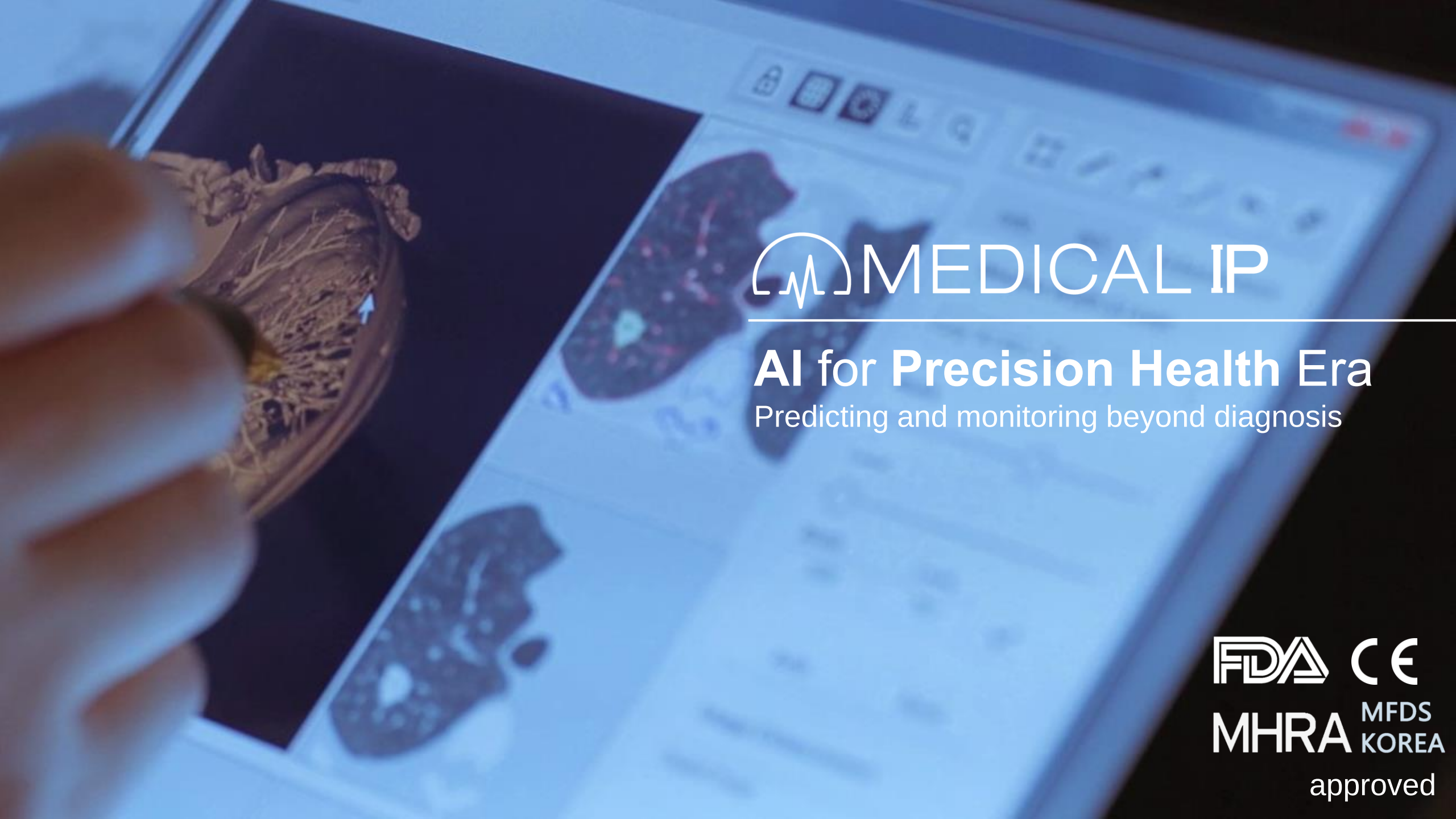

MEDICAL IP
AI for Precision Health Era
Predicting and monitoring beyond diagnosis
FDA
CE
MHRA
MFDS KOREA
approved

Table of Contents

Company

Introduction
Patent

1. Company Introduction

Introduction

FDA, CE Food and Drug Administration grades 1, 2, 3 approved

AI-based Technology for dividing, analyzing, and quantifying medical images

3D modeling of medical images and 3D printing total solution secured

Gartner

4 consecutive yrs Gartner's sample vendor

Won the Minister award of SMEs and Startups , Ministry of Science and ICT, and Ministry of Trade, Industry and Energy

Medtronic
Johnson & Johnson
OLYMPUS

Cowork with global companies such as Medtronic, J&J and Olympus

MEDIP COVID19

1,545 organizations from 53 countries around the world used <MEDIP COVID19>

Raised $30M Investment

1. Company Introduction

Patent

A total of 37 patents related to image data analysis and extraction, and 3D printing, which are the company's core technologies, are registered and applied for

AI image processing	**Registered 5 cases** **Applied 6 cases**	**Korea 7 cases** (Registered 3, Applied 4) / **Overseas 4 cases** (Registered 2, Applied 2)
Deepcatch **(Automatic analysis of body composition)**	**Registered 1cases** **Applied 2 cases**	**Korea 3 cases** (Registered 1, Applied 2) **/ Overseas on processing**
Image segmentation · extract	**Registered 1cases** **Applied 4 cases**	**Korea 1 case** (Registered 1) **/ Overseas 4 cases** (Applied 4)
3D Printing	**Registered 2 cases** **Applied 4 cases**	**Korea 2 case** (Registered 1, Applied 1) **/ Overseas 4 cases** (Registered 1, Applied 3)
3D Modeling	**Registered 3 cases** **Applied 1 cases**	**Korea 4 case** (Registered 3, Applied 1)
VR · XR	**Applied 8 cases**	**Korea 1 case** (Applied 1) **/ Overseas 7 cases** (Applied 7)

Core Technologies

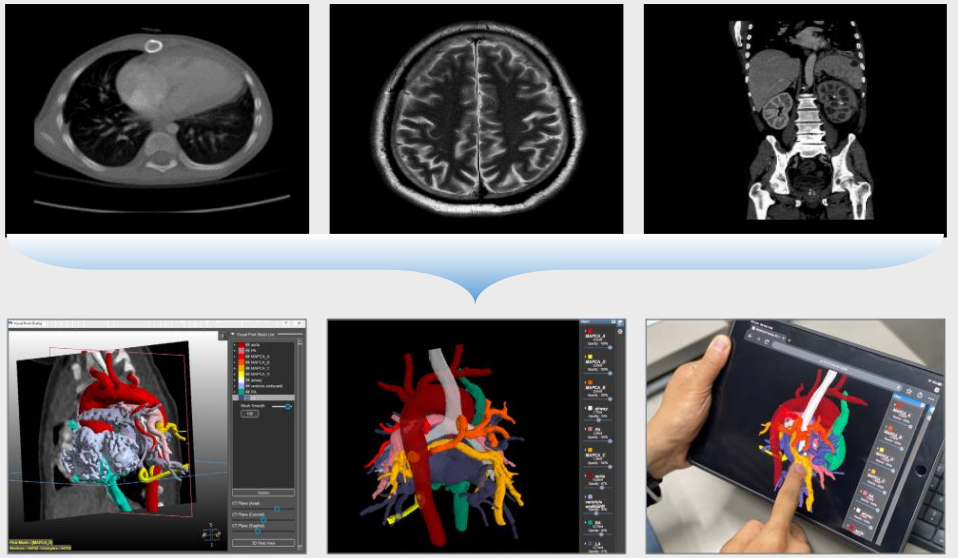
Medical Image 3D Modeling
AI Segmentation
Design CAD/CAM
Medical 3D Printing

2. Core Technologies

Medical Image 3D Modeling

3D modeling original technology that makes medical images into 3D

maximizes the utility of medical images in the medical field



Maximize visibility of Human body internal information such as the patient's organs and lesions

Effective communication with patients using 3D information

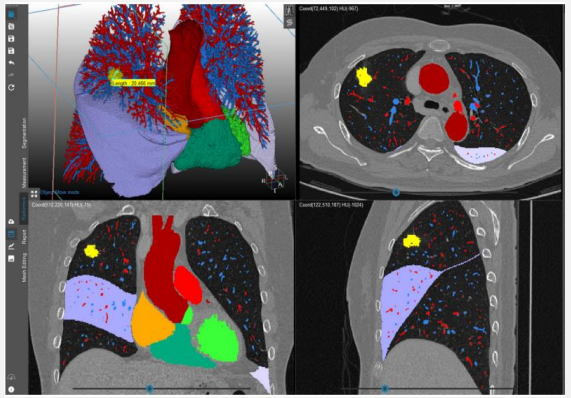
Accurate surgical plan and surgical simulation using 3D information

