2110 layers
Series section data of real male human body

3640 layers
Series section data of real female human body

0.1-1 mm
thickness

5000
3D anatomy structures

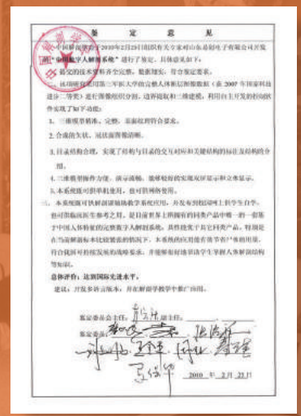
Product Overview

ECDH

ECDH integrates the information of a large number of real human cross-sectional data with computer to reconstruct the 3D stereoscopic images of the human body. It is the result of a combination of medicine, information technology and computer technology. The system is developed with continuous real sectional images of human specimens: 2110 layers of male body with precision of 0.1-1mm, 3640 layers of female body with precision of 0.1-0.5mm, and more than 5000 three-dimensional reconstructed anatomical structures. The contents are set close to the syllabus, the operation is simple and easy to use. It is the only digital human anatomy product reconstructed based on complete sectional data of Chinese human body, which has been identified by the expert committee of the Chinese Society for Anatomical Sciences.

After eight years of development and improvement, ECDH has been at the leading level in terms of professionalism, comprehensiveness and ease of use. It can be widely used in medical education with virtual simulation laboratories, digital anatomy laboratories, clinical anatomy training centers and specimen exhibition galleries. Which has solved the problems in the traditional teaching model e.g. difficult acquisition of human specimens, unsystematic observation methods and inconvenient sectional anatomy teaching process.

Chinese Digital Human Anatomy System appraisal site



Chinese Digital Human Anatomy System testimonial

Development Process

ECDH

2008 »
- Cooperating with the Third Military Medical University, two sets of complete sectional image data for Chinese male and female human body were obtained.
- ECHUNG Digital Human Research & Development launched.

2010 »
- First-generation products of ECHUNG Digital Human Anatomy System developed.
- Identification by the expert committee of the Chinese Society for Anatomical Sciences passed.

2012 »
- Appraised as “Chinese Digital Human Engineering Technology Research Center of Shandong Province” by Department of Science & Technology of Shandong province.

2013 »
- ECHUNG Digital Human Anatomy System won “The third prize of Shandong provincial Science and Technology Progress Award”.

2014 »
- System upgraded
- Human mystery science and education system developed.

2015 »
- Version updated, a large number of teaching content were added, various functions were optimized, and the system was upgraded again.

