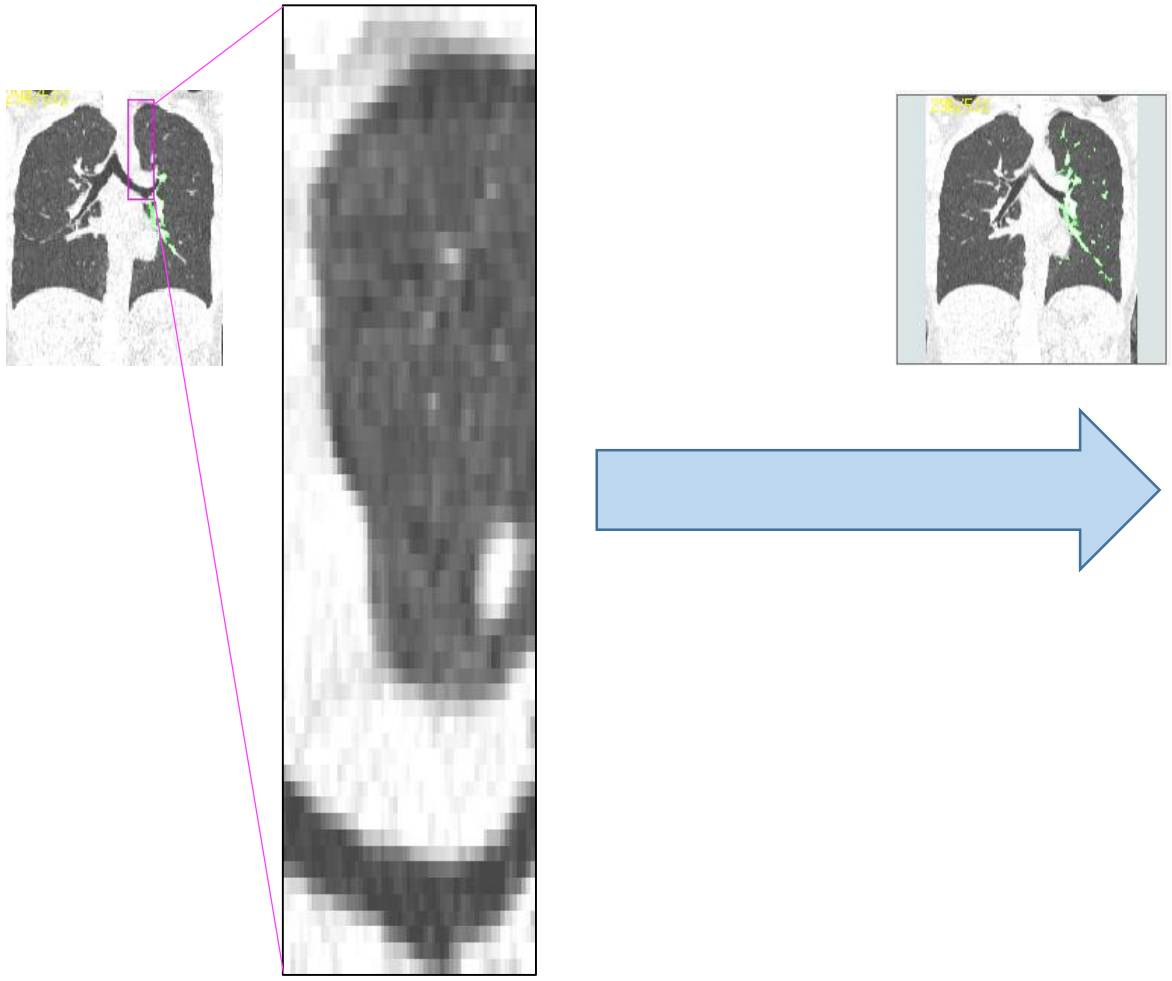
Empowering Medicine, Saving Lives

Medical IP, Co., Ltd.

Founder & CEO

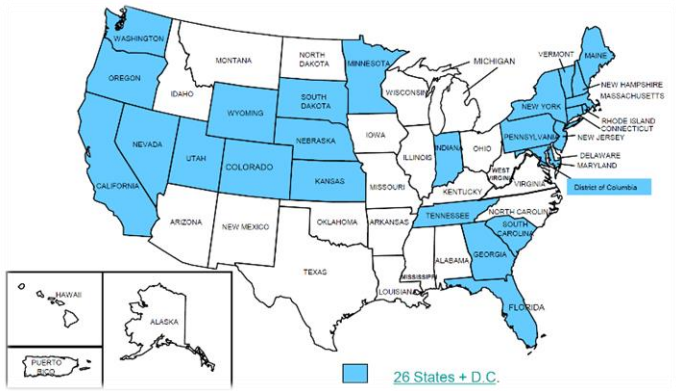
Dr. Park, Sang Joon

MEDICAL IMAGING such as CT, MRI, etc.



REALITY

Voluntary Process in US



$3T

US Emergency Room Surgery Cost / Year

200,000 surgery errors in 2016

Centers for Disease Control and Prevention 2016

No.1

No.1 in causes of death (13.5%) of sentinel event for 11 years on a row:

Wrong-site surgery

The Joint Commission (TJC) 1995-2015

500%

Improvement

Pre-surgical simulation, planning:

Reduces error rate 5 folds

Australian Safety & Efficacy Register of New Interventional Procedures – Surgical (ASERNIP-S) 2007

MEDICALIP PRODUCTS

PATENTS

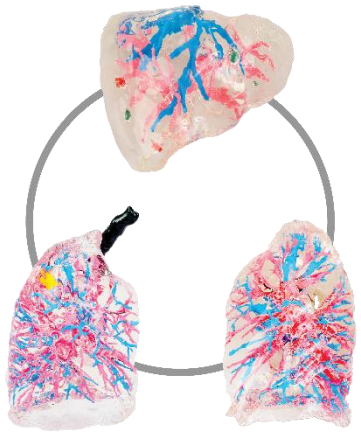
- *Segmentation, Korea 3 issued; US 1 pending*
- *Resolution, Korea 1 pending; US 1 pending*
- *Speed, Korea 1 pending; US 1 pending*
- *Printing, Korea 1 issued; US 1 pending*
- *VR/AR, Korea 1 pending;US 1 pending*

MEDIP
Medical Imaging Printing

MAVR
Virtual & Augemented Reality

1. MEDIP

- DICOM Utilization
- Resolution Up
- Organ Segmentation with Shaped- & Learning-based Techs
- Converting 3D Printing File Format
- VR/AR for Preoperative planning & Surgical Simulation