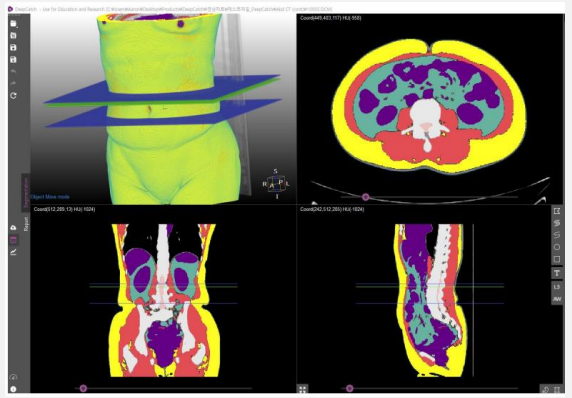
Effective medical education based on actual patients medical data

Expand medical images to various high-tech industries such as 3D printing, VR, and AR

2. Core Technologies

AI Segmentation

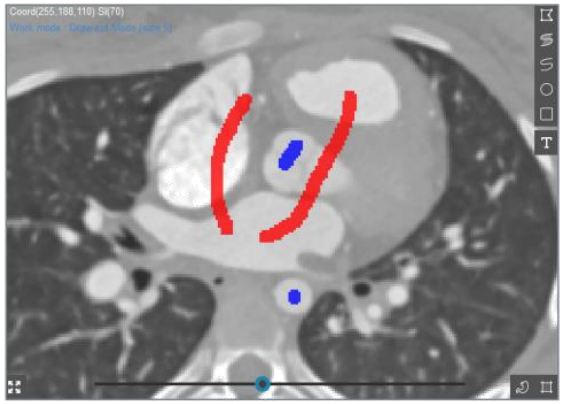


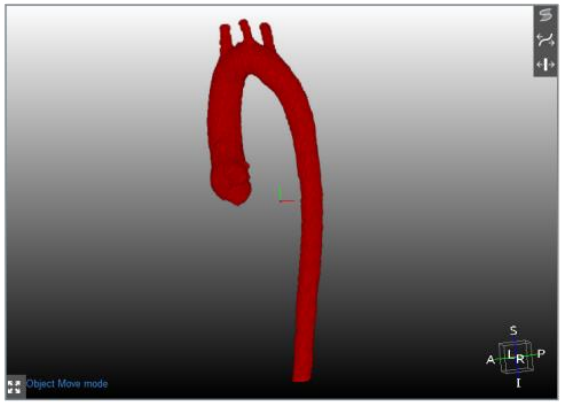


- Big data labeling of medical images based on abundant anatomical knowledge
- AI deep learning to divide areas by utilizing high-quality learning data

→ It is possible to divide fast and accurate areas such as organs, lesions, and body composition (skin, bones, muscles, fat, etc.)

(Previously, Time, expenses, and personnel such as radiologists were invested for segmentation work)



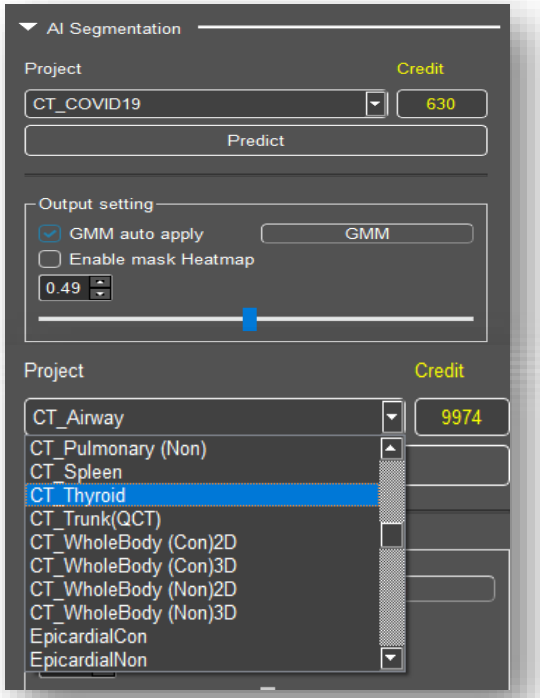


- Semi-automatic region of interest extraction enables easy and fast division of areas tailored to the needs of medical staff and researchers with just a few hints
- Maximize the efficiency and accuracy of segmentation through AI technology
- Acquisition of numerical information on partitioned area textures that cannot be obtained visually

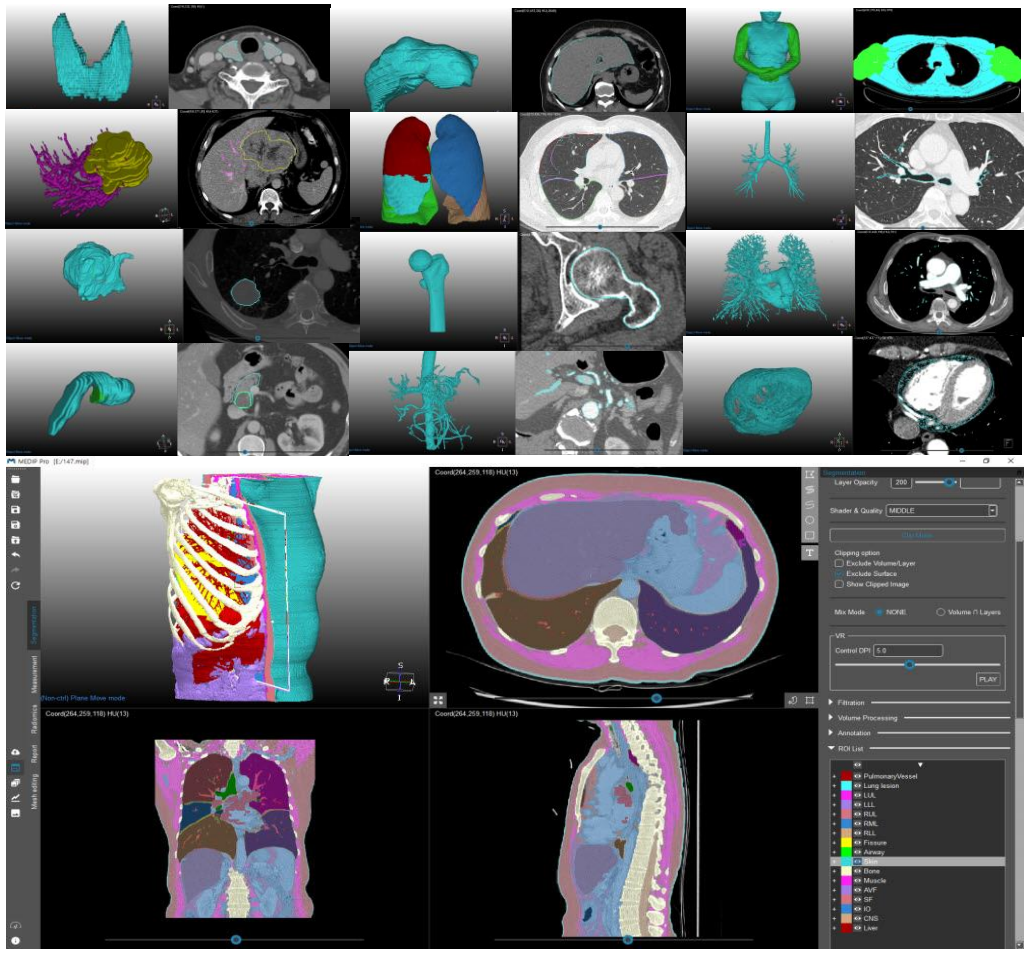
2. Core Technologies

AI Segmentation

Filtering, Postprocessing
AI output setting
AI output Heatmap
GMM for decision making



