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Ultra3D Brochure

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20240415

ONE MORE IMAGING SYSTEM
ONE GIANT LEAP IN PRECISION

Ultra3D

DUAL-SOURCE ENT CBCT

LARGEV



Ultra3D

WELCOME TO THE MICRON-SCALE IMAGING WORLD

reddot design award

THE WORLD'S FIRST
DUAL-SOURCE & DUAL-DETECTOR CBCT SYSTEM

Using a dual-source generator and dual-detector design, Ultra3D contributes to a dual-system with wide-angle imaging and microscopic imaging that can provide micron-scale imaging solutions for ENT and dental clinical diagnosis.



PRE-SHOT POSITIONING SYSTEM

Ultra3D captures a large area with 2D image after will be select small area for 3D shooting ,it will automatically direct the patient to the correct position with easy manipulation.



EXTRAODINARY IMAGE QUALITY

It provides a ten-micron class definition, body construction with 50μm can be detect easily, for in-depth diagnostic.

STARRY SKY DETECTOR

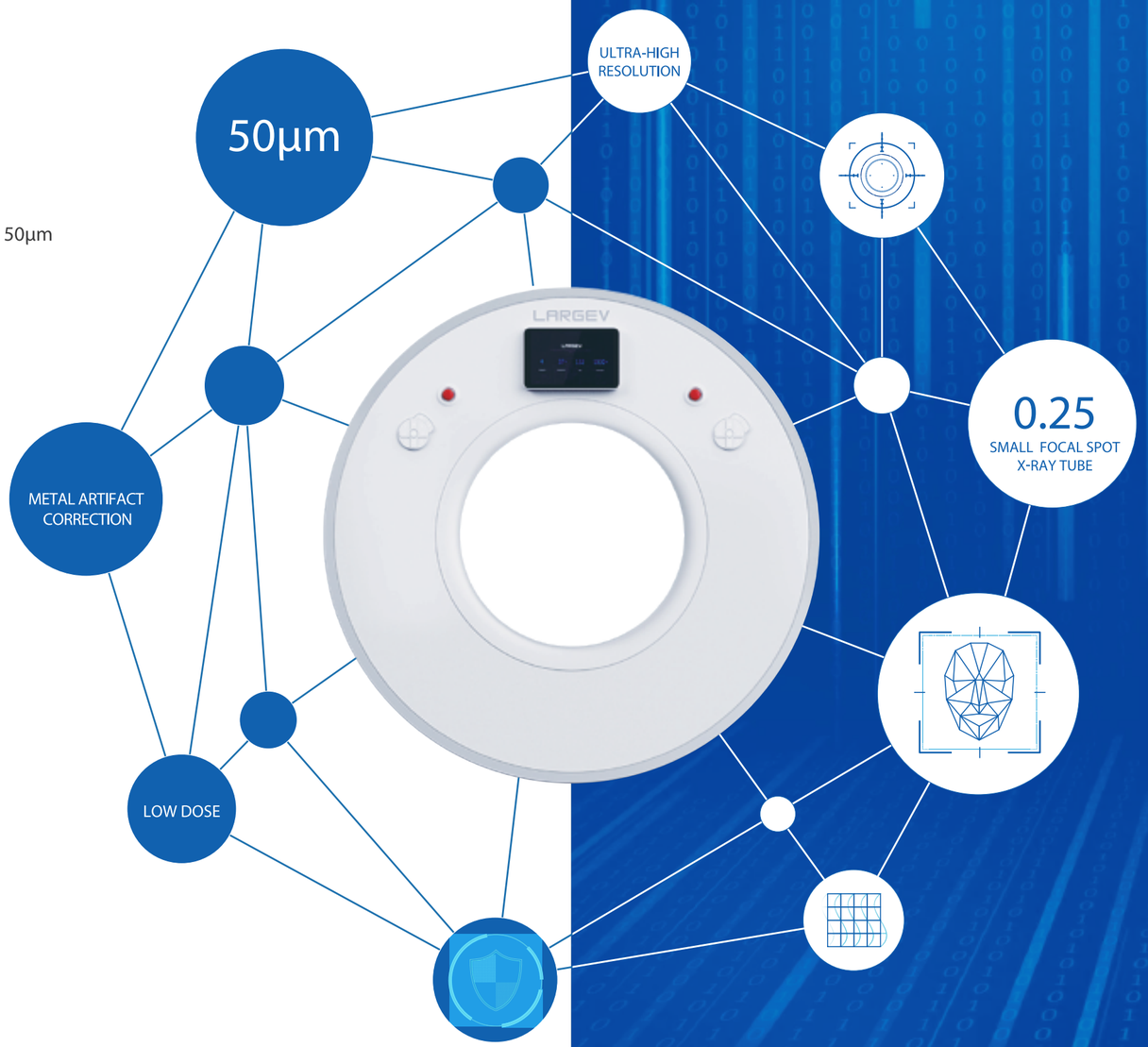
Equipped with high resolution, high sensitivity, high image acquisition rate, and a low power consumption core.