2. ANATDEL

ANATDEL
realistic ANATomical moDEL

Surgical plan

Better Surgical Planning

Understanding for patients

Explanation to Patients in Detail

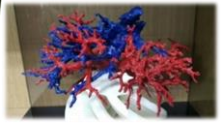
Surgical simulation

Surgical Simulation

Education for students

Education for students

- Best Organ Simulation in the World

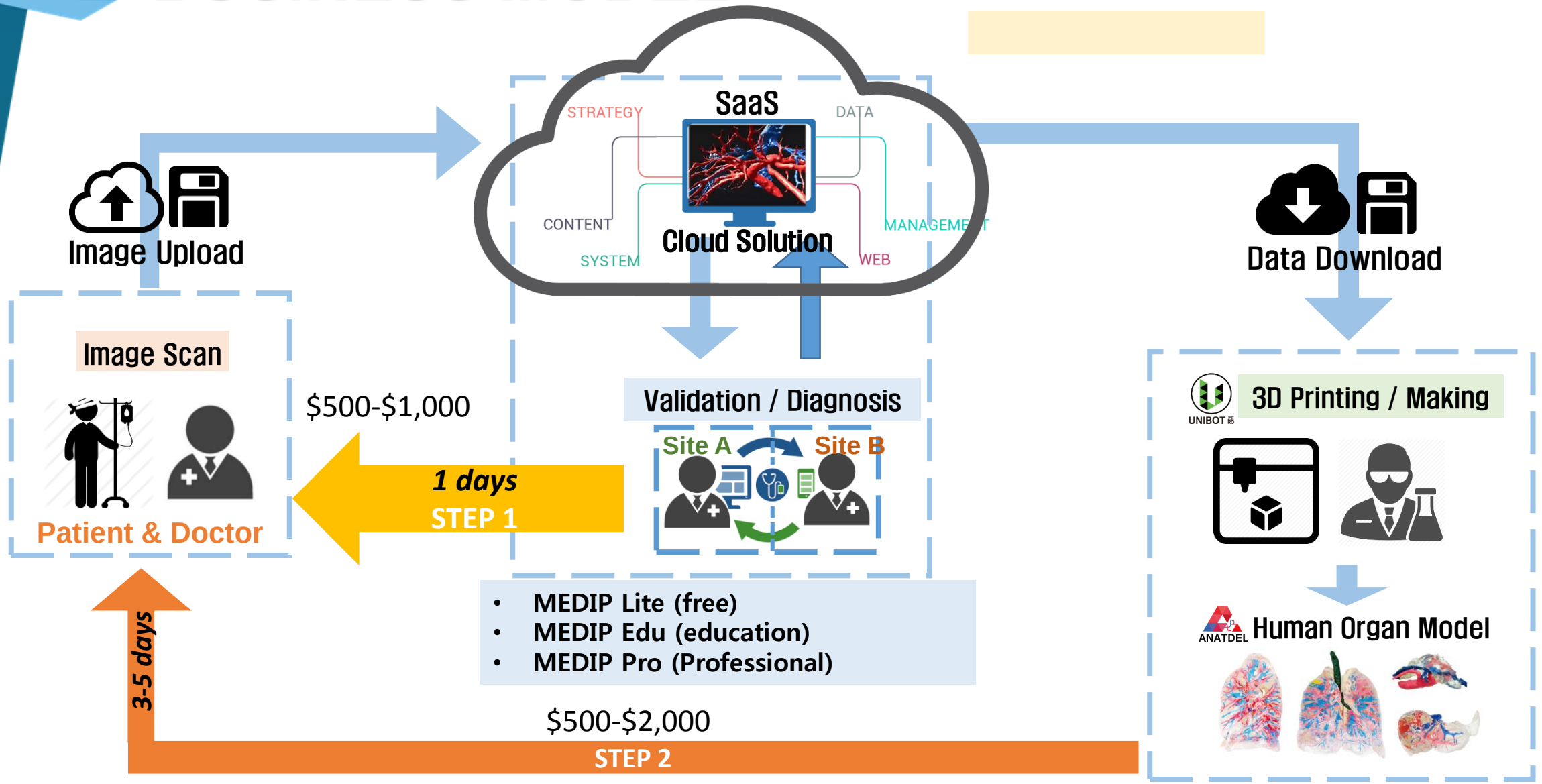


UNIBOT ZERO
Multi-color 3D Printer

3. UNIBOT ZERO

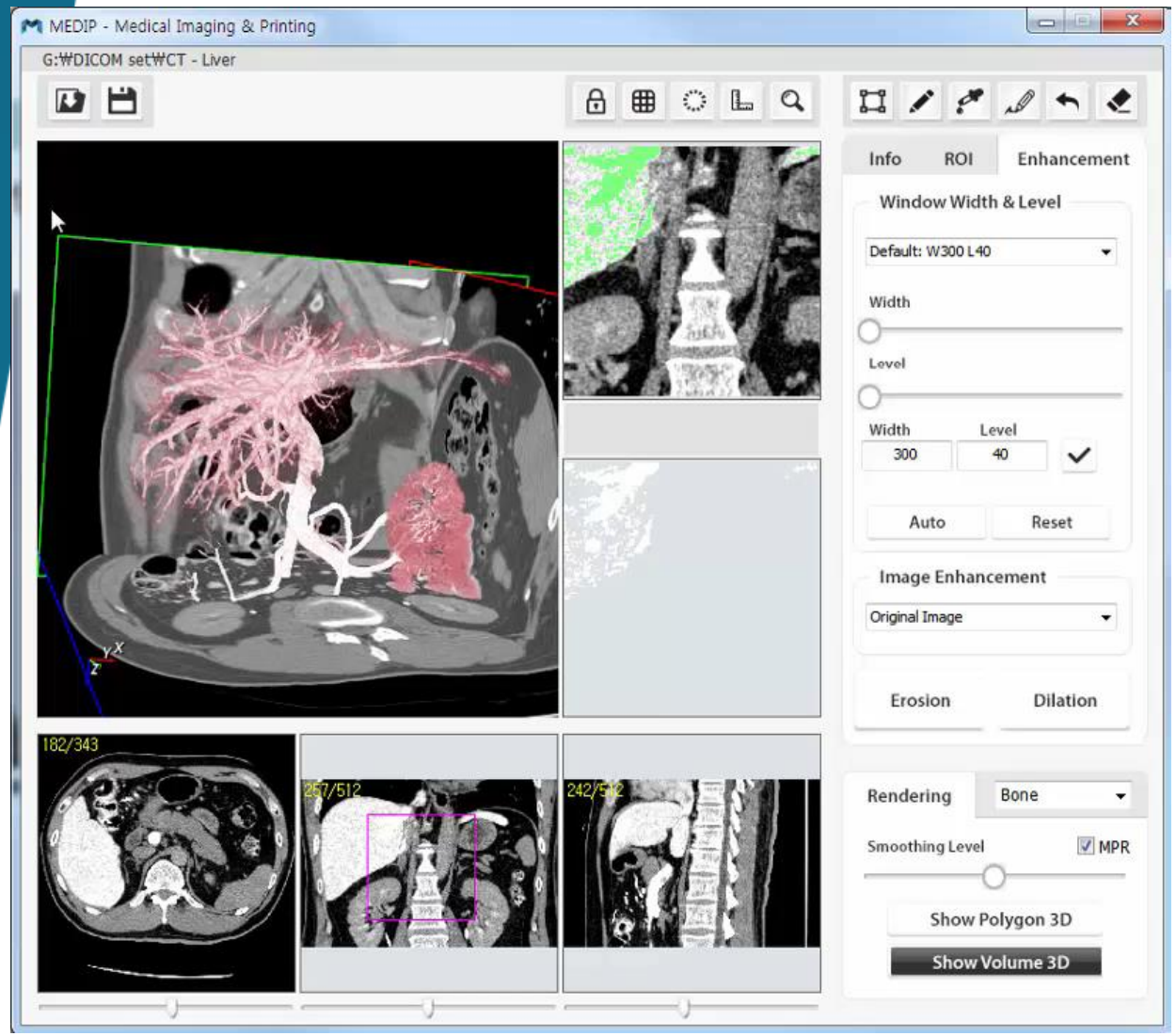
- Multi-color Flexible 3D Printer

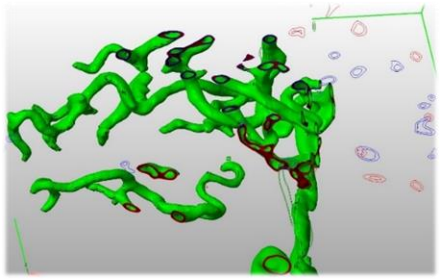
BUSINESS MODEL

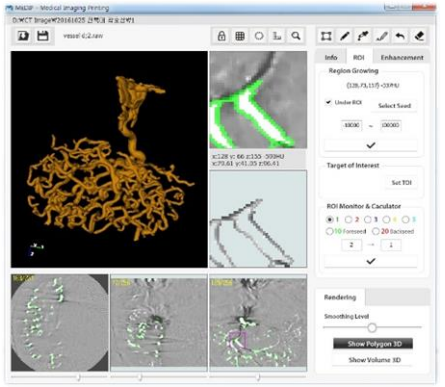


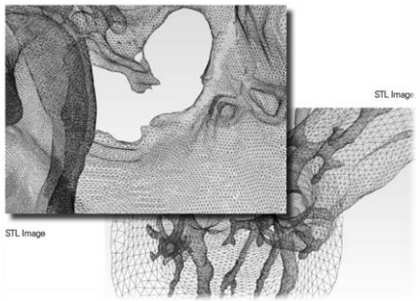
MEDIP

MEDIP
Medical Imaging Printing

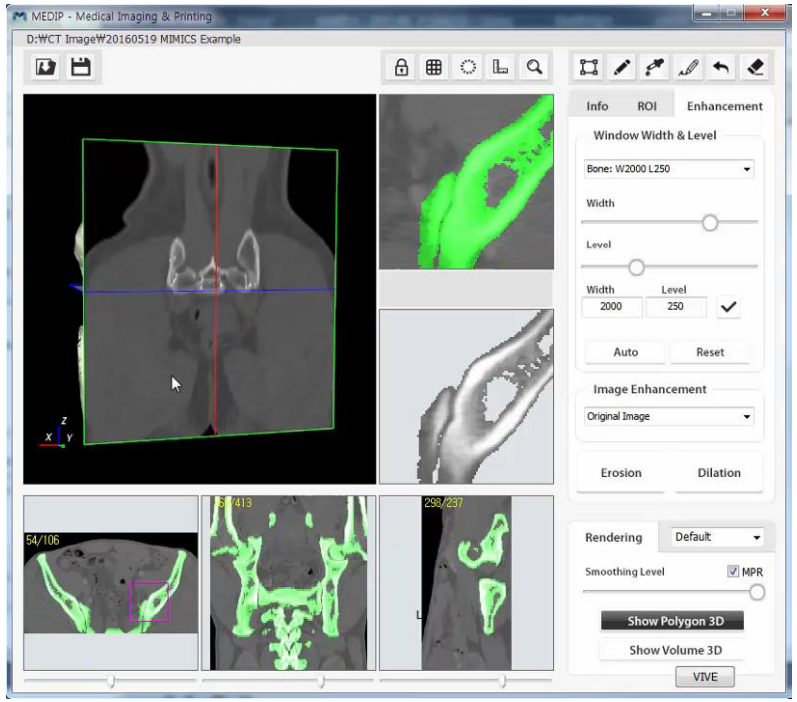


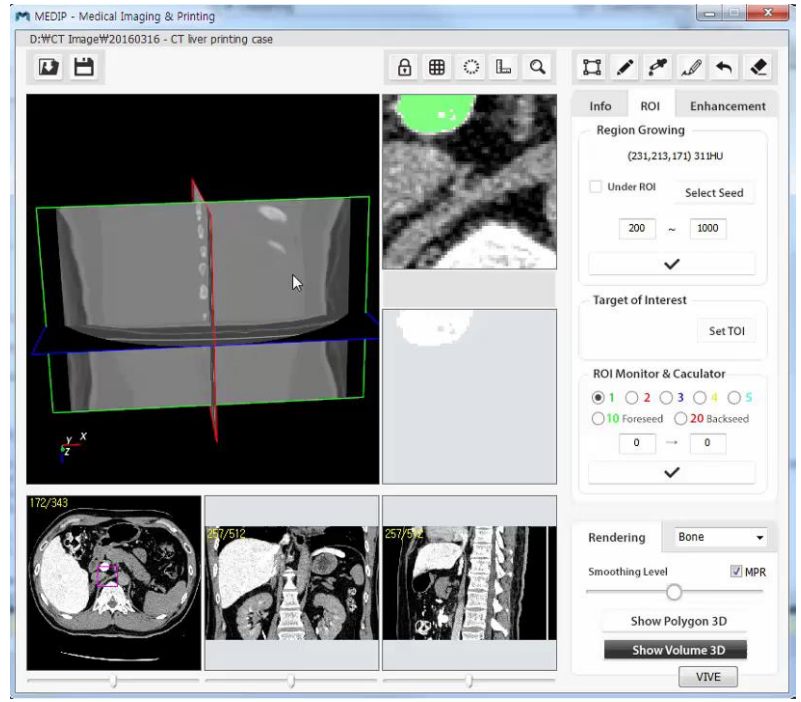


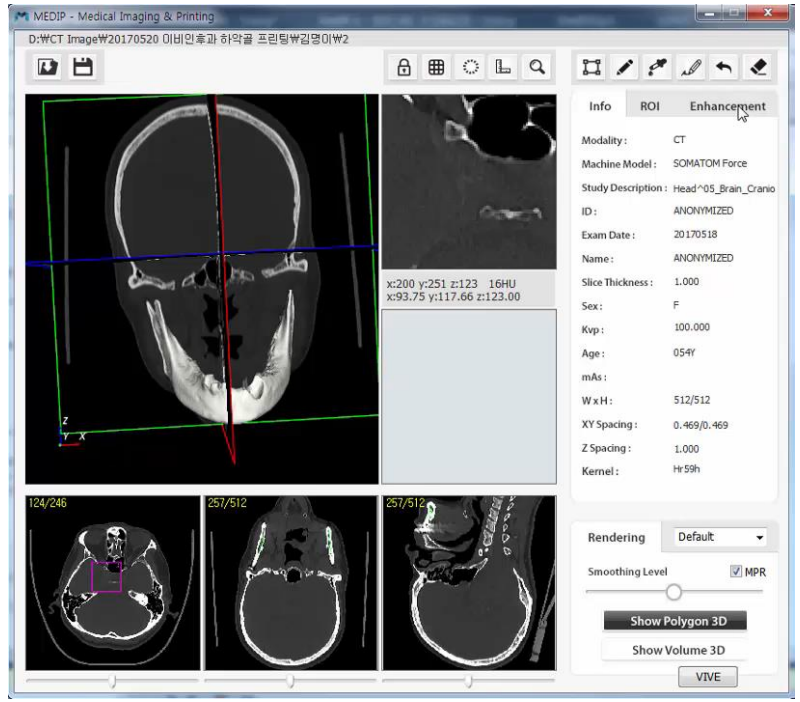


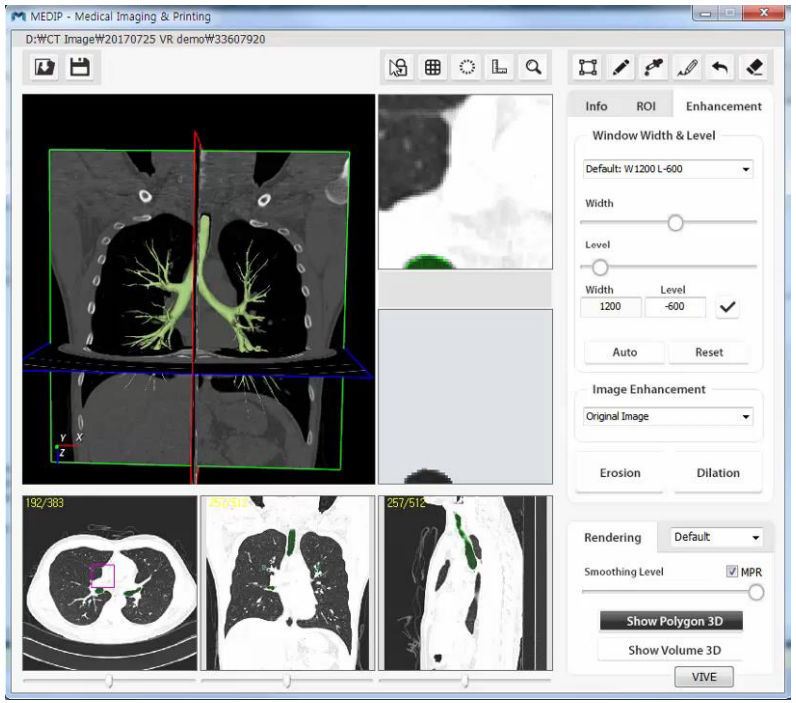


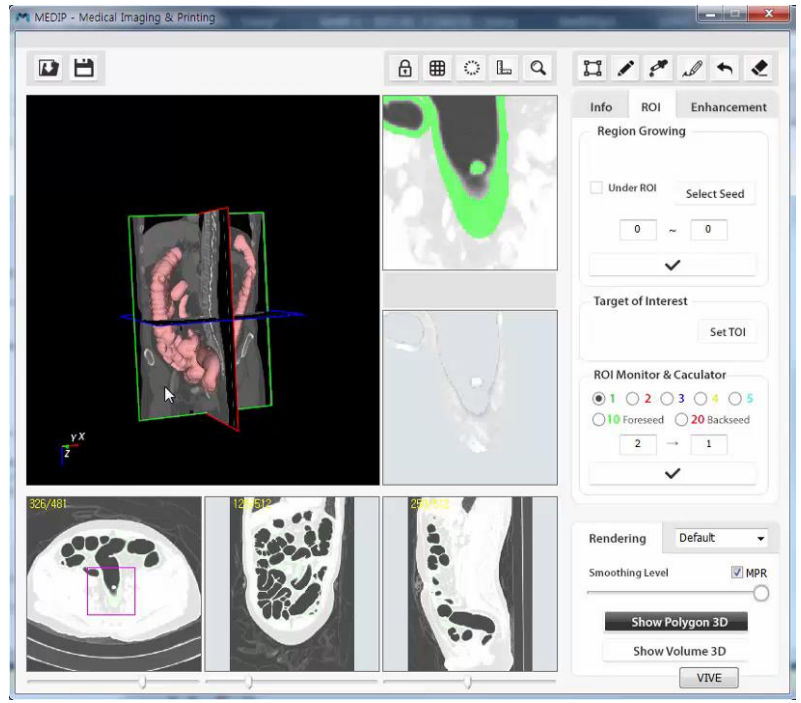
- Medical Imaging Viewer
- Segmentation
- Enhancement
- Measurement
- Information Viewer
- 3D Visualization
- ROI to Mesh Export
- User Friendly Interface

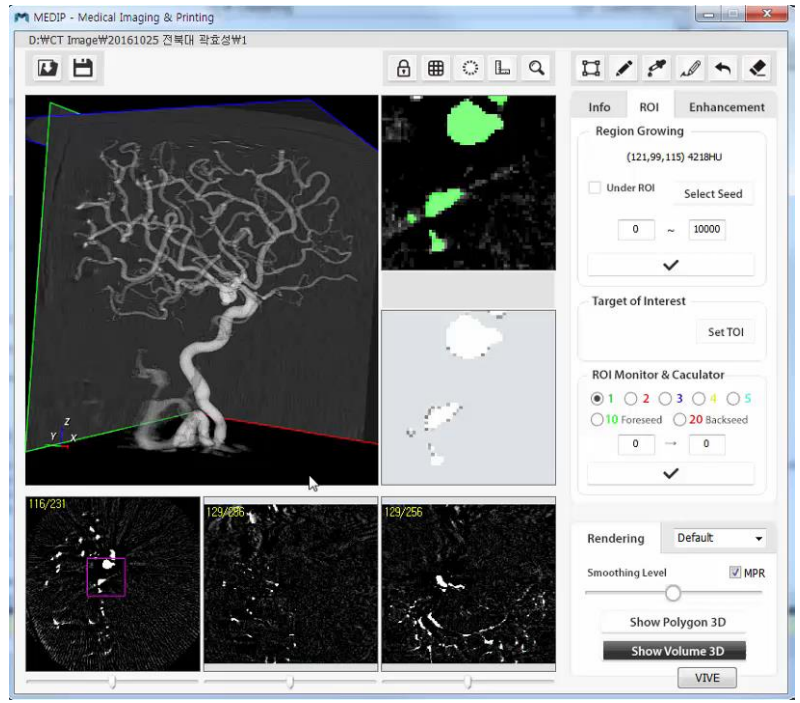

MEDIP - Medical Imaging & Printing
D:₩CT Image₩20160519 MIMICS Example
Info
ROI
Enhancement
Window Width & Level
Bone: W2000 L250
Width
Level
2000
250
