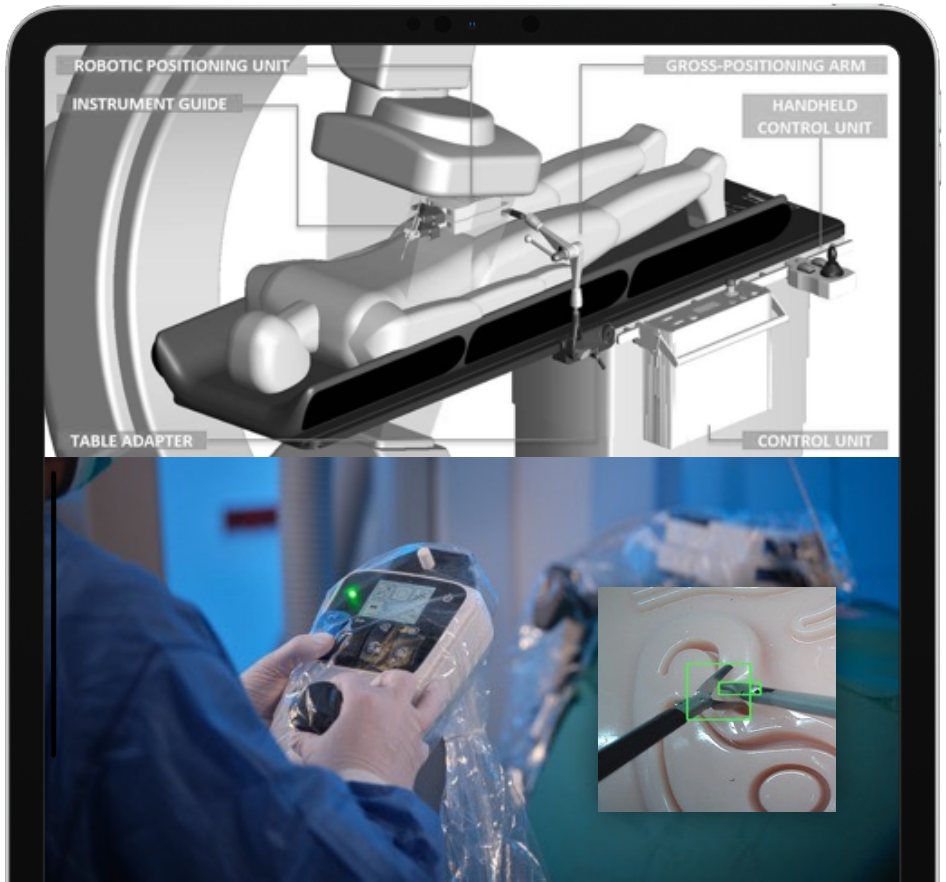
Data registered using CT and represented as a 3d voxel cube.

### Axial slice of the CT data

An automatically segmented aneurysm is indicated as a green area.

Case #5

# Tracking medical tools during invasive procedures




CPU-based solution with real-time processing

High accuracy (90%+)

Calculation and path planning of robotics tool

Works with various tool tips

Automation alignment process reduced time for surgical procedures, as surgeons don't have to spend time for manual alignment process;

Usually at least two doctors are involved in invasive surgical operations. One of them do surgical manipulations and another one operate with endoscope to provide field of view for the first one. **Our solutions enables to handle operations by one doctor. It monitoring tool tips via endoscopic image in real time and control movement of endoscope via robotics arm.**

