# CAPABILITIES OF COMPUTER GRAPHICS. GENERAL INFORMATION ABOUT GRAPHIC PROGRAMS

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## ABSTRACT

The article mainly provides information about the importance of computer graphics today, the functions of graphics packages. It describes programs that work with computer graphics and what tasks they perform. It gives feedback on the use of computer graphics in each area

**Keywords:** computer graphics package, version, Adobe Photoshop, CorelDRAW, 3D modeling, animation, Blender, Autocad.

## INTRODUCTION

There are various graphics packages designed to solve graphic tasks - from small and very simple (for example, from the solution) to large and very complex. As a rule, such packages are not aimed at programmers, but there are artists, modelers, animators among the users. Most operations are performed using a mouse, graphics tablet and keyboard, as well as not by writing code, but are often available and very important for solving some tasks. Such packages, as a rule, can be divided into packages for two-dimensional and three-dimensional graphics. Two-dimensional graphics packages are usually focused on working with two-dimensional images or their sequences. A simple example of such a package can be a typical image editor, which is available in almost any operating system. At the same time, the package itself can be quite complex. Many similar packages treat the image as a transparent ball of layers. Each layer has a degree of transparency (for each pixel, specific to the entire layer), various visual effects can be applied to the layer. The final image is built as a result of combining such layers with each other.

## LITERATURE REVIEW AND METHODOLOGY

Among the two-dimensional graphics packages, you can divide into a set of raster graphics and vector graphics packages (sometimes you can get on the border between them, but the border between them is very blurred by the capabilities of the vector). With a given resolution, raster packages of two-dimensional graphics represent the image in pixels (more precisely, several rows, several rows per layer). This provides access at the individual pixel level. You

can also work with entire groups of pixels displayed in a specified font at a specified size. However, the size of the image, once accepted, you cannot change it so easily.

Vector packages are focused on the presentation of images as individual objects (primitives) of high resolution. On these primitives, you can perform scaling, rotation, rotation and other operations. Typically, a vector image is translated into a raster with this resolution. However, the original image is stored in vector form, since it is easily scaled to any desired resolution. Three-dimensional graphics packages are focused on modeling three-dimensional objects and modeling scenes built from such objects. At the same time, there are packages aimed at solving problems for various computer-aided design systems (CAD), and there are also packages designed to present constructed scenes. OCR) Optical Character Recognition allows a computer to recognize a printed document with subsequent editing in a word processor. According to the scanner that came to Russia, the character recognition package recognizes all Latin languages, but does not recognize Russian (software products Xerox, recognized products, recognized products, etc.). Two good programs for recognizing the Russian language are Reader (bit) and Mukhat (cognitive technologies). Z scanners are a lightweight version of this program that makes it easier to read Russian than Russian.

Computer graphics is one of the technologies that is widely used in many industries today. With the help of this technology, images, animations, 3D models and other visual content are created. And programs for working with computer graphics make this process easier and more efficient. Below are the main programs for working with computer graphics and their capabilities.

Adobe Photoshop is one of the most popular programs for working with raster graphics. It is mainly used for editing and manipulating images. The main features of Photoshop are:

- Working with layers: Photos can be divided into layers and edited separately.
- Filters and effects: You can apply various filters and effects to photos to make them more aesthetically pleasing.
- Color adjustments: The ability to change color balance, saturation, and other color parameters.
- Masks and selections: The ability to select a specific area and make special edits to it.

CorelDRAW is one of the most popular vector graphics programs. This program is mainly used to create logos, banners, drawings, and other graphic design work. The main features of CorelDRAW are:

- Vector drawing: Create clear and high-quality drawings using various shapes, lines, and edges.
- Typography: The ability to apply various fonts and text effects.
- Color palette: Wide palettes and gradients for working with colors.
- Interactive tools: Interactive tools and functions that facilitate the design process.

Blender is an open source program designed to work with 3D graphics. With this program, you can create 3D models, animations, and even video games. The main features of Blender:

- 3D modeling: Create and edit three-dimensional objects.
- Animation: Apply animation to 3D objects and make them move.
- Rendering: Export the created models as high-quality images or videos.
- Simulations: Create and simulate natural effects such as water, fire, smoke.