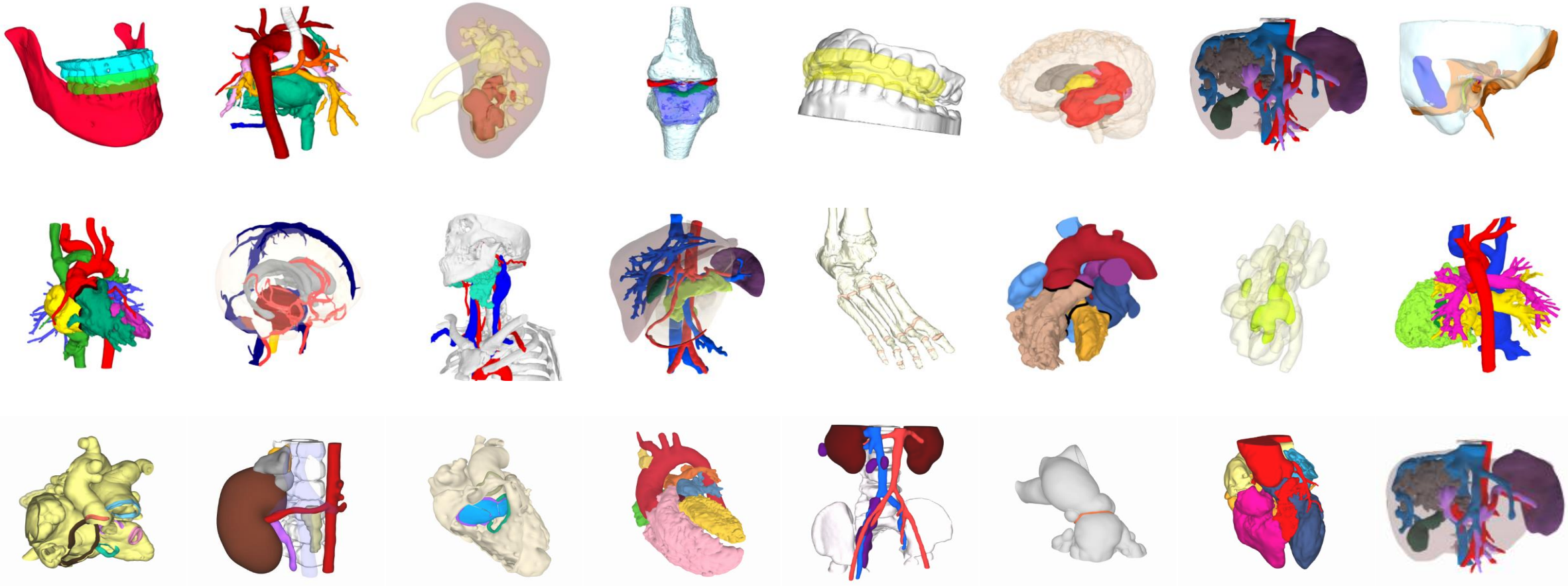
Target anatomy : 30 more (as of Aug 31th)



- CT_Airway.mipx
- CT_ArmTrunk2D.mipx
- CT_ArmTrunk3D.mipx
- CT_Artery.mipx
- CT_Body (Chest).mipx
- CT_Bone (Chest).mipx
- CT_Cavity.mipx
- CT_COVID19.mipx
- CT_HepaticVessel,Tumor.mipx
- CT_Liver (Non).mipx
- CT_Liver (Portal).mipx
- CT_Liver Tumor.mipx
- CT_Liver,Tumor.mipx
- CT_Lung Fissure, Lobe.mipx
- CT_Lung Lesion.mipx
- CT_Lung Tumor.mipx
- CT_Lung.mipx
- CT_Pancreas,Tumor.mipx
- CT_Pulmonary (Con).mipx
- CT_Pulmonary (Non).mipx
- CT_Spleen.mipx
- CT_Thyroid.mipx
- CT_Trunk(QCT).mipx
- CT_WholeBody (Con)2D.mipx
- CT_WholeBody (Con)3D.mipx
- CT_WholeBody (Non)2D.mipx
- CT_WholeBody (Non)3D.mipx
- EpicardialCon.mipx
- EpicardialNon.mipx

2. Core Technologies

AI-powered Segmentation



2. Core Technologies

Design CAD/CAM

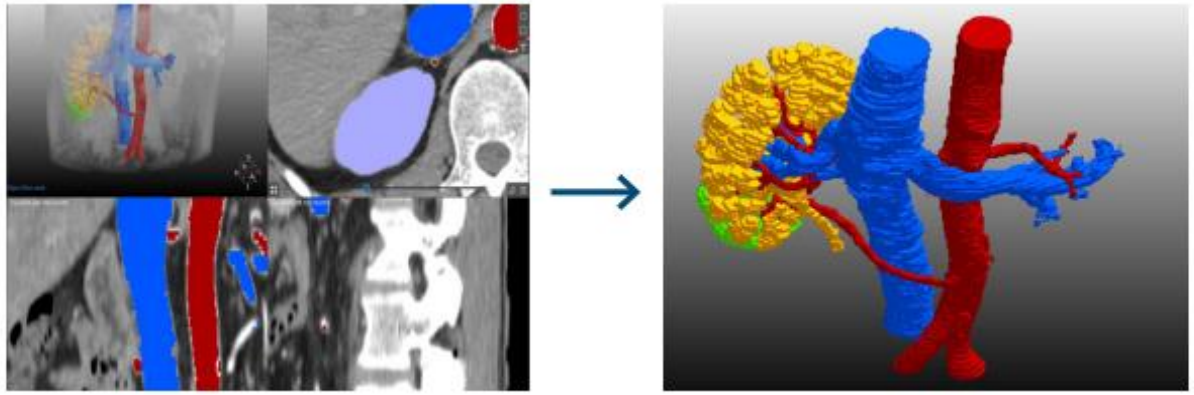
3D modeling original technology that makes medical images into 3D

maximizes the utility of medical images in the medical field

STEP 1

3D Design Mesh

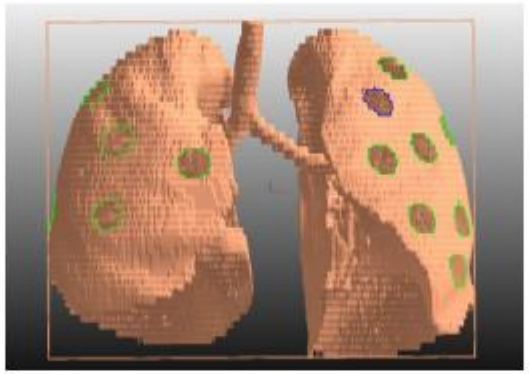
Mesh data is created
from segmented data



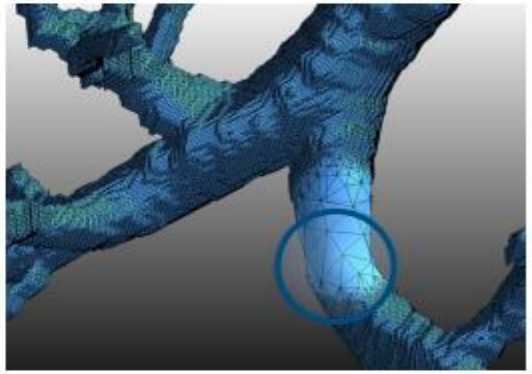
STEP 2

CAD/CAM Modeling

Global / Local Editing feature allows
you to edit and process Mesh data



Global Editing



Local Editing

2. Core Technologies

Medical 3D Printing

- AI medical image analysis software "Medip Pro" converts tomography images such as CT and MRI into 3D images

- Perform AI segmentation (division) work on organs

- After generating 3D modeling images through segmentation, deliver to 3D printing clients on a web-based platform

- Clients can communicate before 3D printing by checking organs and delivering requests on PCs and smartphones

- After confirming the results of 3D modeling, Anatomical model 3D printing that embodied the shape and physical properties of organs will be progressed

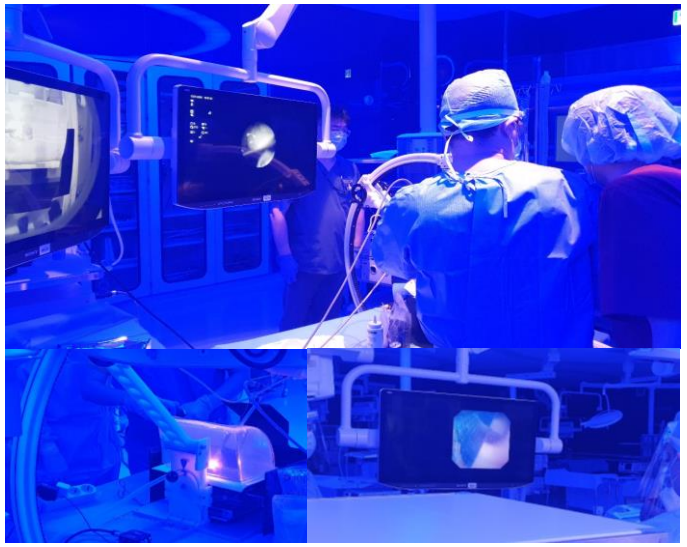
- used in various fields such as surgical planning, surgical simulation, patient communication, medical research, and education