Auto
Reset
Image Enhancement
Original Image
Erosion
Dilation
Rendering
Default
Smoothing Level
MPR
Show Polygon 3D
Show Volume 3D
VIVE


MEDIP - Medical Imaging & Printing
D:₩CT Image₩20160316 - CT liver printing case
Info
ROI
Enhancement
Region Growing
(231,213,171) 311HU
Under ROI
Select Seed
200
1000
Target of Interest
Set TOI
ROI Monitor & Caculator
Foreseed
Backseed
Rendering
Bone
Smoothing Level
MPR
Show Polygon 3D
Show Volume 3D
VIVE


MEDIP - Medical Imaging & Printing
D:₩CT Image₩20170520 이비인후과 하악골 프린팅₩김명이₩2
Info
ROI
Enhancement
Modality : CT
Machine Model : SOMATOM Force
Study Description : Head^05_Brain_Cranio
ID : ANONYMIZED
Exam Date : 20170518
Name : ANONYMIZED
Slice Thickness : 1.000
Sex : F
Kvp : 100.000
Age : 054Y
mAs :
W x H : 512/512
XY Spacing : 0.469/0.469
Z Spacing : 1.000
Kernel : Hr59h
Rendering
Default
Smoothing Level
MPR
Show Polygon 3D
Show Volume 3D
VIVE

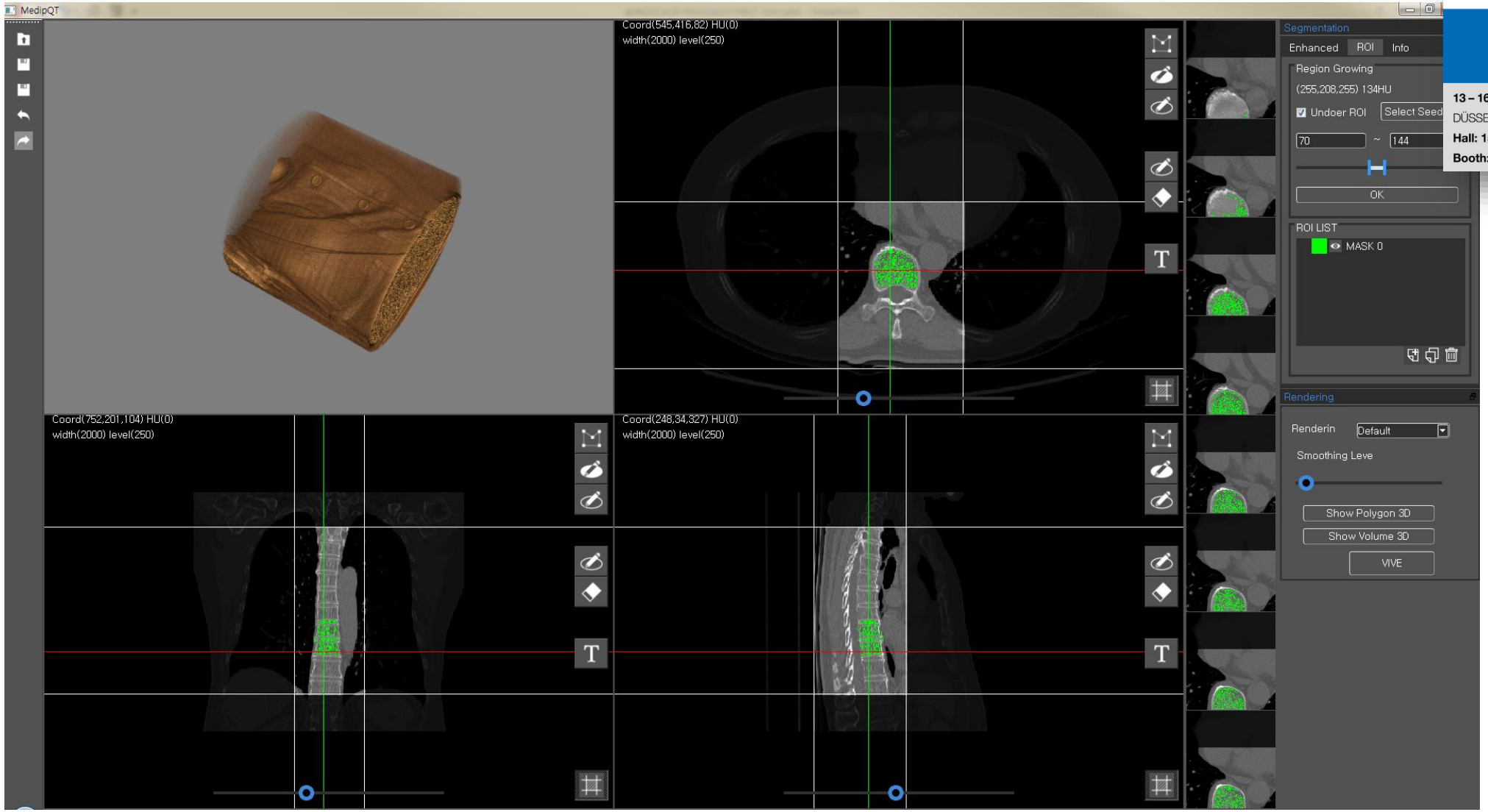

MEDIP - Medical Imaging & Printing
D:₩CT Image₩20170725 VR demo₩33607920
Info
ROI
Enhancement
Window Width & Level
Default: W1200 L-600
Width
Level
1200
-600
Auto
Reset
Image Enhancement
Original Image
Erosion
Dilation
Rendering
Default
Smoothing Level
MPR
Show Polygon 3D
Show Volume 3D
VIVE