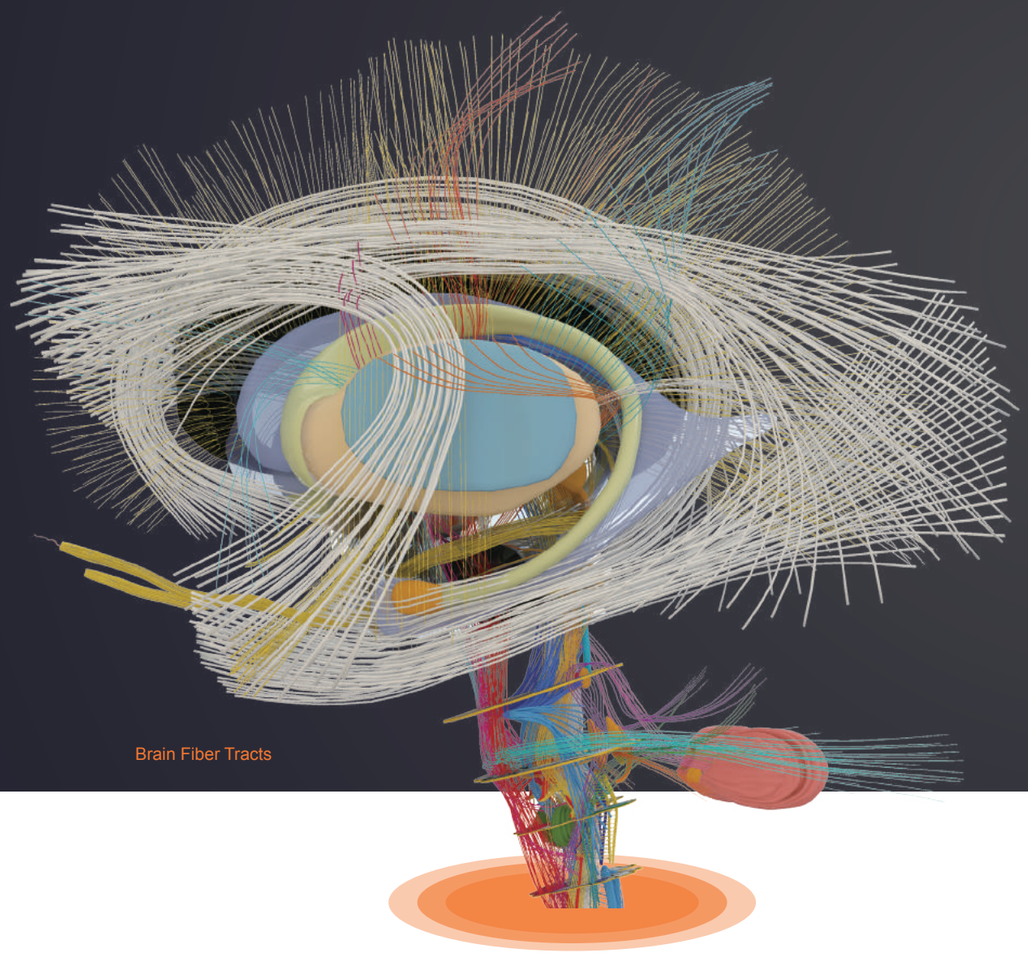
2016 »
- Major product updates. More comprehensive content. More complete functions. Digital Human Anatomy System entered mature application stage.