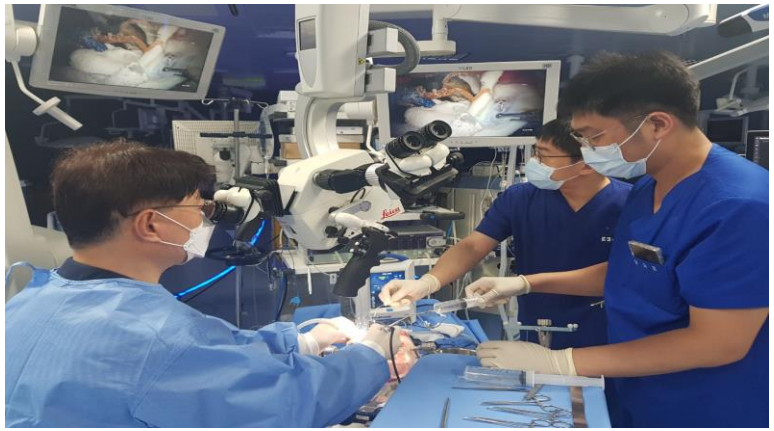
2. Core Technologies

Medical 3D Printing (Business Cooperation _ Olympus, Medtronics)

RIRS, PNL simulators were launched on Nov. 30, 2020

RIRS, PNL simulators were verified in pre-workshop of MAESTRO on Jan. 17, 2021





Products

MEDIP : Segmentation and analysis of medical images and 3D modeling

DeepCatch : Automatic analysis of body composition based on CT

TiSepX : X-ray-based diagnosis and monitoring

3. Products

MEDIP : Segmentation and analysis of medical images and 3D modeling

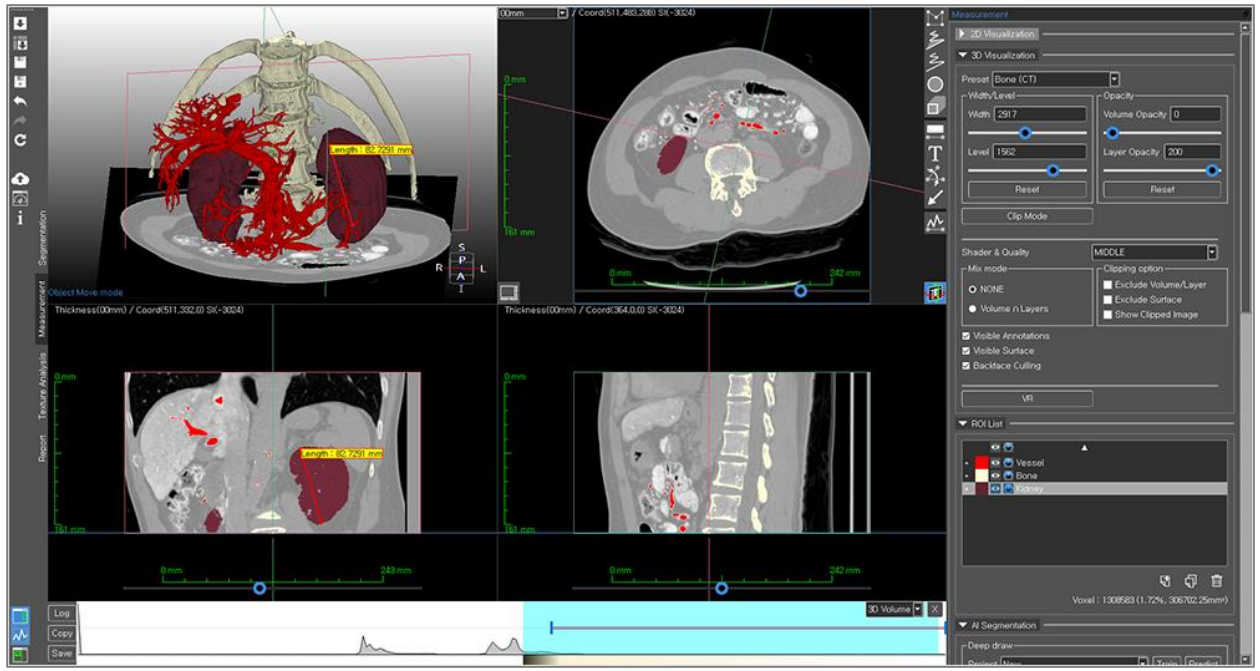
MEDIP PRO

FDA, CE, MFDS approved

AI medical images

segmentation · analysis software

- Visualize 2D medical images such as CT and MRI into 3D models immediately through software
- Has a segmentation function that can divide each organ area in a 3D medical image
- Through AI deep learning technology, medical staff can automatically split organs with one click
- Enable improve image quality and analyze texture, and link various industries such as VR, AR, and 3D printing

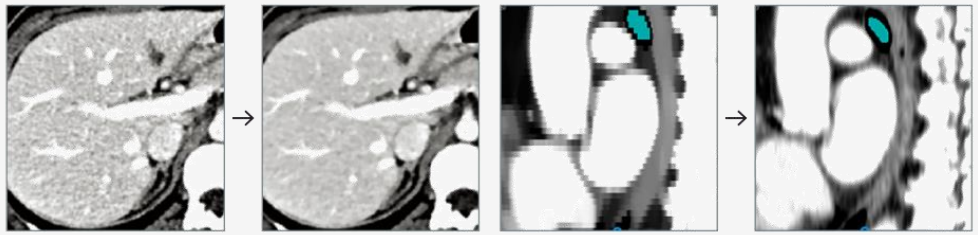


2D/3D Visualization	Segmentation	Texture Analysis
Measurement	Custom Deep Learning	Mesh Editing
3D Cutting-off	Shape based Extraction	Augmented Reality
Virtual Reality	Machine Learning	Reporting