MEDIP - Medical Imaging & Printing
Info
ROI
Enhancement
Region Growing
Under ROI
Select Seed
Target of Interest
Set TOI
ROI Monitor & Caculator
Foreseed
Backseed
Rendering
Default
Smoothing Level
MPR
Show Polygon 3D
Show Volume 3D
VIVE

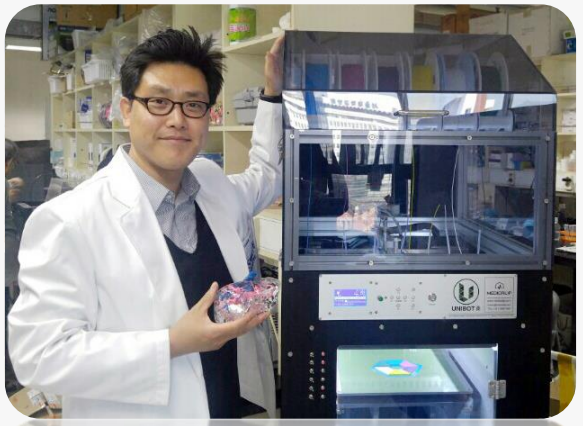

MEDIP - Medical Imaging & Printing
D:₩CT Image₩20161025 전북대 곽효성₩1
Info
ROI
Enhancement
Region Growing
(121,99,115) 4218HU
Under ROI
Select Seed
0
10000
Target of Interest
Set TOI
ROI Monitor & Caculator
Foreseed
Backseed
Rendering
Default
Smoothing Level
MPR
Show Polygon 3D
Show Volume 3D
VIVE

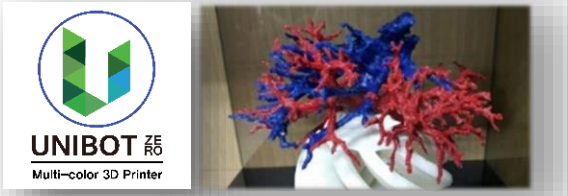
MEDICALIP

MEDIP REBUILDING (2017. 11. COMING OUT)



UNIBOT & ANATDEL (realistic ANATomical moDEL)

