Computer Graphics in Movie Making

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Abstract: - **Entertainment has the higher appeal when compared to other areas .Computer Graphics is the reason behind this popularity .Earlier movies used to be low-key in terms of graphics, but after adapting to CGI, cinema has changed completely .The movies that we watch today are testimony to the revolution of graphics in movie industry .This paper reviews the application of graphics in entertainment industry.**

*Keywords***: New era of graphics, Animation, Graphics, Visual effects, composting.**

I. INTRODUCTION

Computer graphics and visual effects are an essential part of the commercials and movie industry nowadays. Different types of computer graphics(CG)techniques used in the modern documentary productions such as computer generated 2D and 3D images (CGC),computer animation .Computer graphics has been widely used in physics ,biology, video game industry ,education and military matters. The main possibilities that CGI provides for the cinematography and advertising videos are different kind of visual effects and 3D computer graphics , which are used in animated movies much as in features films and commercials. The main objective of this paper to educate people above the movie making industry .Many people wonder when they see worldly-wise experienced scenes in movies .Peoples would not be having the idea regarding every scenes in movie ,they know that those scenes are mostly done with the help of computer but in reality many computer technology are used .

1 .NEW ERA OF MOVIES

The demands for the digital effects, 3D visualization , Computer Graphics and all the other modern technologies was growing and is mounting up.
James Cameron, the maker of AVATAR movie .The movie production was late due to lack of CGI possibilities and absence of knowledge for creating some scenes where new technologies of computer graphics were needed in a very high level .As we see, a stunning scenes in Avatar like rain forest ,which amazed everyone who saw it on the screen, luxurious Pandora world is digital starting from jungles, waterfalls and plants to six-legged creatures, avatars and flying dragons. [1]

James Cameron and other movie creatures invented so called "Rig helmet" with special lighting and camera pointing to face. The camera recognizes the human face, expressions and muscle movements without stand out points and sends information to a computer hardware which has a 3D platform with already made textured and rigged 3D model. At the time when a human starts to move a 3D model starts to move identically. This technique helped to create the feeling for audience that avatars are realistic human-like creatures, because of detailed facial expressions and real looking movements.

[2]

[3]]

James Cameron has planned underwater motion capture for AVATAR2. As he aims to set some o the stories underwater on the fictional planet .But capturing the footage proves difficult .Avatar films are mostly made using motion capture technology, where in actors wear suits with dots all over them that track their movements and expressions and are then processed in computers to result in digital performance. Most motion capture system is what they call optical base ,meaning that it uses markers that are photographed with hundreds of cameras.

[4]

• The new digital era has widely changed in comparsion with traditional production manner of films ,brining new likelihood and potentials to the industry of cinematography.

II. ANIMATION

• The images or objects are manipulated to appear an moving images in a dynamic medium known as Animation. In traditional medium images were drawn by hand on cels to be photographed and exhibited on film. Nowadays most animations are made with computer-generated imager (CGI).

• History of animation started long before the development of cinematography. In 1833 the phenakistiscope introduced the stroboscopic principle of modern animation, which would also provide the basis for the zoetrope (1866), the flip book(1868), the praxinoscope (18770 and cinematography.

[5]

A phenakistoscope disc by Eadweard Muybridge (1893)

[6]

Types of Animation:
- ❖ Full Animation
- ❖ Limited Animation
- ❖ Rotoscoping
- ❖ Live-Action /Animation
- ❖ Stop motion Animation
- ❖ Computer Animation:1.2D Animation

2.3D Animation
Animation software enables users to generate moving graphics from visual files. Depending on the particular program, users can animate some variation of 2D, 3D, hand-drawn or computer generated graphics, often with the option to add music or additional effects. These programs are most commonly used by animators working on films, TV shows, and commercials, as well as graphic designers creating promotional materials and website media for various industries. Animation software platforms may integrate with drawing software, video editing software or 3D modeling software. Artists and

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freelancers who use one of the best free video editing software should properly research to ensure their animation software will integrate with their video platform.