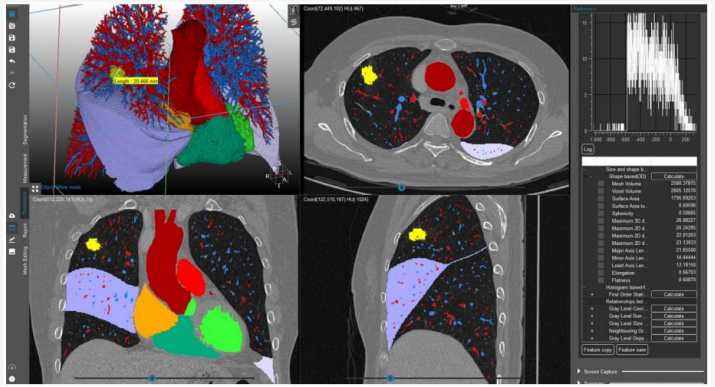
3. Products

MEDIP detailed functions

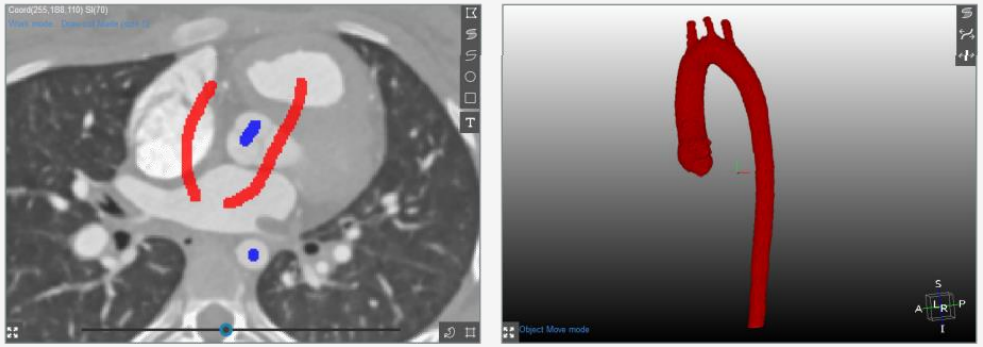
Improve image quality



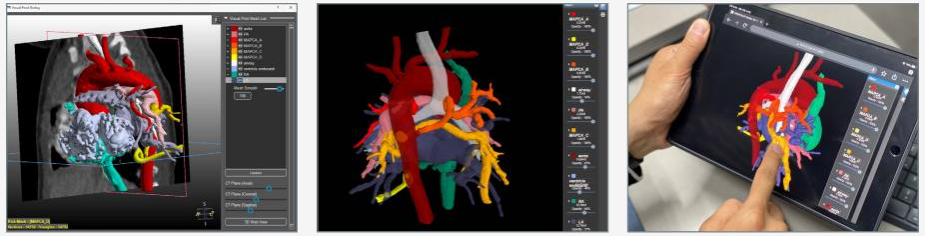
Measurement and texture analysis



Accurate and fast division of areas



3D Modeling and Extract

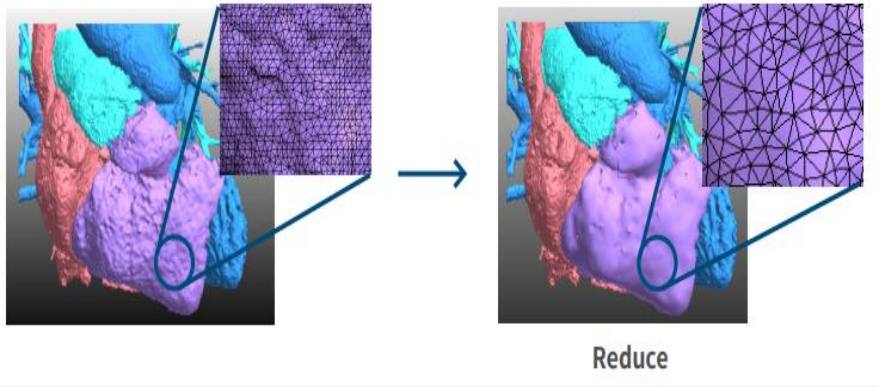


3. Products

MEDIP detailed functions (Mesh Edit)

Global Editing

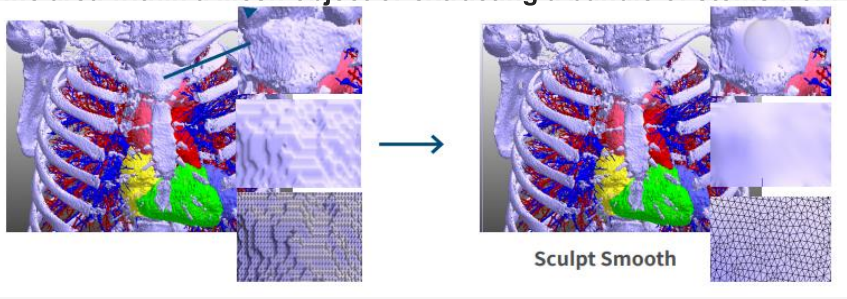
Mesh editing provides Smooth / Remesh / Reduce tools



Take a look at the video clip

Local(Sculpt) Editing

It provides partial editing functions (Smooth, Inflaate, Drag), such as smoothing out a specific area within a Mesh object or extracting a bundle of stems from the surface



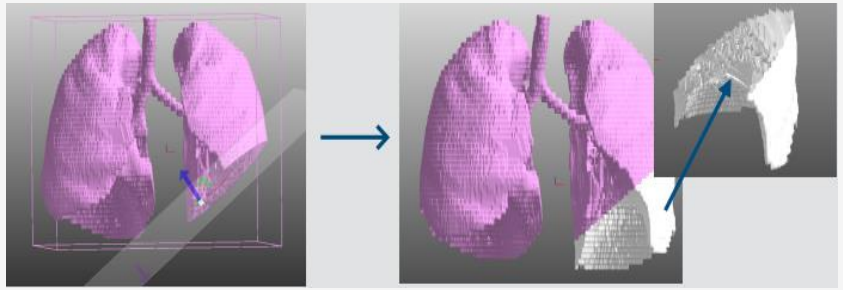
Take a look at the video clip

Lobal Separation

Lung lobe was separated by plane cut and calculating the Boolean difference

Plane Cut

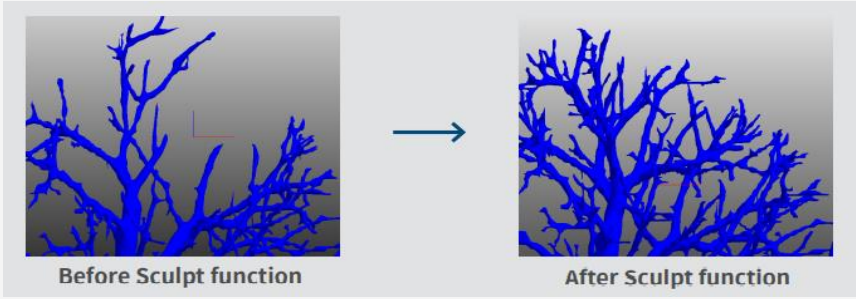
Boolean Difference



Take a look at the video clip

Lung vessel construction

blood vessels were created and constructed using the Sculpt function

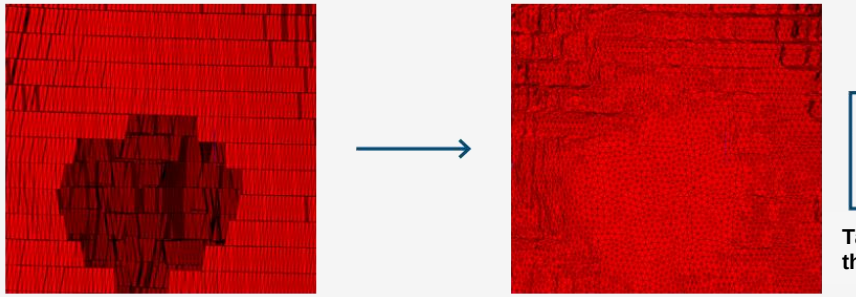


Take a look at the video clip

3. Products

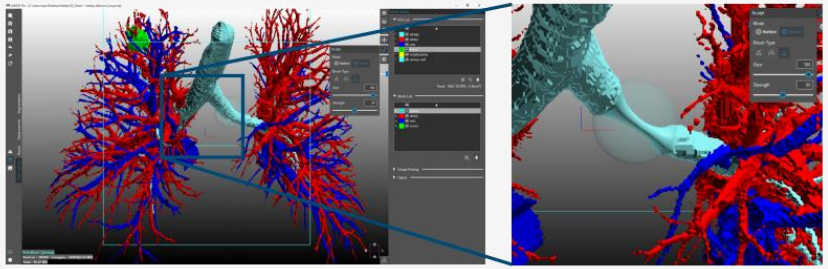
MEDIP detailed functions (Mesh Edit)