Product Features

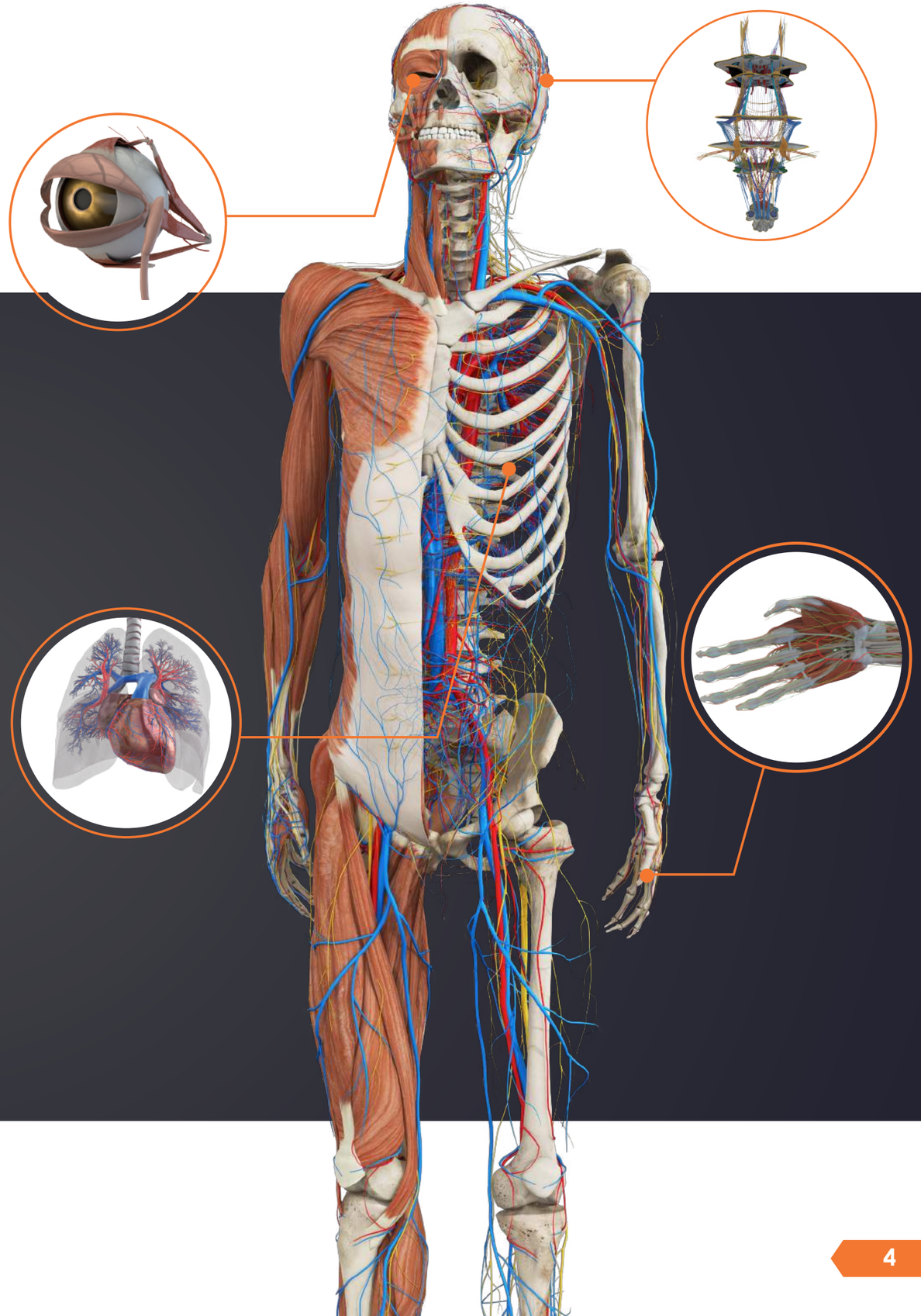
ECDH

3D structurs
Fine and realistic

More than 5000 fine and realistic reconstructed anatomical structures were embedded in ECHUNG Digital Human Anatomy System, which can provide a lot of material for anatomy teaching.



Brain Fiber Tracts

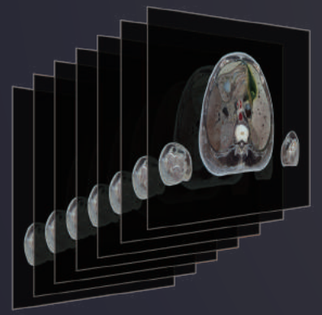


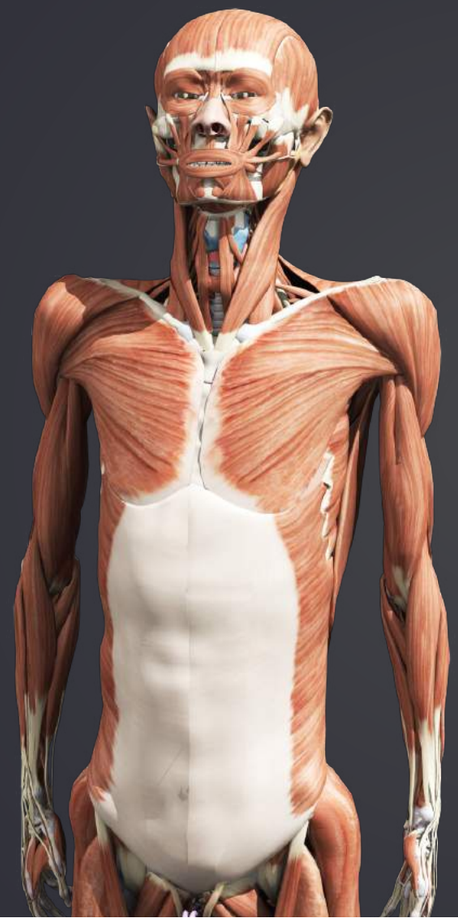
Accurate Data
Clear Image

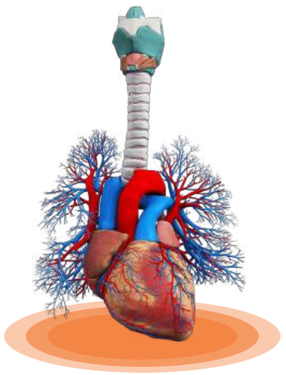
Section Precision

0.1-1 mm

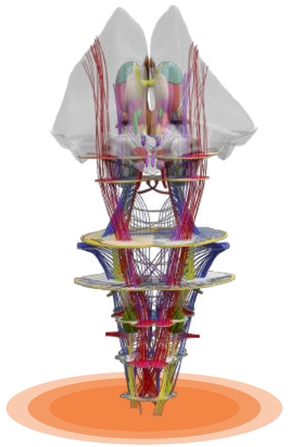
The system is developed using continuous transverse sectional images of human specimens. The section precision for men and women was 0.1-1mm and 0.1-0.5mm, respectively, and the thickness is unequal. In the parts of head and chest, the layer spacing is up to 0.1mm because they need to be displayed finely.



