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Malishev N., Beznis Y.

## **The Application of Computer Technology in Filmmaking**

Belarusian National Technical University  
Minsk, Belarus

Historically, cinematography emerged from the challenge of capturing an image of the continuous motion of objects on a tangible medium and projecting that motion onto a screen. The solution to this problem required the creation of several technical inventions: flexible light-sensitive film, chronophotographic apparatus, and the fast-evolving image projector. The idea of capturing and representing movement could only be realized through the advances in science and technology at the end of the 19th century. By that time negative photography already existed, exploiting advances in chemistry and optics, and as soon as transparent celluloid film was developed that could be emulsion-embedded to create a photosensitive layer, the last problem remained: how to capture and display a multitude of individual images so as to create the illusion of continuous motion of the captured object. In the 21st century, the development of the film industry from a technological point of view is moving towards a more and more immersive human experience in film. In the beginning, all movies were shot on film, but now more and more movies are being made with digital cameras [1].

The advantages of digital filmmaking also include the simplicity of editing when working with the material. Film editing is a technical process, whereas digital technology allows the image to be manipulated. Visual effects have become a tool for immersing the viewer in what is happening on the screen. Visual effects include a set of different

techniques and methods. Some of them are used during the filming process, while others are used during the editing period. In order to make computer-generated video difficult to separate from live camera recordings, it is necessary to create artificial lighting that is not differentiated from real video. This effect can be achieved by applying real-time ray tracing technology. It's a physical simulation of light. Based on the laws of geometric optics, the software «calculates» the lighting of three-dimensional objects as we see it in real life. In virtual space, each section of the 3D model corresponding to a single pixel on the screen is analysed: the angle at which light from a source or other objects falls on it, how that light is reflected, refracted and scattered. The actual light path is tracked by an imaginary ray coming out of the camera lens. As a result, each pixel on the screen gets a different colour depending on whether it matches the glare, shadow or reflection. As we can see, the creation of special effects in the cinema requires not only careful preparation but also great human and financial resources. Day by day, new developments in technology and software are incorporated more and more actively into the filming and editing process, making films more spectacular and at the same time more realistic. Among other things, drones have been actively used in the filming process for almost 10 years now. The strength of drones is their mobility, making it possible to shoot from different angles and quickly zooming in and out of the subject without any gluing, creating an impressive effect [1].

#### References:

1. История, классификация и система информационных технологий медиаиндустрии [Electronic resource]. – Mode of access: <https://studbooks.net/722237/zhurnalistika/istoriya>. – Date of access: 18.03.2022.