

## Use and Importance of Three-Dimensional Images in Fields

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### Abstract

Information on the use and importance of three-dimensional images in the field. There are more and more areas where 3D images are used. The basic concepts of three-dimensional imagery are discussed.

**Keywords:** Cinematography, illusion, rendering, animation, lighting and illustration, interior design, composition.

By the 21st century, three-dimensional graphics are firmly entrenched in our lives, and we don't even pay attention to how they appear. When we watch a billboard or a commercial about a house with a picture of the interior of the room, we don't even notice that the 3D graphic artist's hard work is behind it all. 3D graphics also play an important role in the application of innovative projects in information systems. [2]

3D graphics (three-dimensional graphics) is a special type of computer graphics - a set of methods and tools used to create images of 3D objects (three-dimensional objects). [1] It is not difficult to distinguish a 3D image from a two-dimensional image, as it involves the creation of a geometric projection of the 3D model of the scene into a plane using specialized software products. The resulting model can be an object actually taken, for example, a house, a car, a comet model, or it can be completely abstract. The process of building such a three-dimensional model is called 3D modeling and is primarily aimed at creating a visual three-dimensional image of the modeled object.

Today, based on three-dimensional graphics, you can create a high-resolution copy of a real object, create something new, and bring the most unrealistic design ideas to life. 3D graphics technology and 3D printing technology have entered many areas of human activity and brought great benefits. Three-dimensional images are used every day on TV, in movies, when working with computers, and in 3D games, from billboards to demonstrating the power and achievements of 3D graphics. Automated systems are also studied primarily through models. [3-6] nowadays, 3D printers are also involved in many practical tasks.

It should be noted that in order to model technological processes, we need a 3D view of them. It is widely used for devices used in the modeling of light phenomena, as well as in solving problems of thermal energy. [7-18]. There is a lot of research being done to model a complex process, and we can take that as a reason to increase their efficiency.

Advances in modern 3D graphics are applied in the following areas:

- Cinematography and animation - creating three-dimensional characters and realistic special effects. Creating computer games - developing 3D characters, virtual reality of the environment, 3D objects for games. The most popular games are 3D games. In addition, modeling in the field of education can involve students in science through visual representations.

- Advertising - 3D graphics capabilities allow you to present the product to the market in a beneficial way, with the help of three-dimensional graphics you can create the illusion of a mouth-watering fruit ice cream, etc. with a crystal white shirt or chocolate chips. However, a product advertised in real life can have many flaws that are easily hidden behind beautiful and quality images.
- Interior design - the design and development of interior design is still incomplete today without three-dimensional graphics. 3D technology allows you to create realistic 3D models of furniture (sofa, chair, chair, drawer, etc.) that accurately replicate the geometry of the object and create an imitation of the material. Using three-dimensional graphics, you can create a video showing all the floors of a designed building that may not have started construction.

In order to model the processes taking place in agriculture, we need to be able to anticipate and analyze the principle of operation of the devices in it. For example, the principle of operation of devices in the operation of combines [22-24].

Steps to create a three-dimensional image:

3D images To get a 3D image of an object, you need to follow the steps below. Modeling is the construction of a mathematical 3D model of a general scene and its objects. Texturing involves applying textures to the created models, adjusting the materials, and making the models look real. Lighting adjustment. Creating animation (moving objects). Rendering is the process of creating an image of an object from a previously created model. Composition or composition is the subsequent processing of the resulting image. Modeling - the creation of a virtual space and the objects within it, the creation of different geometries, materials, light sources, virtual cameras, additional special effects.

The most common software products for 3D modeling are: Autodesk 3D max, Pixologic Zbrush, Blender. Texting is the placement of a raster or vector image on the surface of a created three-dimensional model, which allows you to display the properties and material of the object.

Lighting and Imaging - Creates, sets and adjusts light sources in a created scene. Graphic 3D editors, as a rule, use the following types of light sources: point light (diversion rays), omni light (omni-directional light), directional light (parallel rays) and others. Some editors allow you to create a light source. volumetric luminosity (sphere light). Solar energy can be generated using a variety of generators and depending on temperature. [7-21]

Animation is the creation of moving objects, more precisely to mimic the movement of a model. Modern 3D editors include many tools for creating tools, as well as special software products for creating animation with tools for creating three-dimensional models.

Rendering is the conversion of a three-dimensional model of an object into a “flat” image. There are several types of rendering technology, each with its own pros and cons: scan line, z-buffer, ray tracing, global lighting. This is the main process when the created product can be stored.

In short, in the field of 3D technology, you can order 3D modeling services online and work with high-quality three-dimensional graphics. With all of this, you can build your career through a high salary and many projects.

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