Global Editing



Take a look at the video clip

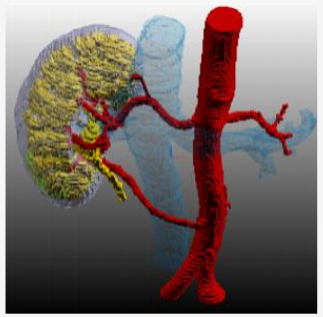
Local(Sculpt) Editing



Take a look at the video clip

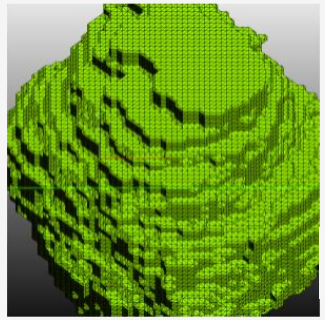
Convenient functions

Transparency



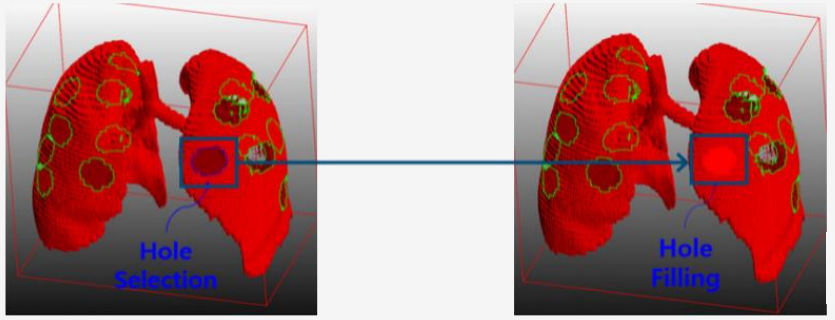
Take a look at the video clip

Wire-Frame



Take a look at the video clip

Hole-filling



Take a look at the video clip

3. Products

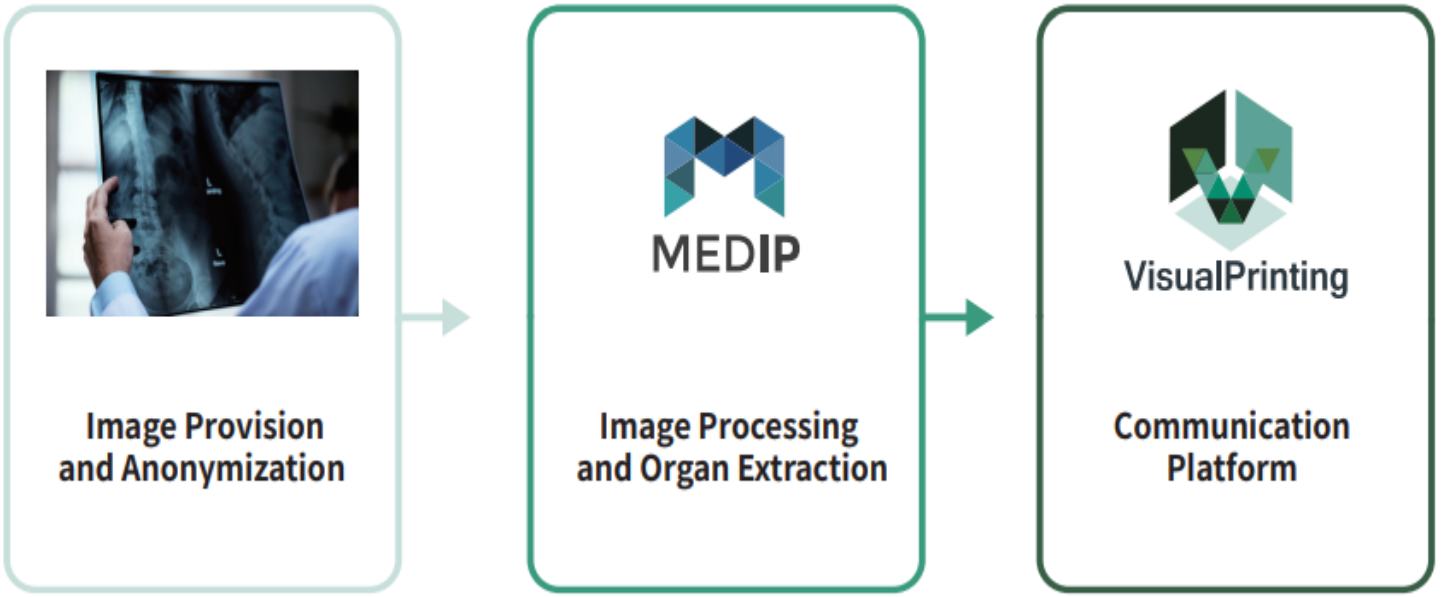
VisualPrinting

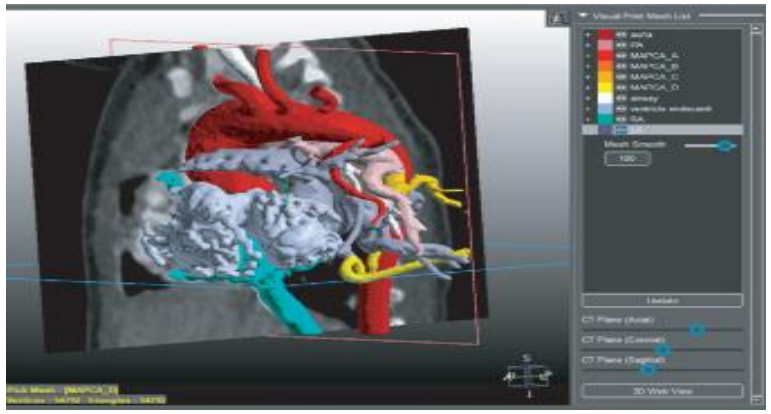
VisualPrinting

visual information extracted through

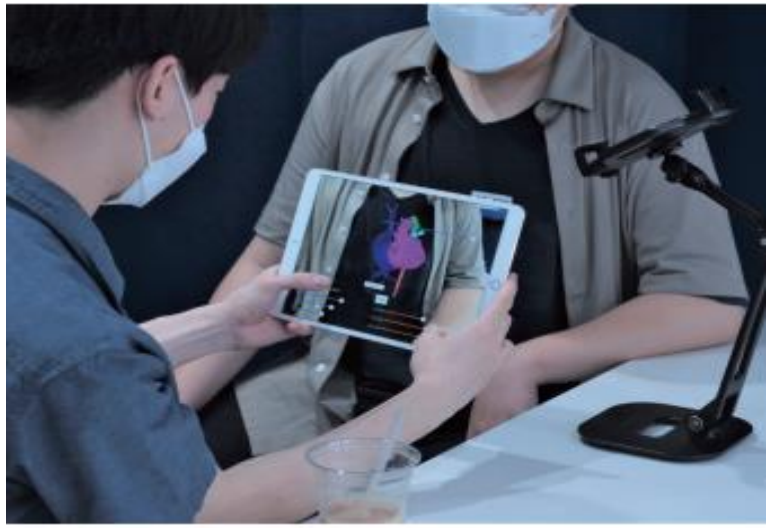
MEDIP is linked to the web/mobile-based communication platform

“Visual Printing” through Design Mesh tool





Visual Printing



AR Contents

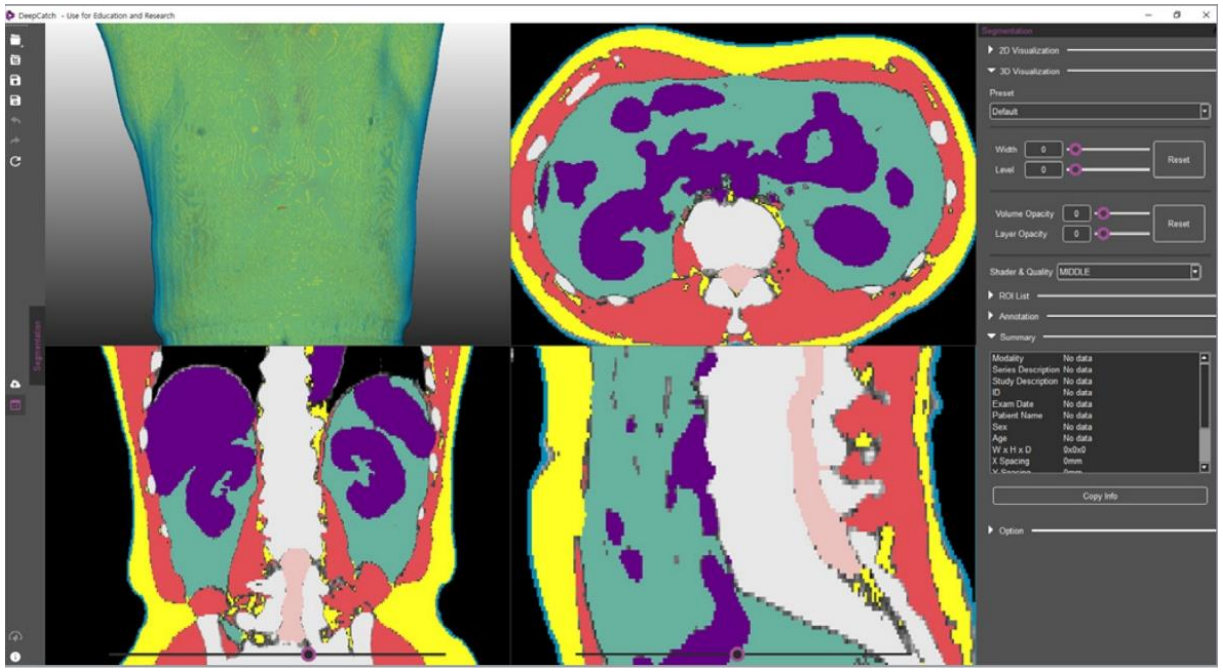
3. Products

DeepCatch : Automatic analysis of body composition based on CT

DEEPCATCH

CT-based AI software for automatic division and analysis body composition

- have full-body composition automatic division function with one-click using AI deep learning
- 2D/3D analysis of contrast/non-contrast medical images
- L3, Automatic setting of abdominal area and custom manual setting
- Accuracy 97% (can be used as data based on CT analysis research related to body composition)

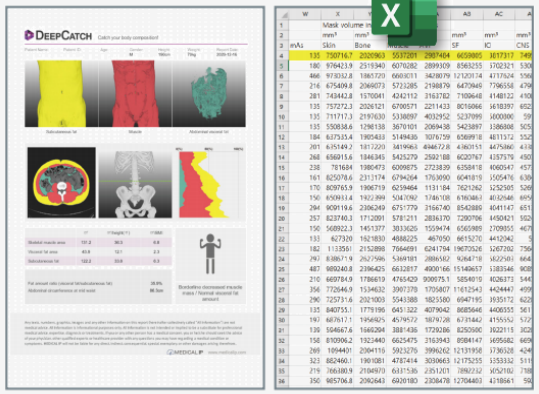


Accuracy

(%)

