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BLENDER SOFTWARE AND ITS PLACE IN THE VIRTUAL ENVIRONMENT

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Abstract: The article discusses the currently rapidly developing virtual technologies and 3D animation programs that can be used in this environment, including the blender program and its capabilities, the history of the program's origin, what can be created using the program, and the benefits of the program compared to other 3D and 2D animation programs. The differences and advantages of the programs are discussed and information is provided.

Keywords: Blender, 2D, 3D animations, rendering, texture, graphics, video, content, mode, image.

INTRODUCTION

A virtual environment is a display of artificial reality by imitating human sensory information with technical means, for example, VR is the ability to see and control 3D objects with glasses and gloves. technology, we can create using 3D programs. The most powerful and user-friendly of these programs is Blender.

Blender is a three-dimensional graphics imaging and design software that can be used on multiple platforms and means creating a digital image of a model that can be 2D or 3D. Can edit videos. This program is open source, which means it is free to use.

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Using the program options, you can make 3D, 2D models and graphics of houses, cars, trees, and other objects, you can move our models using animation functions, you can color the object using textures, and there are many more convenient options. . Another useful aspect of the program is that 80% of the functions in the program are not used, that is, it is more convenient to use the buttons. If we look at the history of the origin of the program, the development began in 1988 with the appearance of an animation studio called NeoGeo in the Netherlands, which Ton Roozendaal was responsible for. It is recognized as one of the most important in the country.

LITERATURE ANALYSIS AND METHODOLOGY

At the end of 1993, the development of the software called "Blender's Windows system" began, the project was taking shape, and by 1995, it was decided to rewrite the code from scratch, the origin. to something called a blender. Designed as an application for creating 3D graphics content.

The first edition was published in early 1998 and was released with popular versions for the Internet and Free, Linux and Free BSD.

But that year they began to face economic problems that led to the closure of NeoGeo research. As a result, Ton Roozendaal and another colleague create Not a Number (NaN). The main goal of this company was to continue the production of the blender.

In 2000, NaN receives large investments that allow it to release Blender 2.0 from the video game engine. But the company's plans did not go as planned, and in 2001 NaN became a small company.

But in early 2002, due to sales problems and the not-so-best economic climate at the time, NaN was forced to close its operations.

In May 2002, Ton Roozendaal, with the help of other people who supported him during his journey, created the Blender Foundation, with the goal of reviving free software development.

In October 2002, Blender was released under the GNU (General Public License) image. Since then, Blender has not stopped growing.

Blender is a very powerful and cross-platform 3D graphics tool for 15 years, and during this time it has gradually expanded its core capabilities, becoming one of the most powerful and powerful 3D graphics editing programs on the market. This latest version has a lot of powerful features for editing, rendering, 3D modeling, animation and rendering, all of which compete with the organizational skills of other professional tools such as Maya or 3D Max. added to the developed and modern interface.

Blender to compete against these professional software packages has managed to build its own catalog of amazing open source tools covering all aspects of 3D modeling, textures, masks, compositing, tactics, camera tracking, particle simulation, video editing, smoke, soft bodies and even a fully integrated video o includes a game engine. 2D and 3D projects.

All these tools and services are integrated into an interface that can be completely modified according to the needs or convenience of users, with smart context menus available everywhere and two editing models. Object mode and edit mode. Of course, the hotkey help is very well done, and after a short time of using it, even inexperienced users can have a perfect knowledge of everything Blender has to offer. Today, Blender attracts the best artists on the market, as well as a large number of newcomers to the world of digital modeling, all of whom are interested in getting the most out of this 3D modeling software, which rivals its most popular. older (and more expensive) competitors.

An image that has or appears to have height, width, and depth is three-dimensional (3D). An image with height and width but no depth is two-dimensional (2D). Remember, where do you see 2D images? - Almost everywhere. Remember even the usual sign on the door of the toilet, which indicates the stand for this or that floor. The characters are designed in such a way that you can recognize and recognize them at a glance.

Methodology: Therefore, they use only the most basic forms. The details of the symbol can tell you what kind of clothes this little person hanging on the door is wearing, or the color of their hair, for example, the symbolism of the door to the women's toilet. This is one of the main differences between the ways 3D and 2D graphics are used: 2D graphics are simple and memorable, while 3D graphics use more detail and contain more information in a simple-looking object.