0.25 SMALL FOCAL SPOT X-RAY TUBE

Core technology for improving resolution and SNR.

THREE SUPPORTIVE ALGORITHMS

- HD Reconstruction
- Scatter Correction
- Metal Artifact Reduction



LOW DOSE CONTROL

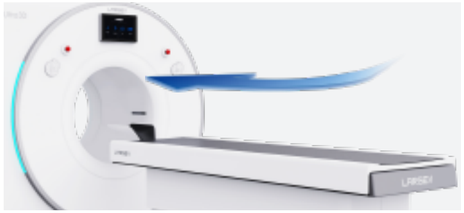
It fully explores the perfect balance between image quality and radiation dose. Low dose mode provides lower radiation especially for children and elders, that eliminates the risk of exposing the patient to an unnecessarily high dose by automatically adapting radiation levels.



MORE PRECISE
MORE CONVENIENT

HUMAN-MACHINE INTERACTION FRIENDLY

Comfortable Table
The scanning table follows ergonomics to achieve smooth movement in six directions, up and down, left and right, and front and back, with 0.1 mm movement control accuracy. To reduce motion artifacts, the patients remain stable and comfortable during the whole procedure.



Interaction System for Communication
Doctors can communicate with patients in real time. The console can control the switch and adjust the voice volume.



Laser Projection
Optimaize positioning workflows with dramatically simplified laser projection system if the patient is positioned as accurate as possible.



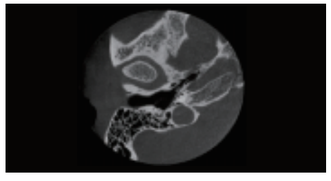
Outstanding Design
Both sides of the gantry channel are open so that patients can relax while being scanned.



SmartV-ENT

PROFESSIONAL ENT CBCT SOFTWARE





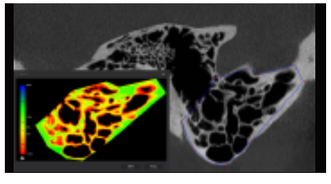
3D Fine Reconstruction
Minimum voxel size to 0.05 mm.



Neural Tube Automatic Labeling
Label the neural tube automatically in the CT image, providing great convenience for diagnosis.



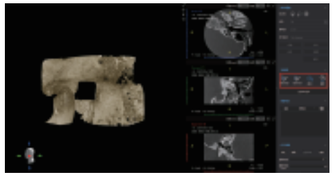
Quickly Layout Images
It can quickly set up the layout of images as well as measure the images and adjust the window values.



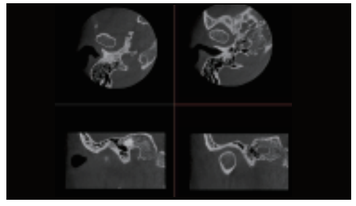
Regional Statistics
Used to evaluate bone mineral density in a selected area.



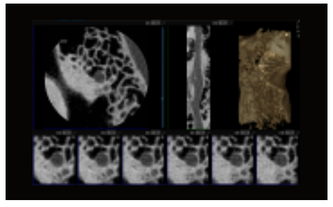
Airway Measurements
Automatically calculate the volume and the narrowest area of the airway in the form of chromatographic visualization.