To qualify for inclusion in the Animation category, a product must:

• Provide functionality for generating animated visuals from 2D and/or 3D images for use in video files

• Import media files from other programs or offer built-in drawing tools

• Integrate with video editing or effects software to finalize animated videos

[7]

Zootopia is a 2016 American 3D computer-animated comedy film produced by Walt Disney Animation Studios and released by Walt Disney Pictures. It is the 55th Disney animated feature film. It details the unlikely partnership between a rabbit police officer and a red fox con artist, as they uncover a conspiracy involving the disappearance of savage predator inhabitants of a mammalian metropolis. It earned numerous accolades, and received an Academy Award, Golden Globe, Critics' Choice Movie Award, and Annie Award for Best Animated Feature Film, as well as receiving a nomination for the BAFTA Award for Best Animated Film.

III. CGI IN VFX

The visual effects and the production of films are basically produced from the other development stages .The best visual scenes and the computer graphics characters are just taken a part from the vibrant colours.

At this stage of new era the visual effects is are about created with computer generated by 2D and 3D environments and particle systems .The computerized

visual effects in the production of movies used to import the practical properties like explosions ,fire ,rain, waterfall etc. ,which all of the parts are made with raw materials. Visual effects are generated in such a way thateven in every part which is impacted with an computer graphics looks like an live action context.Their are two categories in which one is about special effects and the other is about digital effects. Special effect is that covers the live action which is taken place by the visual effects The digital effect is that the imaginary whih is taken from the photography it covers the various processes with the computer generated imagery to look realistic parts . Just think about how fast things changed. For example, some years ago Walt Disney artists drew by hand using a pencil. Now, if you think, in the last couple of years Walt Disney together with Pixar produces mostly animated movies. Why is it so? There is a list of reasons, for example one of the main motives is that animated movies look more attractive and interactive than hand drawn cartoons. The next reason is that 3D graphics provide more detailed image, which means that you can see every particle of a character starting from hair spring up to its wrinkle. Nevertheless, let's look what are the essential steps of production of 3D animation in the movies are:

1. Modelling: Includes structuring and making shapes of a model.

2. Texturing: Includes applying materials and textures to the model. Furthermore, it includes setting up and adjusting material properties like reflection, glossiness and light consumption.

3. Rigging: Includes setting up the invisible bones to the model and rigging points. 4. Lighting: Includes the installation of light sources in the modelled environment.

5. Animation: Includes the adjustment of rigging points and setting the key frames into a sequence

[8]

• TOP 7 VFX STUDIOS IN INDIA
• Prime Focus
• Red Chilies
• Prana Studios

- Reliance Mediaworks
- TATA Elxsi
- MPC Bangalore
- Mauta VFX

In conclusion, visual effects companies have helped movies bridge the gap between imagination and reality.There are also many processes and stages that visual effects companies can offer,depending on the range of skills their artist possess

4.3D COMPOSITING

For the last chapter of the empirical part of the thesis a project was conducted in order to get a real practice of computer graphics VFX. The main goal of the practical part is to choose one contemporary motion graphics visual effect, which is used in postproduction, and learn how to implement it in real practice. Technique that was chosen for the practical part is the compositing between 3D animation and real video footage. There are a few types of compositing in the industry of visual effects. For instance, blue- and green-screen compositing were discussed earlier in the theoretical part of the thesis. For practical part their gonna   use 3D compositing method. This technique is also very popular among industry studios for post-production of commercials and movies. Generally speaking, 3D compositing is a technique that includes several elements, but mainly live action video footage and CGI (in this case 3D graphics). Both elements are composited and layered together into a single motion picture .

[9]

V. CONCLUSION

The movie industry today is very different from what it was earlier. Major credit goes to the evolution of graphics . The computer graphics applications like VFX and CGI have changed the landscape of the movies in general. This paper is a definitive summary of those advancements

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