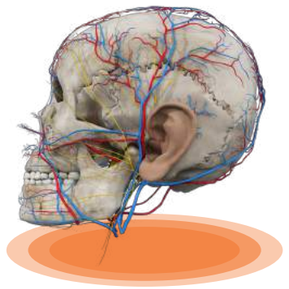




Intra-pulmonary pipe



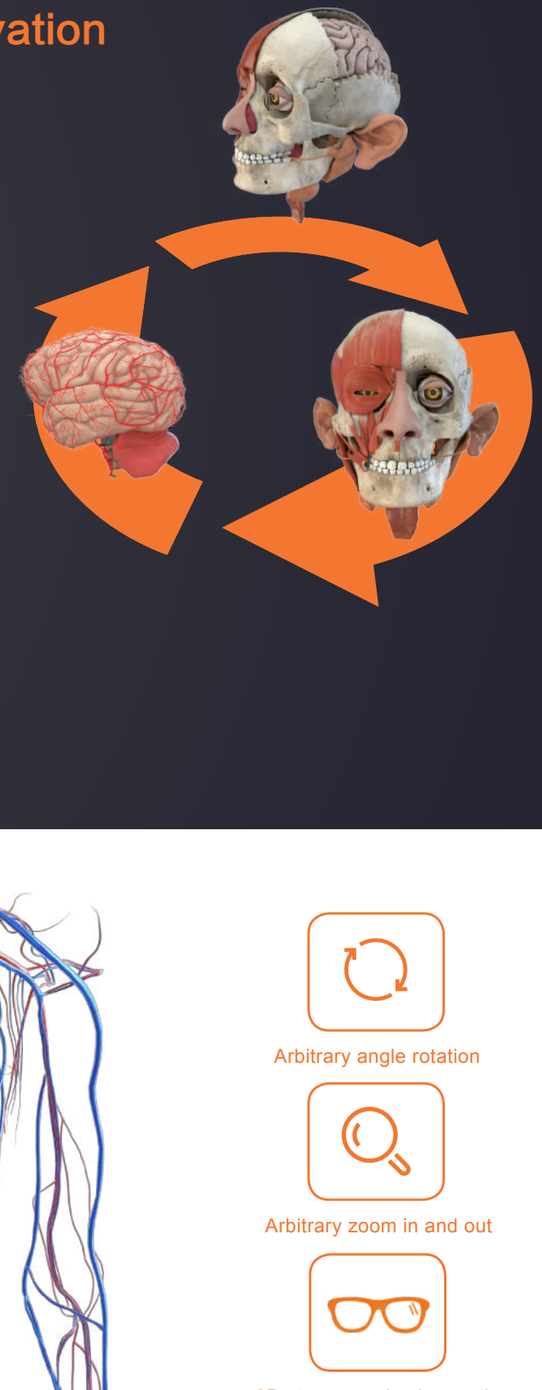
Fiber Bundles in the brainstem

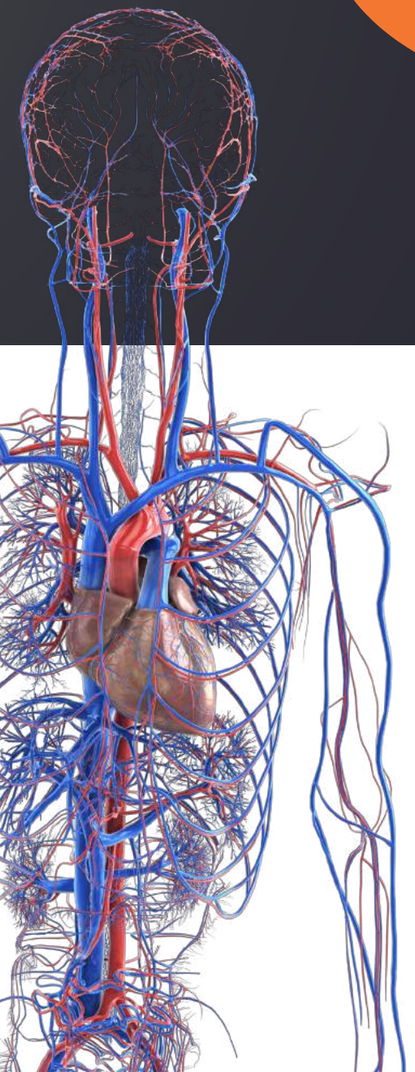


Lateral view of the skull

Multi-angle
Stereoscopic Observation

The digital human can be rotated at any angle and arbitrarily zoom in and out. It can be observed in all directions from the perspective of looking up and looking down. The structures will be more visual and intuitive contrast with the models and specimens.





Arbitrary angle rotation

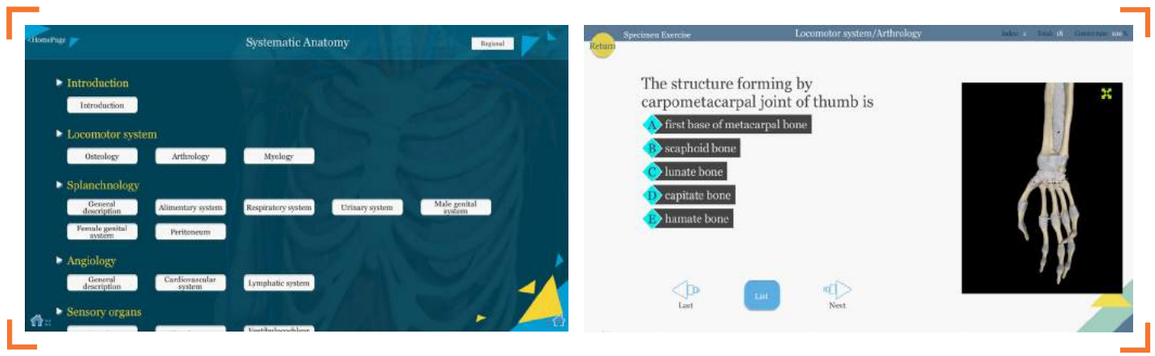
