



DIGITAL CORRECTION METHODS IN CREATING IMAGES

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Methods of image formation. Images are divided into 3 types depending on the methods of formation: 1) raster images; 2) vector images; 3) fractal images. They differ from each other in the technology of generating and processing information in the form of images. Raster imaging is mainly used in electronic and polygraph printing. A raster image consists of a set of dots in the form of a two-dimensional array (matrix), which are called pixels. The raster image consists of the smallest pixel. Depending on the size of the image, its capacity will also increase. The capacity of the screen is parametric and is determined by the number of dots per inch. Raster images are rarely produced using computer software. For this purpose, a drawing or photograph drawn by a professional artist is entered into the Computer using technical means.

ABSTRACT

Today, not only in the world, but also in our country, the computer industry is developing on a very large scale, all our work requires digital technologies. These tasks are performed by intelligent computers. This article focuses on imaging software, which is one of the basics of working on a computer. It covers visualization techniques, tools and algorithms.

Recently, digital photo and video cameras have been used to insert raster images into a computer. Therefore, the main purpose of raster graphics is not to create an image, but to process an existing image. Raster images are divided into the following types: binary, gray, palette, full gray. In this case, the elements of the image can accept only two values (0 or 1). These images may appear differently. But in most cases it occurs as a result of replacing gray, palette, and different color images with a fixed or adjective boundary number binary image. It does not require much space to store binary images. They will need 1 bit of space for each element. The elements of a gray image take on different values of a particular color intensity. Typically, 8 bits are used to store each element of these images. Gray images are one of the most widely used images in solving various



practical problems. Each element of the palette images is matched to the color in one cell of the color card (palette). A palette is a two-dimensional array with different colors in its rows and the intensity of a particular color in each column. Elements of full-color images store information about the brightness that makes up the color. At the same time it differs from palette images. Practical problems are characterized by how fully the necessary information in the image is expressed, using the specific features of the problem of choosing which type of image. It should also be noted that the use of full-color images requires a large amount of computing resources.

The positive aspects of a raster image are:

universality (any image can be presented in this form);

simplicity of formation;

High accuracy of color rendering. The disadvantages of this method are:

their size is too large;

Decreased image quality as their scale changes.

The refore, a large amount of memory is required to encode and store each image. You cannot zoom in to see very small objects in an image. This can cause some problems during raster image processing. Vector images are composed of a set of simple graphical objects that correspond to its typical element. The main element of the Victorian image

This line does not take up much space in computer memory, because only the parameters of the line are displayed in memory. In it, simple objects are combined

into complex objects. Although the vector image is stored in computer memory as lines, the image is displayed on the screen as dots. Calculates each parameter before displaying the image. This is why a vector image is called a computational image. With the help of vector graphics it is possible to carry out a simple type of decoration. An important feature of a vector image is that it consists of simple elements. When displaying a vector image, it calculates the linear geometric attributes of simple elements, taking into account the relationship between its initial and required dimensions, as well as the allowable error in the output devices (monitors, printing device). This method significantly increases the possibility of scaling. No matter how much you increase the image size, its quality does not change. When the size of the image is too small, the lines of the simple elements will overlap and it will change (may be distorted) due to the compression of the errors. Fractal images are based on mathematical calculations just like Victorian images. But it differs from it in that it does not store any object in Computer memory. The image is built on an equation (or system of equations), so there is no need to store anything other than formulas.

Algorithms for image separation.

Experiments on the reproduction of borders show that photographic, television images with a boundary are better perceived by humans than a natural landscape in which colors pass without notice. This feature and the problem of removing the barriers in the view of the spread of the border in the image puts the problem of automatic processing of images,



enhancing the border in front of it, that is, increasing the difference between background and object light. Methods for solving this problem are widely used in image processing. Usually the boundary is amplified using high frequency filters. It can be seen that the working masks of these filters have an average value (0). That is, the sum of the negative and positive values in the mask is 0. This is because when the mask is applied, a result of 0 should be obtained for a homogeneous area and a different result of 0 for the boundary area. Another way to strengthen the boundary area is statistical differentiation. In this case, the value of each element is divided by the statistical value of the mean quadratic constraint. There are many other methods of boundary amplification that take into account different algorithms. In recent years, median filtering, which is a non-linear method of image processing, has been widely used. This method is a classic leveling process and has the following advantages:

1. Sharp contrast-boundary areas in field lighting are preserved.
2. Scattered point interference is effectively leveled.

The essence of this method is to move a window across the image and the center point value is replaced by the value that emerges when the values in the window are sorted by size. The median method is more effective in eliminating local (hair) disturbances. Interference corresponding to the size of the filter is completely eliminated. Dual-value or binary images have a finite class of interference because of their simplicity relative to multi-

value. Logical filtering methods are mainly used to eliminate them. The algorithms of these methods are heuristic, i.e. the consumer obtains the filter parameters depending on the quality of the source image. Interference in double-value images is mainly due to four reasons:

1. Dirt in the original image, ie obstructions;
2. Low paint quality;
3. Minor errors in the process of memorizing the image;
4. Errors such as incorrect selection of the threshold for converting multi-value images to double value are caused.

Removing these imperfections is called removing the obstructions in the images, and one of the most effective ways to eliminate them is filtering. The development of filtering algorithms provides effective benefits in overcoming the major interference encountered in double-image imaging. The most common obstacle is the unevenness of the line shape. It comes in different forms: **1.** Thanks of thickness; **2.** Excessively wide and narrow sections on the lines; **3.** Unevenness of the contour of the lines. Another error is the small spots that stand alone in the image. The disadvantages of isolated gaps and the simplest, but also difficult to eliminate, are the breaks in these lines and the merging of several lines. Selecting the size of the filters and the threshold value gives a good effect when changing some parameters for quality processing of images. Depending on the size of the interference, double-valued images are divided into four classes:



Extremely disturbing images, i.e. the presence of all kinds of disturbances in the image;

There are all obstacles except for breaking and joining the lines;

The presence of small gaps in the image in the form of boundary irregularities;

The presence of interference only within the boundaries of the object.

To eliminate interference, dual-value images mainly use leveling filters that change the center value based on the surrounding homogeneous elements.

REFERENCES:

1. B. Boltaev, A. Azamatov, A. Asakarov, M. Sodikov, G. Azamatova State Scientific Publishing House "Fundamentals of Informatics and Informatics", Tashkent-2015.
2. B. Boltaev, A. Azamatov, A. Asakarov, M. Sodikov, G. Azamatova "Fundamentals of Informatics and Computer Engineering" 2nd edition. Cho'lpon, creative house of publishing and printing. Tashkent – 2017.
3. www.ziyonet.uz .
4. www.kitob.uz