For example, triangles have three lines and three angles - all this is needed to tell what a triangle is made of and what it is in general. However, look at the triangle from another angle - a pyramid is a three-dimensional structure with four triangular sides. Note that in this case there are already six lines and four corners - this is what the pyramid consists of. You'll see how a simple object can be three-dimensional and contain more information than a triangle or pyramid needs to tell a story.

For hundreds of years, artists have used certain visual tricks that can transform flat 2D images into a true mirror into the real 3D world. You can see a similar effect in ordinary photos that you can scan and view on a computer monitor: objects in the photo appear smaller when they are farther away; objects close to the camera lens are in focus, so everything behind the objects in focus is blurred.

DISCUSSION

If the subject is not very close, the colors will be less vivid. When we talk about 3D graphics on computers today, we're talking about moving images.

Computer graphics continue to amaze the world, creating a variety of truly realistic moving and still objects and scenes. With 80 columns and 25 lines of monochrome text, the graphics are significantly improved, and the result is clearly visible - millions of people play games and conduct various simulations using today's technology. New 3D processors are also felt - thanks to them, we can literally discover other worlds and experience things that we did not dare to try in real life.

Finally, back to the ball example: how was this scene created? The answer is simple: the image contains a computer-generated ball. It's not easy to tell which of the two is real, isn't it? Our world is wonderful and we must adapt to it.

3D computer graphics allows you to create volumetric three-dimensional scenes by modeling lighting conditions and setting perspectives.

This type of computer graphics is clearly superior to vector and raster graphics for learning compositional techniques and tools such as space, environment, light and shadow transmission, line, air and color perspective laws.

In three-dimensional graphics, images (or characters) are modeled and moved in virtual space, natural environment or interior, and their animation allows to see the object from any point of view, to move it in an artificially created environment. and space, of course, along with special effects.

Three-dimensional computer graphics, like vector graphics, are object-oriented, allowing you to modify all elements of a three-dimensional scene and each object separately.

This type of computer graphics has great potential to support technical drawings. For example, with the help of three-dimensional computer graphics editors Autodesk 3D Studio, you can make visual images of machine parts and products, as well as make prototypes of buildings and architectural objects studied in the relevant section of architecture and construction drawings.

At the same time, graphical support can be provided for sections of pictorial geometry such as perspective, axonometric and orthogonal projections, since the principles of constructing images in three-dimensional computer graphics are partially derived from them.

Three-dimensional computer graphics for arts and crafts make it possible to model future products by transferring the texture and texture of the materials from which these products are made. The ability to view the product model from any perspective before applying it to the material allows you to make changes and corrections to its shape or proportions that are no longer possible after the work has begun (eg, jewelry, decorative metal). casting etc.).

In the same direction, 3D computer graphics can be used to support sculpture, design, artistic graphics, etc. Volumetric 3D animation and special effects are also created using 3D graphics. Creating instructional videos for educational programs can be a major use of these 3D computer graphics capabilities.

Tools for working with three-dimensional graphics include graphics editor 3D Studio MAX... This is one of the most popular 3D editors and is often used in film production. Software development 3D Studio MAX was launched in 1993. Version 3D Studio MAX 1.0 was released in 1995 on the Windows NT platform.

