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CREATING AND EDITING PICTURES WITH GRAPHICS PROGRAMS

Abstract: We demonstrate the use of tools to influence the form of animation curves to change the direction of motion of the object, its speed, acceleration, moment of transition in a particular situation. These operations are performed by editing keys, editing tangents (or tangential) and directly through functional curves.

Keywords: computer animation, image editor, functional curves.

Statement of the problem. Among computer technologies that are increasingly common in various areas of our lives, a place of honor takes computer graphics and its derivative - computer animation - a phenomenon that connects a computer drawing or model of the movement. This type of animation is an important part of computer design, which is widely used in the industrial, scientific, multimedia, advertising, cartoons and many other areas.

The department geometric modeling and computer graphics NTU "KPI" prepare for specialization "Computer graphics processing technology." Among the subjects taught in the program preparing students - "Modeling the special effects in computer graphics" - very interesting but challenging course that provides the basis for applying different techniques of modeling, the basics of animation, visualization to create realistic three-dimensional models, add various effects surrounding area in order to achieve the greatest possible natural and unsurpassed impression that is often used commercials.

Analysis of recent publications and achievements. Publications, which deals with the modeling, animation and visualization in computer graphics are not many and they are usually technically complex or highly specialized [1–2], because in our opinion, for learning some techniques and techniques in the creation of computer animation is appropriate and useful to review the basic principles of such a powerful and flexible tool to edit animation curves, used to edit the animation. The issue of effective use photo editor with animation and editing function curves in order to achieve certain effects, and is devoted to this work.

The wording of Article goals. Identify opportunities use graphical editor for editing function curves in creating animation.

The main part. Modeling special effects with the help of computer graphics - this is a difficult dynamic process consisting of several stages, one of which is animation of which depends largely on the impression of the reality of what is happening. Therefore, a role that is given animation deservedly belongs to the top. Animate can not only position the object or its size, but also any object properties, including color, transparency, visibility, shadow, ie, all attributes that have multiple values.

There are several types of animation:

- key - the most common type of animation that uses the attribute dependence of time;

- procedural - the most suitable for the provision of randomness in the movement or cycling;

- side (indirect) - used when it is necessary to link together any conversion of one object according to the motion of another object;

- dynamic simulation - is used when you can only affect the initial conditions, the rest takes computer.

There are times when you need to edit the animation: it is necessary to change the time interval or distance between frames, add or remove keyframes, make changes in the speed display, copy, animation or even create its cycles. Tasked advisable to settle in the most powerful and flexible tool that is used to edit the animation - animation curves editor. In view of this editor graphically the dependence of a parameter of the time. Point-to-play in this window displays the time and the position in which it was asked keyframe and keyframes between curves show acceleration. If you make changes to the shape of the curve can affect the type of animation. For proper building animations is important to understand the meaning of the functional curves. For their kind can judge the direction of the object, its speed, acceleration, moment of transition in a particular situation. All work in graphics conventionally divided into the following types: editing keys, editing tangents (tangent) or directly work with curves.

To quickly change shape curves using different types tangents such як **Spline** (сплайн), **Linear** (лінійна), **Clamped** (стиснута), **Stepped** (крокова), **Flat** (плоска). The example of animation created for an object that revolves around two axes in a given time interval (Fig. 1), consider how to use the graphical editor can influence the type of animation.If you need to set to the task continuously loops in these movements, this can be achieved by using the commands Curves → Post Infinity → Cycle (Figs. 1 and 2).
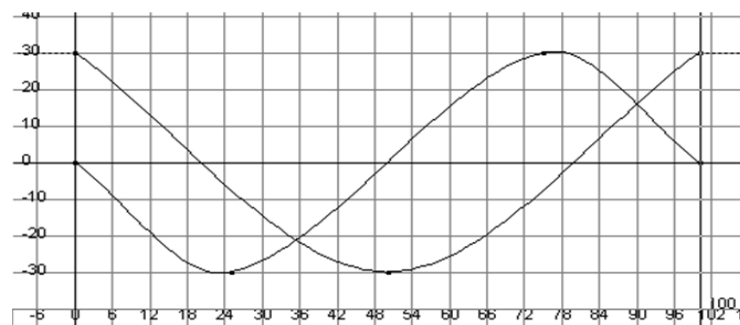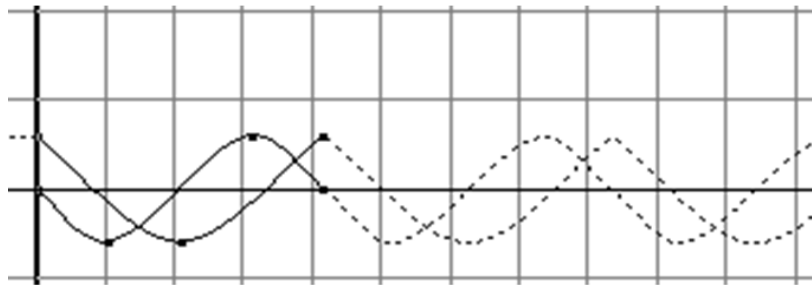

