Perspectives

Virtual Reality

Is virtual reality creating a whole new landscape for learning?

By Alex Dell'Era, Clinical & Technical Marketing Manager and Public Relations, Canon Medical Systems Italy.

Canon Medical Systems Italy is developing high-quality virtual reality (VR) technology in a unique and pioneering project to facilitate learning in the medical field.

Towards addressing the extreme challenges that healthcare now faces, Canon Medical Italy is continually striving to find new ways to assist healthcare professionals in accordance with our "Made for Life", philosophy to improve the quality of life through innovation.

Teaching and learning methods evolve rapidly in an increasingly connected and digital world. With this in mind, Canon Medical Systems Italy has combined two outstanding Canon technologies – Canon Medical's Aplio i-series Prism Edition ultrasound scanner and Canon's EOS VR System.

The EOS VR System is based on a Dual Fisheye lens and enables stereoscopic 3D 180° VR to be recorded for video production with a single camera and sensor. The system has already been used to create unique, high quality and immersive experiences for applications in museums, travel, manufacturing, sporting events and schools. Now, Canon Medical Italy has extended its application to healthcare.

In the immersive experiences, the user can explore how the Aplio system moves and acquires an understanding of what the plane looks like, as well as how it is obtained by moving and positioning the probe. The objectives of using VR in this context are to attract young doctors to the discipline and facilitate their learning process.

The first VR experience has been developed together with Canon Italy and Fondazione SIRM (the Italian Society of Medical and Interventional Radiology).

How did the idea begin?

The EOS VR System was launched in 2021, based on a Dual Fisheye lens (the first in the world). The VR System is compatible with Canon's new EOS R5 and EOS R5C mirrorless cameras with 8K sensor and advanced video performance.

Canon has worked on VR for many years. Its excellence and experience in developing and producing optical systems is ideal for advancing virtual reality technologies.

Canon Italy and Canon Medical Systems Corporation have wanted to collaborate in Italy for many years. In the process of aligning, it became apparent that Canon had accumulated a considerable number of interesting experiences and showcases using EOS VR, but that globally there were no best practices established in the medical field, especially in relation to clinical education.

We began to brainstorm about the possibilities in technological terms, but also about which stakeholders, including scientific societies, would be appropriate to involve.

How did Canon Medical Systems take this potential further?

Canon Medical strongly believes in the sharing of knowledge and information for constant, timely and conscious evolution of the healthcare world, and continually strives to make a more tangible contribution to this. Creating an unprecedented immersive experience for medical teaching is one of the latest ways in which we can help healthcare professionals even more.

In-line with the Made For Life philosophy and with a focus on driving meaningful innovation, we believed that, besides excellent clinical solutions and diagnostic imaging, we have an opportunity to provide a revolutionary learning experience in an ever-evolving and increasingly connected digital world.

Why and how did Fondazione SIRM get involved?

SIRM is Italy's biggest society for radiology and interventionalradiology. Its commitment to education is well-known and much appreciated within the healthcare community in Italy. SIRM is one of the scientific societies that is authorized to issue guidelines for the Italian Ministry of Health. It is strongly committed to promoting education and training in radio-diagnostic and interventional radiology, often through innovative and 'unconventional' solutions. With the interest and open-minded approach of its President, Professor Roberto Grassi, it was a natural fit to include the Fondazione SIRM in the brainstorming and helped in finding the most impactful approach and solutions. Although we believed there will be an added value for bigger medical systems beyond radiology, we decided to focus first on creating an educational path for ultrasound, which is the most operator-dependent imaging solution.

How can Virtual Reality assist learning?

Due to the pace of developments in medicine and healthcare, as well as the high turnover of healthcare professionals in some fields and healthcare facilities, continual learning and new teaching are increasingly necessary.

In addition, it is necessary for healthcare facilities to understand how to attract and recruit young people. VR technology is already well-known by younger people to give access to complex information and ensure that it can be understood in a more attractive way.

For diagnostic investigations, ultrasound is an operator-dependent method. The operator who directs the probe creates images in planes that are not just axial, but often rather unusual and infinite.

In the immersive VR experiences that have been created, the learner realizes not only how the operator acquires the relevant plane, but also how they interact with the patient and the system. Therefore, the student not only has the image at its best for diagnostic purposes but also knows how this result is achieved.

The start of something new

Canon Medical is exploring the potential of using VR in other areas of medical imaging.

About the author

With a solid engineering background, following graduation from the Politecnico of Milan, Italy, and more than 16 years of worldwide experience in diagnostic imaging, Alex Dell'Era has built-up a coherent career path by continuous progress in roles of increasing responsibility in R&D, Product Management, Clinical and Educational Management, and Sales and Marketing.

Alex is currently leading Clinical & Technical Marketing with a Multi-Modality approach for Canon Medical Systems Italy, strengthening the Company's commitment to education and active cooperation with healthcare professionals in UL, VL, MR, CT and HIT fields.