	2D	3D
Skin	92.16	94.05
Bone	97.64	98.10
Muscle	97.23	98.15
Abdominal visceral fat	90.51	95.06
Subcutaneous fat	96.08	97.10
Internal organs	96.26	97.59
Central nevous system	97.52	98.03
Average	**96.55**	**97.63**

Create report

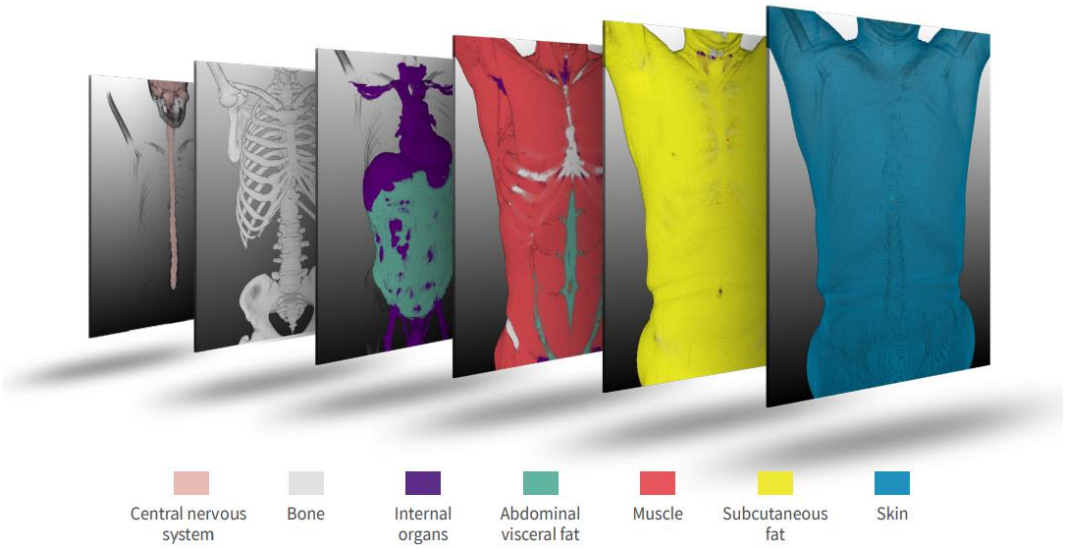


3. Products

DeepCatch Competitiveness

- Most accurate CT analysis data
- No need to introduce Medical equipment
- No need to practice extra examination
- High accuracy, Low cost

- Inaccuracy of the measurement method
- Low accuracy and reliability of result
- Need to practice extra examination
- Need to practice extra examination

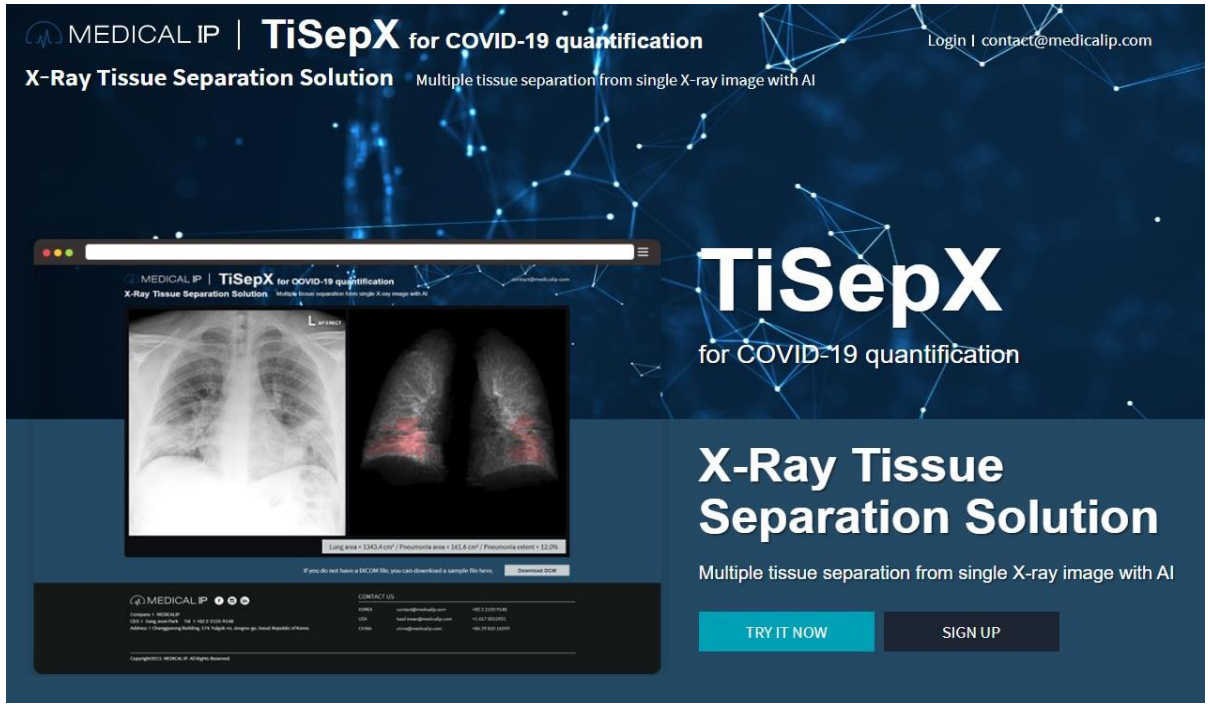


3. Products

TiSepX : X-ray-based diagnosis and monitoring

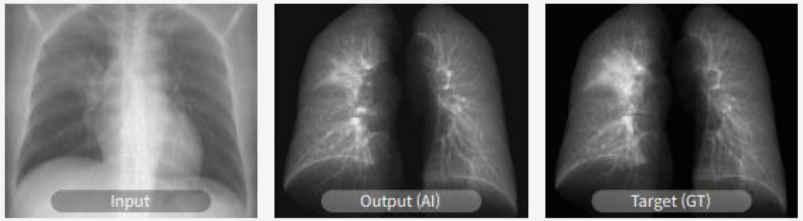
TiSepX **X-ray-based disease quantification & treatment monitoring AI solution**

- Enable X-ray-based immediate lung segmentation and extraction using AI deep learning
- Enable Accurate measurement, quantification, and judgment of lung disease (providing numerical information on the range of pneumonia)
- Enable intuitive judgment of a disease through 3D information on lung disease
- Beyond diagnosis of infection, it is possible to monitor the progress of treatment such as drug effects and prognosis

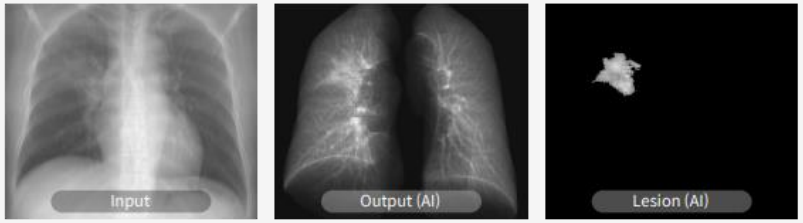


Data result (example)