# Ways to work together

01

Integration with CVisionLab’s cloud-based SaaS solutions

02

On-premise installation in client’s infrastructure

03

Custom software development

# Trusted by

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ДИАГНОСТИКА БУДУЩЕГО

CARNEGIE MELLON UNIVERSITY
PITTSBURGH PENNSYLVANIA 1900

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SAKHALIN ENERGY

Google Cloud
Partner

Yandex Cloud
Service Partner

# Feedback of our customers

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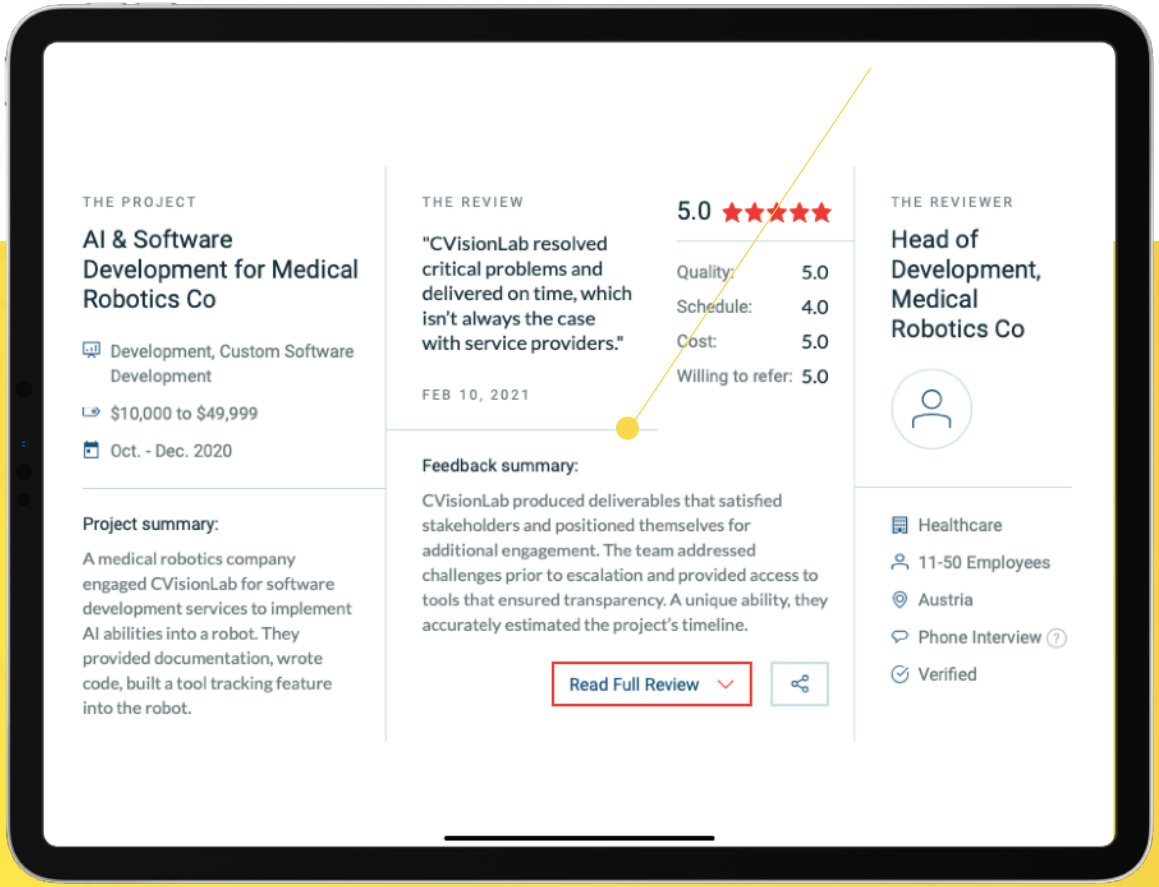


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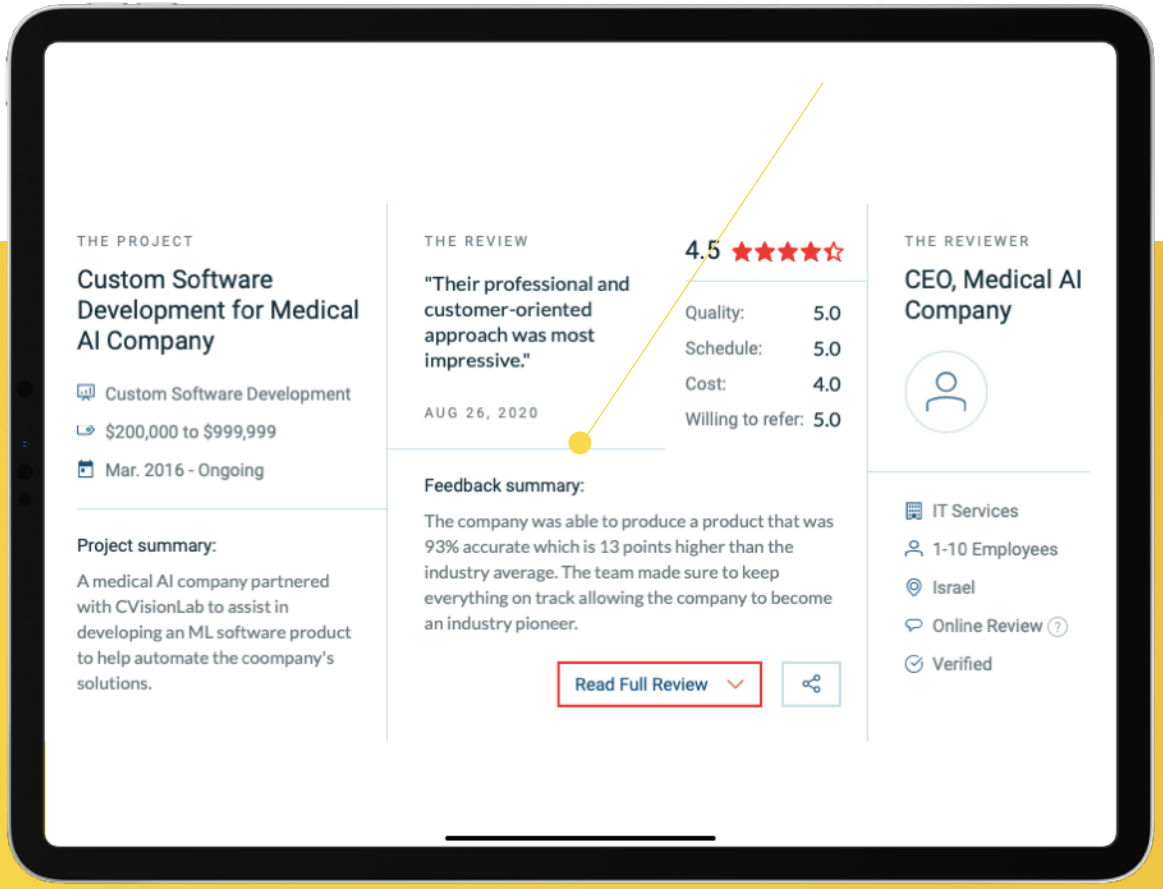

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# Book online meeting with me

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