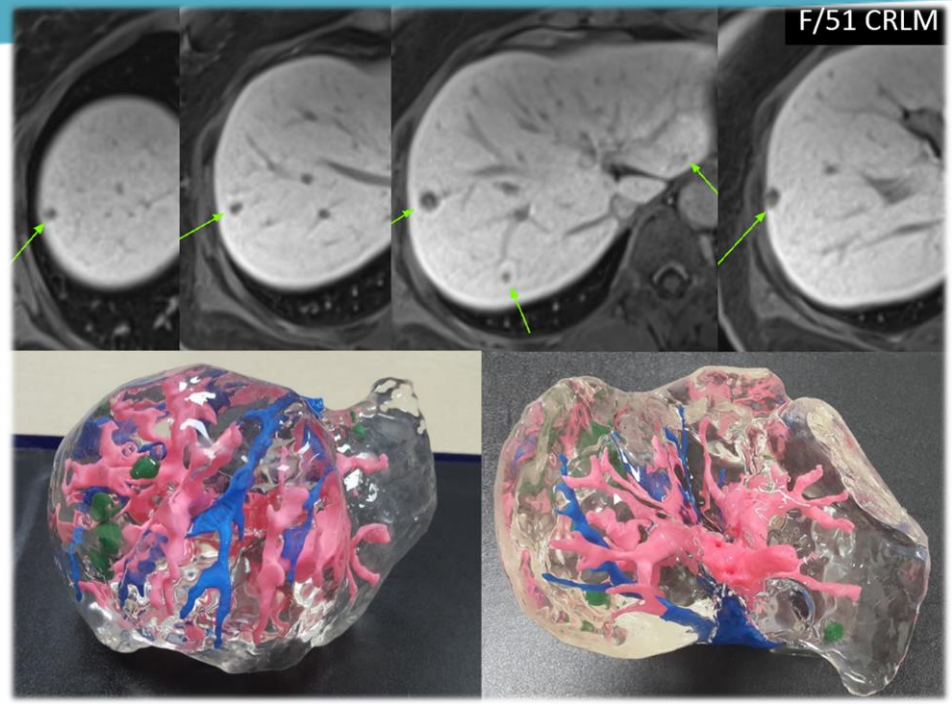


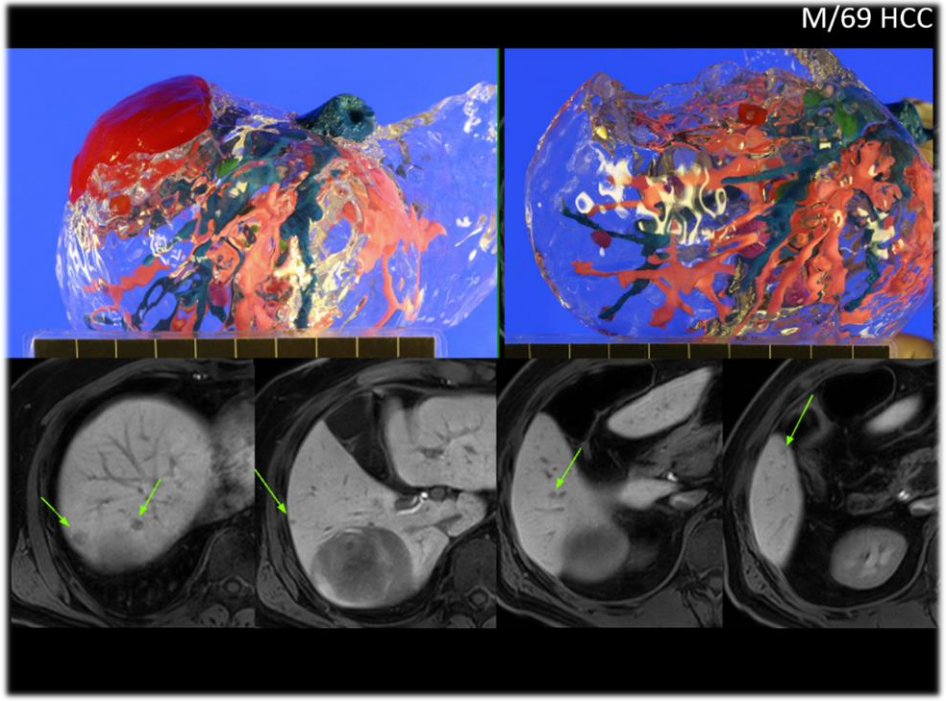


UNIBOT ZERO

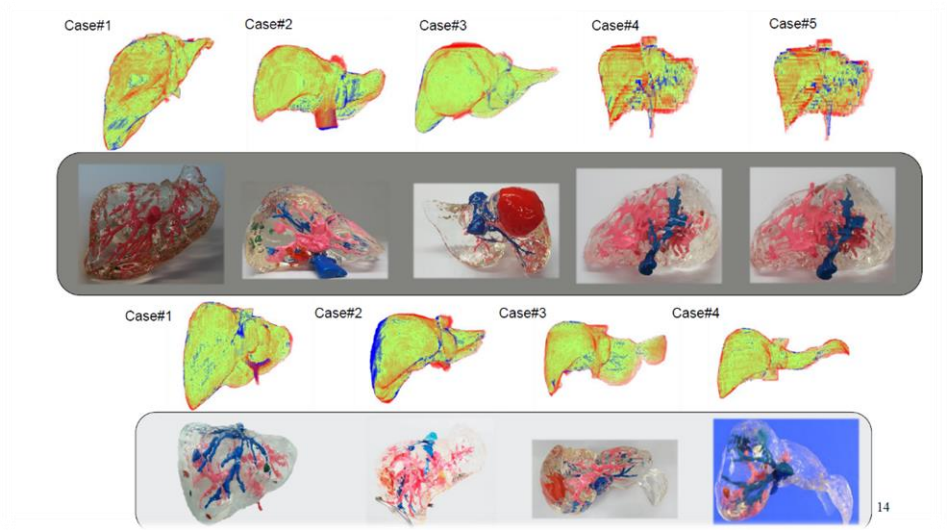
- Multi-color Flexible 3D Printer

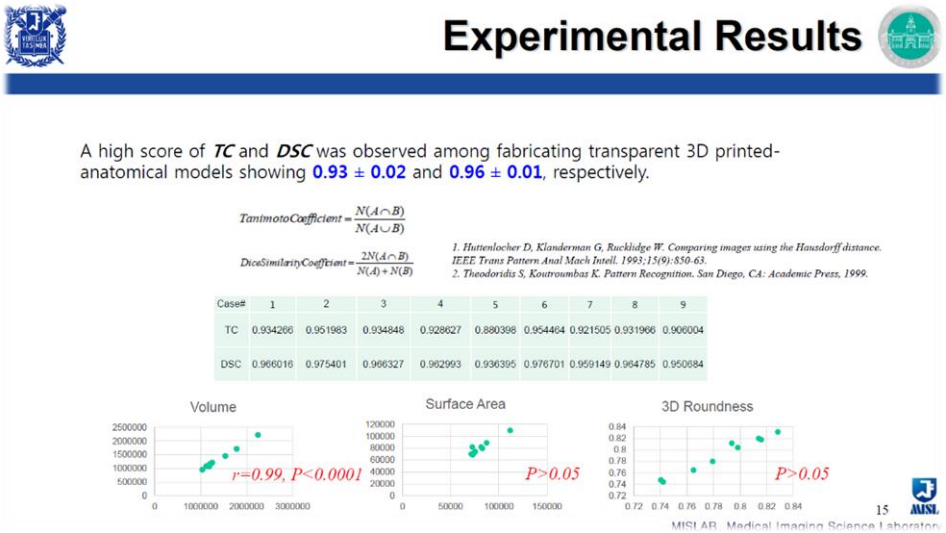
MEDICALIP





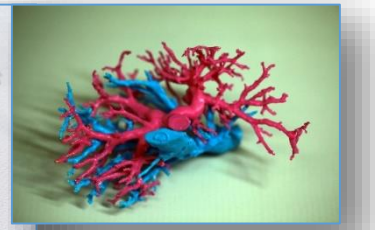
IJ Joo, et al. RSNA, KCR 2016

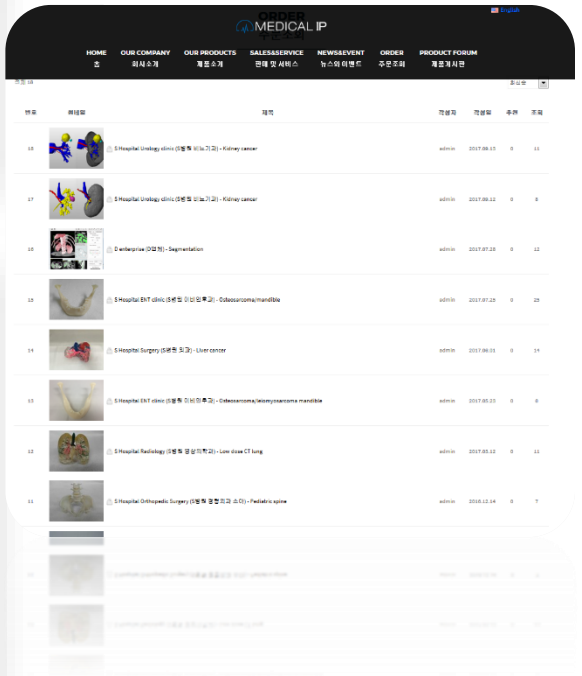




SJ Park, et al. RSNA, KCR 2016

ANATDEL EVER EVOLVING NOW





Medical Virtual Reality

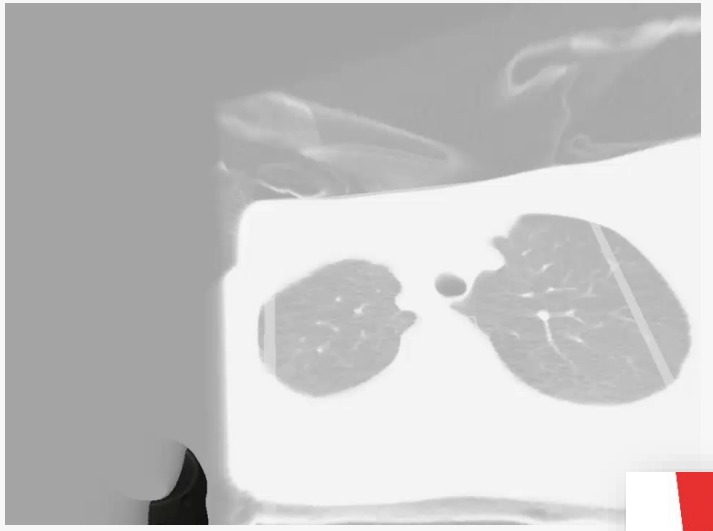
General Image Reading Room in Hospital

Principles of Virtual Reality Devices

MedicalIP MAVR

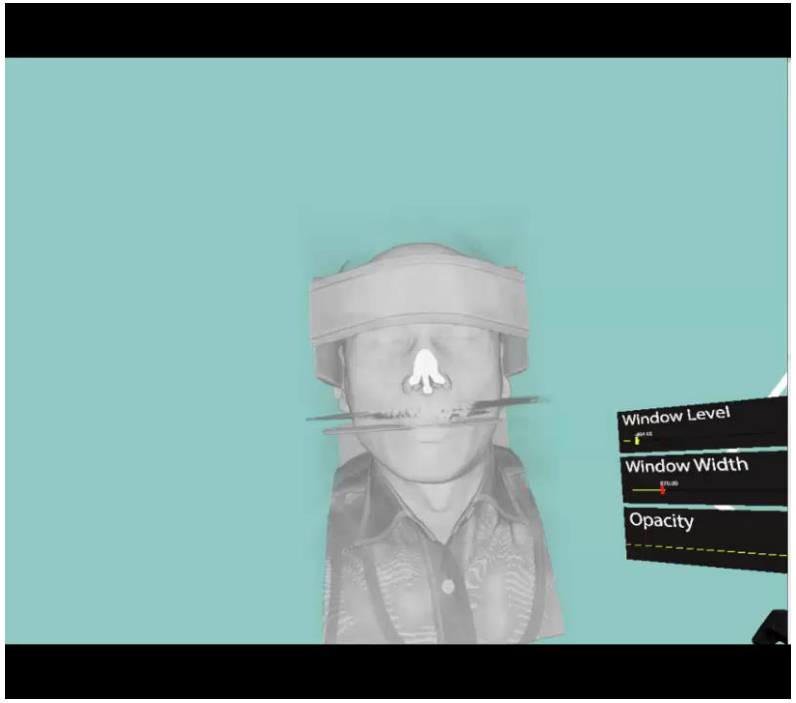
MEDICALIP Inside Body VR - YouTube
https://www.youtube.com/watch?v=Mfs8
2017. 4. 21. - 업로더: NEWS VR
Unfoldment, Revealment, Evolution, Exposit
licensed under a Creative ...
7:55

Registered in Oculus Store in the first half of 2017 and distributed worldwide

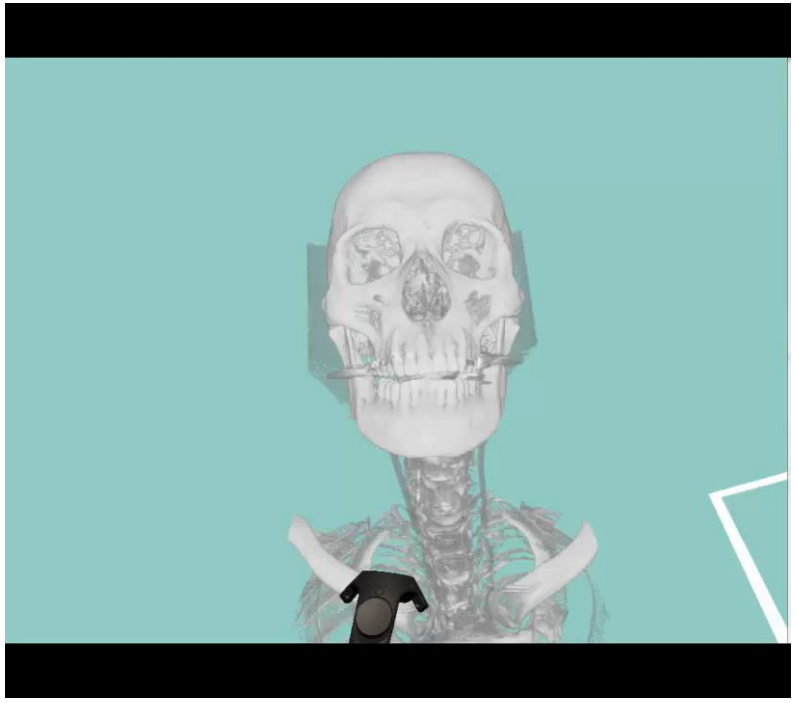


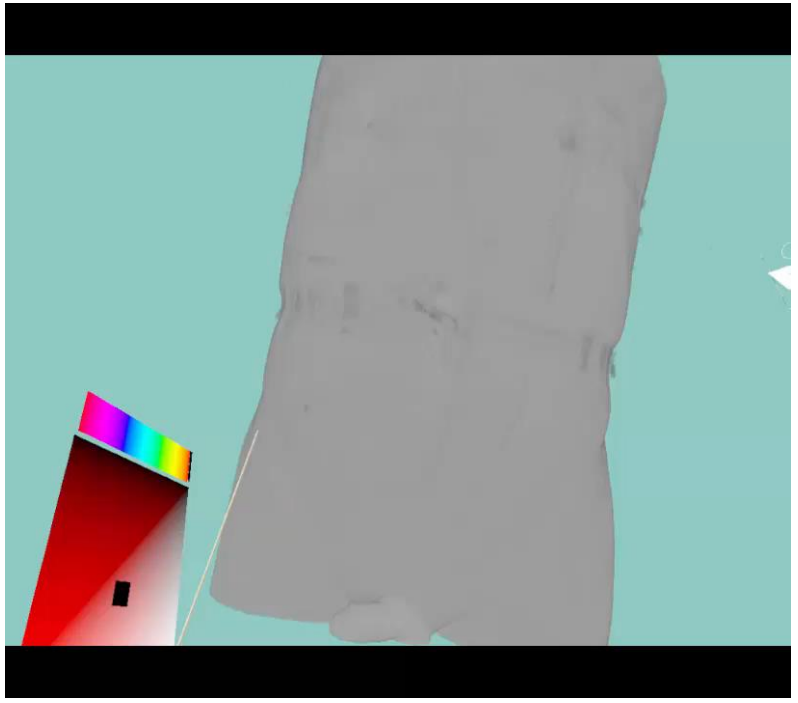
World's first real-time patient data VR reading tech
- First launch in 2017, MEDICA in Germany

