Anatomy & Physiology: Current Research
ISSN: 2161-0940
OPEN ACCESS Freely available online
Opinion Article

The Role of AR/VR Technology in Identification and Diagnosis of Anatomical Structures

Alexander Isaac*

Department of Anatomy, University of Edinburgh, Scotland, UK

DESCRIPTION

The ability of AR/VR technology to combine clinical imaging data and knowledge into a virtual and real anatomical environment helps to increase medical students' interest in learning and their own initiative to learn, which in turn enhances the effectiveness of clinical education. The use of the VR/AR system in teaching human anatomy during surgery and its educational effects. The VR/AR system's learning environment and platform, describes its user interface and method of operation, and assesses the teaching situation. The VR/AR surgery simulation system's feature reweighting module boosts the accuracy of segmenting the bone structure. For actual human ultrasound imaging data, the feature reweighting module causes the IOU value to rise from 80.21% to 82.23%. Therefore, the dense convolution module and feature reweighting module effectively improve the performance of bone structure segmentation by improving the network's learning ability for features of bone structure.

Although AR/VR technology has been used in many industries, the medical sector is still in the exploring phase. The potential applications of combining AR/VR technology and medicine are endless given the rapid development of the digital age. In the future, it is anticipated that VR technology would significantly alter medical education, disease diagnosis, doctor-patient communication, clinical diagnosis, and therapy. This essay examines how AR/VR technology is used in medicine. VR technology has been used to do clinical research, for instance, by creating a patient's heart model and performing CT Angiography (CTA) on patients to diagnose Congenital Heart Disease (CHD). Another example would be to choose 36 kids who have heart illness and utilize AR/VR technology to identify the clinical signs of arterial heart disease in them. In the use of AR/VR technology, the detection of arterial heart disease is highly valued. The identification and diagnosis of anatomical structures are significantly facilitated by AR/VR technology.

It is now possible to diagnose basilar invagination using AR/VR technology, which eliminates any potential interference from X-ray, CT, and MRI scans and facilitates the evaluation and classification of basilar invagination. Additionally, it highlights how complex fractures and spinal deformities may both be diagnosed using AR and VR technologies. Yamashita et al. noted that AR/VR technology is crucial for new surgeons to acquire surgical theory and advance surgical operation skills since the learning curve of the three-dimensional model is smoother than that of the two-dimensional image. In addition to shielding doctors from radiation and other factors, AR/VR technology also creates a disease model so that doctors can select various surgical tools and surgical techniques to operate on the same patient repeatedly in order to select the most effective strategy. Created a model of a nasal endoscopic examination using AR/VR technologies.

An array of learning resources for lateral ventricular puncture that make use of AR and VR. For teaching lateral ventricular puncture in trainees, it is utilized. A 2D image cannot be easily transformed into a 3D representation using merely spatial imagination since the anatomical structure of orthopedics is complex. In order to create a 3D visual surgery teaching model, Used AR/VR technology. They then imported patient image data into holographic images and imported the holographic images into VR equipment where teachers and students were wearing HoloLens simultaneously.

The traditional CT-guided and VR-assisted laparoscopic trainer was used by 16 surgeons to perform a series of tasks, including the standard nail transfer. It was discovered that the VR-assisted group performed the tasks faster, more accurately, and more steadily than the CT-guided group did, and that the complexity of the procedure affected the results the most. Completed percutaneous kyphoplasty using AR/VR technology. The number of intraoperative X-rays administered, the length of the procedure, and the postoperative kyphosis angle were all shown to be lower or shorter in the VR group than in the conventional C-arm group.

The first to use AR/VR technology in a hepatectomy, realizing the precise matching between the target organ and the three-dimensional model hologram, and suggesting that AR/VR technology can be used in hepatobiliary surgery. In the aforementioned investigations, the diseased portions are mostly examined using CT and other technologies, and then they

Correspondence to: Alexander Isaac, Department of Anatomy, University of Edinburgh, Scotland, UK, E-mail: alex@isaac.uk

Received: 14-Oct-2022, Manuscript No. APCR-22-20547; **Editor assigned:** 18-Oct-2022, PreQC No. APCR-22-20547 (PQ); **Reviewed:** 07-Nov-2022, QC No. APCR-22-20547; **Revised:** 14-Nov-2022, Manuscript No. APCR-22-20547 (R); **Published:** 22-Nov-2022, DOI: 10.35248/2161-0940.22.12.403.

Citation: Isaac A (2022) The Role of AR/VR Technology in Identification and Diagnosis of Anatomical Structures. Anat Physiol. 12:403.

are treated following analysis. VR is also applied to education. The ultimate learning effect has been reduced as a result of the several steps that have gone into learning these technologies.

The use of the VR/AR technology and its educational effects in the instruction of human anatomy surgery. The VR/AR system's learning environment and platform, describes its user interface and method of operation, and assesses the teaching situation. Lightweight multi-person multiterminal cooperation mechanism that ensures the collaborative effect and has the properties of simple application in order to overcome the restrictions of terminal types and expand the interaction mode.

CONCLUSION

The system described in this work, which offers a new method for scientific display of huge data on the Earth and a new approach to delve into the mysteries of the planet is in short, highly useful, fascinating, and interactive. The suggested solution for multi-person, multi-terminal collaboration offers excellent viability and scalability. Preoperative planning, surgical path selection, matching of the model to the human body, virtual needle path display, etc., which are yet not fully utilized in clinic, but the introduction of AR/VR technology can well fulfil the above application. Although the use of AR/VR technology in the medical industry is still in its infancy, the possibilities are endless. May anticipate a bright future for AR/VR technology in surgery on the basis of earlier research findings. While continuing to use Virtual Reality (VR) as a tool for surgical training, we should also use more sophisticated technology to identify the surgeon's equipment or lessen the contrast between the virtual and actual surgical environments.

Additionally, the widespread clinical use of AR/VR in surgery will hasten the advancement of remote surgery. We anticipate the arrival of this intelligent surgical environment shortly given the rapid development of 5G. Future developments in AR/VR technology could significantly alter medical education, disease diagnosis, doctor-patient communication, clinical diagnosis, and therapy while also accelerating the field of medicine.