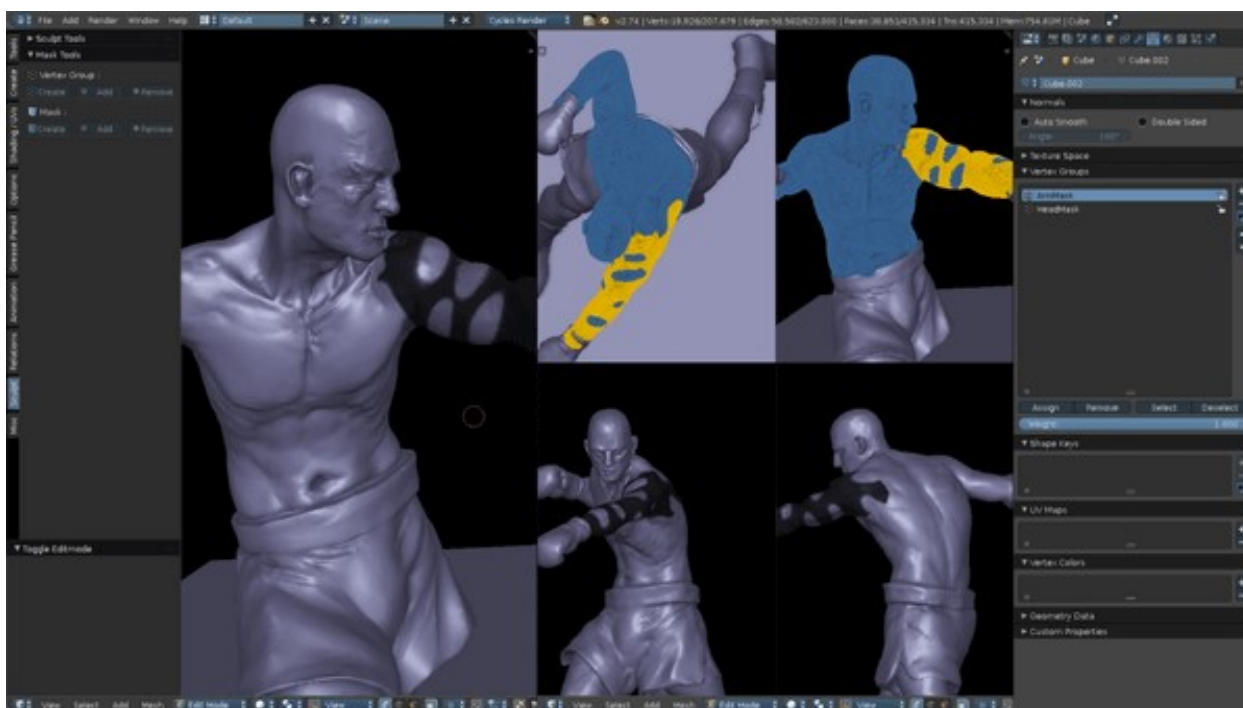
Even then, some experts cautiously suggest that MAX can compete with other 3D graphics packages. Fall 2003 careful releases ZD MAX 6... New particle animation tools together with modules allow creating photoreal atmospheric effects.

There is now built-in support for droppable network objects, full network visualization, data import. CAD-applications, new possibilities of modeling. But in addition to 3D Studio MAX, there are other equally popular 3D modeling programs, such as Maya.

RESULTS

Maya is an analog program 3D Studio MAX, but it is primarily designed for animation and facial expressions of a three-dimensional actor. In addition, it is easier to draw in Maya. 3D Studio MAX is primarily focused on high-quality visualization of objects, in which it is also possible to perform primitive drawings.

The only free 3D suite on the list is almost as functional as paid apps. Blender includes a range of capabilities for 3D modeling, animation and game creation, visual effects and sculpting. A great alternative to 3D animation "MONSTERS". Thanks to the support of the Blender Foundation, the program is developing very quickly and steadily.



Features:

- polygonal modeling, splines, NURBS curves and surfaces;
- sculpture mode;
- particle system;

- dynamics of hard and soft bodies: liquid, wool / hair, etc.;
- skeleton animation;
- integration with built-in rendering engines and third-party renderers;
- video editor;
- functions for creating games and applications (Game Blender).

Disadvantages: lack of documentation in the main delivery.

CONCLUSION

If we compare the Blender program with other 3D graphics and animation programs, this program is primarily a free program. Maya, 3DS max, ZBRUSH, Cinema 4D are all paid programs and they are used only in the same field. For example, 3DS Max is used for interiors and exteriors, Maya for animation, and ZBRUSH only for sculpting. Learning these programs is difficult and demanding.

By learning Blender, you can become a 3D Modeler, 3D Rigger, 3D Animator, Texture Artist, 3D Visualizer, and Game Landscape Artist.

In conclusion, it can be said that the role of the Blender program in working with 3D graphics and 3D animations in the virtual environment is great, and the capabilities of this program are designed for creating objects of this environment.

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