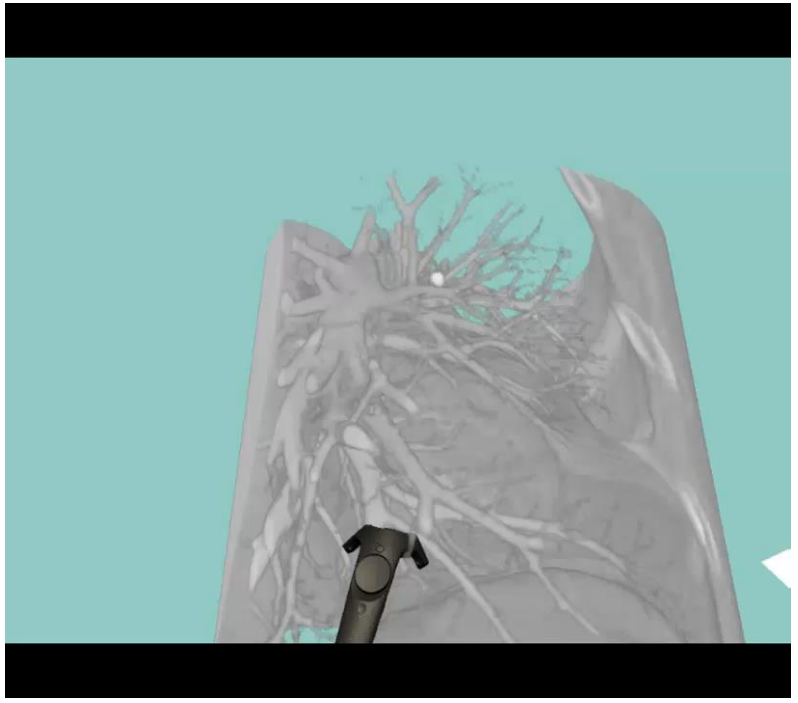
MEDICA® WORLD FORUM FOR MEDICINE
13-16 NOVEMBER 2017
DÜSSELDORF GERMANY


Window Level
Window Width
Opacity


Window Level
Window Width
Opacity

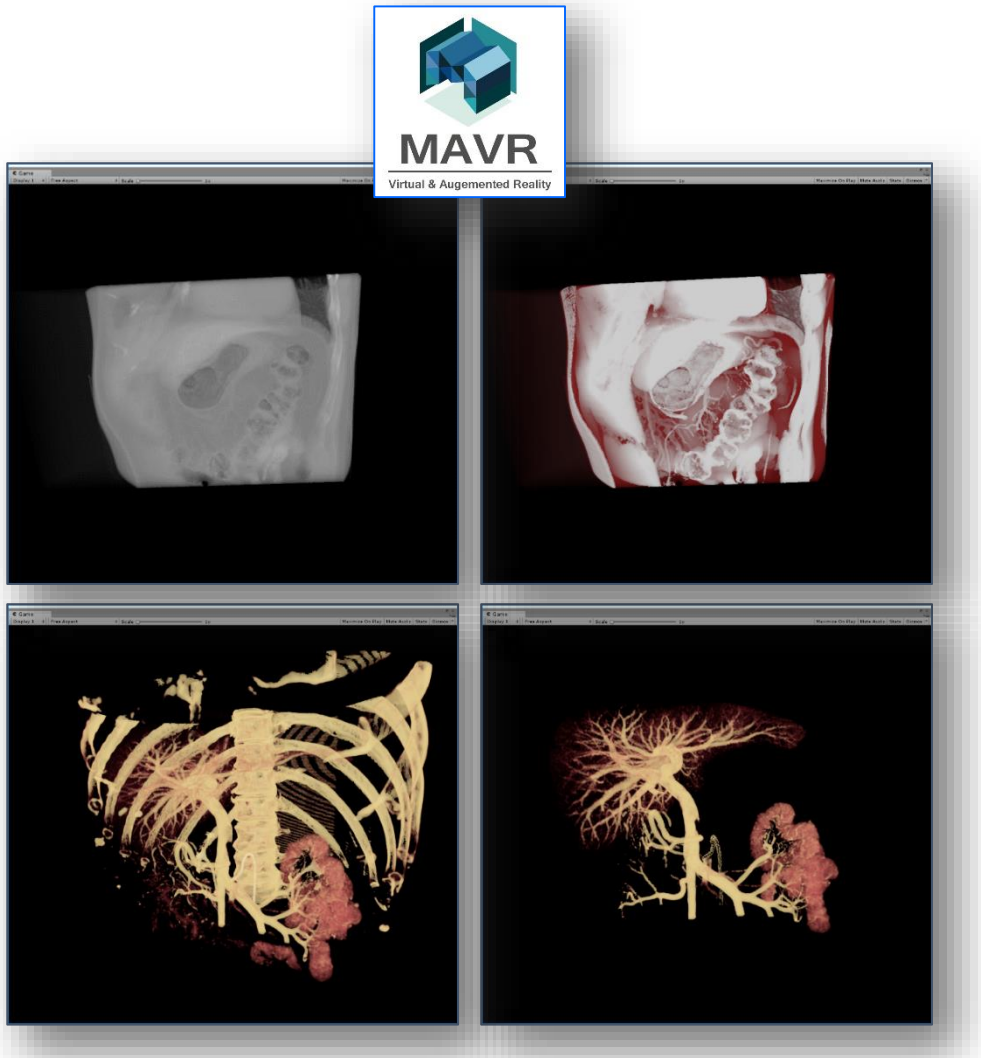






MEDICALIP

MAVR UPGRADING NOW



MEDIP LITE

MEDIP LITE

FREE !

MEDIP EDU

MEDIP EDU

For individuals, schools, and research institutes.

#	New license (1 year)		Extending annual license	
	USD	KRW	USD	KRW
1	3,400	3,850,000	850	962,500
10	25,500	28,875,000		
15	38,250	43,312,500		
20	47,600	53,900,000		

For corporations

#	New license (1 year)		Extending annual license	
	USD	KRW	USD	KRW
1	8,240	9,317,000	2,060	2,329,250
10	61,800	69,877,500		
15	92,700	104,816,250		
20	115,360	130,438,000		

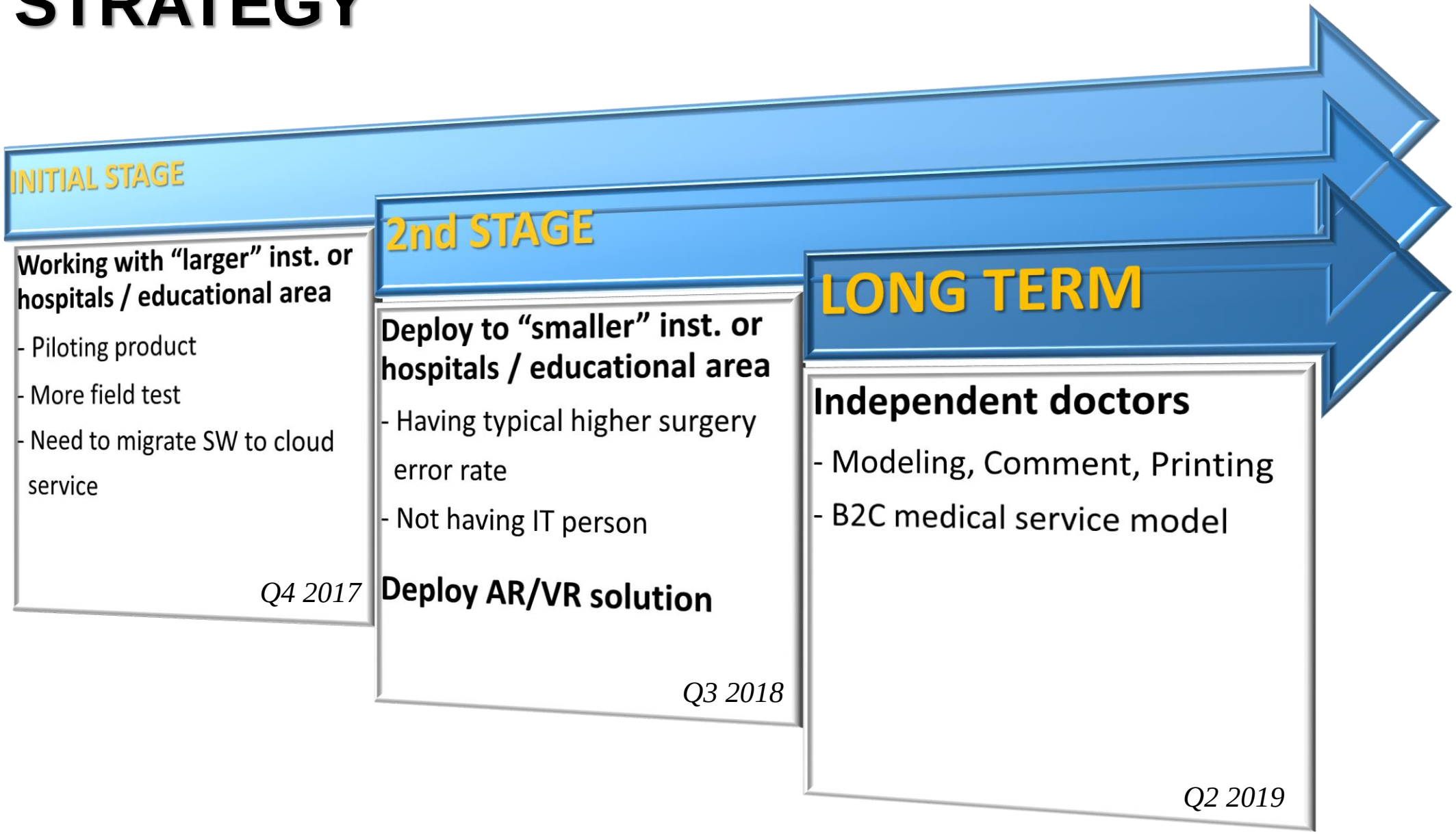
※License include rights for MEDIP's use and updates, tech supports

MEDIP PRO

MEDIP PRO

Comming out 2018 !

