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TECHNOLOGIES FOR WORKING IN TWO- AND THREE-DIMENSIONAL COMPUTER GRAPHICS

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ABSTRACT:

Nowadays, computer graphics are widespread. Such images appear on television, in newspapers, in weather reports, and in various medical examinations and surgical procedures. A well-constructed graph can make complex statistics easier to understand and interpret. In mass media, "such graphics are used to illustrate articles, lectures, theses" and other presentation materials.

KEYWORDS: three-dimensional (3D), animated graphics, visualization, computer graphics, volumes, surfaces, light sources.

Many tools have been developed for data visualization. Computer-generated images can be divided into several types: two-dimensional (2D), three-dimensional (3D) and animated graphics. As technology has improved, 3D computer graphics have become more common, but 2D computer graphics are still widely used. Computer graphics emerged as a sub-field of computer science that studies the digital synthesis and manipulation of visual content. In the last decade, other specialized fields have developed, more related to information visualization and scientific visualization "visual three-dimensional phenomena (architectural, meteorological, medical, biological, etc.), where volumes , to realistic rendering of surfaces, light sources, etc., possibly with a dynamic (time) component

Advances in science related to the development of modern computer graphics, electrical engineering, electronics, and television occurred in the first half of the twentieth century. Screens can display works of art. The Lumière brothers "used mats to create special effects for the earliest films since 1895, but such displays were limited and non-interactive. The first cathode ray tube, the Brown tube, was invented in 1897 - this in turn, it allows the oscilloscope and the military control panel - the direct pioneers of the field, because they provided the first two-dimensional electronic displays that respond to software or user input. computer graphics as a discipline remained relatively unknown until the 1950s and beyond. The World War II era was a time when the discipline grew out of a combination of both pure university and laboratory technology, such as more advanced computers and the United States military. The development of radar, advanced aviation and rockets were developed during the war. New types of displays were needed to process the large amount of data generated by such projects, which led to the development of computer graphics as a discipline. Douglas T. Ross conducted a personal experiment of the Whirlwind SAGE system in which a small program he wrote captured the movement of a finger and displayed its vector (its trace) on the display. One of the first interactive video games to feature well-known, interactive graphics, Double Tennis, was created for the oscilloscope by William Higginbotham in 1958, entertaining visitors to the Brookhaven National Laboratory and simulating a tennis tournament. In 1959, when Douglas T. Ross was working at MIT to convert mathematical statements into computer-generated 3D vector vectors, the Disney cartoon character again. Electronics pioneer Hewlett-Packard went public in 1957 after being incorporated a decade earlier and has established strong ties to Stanford University through its

founding alumni. This began a decades-long transformation of the southern San Francisco Bay Area into the world's leading center for computer technology - now known as Silicon Valley. The field of computer graphics developed with the advent of computer graphics hardware.

Three-dimensional graphics are actively used in science and industry, for example, in design automation systems (CAD; for creating solid elements: buildings, machine parts, mechanisms), in architecture to create images on the plane of a screen or printed product sheet. visualization in modern medical imaging systems (which includes the so-called "Virtual Archeology".

Its most widespread use is in many modern computer games, as well as an element of film, television and printed materials.

3D graphics usually deals with a virtual, imaginary three-dimensional space displayed on a flat, two-dimensional surface of a display or a sheet of paper. Currently, there are several methods of displaying three-dimensional data in volumetric form, although most of them represent volumetric properties very conventionally, since they work with a stereo image

Summary

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During the pedagogical practice in In particular, we were convinced that the innovative methods used in the teaching of various relevant departments of computer graphics in the course of training in this school can be developed based on the above recommendations and suggestions.

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