Autodesk AutoCAD Autodesk AutoCAD is a program widely used mainly in the fields of engineering, architecture and design. It is used for drawings, projects and 2D and 3D modeling. The main capabilities of AutoCAD are as follows:

- Precise drawings: Create precise and detailed drawings of projects.
- 2D and 3D modeling: Create and edit two- and three-dimensional objects.
- Project management: Manage and analyze various stages of projects.
- Collaboration capabilities: Edit and review projects together with other users.

## DISCUSSION AND CONCLUSION

From the above points, it can be concluded that programs for working with computer graphics are of great importance in the modern world. With their help, designers, engineers and other specialists can perform their work efficiently and qualitatively. Programs such as Adobe Photoshop, CorelDRAW, Blender and Autodesk AutoCAD help in performing various graphic works, and each of them has its own capabilities. At the same time, developing skills in working with these programs opens up many new opportunities for users.

Adobe Photoshop is perhaps the most popular package for two-dimensional raster graphics. This package supports working with separate layers, masks, blending layers using memory. The package has a large number of convenient tools for working through the toolbar. An important opportunity provided by these tools is the allocation of different areas in the image for performing various operations. 3D Studio Max. Autodesk 3ds Max is another package for three-dimensional graphics, animation and rendering. This is one of the most common packages. It supports a large number of different modeling tools, including NijrBS. Various particle systems are also supported, complex animation and inverse kinematics. For separation, you can use as a built-in renderer using a line scan (scannerline), as well as various packages based on ray tracing, such as pamphlets and this valyar. The package itself has a rather violent language and supports various plugins. The package includes a set of tools for animation, including character studio, taking into account lines, curves and other objects, and many other models. Blender. As a free alternative to the 3DS Max package, you can perform the package for modeling blender. This open source package works with all major operating systems. The package supports various primitives, allows you to create animations. Supports scripts, speaks the python scripting language.

AutoCAD. An example of a package aimed at solving the CAPR task is the Autodesk AutoCAD package. It is aimed at solving the tasks of two-dimensional and three-dimensional design (computer-oriented design, CAD). At the moment, AutoCAD is the most common package for automated design. It has been produced since 1982. AutoCAD is an additional package that provides C ++ clinical libraries for expanding. Also, package extensions can be written in VBA i.net, there is a built-in Autolisp language. There are a large number of package extensions for solving AutoCAD architecture, AutoCAD Civil 3D, AutoCAD Civil 3D, etc.

The concept of computer graphics combines a wide range of areas, from simple graphic drawing to creating various images of real-world objects, giving them visibility, and creating new projects with the help of software tools. This makes it possible to work in a multimedia environment. Computer graphics is a widely used software in all areas of society, based on existing and newly created programs. Computer graphics has made it possible to accurately

depict how processes occur in three-dimensional space. Therefore, by entering the main values of the problem under consideration through currently available application software packages, we can obtain its result in graphic form.

Nowadays, there is no industry where computer graphics is not used. Computer graphics are used in all aspects of society. Especially recently, the use of high-end decoration techniques has developed in the printing industry in the creation of colorful illustrated literature, textbooks, and works of art. One of the pressing issues in the lesson is attracting the attention of young students with simple color images. The reason is that today the software, design, and applications of devices such as phones, computers, and tablets in the hands of students are highly developed.

Today, every person is required to use information technologies independently. Because human activity is increasingly dependent on its information, and in particular, on the effective use of information. In order for a specialist in any field to find the right direction in the data set, he must know how to collect, store, process and use information using computers and telecommunications. This program has a lot of functional capabilities, and in the hands of a professional designer, a lot of results can be achieved.

## CONCLUSION

Nowadays, you all know that we can imagine our lives without programs, of course, we need to make effective use of modern technologies. Of these, there are graphic programs. The main ones we use are Photoshop and Corel Draw. Photoshop is a graphic program in which we can process arbitrary images and videos. The most commonly used ones are 3x4 frames, but this program does not stop there. It will take years to learn it to the end. If we come to the Corel Draw program, then we can mainly make logos, we can create michel viatka yoke Z and other advertising papers and all the advertising details in it. We can do some of these things in Photoshop, but not like in COREL DRAW. There are options to create arbitrary drawings and combine them. We can do these things very easily with these graphic programs. I recommend working in the program to you too. I tried to give brief information on this topic, in fact, you can create more on this topic.

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