STRATEGY


INITIAL STAGE
Working with "larger" inst. or hospitals / educational area
- Piloting product
- More field test
- Need to migrate SW to cloud service
Q4 2017
2nd STAGE
Deploy to "smaller" inst. or hospitals / educational area
- Having typical higher surgery error rate
- Not having IT person
Deploy AR/VR solution
Q3 2018
LONG TERM
Independent doctors
- Modeling, Comment, Printing
- B2C medical service model
Q2 2019

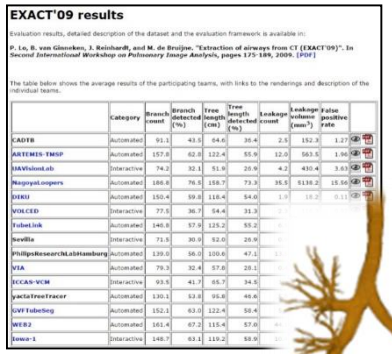
COMPETITIVE LANDSCAPE

Category	Core Features	MEDIP Medical Imaging Printing / MAVR Virtual & Augemented Reality	Materialise Mimics
Interaction	Intuitive / Easy to use UI design	✓	
Preprocessing	High resolution	✓	
Segmentation	Less computational complexity (time)	✓	
	Semi-manual + Fully automatic	✓	
Rendering	3D Visualization	✓	✓
	Connecting 3D printing	✓	✓
	Virtual Reality	✓	
Price	No need to purchase additional module	✓	

EXACT`09

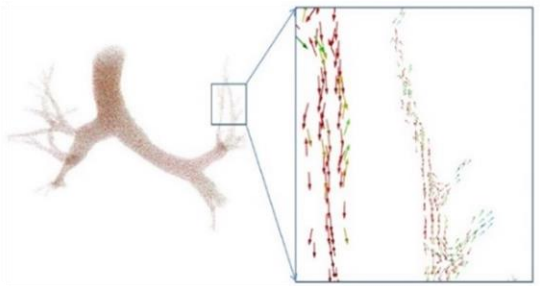
TABLE I
ACQUISITION PARAMETERS OF THE 20 TEST CASES. SLICE THICKNESS (T) IS GIVEN IN MM. TUBE VOLTAGE (TV) IS GIVEN IN KVP. AVERAGE TUBE CURRENT (TC) IS GIVEN IN MA. THE LEVEL OF INSPIRATION (LI) INDICATES WHETHER THE SCAN IS ACQUIRED AT FULL INSPIRATION (I) OR FULL EXPIRATION (E) WITH BREATH-HOLD. CONTRAST (C) INDICATES WHETHER INTRAVENOUS CONTRAST WAS USED DURING ACQUISITION ("Y" FOR YES AND "N" FOR NO). PERCEIVED RECONSTRUCTION (R) INDICATES WHETHER THE SCAN WAS RECONSTRUCTED USING A SOFT (S), MIDDLE (M), OR HARD (H) RECONSTRUCTION KERNEL, BASED ON VISUAL INSPECTION. NOISE LEVEL (N) OF THE SCAN IS SCORED BY VISUAL INSPECTION AS HIGH (H), MIDDLE (M), OR LOW (L). * INDICATES THAT A SCAN IS FROM THE SAME SUBJECT AS THE PRECEDING SCAN

	T	Scanner	Kernel	TV	TC	LI	C	R	N	Anomalies
CASE21	0.6	Siemens Sensation 64	B50f	120	200.0	E	N	H	H	None
CASE22*	0.6	Siemens Sensation 64	B50f	120	200.0	I	N	H	H	None
CASE23	0.75	Siemens Sensation 64	B50f	120	200.0	I	N	H	M	None
CASE24	1	Toshiba Aquilion	FC12	120	10.0	I	N	M	H	Small lung nodule
CASE25*	1	Toshiba Aquilion	FC10	120	150.0	I	N	M	M	Small lung nodule
CASE26	1	Toshiba Aquilion	FC12	120	10.0	I	N	M	H	Intrafissural fluid
CASE27*	1	Toshiba Aquilion	FC10	120	150.0	I	N	M	M	Lymphadenopathy, bronchial wall thickening, airway collapse, septal thickening, intrafissural fluid
CASE28	1.25	Siemens Volume Zoom	B30f	120	348.0	I	Y	M	L	None
CASE29*	1.25	Siemens Volume Zoom	B50f	120	348.0	I	Y	M	L	None
CASE30	1	Philips Mx8000 IDT 16	D	140	120.0	I	N	M	M	Diffuse ground glass
CASE31	1	Philips Mx8000 IDT 16	D	140	120.0	I	N	M	L	Diffuse emphysema
CASE32	1	Philips Mx8000 IDT 16	D	140	120.0	I	N	M	L	Pleural plaques, mucus plug right lower lobe, few nodules
CASE33	1	Siemens Sensation 16	B60f	120	103.6	I	N	H	H	Mild bronchiectasis, mucus plugging, tree-in-bod pattern/small infiltrates
CASE34	1	Siemens Sensation 16	B60f	120	321.0	I	N	H	M	Mild bronchiectasis, mucus plugging, tree-in-bod pattern/small infiltrates
CASE35	0.625	GE LightSpeed 16	Standard	120	411.5	I	N	M	M	None
CASE36	1	Philips Brilliance 16P	C	120	206.0	I	N	S	L	Bronchiectasis, bronchial wall thickening, mucus plugs, infiltrates
CASE37	1	Philips Brilliance 16P	B	140	64.0	I	N	M	M	None
CASE38*	1	Philips Brilliance 16P	C	120	51.0	E	N	M	H	Air trapping
CASE39	1	Siemens Sensation 16	B70f	100	336.7	I	Y	H	H	Extensive bronchiectasis, many infiltrates and atelectasis, tree-in-bud, mucus plugging, central airway distortion
CASE40	1	Siemens Sensation 16	B70s	120	90.6	I	N	H	L	Extensive areas with ground glass

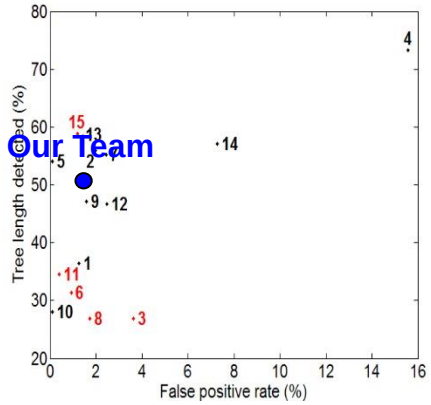


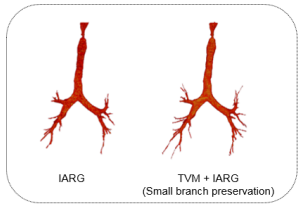
Proposed our technique

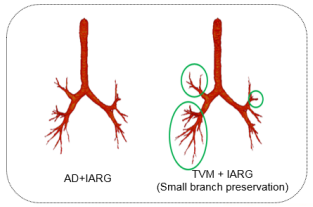
- Tree length (cm) : 130.58 cm
- Branch Count : 92.5

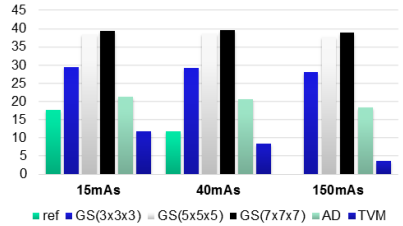


Our Team



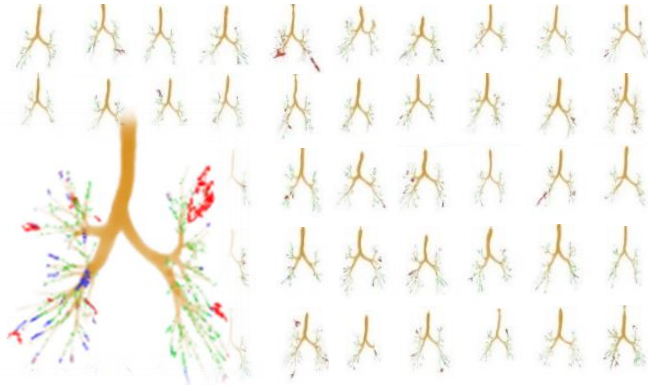


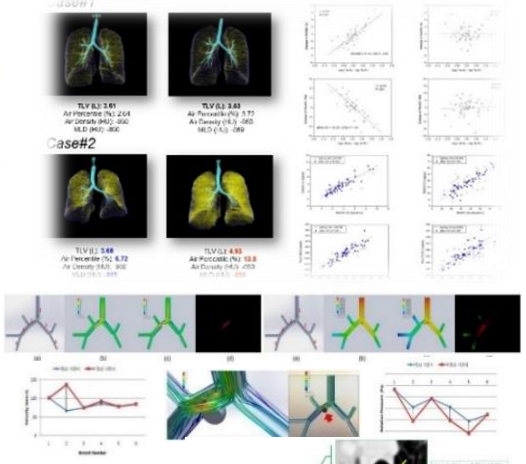


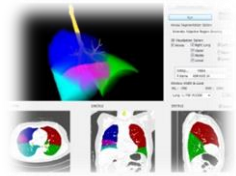


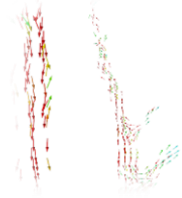
Resolution up

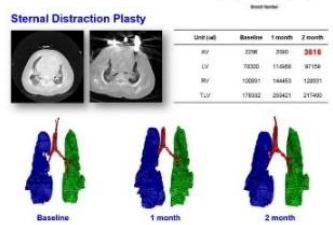
$$\|f_{h,\omega}\|_{TV} = \sum_{h,\omega} |\vec{\nabla} f_{h,\omega}| = \sum_{h,\omega} \sqrt{(f_{h+1,\omega} - f_{h,\omega})^2 + (f_{h,\omega+1} - f_{h,\omega})^2}$$

