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Virtual Images in the Modern World

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In today's world, technology has become incredibly widespread. And thanks to their development and ubiquitous use in entertainment, the differences between real and virtual worlds have been almost completely erased. Already in the Middle Ages in Europe the term 'virtual reality' was used by many people. However, the term had a slightly different meaning, namely: with Latin 'virtus' – 'virtue, valor' – an extraordinary positive quality, characteristic, and this word was used in the context of the designation of combat prowess, the ecstasy of battle. Today, virtual reality (VR) is regarded to be a progressive branch of the technology industry. The USA claim this direction to be the third most vital – after nuclear and space. The success of virtual reality in the past has been hampered by two main elements: both developer support and input devices. All these obstacles have been overcome with the advent of new, more compact and simple production processes, as well as a result of increased consumer interest [1].

The spectacle of the introduction of visual reality devices is made possible by the complete visual immersion effect, which causes the user an unimaginable range of sensations. It gives a possibility to observe something unavailable in real world, for instance, to appear inside the human brain or to find yourself in space. Naturally, this is only a small part of VR benefits, but these are useful examples. Highly possible that in the nearest future it will be achievable to immerse yourself in the games fully, to sense your body, every movement, color,

sound, taste. The implementation of virtual reality goggles in design and architecture, along with virtual exhibitions and museums will appear to be incredibly effective and worthwhile. Having the glasses on, a human is given a chance to be a creator, for nothing that the resources for his creations will be almost inexhaustible – virtual.

If to speak about medicine, virtual operations on virtual patients are extremely essential to get better prepared for the very process and, if possible, try to avoid difficulties and emergencies. The Da Vinci surgical system enables the surgeon to apply a 3D camera to watch everything that happens in the body of a patient as well as recognizes the movement of the doctor's hands, turning them into tools within the body [2].

But not to mention such incredible things as virtual and augmented reality, the replacement of real things and creatures with their painted analogues can be seen in ordinary things familiar to us. Motion capture technology can be called a transitional link, as it combines the filming of real objects and the creation of unreal images. This approach is utilized in the production of CGI (computer-generated imagery) animated cartoons, along with creating specific effects in films. There exist two primary classes of motion capture systems:

1. Motion capture marker system that utilizes certain devices and tools. A suit with sensors is put on a person, who makes the movements according to the script, imitates poses and actions. Then the cameras capture the data from the sensors and transfer it to a computer, where it is combined into a single three-dimensional model correctly imitating actor's movements, based on which the character's animation is generated later or straightaway. The actor's facial expressions are also reproduced based on this method (in such a situation, markers are located on his face enabling to fix the main facial movements) [2].

2. Markerless technology that does not need any specific sensors or a special suit. Markerless technology is supported by computer vision and pattern recognition technologies. The actor can act in everyday clothes, which greatly speeds up the preparation for shooting and allows you to shoot sophisticated movements (wrestling, falling, jumping, etc.) without the risk of damaging sensors or markers. Shooting is performed using a conventional camera (or webcam) and a personal computer [2].

The technique of combining living and nonliving is not the end point. Now, the creation of realistic characters and landscapes is possible without the use of material objects. So, there are many realistic computer games and cartoons created from scratch.

However, such an unusual phenomenon as the effect of the ominous valley was not mentioned above. With a modern imperfect level of technology, it is precisely this technology that will allow us to distinguish between the images of real and unreal objects surrounding us. What is this effect? The effect of the “ominous valley” is a hypothesis according to which a robot or other object that looks or acts approximately like a person (but not exactly like a real one) causes hostility and disgust among human observers [3].

In 1978, Japanese scientist Masahiro Mori carried out a research investigating the emotional reaction of people to the advent of robots. Initially the outcomes were foreseeable: the more the robot resembled a human, the prettier it seemed – but only to a particular extent. The most humanoid robots surprisingly happened to be unpleasant to people because of small inconsistencies of reality, bringing a sense of distress and anxiety. An unpredicted drop in the chart of “sympathy” was called the “Sinister Valley”, and Masahiro Mori revealed that animation strengthened positive as well as negative feeling and understanding. That is, although modern technology can create

a realistic model of a human, our brain will still be able to recognize fake, by invisible details and the slightest difference in movements [4].

According to experts, by 2025 VR devices will have reached their maximum. If nowadays most of sophisticated helmets and goggles are employed by computer gamers and movies fans, then in a decade advanced glasses will become as common as present smartphones and tablets. Virtual reality will give us a chance and opportunity to go on trips without leaving our homes, make money and paper transactions, run business with oversea partners, attend performances and public events. Within the near future, the use of virtual realities will become widespread and become widespread [4]. This technology will affect almost all fields of people's lives and greatly simplify many tasks. Although using it can cause various problems, such as the “Sinister Valley Effect” mentioned above or people’s complete departure to the virtual world, it’s impossible to deny the indispensability of this invention to lose touch with reality and addiction.

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