Figure 1. Animated curved object rotates

Figure 2. Animated curved object rotates depicted in cyclic mode

Repeat at the junction will be equal if applied to all selected keys are flat **(Flat)** tangents (Fig. 3), and tangent **Spline** selected for the first and last key provide smooth transition between the beginning and the end of the animation curve (Fig. 4).
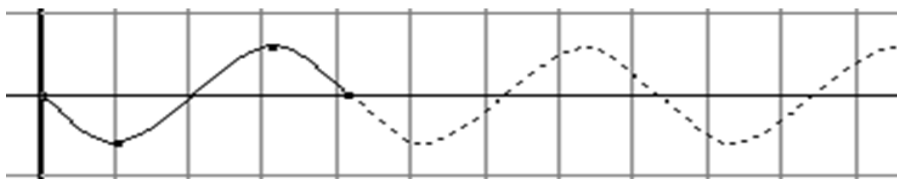

Figure 3. Animated curves with smooth joints repetitions

These changes in the shape curves using a graphical editor accordingly affect the animation object. In this example, the motion will be continuous without jerks.

Conclusions. Demonstrated examples of graphic editor with animation and editing function curves to achieve the goal of influencing the type of animation. Outlined in the recommended materials to use in the classroom for creating and editing computer animation.
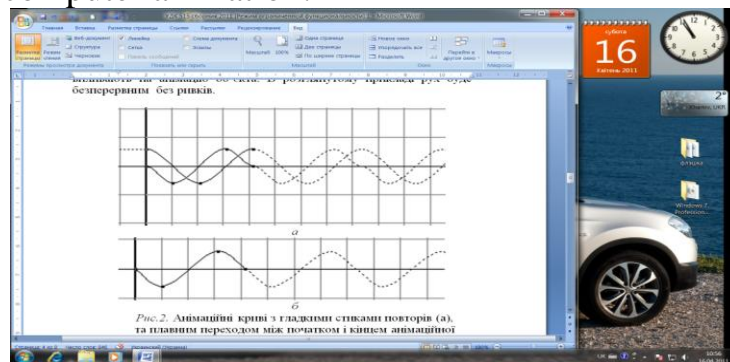

Figure 4. Animated curves with a smooth transition between the beginning and end of the animation curve

Prospects for further research. Planned development application examples editor.

literature

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2.   Создание визуальных эффектов в Maya v. 4 и 5/ Кианг Би Нг ; Пер с англ.. Кузнецова А.В. – М. : ДМК Пресс, 2004. – 352 с. :

Аннотация

Продемонстрировано применение инструментов влияния на форму анимационных кривых с целью изменения направления движения объекта, его скорости, ускорения, момента перехода в то или иное положение. Эти операции выполнены с помощью редактирования ключей, редактирования тангенсов (или касательных) и непосредственно через функциональные кривые.

Ключевые слова: компьютерная анимация, графический редактор, функциональные кривые.

Анотація

Продемонстровано застосування інструментів впливу на форму анімаційних кривих з метою зміни напрямку руху об'єкта, його швидкості, прискорення, моменту переходу в те чи інше положення. Ці операції виконані за допомогою редагування ключів, редагування тангенсів (або дотичних) і безпосередньо через функціональні криві.

Ключові слова: комп'ютерна анімація, графічний редактор, функціональні криві.