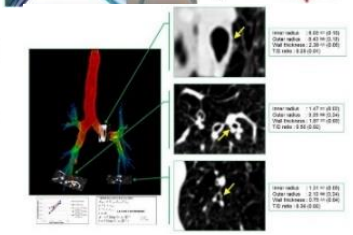




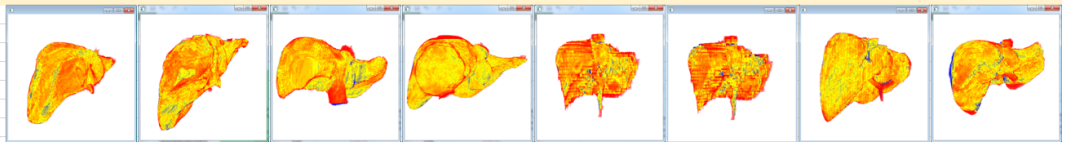






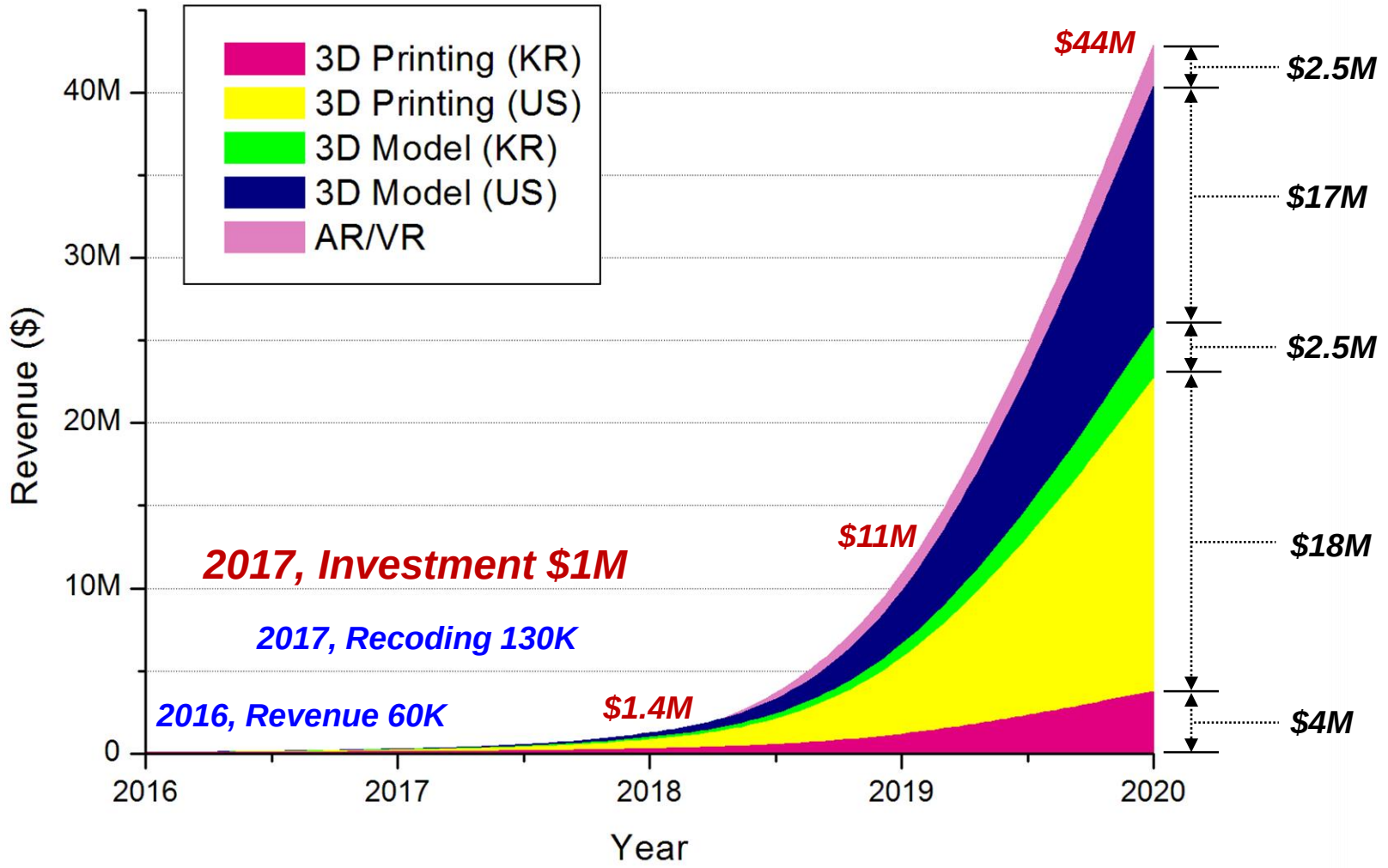


model	46574158 강호정 (3rd)	외과 PV	46972752 송태수 (#5)	47406119 (#4)	김재일(#2)	김재일(#2)	김양식	Lobulating mass with daughter nodule
descreption	1차(11월)로 촬영 모델	1차(11월)로 촬영 모델	전달 파일명 : SONG TAE SU	전달 파일명 : LIVER 02 분리형 종양	전달 파일명 : KIM JAE IL	전달 파일명 : LIVER 01	전달 파일명 : LIVER 07 (1:1 scale 제작했던 모델)	전달 파일명 : LIVER 04 최초 Liver 제작 case
method	affine	affine	affine	affine	affine	affine	affine	affine
fixed image (실제 영상)	ISO	ISO	ISO	ISO	non ISO	non ISO	ISO	ISO
fixed spacing	1.1875 (320x320x141)	0.703125 (512x512x317)	0.9259259104 (432x432x174)	0.488281 (512x512x209)	0.9895833x0.9895833x3.5 (384x348x60)	0.9895833x0.9895833x3.5 (384x348x60)	0.9895833 (384x348x312)	0.989583 (384x384x169)
moving image (프린팅 모델 CT 촬영)	1. moving image down sampling by spacing 2. translation/rotation registration 3. affine(scale) registration	1. moving image down sampling by spacing 2. translation/rotation registration 3. affine(scale) registration	1. moving image down sampling by spacing 2. translation/rotation registration 3. affine(scale) registration	1. moving image down sampling by spacing 2. translation/rotation registration 3. affine(scale) registration	1. moving image down sampling by spacing 2. translation/rotation registration 3. affine(scale) registration	1. moving image down sampling by spacing 2. translation/rotation registration 3. affine(scale) registration	1. moving image down sampling by spacing 2. translation/rotation registration 3. affine(scale) registration	1. moving image down sampling by spacing 2. translation/rotation registration 3. affine(scale) registration
moving spacing	0.378906 (512x512x345)	0.378906 (512x512x262)	0.312500 (512x512x326)	0.332031 (512x512x333)	03255859 (512x512x442)	0.312500 (512x512x344)	0.332031 (512x512x312)	0.234375 (512x512x368)
VOE	8.486794	4.801652	7.211749	7.137337	11.960226	12.558516	5.415067	7.849474
Tanimoto Coefficient	0.915132	0.951983	0.927882	0.928627	0.880398	0.874415	0.945849	0.921505
DiceSimilarity Coefficient	0.955686	0.975401	0.962592	0.962993	0.936395	0.9333	0.972171	0.959149



MISLAB

FINANCIAL OPPORTUNITY



4차수술혁명, 서울대병원 '1호벤처' 메디컬아이피 시장에 나온다

꿈모닝CEO]박상준 메디컬아이피 대표(서울대학교병원 영상의학과 교수)

머니투데이 반준환 기자 | 입력 : 2017.03.23 04:29 | 조회 : 6489

기사 | 소셜댓글(0) | 기사공유 | 가 + −

편집자주 [꿈모닝 CEO 인터뷰]꿈을 향해 도전하는 최고경영자(CEO)를 만나 회사도 소개받고 비전도 공유하는 인(人)터뷰를 시작합니다. 회사의 내용과 비전을 공유하는 계기가 되리라 기대합니다.

서울대학교병원 의료진들이 메디컬아이피에서 만든 장기 모형을 실제 흉부외과 수술에 활용하는 모습/사진제공=서울대학교병원

Article

세종벤처 '메디컬아이피' 시리즈 A 투자

RCPS 10억, 3D프린팅 통한 의료영상 솔루션 국산화 성장 기대

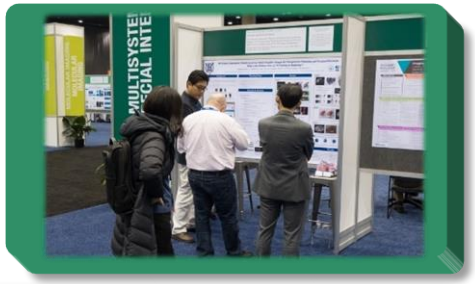
김세연 기자 | 공개 2017-05-17 08:24:16

이 기사는 2017년 05월 15일 13:56 더벨 유료페이지에 표출된 기사입니다.

세종벤처파트너스(이하 세종벤처)가 강원지역 내 의료영상처리솔루션 기업 '메디컬아이피'에 대한 시리즈A 투자에 나섰다. 최근 각광받고 있는 의료영상 산업 내 독자적 기술력을 갖춘 메디컬아이피의 국산화 노력에 기대한 투자다.

15일 벤처캐피탈 업계에 따르면 세종벤처는 최근 운용중인 '강원-세종-강소기업육성 상생 투자조합(이하 강원 강소기업 상생펀드)'을 통해 메디컬아이피가 발행한 전환상환우선주(RCPS) 10억 원 어치를 인수했다.

2015년 설립된 메디컬아이피는 의료영상처리 소프트웨어 솔루션 전문 개발업체다. 메디컬아이피는 독자 개발한 의료영상 처리 소프트웨어 '메딥(MEDIP)' 등을 통해 촬영된 영상을 3D로 전환하고 3D 프린팅(ANATDEL)으로 환자 개개인의 모형을 제작해 공급하는 것이 주요 사업분야다.

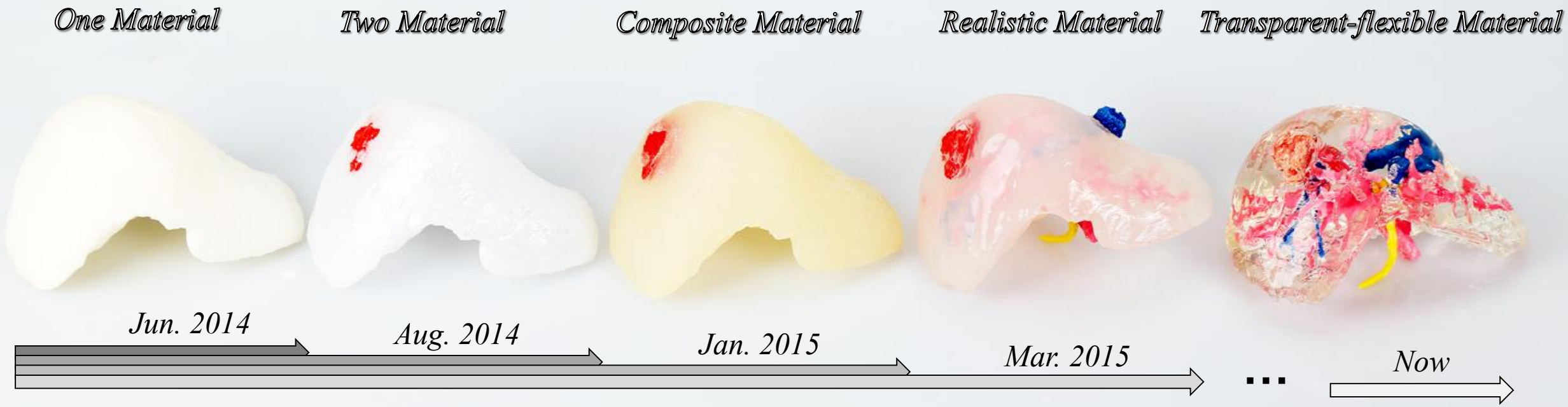


Global Mentoring Agreement btw MEDICALIP and J&J

MEDICALIP

Johnson&Johnson

Patient-specific · Fast · Accurate · Cost saving · Realistic · Useful



"Ever Evolving Technology"

Thank you

Lifesaving medical technologies for doctors, patients, and their families.
Medical IP is with you.