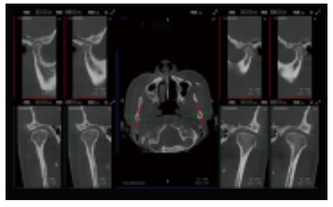
3D Pixel Segmentation
It can achieve a high degree of freedom cutting in the region of the 3D view. It also supports removal of internal or external content and multiple segmentation operations.



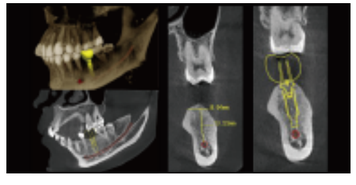
Medical Images Comparison
By loading multiple images, it is possible to perform single-slice comparison medical imaging. It can also compare multiple slices simultaneously by adjusting the layout view, as well as set multi-sequence synchronous page turning, zooming, panning, and adjusting window width and window level, thereby saving the comparison image function.



CPR-Surface Reconstruction
Precisely identify the centerline of the tubular structure based on a semi-automatic method. Visualize 3D curved tubular structures with advanced resampling algorithms to 2D image sequences, enabling intuitive inspection of tubular structures.



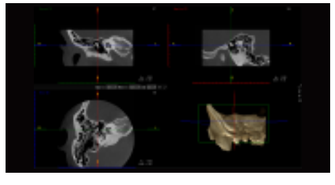
TMJ Diagnosis
SmartV-ENT has a visual pattern of comparison of left and right joints, allowing doctors to evaluate the diagnosis and treatment effect of temporomandibular joint diseases.



Simulated Implanting
Neural tubes will be highlighted, which presents a relationship between the location of the implant and optimal length. This is the best way to improve the success rate for implant surgery.



AI+Ossicle Segmentation
It can achieve precise segmentation of ossicles utilizing advanced artificial intelligence algorithms. Their morphology and size on 2D slices and 3D views can be observed.



AI + Automatic Localization of Ossicles
It enables rapid positioning of crosshairs onto the head of malleus and the incus by artificial intelligence algorithms, aligning with radiologists' habits in temporal bone examination.

CLINICAL APPLICATIONS

The CT image resolution is up to ten-micron class definition with Ultra3D. The internal structure of the ear can be visualized by a HD image, vastly increasing the detection capability. The microscopic imaging system also provides high-quality images for endodontic, periodontal and TMJ.

The wide-angle imaging system can fulfill orthodontics, maxillofacial surgery, and clinical implant diagnosis.

Ultra3D

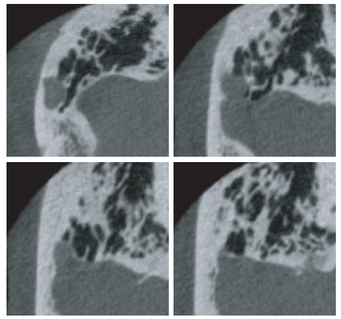
LARGEV



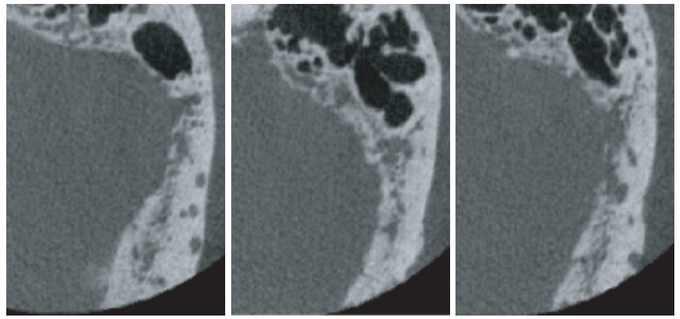
CLINICAL APPLICATIONS IN OTOLOGY

Pulsatile Tinnitus

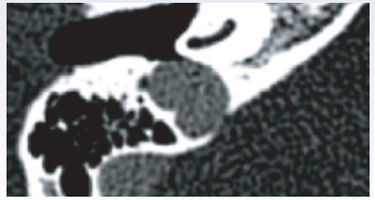
Ultra3D clearly shows the diverticulum missing.