Arbitrary zoom in and out

3D stereoscopic observation

Digital Teaching Age
Autonomous Learning

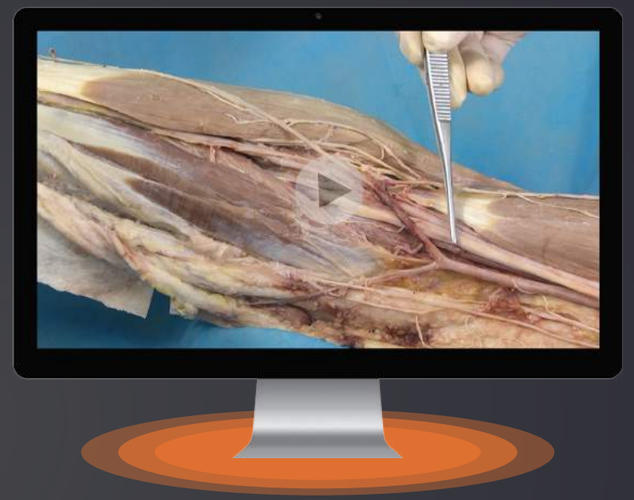
According to the teaching requirements of systematic anatomy and regional anatomy, a large number of courseware have been edited and produced. And students can be assisted in autonomous learning through animation, video, 3D models, pictures and words.

A large number of theory test questions and specimen test questions of anatomy are built in the system to facilitate students' self-evaluation and improve their learning pertinence.