Lung Generation Result



Lesion Generation Result



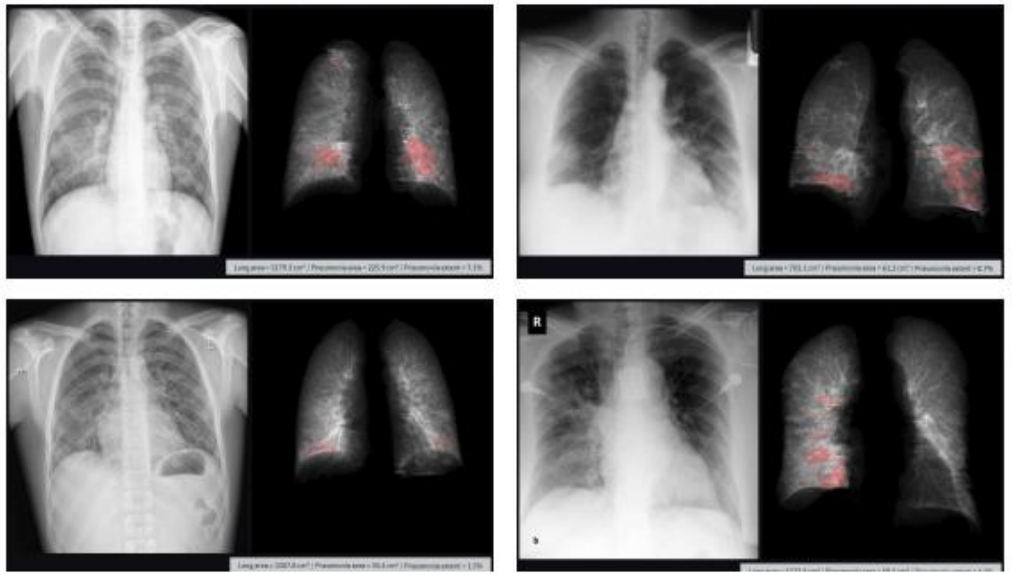
3. Products

TiSepX detailed line-up

TiSepX COVID-19

X-ray-based COVID-19 quantification solution

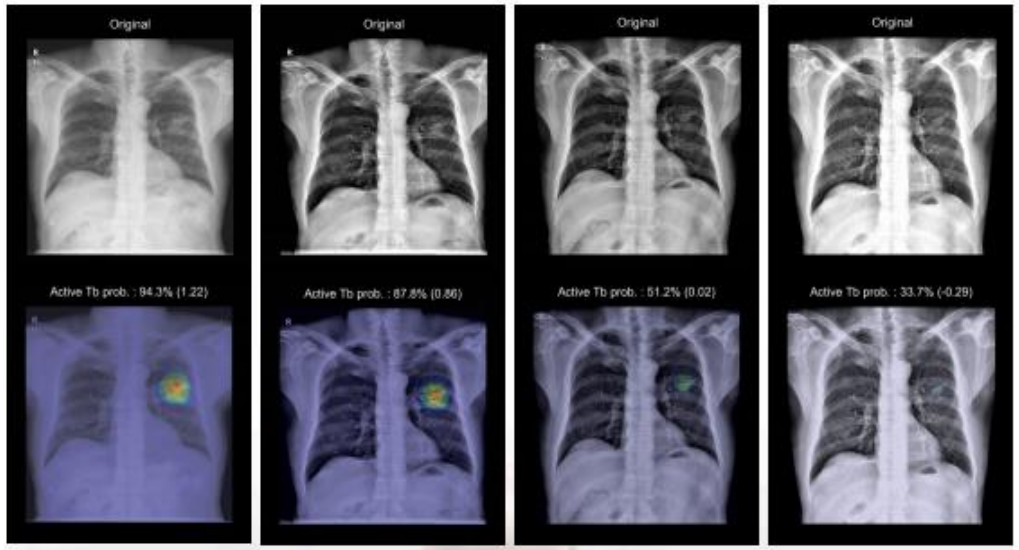
- The only COVID-19 quantification solution in Korea that deep-learned with actual confirmed patient data
- Deriving numerical information such as the area and ratio of COVID-19 pneumonia lesions within seconds
- So is provided based on the cloud web that can be used without restrictions such as underdeveloped countries.



TiSepX TB

X-ray-based pulmonary tuberculosis prediction and treatment monitoring solutions

- AI solution that deep-learned with the largest amount of TB learning data in Korea
- Quantification of pulmonary tuberculosis activity and anti-tuberculosis treatment strategies can be established
- Monitoring the trend of disease improvement and treatment effects by scoring lung damage areas



MDBOX VR

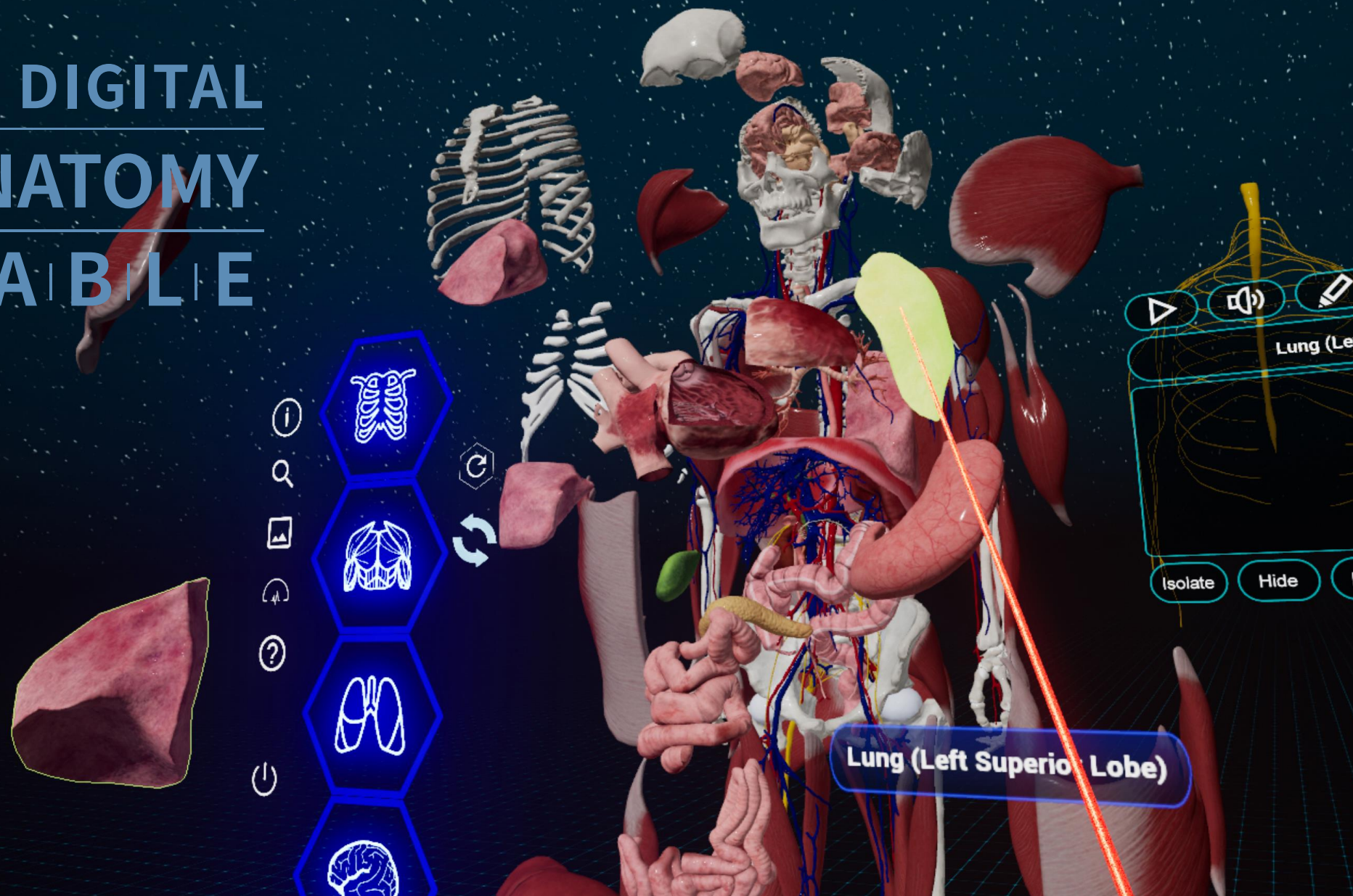
VR Human Anatomy

MEDICAL IP
AI FOR PRECISION HEALTH

3D DIGITAL ANATOMY TABLE

MDBOX

MDBOXXR



Metaverse in Healthcare

: Education Total Platform

MDBOX

Touch Display Type

Metaverse in Healthcare

: Education Total Platform

MDBOX

HMD Type

Anatomical Model based on Medical Image

Patient Consulting

Pre-OP Simulation
OP planning

Surgical Training
Device testing

Research & Education

Patient specific & case-oriented
3D anatomical model

Surgical training simulator

Post-op model for
patient consulting

Business Partners around Globe

Medtronic

Memorandum Of Understanding
26th Aug 2020

Johnson & Johnson
MEDICAL COMPANIES

OLYMPUS

Memorandum Of Understanding
26th Apr 2021

Boston Scientific
Advancing science for life™

MicroVention
TERUMO

HUGEL

INTUITIVE
da Vinci S
SURGICAL SYSTEM

BD

BARD
has joined BD

stratasys
Medical 3D printing partner

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+82 2 2135 9148 I 9F, Yeonkang Building, 15, Jong-ro 33-gil, Jongno-gu, Seoul I medicalip.com