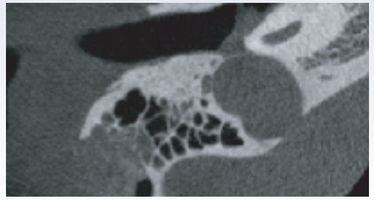
Ultra3D shows dural arteriovenous fistula vascular branch.



Pre-operation CTA+CTV: Sigmoid sulcus missing.

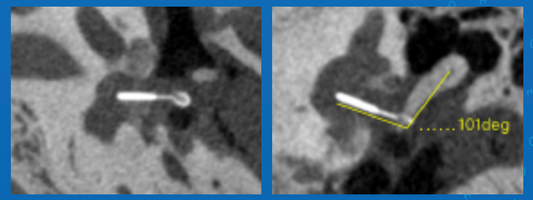


Ultra3D shows the fine repayment of the sigmoid sulcus.



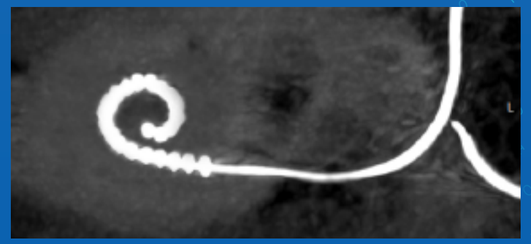
Artificial Auditory Ossicle Implantation

Measured by Ultra3D:
Artificial auditory ossicle on the side of the vestibule is 1.1 mm deep, the shortest distance to the intine is 1.9 mm, the distance to the edge of the vestibular window is between 1.1 mm and 1.2 mm, and the long angle of the incus is 101°.



Cochlear Implant Surgery

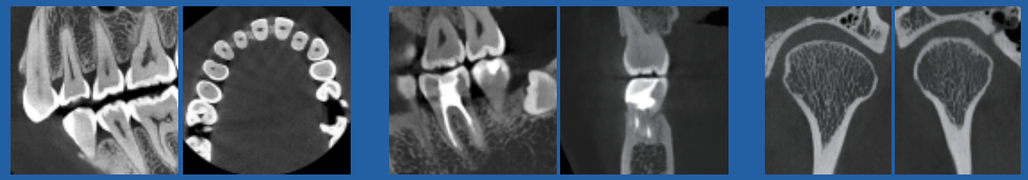
MIP shows electrode from fenestra cochleae to cochlea.





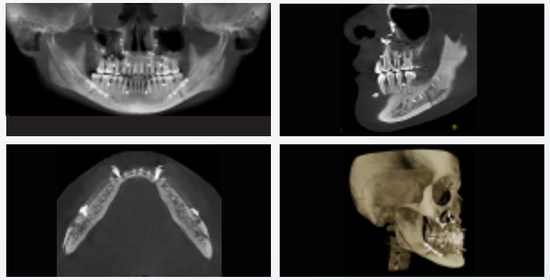
CLINICAL APPLICATIONS IN STOMATOLOGY

Cariology, Endodontics and TMJ Examination



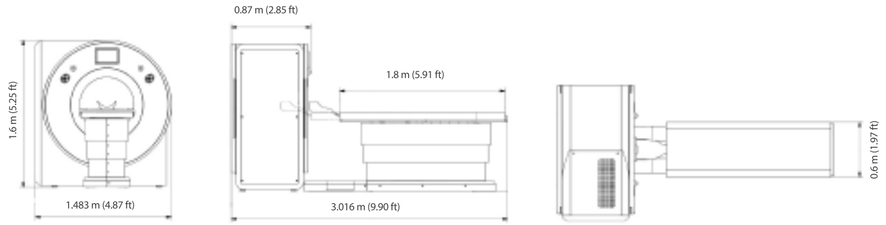
The microscopic imaging system is equipped with an unique small FOV reconstruction algorithm that can achieve high-definition reconstruction with a minimum spatial resolution of 50 μm. It can be used as an imaging tool for endodontic diseases, dentition restoration, and joint diseases, which is of great significance for diagnosing and analyzing fine anatomical structures in diseases. For example, observing small branches of the facial nerve canal, diagnosing early lesions such as fissures and fractures, and diagnosing TMJ. The cortical wear and surface bulging of the anterior slope of the condyle are analyzed.