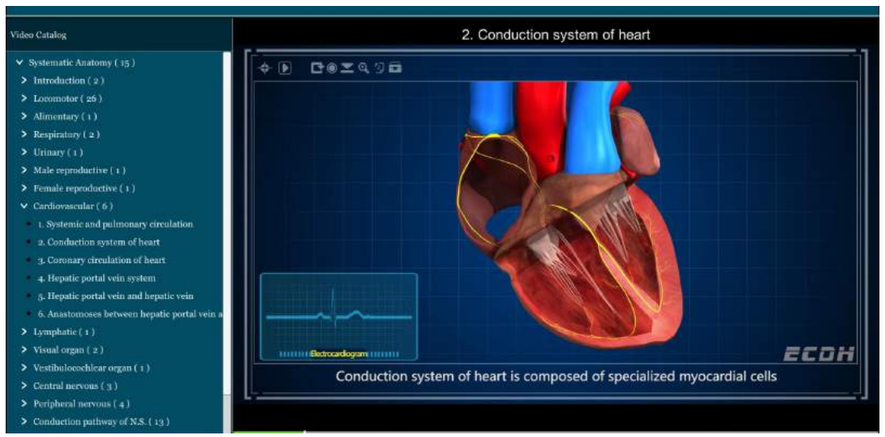


Synchronous Teaching

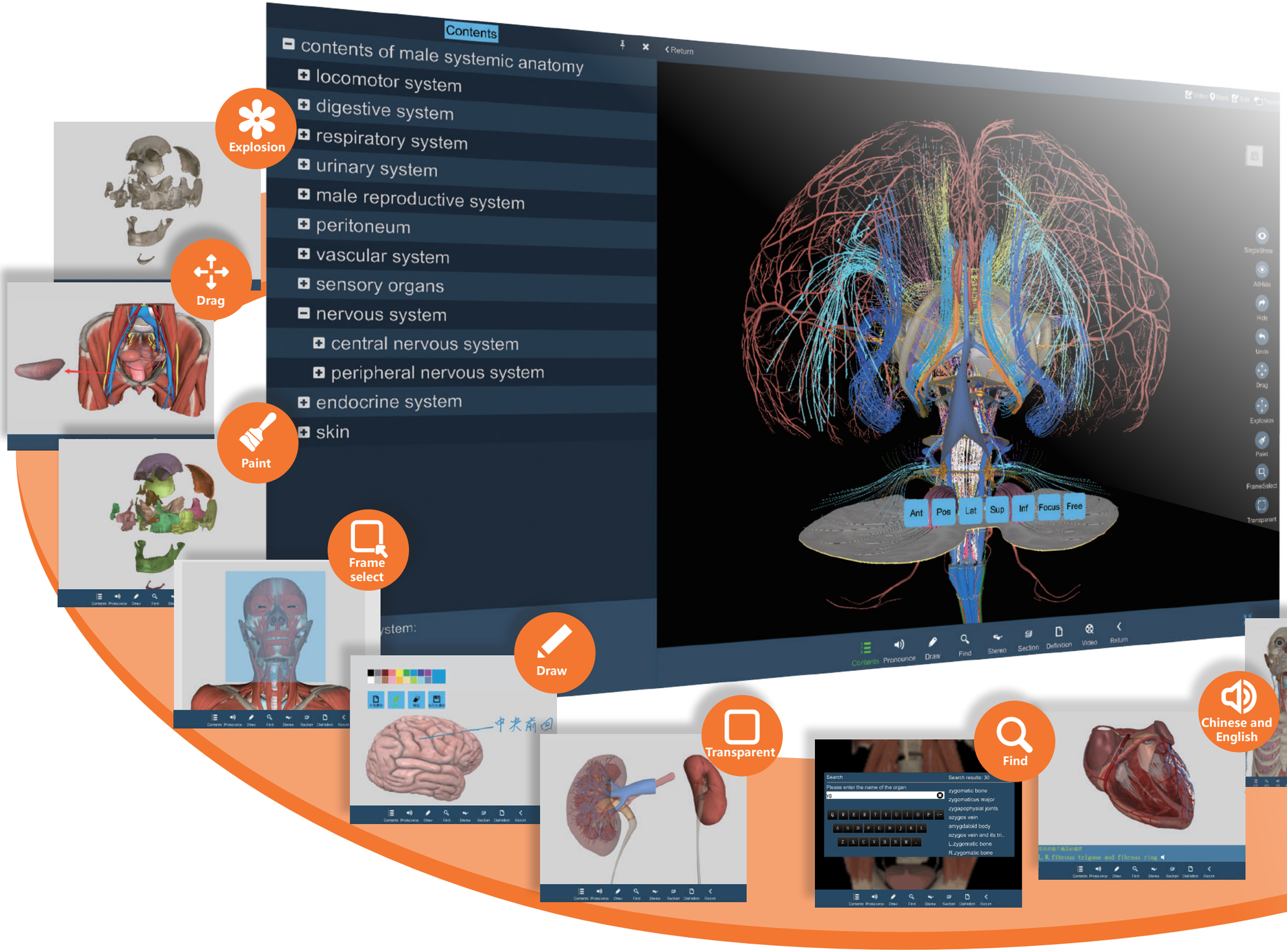
Teaching Resources
Anatomy Microlecture



The system contains a wealth of anatomical microlectures, including systematic anatomy, regional anatomy and sectional anatomy teaching videos. These videos contain a large number of experts' annotations, animation demonstrations of human body functions, etc., which can facilitate students learning anatomy.



Microlecture content cover systematic anatomy, regional anatomy and sectional anatomy.



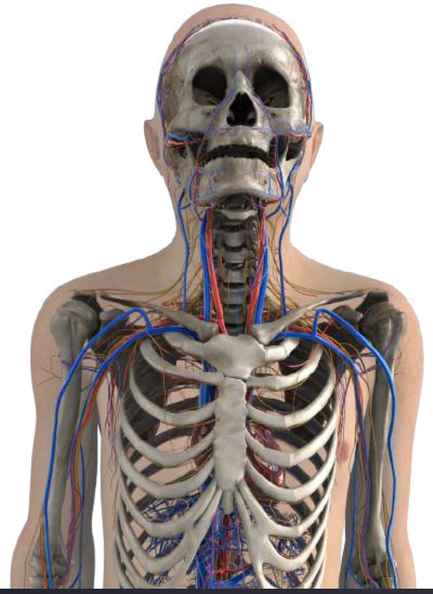
Rich in Functions
Easy To Operate

The system has designed a variety of quick and convenient functions, including background switching, labeling, separation, transparency, dyeing, stripping, searching, bilingual pronunciation, freehand drawing and stereotaxic display et al.

Note: The stereoscopic display function requires hardware support

Teaching Application

ECDH



Systematic Anatomy

