

## **THE IMPACT OF DIGITAL TECHNOLOGY ON FILM INDUSTRY**

**Zyuzin N.N.**, *zyuzin.kolya.4195@gmail.com*

*Dmytro Motorny Tavria State Agrotechnological University*

Watching films relieves viewers from tensions of the past day, from feelings of longing, guilt, and fear. Millions of viewers fill cinemas every day, and even more people watch movies on television and PCs. One of the reasons why people love film industry products so much is their spectacularity. In order to provide the audience appeal in films the CGI is used. The computer-generated imagery actually are still and moving images created through 3D computer graphics and implemented in visual arts, printing, cinematic special effects, television and simulation. The example of the CGI usage (production and the outcome) in *Life of Pi* [1] is shown in Figure 1.



Fig.1. *Life of Pi*. A scene production photo and a film frame.

The software types employed to create computer graphics are modeling, animation, shading & texturing, FX, and rendering. Currently, no film can be produced and edited without computer graphics. But how were films made before? Indeed, back in the 1980s, film makers did not have the opportunity to use computer graphics due to its absence. Long before the advent of computer graphics, a painted background was used to deceive viewers, since most often films were shot in filming pavilions [2] where huge canvases created the illusion of space. Using a canvas displaying town streets is presented in Figure 2.



Fig.2. Filming a town with the usage of a canvas

Most viewers did not notice the catch. There is an excellent example of the use of such a canvas among the well-known films, namely *«The Godfather Part II»*. It is the episode when young Vito Corleone was silently watching the Statue of Liberty (Fig. 3). This scene was filmed on a stage and the actor was actually looking at a huge photograph. Thanks to the imaginative production idea, the impression is created that the hero is actually examining the monument.



Fig.3. Using a photograph for a portrait frame

Computer graphics directors and editors have succeeded in creating realistic models of human and animal actors since then. In films where they perform some kind of dangerous tricks, the participation of the actors themselves is not required, only their faces are imposed on the corresponding 3D models and it is impossible to distinguish whether it is live filming or graphics effects. It is thanks to computer graphics that directors got the ability to create anything, regardless of the shooting circumstances. Currently, computer graphics is a tool for directors and at the same time magic for spectators.

Nowadays, to create a realistic landscape or city traffic, a futuristic world, etc. green and blue backgrounds [3] are used. A background is installed on special mounts, in addition, gaffers and lighting technicians thoroughly adjust the lighting for the succeeding stage of editing, when the background is cut out and replaced. The whole process of working with this very background requires serious assistance from visual effects artists and directors. In large-scale cinema projects, entire teams of 10-20 people are assigned for this type of work.

Back in 1930, film makers learned to use a technology called ‘hand painted backdrops’. 10 years later they invented the mentioned above green background technology that is used today within digital editing. This technology has been improved for over 80 years.

In 2021, some film makers are considering large-scale implementation of a game engine to create films in VR. Jon Favreau was the first director who used a game engine (the Unity game engine) in movies in 2019 [4]. According to Jose Antunes, game engines are used by film makers in order to replace ‘classic previsualization methods with an immersive experience that cuts production time’ [5]. Game engines also offer newcomers to the cinematography like independent creators cutting-edge options that previously were only available to big film and series production companies. Since this is the forthcoming future, watching movies with virtual reality glasses is an inevitable entertainment activity.

## **References**

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**Scientific adviser:** *Zaitseva Nataliia, Senior Teacher, Foreign Languages Department, Dmytro Motornyi Tavria State Agrotechnological University.*