CLINICAL APPLICATIONS IN MAXILLOFACIAL SURGERY



The wide-angle imaging system can easily conduct a full maxillofacial scan, particularly for maxillofacial trauma surgery, orthognathic surgery, and other large-scale operations that require a reliable diagnostic basis.

PRODUCT PARAMETERS



Specifications	Weight	920 kg (2028.25 lb)
	Product Dimension	3.016 m (L, 9.90 ft)×1.483 m (W, 4.87 ft)
	Height	1.6 m (5.25 ft)

Imaging System	Wide-angle Imaging System				Microscopic Imaging System
Field of View (Diameter × Height)	23×19	16×13	16×6	8x8	7×4
Spatial Resolution (lp/mm)	≥1.4	≥1.4	≥1.7	≥1.9	≥3.0
Voxel Size (mm)	0.15 / 0.3	0.125 / 0.25	0.1 / 0.2	0.075 / 0.15	0.05 / 0.1



X-ray Generator 1	⟷	X-ray Generator 2
0.5 (IEC60336)	Nominal Focal Spot Size	0.25 (IEC60336)
60-100kV Adjacent Tube Voltage Increment 5kV	Tube Voltage	60-120kV Adjacent Tube Voltage Increment 5kV
2-10mA Adjacent Tube Current Increment 0.5mA	Tube Current	2-10mA Adjacent Tube Current Increment 0.5mA
1000W	Maximum Power	1000W

Flat Panel Detector 1	⟷	Flat Panel Detector 2
Cesium Iodide + TFT	Detector Type	Cesium Iodide + CMOS
300×250 mm	Effective Imaging Area	115×65 mm
100 μm	Pixel Size	74.8 μm
3008×2496	Acquisition Matrix	1536×864



LargeV

LargeV Instrument Corp., Ltd. was founded in 2011 and committed to the development and industrialization of high-end medical devices. The core team of LargeV was graduated from Tsinghua University and has a solid foundation in the technical fields of computed tomography, radiation protection, and image processing. We insist on a customer-centric business philosophy and focus on innovation and excellence.

Our mission: Provide doctors and patients with superior products and services.
Our vision: Be the world's leading manufacturer of medical equipment.

LARGEV

MILESTONE

2011

LargeV Instrument Corp., Ltd. was founded on March 11.

2012

HiRes3D, the first seated Chinese CBCT model, was approved to enter the market.

2013

Passed TüV ISO 13485 quality management system certification and CE certification. Achieved the title of "National High-tech Enterprise."

2015

Awarded the first level prize of "Technological Invention" by the Chinese Society for Stereology Science and Technology. The first Chinese CBCT debuted at the International Dental Show (IDS) in Cologne, Germany.

2016

The Multifunction Dental CBCT Smart3D was granted certification from NMPA.

2017

HiRes3D-Plus and HiRes3D-Max, professional dental CBCT models with super-large FOV were certified by NMPA.

2018

Awarded with "Edgy Technology Enterprise" by Beijing Pharmaceutical Profession Association and selected as "Zhongguancun Pioneering Technology Enterprise."

2019

SmartVPro, the first professional dental CBCT radiology software in China, was certified by NMPA. CephPro3D, the first dental cephalometric analysis software, was certified by NMPA.

2020

Zhejiang LargeV Instrument Corp., Ltd. was put into operation.

2021

Smart3D-X won the German iF Design Award.

2022

Ultra3D, the world's first CBCT with dual-source and dual-detector was launched. Ultra3D has won the Red Dot Design Award.

2023

"The Joint R&D Engineering Center of Intelligent Orthodontics"formed with Beijing Stomatological Hospital, Capital Medical University was formally established.



LARGEV