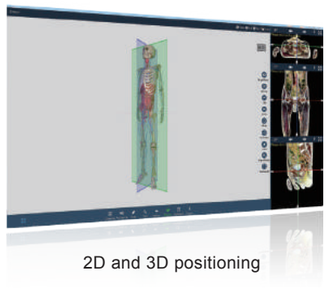
The three-dimensional structures are obtained by 3D reconstruction of real human cross-sectional data. Their position and shape are consistent with the original data. The structures are divided into nine systems. And the three-dimensional morphology of more than 5000 anatomical structures can be displayed.

Nine Systems

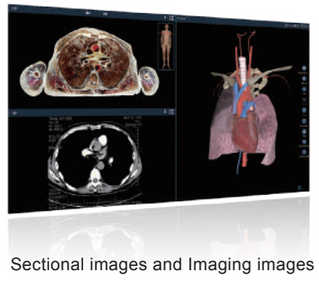
- Locomotor System
- Angiology System
- Alimentary System
- Sensory System
- Espiratory System
- Nervous System
- Urinary System
- Endocrine System
- Reproductive System

Sectional Anatomy

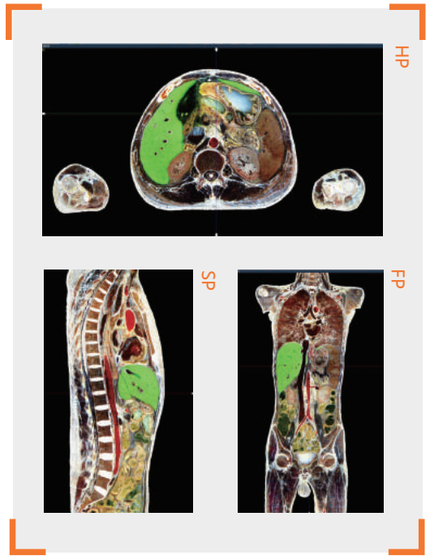
It's easy to obtain sectional images of any section. Using the highlighting function, the sectional structures can be identified, their Chinese and English names can be obtained quickly, and their positions and shapes can be showed in the three-dimensional human body. Which can provide real specimens and imaging images for students' learning sectional anatomy.



