Bringing Real Places And People Into VR With Volumetric Capture

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In brief

Besides the entertainment industry, virtual reality and augmented reality have made their way into other more business-related sectors. VR and AR technologies offer new solutions in architecture, education, energy, travel, and hospitality as well as therapy and rehabilitation.

Besides the entertainment industry, virtual reality and augmented reality have made their way into other more business-related sectors. VR and AR technologies offer new solutions in architecture, education, energy, travel, and hospitality as well as therapy and rehabilitation.

However, once real-world applications are entered, a more immersive and realistic representation of human beings and real-life objects is desired. However, current 3D character animation techniques do not facilitate the required level of realism. Also, the process of virtual reality content creation is time-consuming and fails to represent all detailed motions of objects and actors, especially their body movement, facial expressions, and clothing.

Mysterious sounding technology called volumetric capture combined with photogrammetry is promised to change that. Photogrammetry allows having a full 3D scan of a place such as a shop, hospital, or factory. This still 3D scan works as a VR environment that a user can walkthrough. Volumetric capture fills this e3D space with digital twins of real people. Imagine putting a VR headset and standing in a 16-century castle where a historian tells you about the painting you are looking at.

3D scan of Swedish Museum and volumetric video educator

What is Volumetric Video and Photogrammetry?

The volumetric capture technique records moving objects and people from all directions using multiple 3D cameras to create dynamic 3D models. The technology produces volumetric videos of a person. In other words, it creates a digital 3D twin of a person with all of his movements. It’s very different from traditional techniques such as 360 videos. 360 videos are stitched images that don’t give you the full volume of items inside them. On the other hand, volumetric capture uses sensors, computer graphics, photogrammetry, and other computation-based methods.

It fully scans and reproduces the object with all details and from all angles. In short, it creates a digital copy of any live and moving object. In comparison, photogrammetry is the process of taking many pictures of a place or object and stitching them together using Reality Capture Software. This produces still and not moving volumetric objects.

Applications of volumetric video are limitless. For example, it allows creating highly interactive ways to learn without actually going to places in reality. Also, it is highly valuable in training situations that are dangerous and impossible to reproduce. Police academies, medical institutions, and oil and gas manufacturing are already using this in their day-to-day learning activities. They can walk through real VR environments, touch objects, and view them from different angles while 3D captures of people accompany them and play a part.

Also, volumetric capture brings the world closer as business meetings, and conferences can be attended live in VR and AR. Regardless of the country or city, you will feel like you're physically present at the meeting, which might be taking place miles away from you. Most importantly, you won't see a 3D modeled avatar of your colleague but actually a real person standing in front of you.

Choosing Volumetric Capture Solutions

There are many volumetric capture solutions available on the market. But since most of them are either expensive or not portable. The studio setups consist of over 100 custom-made sensors and require an enormous amount of machines to process the data. Therefore not every business can take advantage of this mind-blowing technology.

However, EF EVE volumetric capture is trying to change by bringing a setup which supports cameras you can purchase in every online shop. The software they provide is currently the most affordable and easy-to-use solution on the market.

Instead of spending $200K per 10 minutes of recording in a volumetric capture studio, companies can have their own set up for less than $1K. This includes the software and the hardware. The platform also allows companies to host their photogrammetry environments and walk through them in VR without writing a single line of code. You can easily create high-quality training material and create content for web, mobile, VR, and AR.

Microsoft volumetric capture set up.

Conclusion

Volumetric capture and photogrammetry are revolutionizing VR and AR video production and user experience. The technology is still in its early days but is slowly shaping the future of the VR industry. It is bringing more realistic immersive content to consumers and businesses.

Many companies and institutions are starting to realize that VR can be a great learning and visualization tool. This is mostly due to photogrammetry and volumetric capture presence. However, to make volumetric video and VR mainstream in business markets, more affordable portable volumetric capture setups need to be available. Microsoft with its Azure Kinect and Intel with RealSesnse sensors are definitely bridging the gap from hardware perspective. Therefore, the need for powerful software is growing.

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