

HOLOGRAMS

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The purpose of this paper is to study the method of holography and its prospects. To show the difference between holography and optical illusions.

Hologram is a 3D image, created with a laser, which reproduces an image of a three-dimensional object. Nowadays holography is the most promising way of visualizing three-dimensional objects. You literally see a real object, which is really a volumetric picture. It can be bypassed, viewed from all sides, and of course you can give a powerful depth, which can't boast any other technology of 3D-mapping. For the invention of the method of holography in 1947, Dennis Gabor received the Nobel Prize in Physics in 1971.

How does it work? When a hologram is recorded, two waves are formed in a certain area of space, obtained by dividing one and the same laser beam. In this case, the so-called reference wave goes directly from the source, and the object wave is reflected from the object of recording. In the same region, a photographic plate is moved to the place where there is a complex picture of the bands of darkening corresponding to the distribution of electromagnetic energy (the interference pattern) in this region of space.

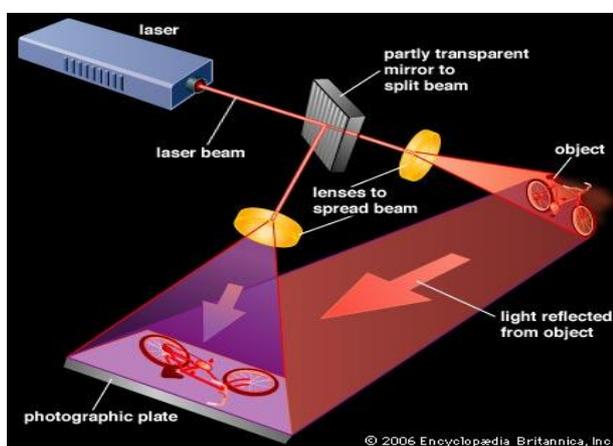


Figure 1. "The scheme of creating a hologram "

But also we must distinguish the present hologram from optical illusions. For example, the trick of John Henry Pepper. The viewer should see the space of the main room, where at an angle of 45° to the viewer there is the installed glass, and should not see the hidden room. The border of the glass should be invisible. This can be achieved with the help of a well thought out picture of the floor. Reflection in a vertically mounted glass at a small angle creates the presence of a three-dimensional flickering ghost.

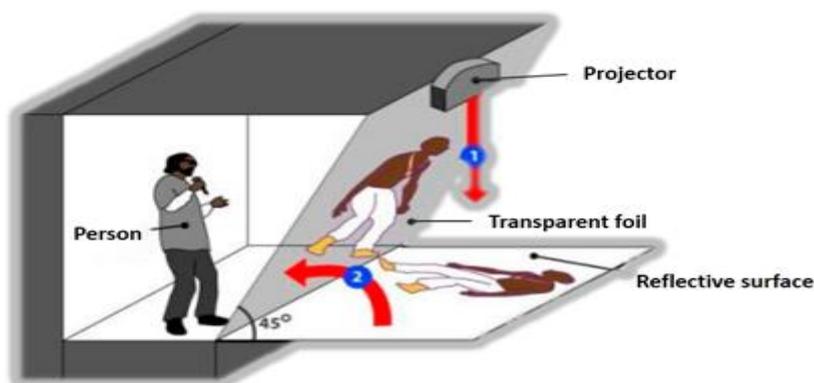


Figure 2. "The trick of John Henry Pepper "

Simply put, the same thing happens with conventional film. But if the images with the latter need to be printed on the paper, then the hologram is easier and faster. It is enough to illuminate the photographic plate again with a wave close to the reference one, and it converts it into a wave close to the object wave. Thus, we will see the same light that would be reflected from the recording object - although there is no object in space.

Researches think that it could be medicine, telepresence, training and presentations, advertising, business, show-business, entertainment, mobile technologies and a lot of other ways.

The team of engineers from Microsoft Research has combined technology of 3D-scanning in real time with virtual reality and now with the help of "Holoportation" you can talk with the living 3D-model of the person.

Jarem Archer, known on the Net under the name unt1tled, created something like "holographic avatar" for "Cortana" from the Windows 10 operating system, according to the functions that are in no way inferior to the "usual" version.

Recently, specialists from KT Corporation together with colleagues from Verizon conducted the first in the history holographic session using the capabilities of mobile networks of the 5G standard.

Thus, holograms are not the future, but the present. Their development and popularity depend on us.

References:

- i. <https://hi-news.ru/tag/qologramma>
- ii. <https://youtube.com>