2D and 3D positioning

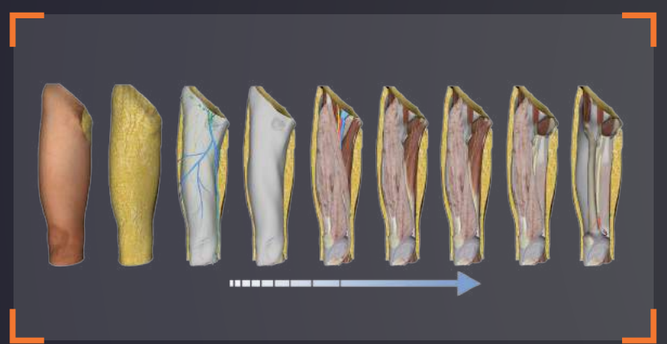


Sectional images and Imaging images



Systematic Anatomy

For the teaching of Regional Anatomy, teachers can display the structures from superficial layer to deep layer using the digital human body with stripping and perspective functions. The students are able to build local hierarchical concepts and know the adjacent relationships of the structures even in the classroom. The Digital Human Anatomy System includes a large number of regional anatomy teaching videos to facilitate teaching and students' self-study.



LayerHide

Surface Anatomy

The surface projection of nerves, blood vessels and other structures can be realized with the transparent function of the digital human.

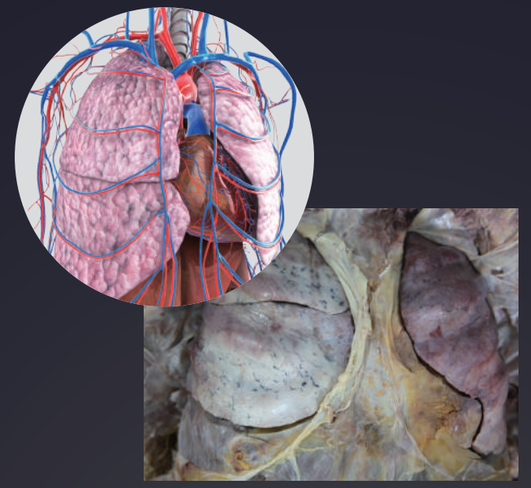
Digital Anatomy Laboratory

ECDH

Rotatable screen

The digital anatomy lab highlight the advantages of visualization and intuition of the digital human body in anatomy teaching while facilitating the traditional cadaver dissection. The contrast and integration of the virtuality and reality can achieve more ideal teaching effects.

The lab is reconstructed based on the original anatomy classrooms. It is composed of “ECDH teacher terminal”, “ECDH student terminal”, “HD recording and broadcast anatomical interaction system”, “Balanced arm shadowless light” and “Automatic air purification system”, etc., without any stuff like chalks, blackboards, projectors and picture cabinets, which symbolizes that the traditional ancient anatomy has entered a new era.



Contrast of virtuality and reality, Easy for self-study

The integration of traditional anatomy experiment lessons and advanced digital technology enables the students to compare the virtuality with the reality during the learning process. Which will effectively overcome the difficulties of autonomous learning.

Digital mode, Interactive teaching

Teachers can explain the human body structures comprehensively and systematically through the integration of the virtuality and reality during the course of teaching, which will make it easy for students to understand. Furthermore, teachers can also use other documents e.g. PPT courseware, pictures and videos.

Touch operation, Easy to use

Touch, rotate, zoom, and other gestures can be used to touch the screen to achieve arbitrary control and better understanding of the human body structure characteristics.

HD recording, Comprehensively observing

A large LCD screen with HD 4K images is used for the teacher terminal. While the student terminal has simple structure, elegant appearance and high-definition images, which are more conducive to students’ comprehensive observation and comparison. The whole procedure of teaching and learning is recorded using a full-process HD recording and broadcasting system.

Intelligent control, Purifying air

The automatic monitoring devices and intelligent control equipment are operated to keep indoor air healthy and minimize the harm of toxic gases to teachers and students.