Recent Trends Visitation in VFX and SFX in the Animation World

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Abstract- This paper gives detailed information on Trends in Virtual Effects and its Sub-Concept of CGI, also about the importance of Special Effects in Animation and Education Sector. This Paper tell about VFX and also involves the assimilation of live action and CGI to create realistic environment, effects and shots, which would otherwise be impossible or dangerous to film in real life scenario during filming. Some new Trends of VFX are followed by the film Making Industries and Institutes of Animation to clear the vision and provide no chance for audiences to distinguish between the real scene and digital Virtual scenes. The paper talks about a different concept in production pipeline of Pre-Visualization. It tells about photorealism and how to achieve photorealism in films.

Keywords: Visual Effects, Special Effects, CGI, Pre-Visualization, Photorealism.

I. INTRODUCTION

Visual effects (abbreviated **VFX**) is the process by which imagery is created or manipulated outside the context of a live Action shot in film making.

Visual effects involve the integration of live action footage i.e. *Special Effects **(SFX)*** and generated imagery (digital effects and/or optical effects) to create environments, inanimate objects, animals and/or creatures which look realistic, but would be dangerous, expensive, impractical, time consuming or impossible to capture on film. Visual effects using *Computer generated imagery (CGI)* have recently become accessible to the independent filmmaker with the introduction of affordable and easy-to-use animation and composition software.

Visual effects are often integral to a movie's story and appeal. Although most visual effects work is completed during post production, it usually must be carefully planned and choreographed in pre-production and production. Visual effects primarily executed in post-production with the use of multiple tools and technologies such as graphic design, modeling, animation and similar software, while special effects such as explosions and car chases are made on set. A visual effects supervisor is usually involved with the production from an early stage to work closely with production and the film's director design, guide and lead the teams required to achieve the desired effects.

Visual effects primarilydivide into two Groups of

• **Special Effects:** It covers any visual effects that take place in live action, e.g. on set explosions or stunt performance.
• **Digital effects** (commonly shortened to **digital FX** or **FX**): It covers the various processes by which imagery is created or manipulated with or from photographic assets. FX is usually associated with the still photography world in contrast to visual effects which is associated with motion film production.

Digital FX also divides into Different subgroups of professions such as

• **Matte paintings and stills:** Digital or traditional paintings or photographs which serve as background plates for 3D characters, particle effects, digital sets, backgrounds.
• **Motion capture (or Mo-Cap):** The process of recording the movements of objects and or people. In a session of motion capture, the subject whose motion is being captured is recorded and sampled many times per second by different scanners placed all over the environment.
• **Modelling:** Creating 3D models of props or characters using specialized software.

What's the difference between VFX, SFX and CGI?

• **VFX** generally comes into the picture during the post-production of a film/TV, etc. Originally the scenes are shot in front of a green screen and required effects/details are added with the help of high-end computer systems.

• **SFX** It basically involves practical effects that are created and implemented directly on the set. Special effects comprise prosthetic makeup, animatronics, puppetry, creature suits, etc. For example, practical puppets were created as animatronic version for the different shots of different characters.

• **CGI** is the application of computer graphics to create or contribute to images in art, printed media, video games, films, television programs, commercials, videos, and simulators. They are characters, models or designs that are created using a computer. CGI is most commonly used to refer static or dynamic 3D computer generated images but it also refers to static or dynamic 2D computer generated images.

Trends in VFX:

• **Previsualization:**
From mid-1990s digital Pre-Visualization became an essential tool in the big budget feature film.

Previz is the process of visualizing the complex scenes in a movie before filming. We know that storyboards provide a general look of each scene but previz indicates the scene that VFX artists need to have. In case your film has lot of computer graphics and unique creatures then your filming will be within a background of blue or green screens. But how your live actors will perform the way you want it would be better if they could see the final version and here comes *"Pre- Visualization".*

Why is Pre- Visualization Needed?

Animated Previz helps VFX Supervisors to improve and experiment on camera movements, lighting placement, staging and duration. If virtual camera movement or action sequences are badly timed without Previz then the film's narration will miss the attention from the audience. A good Previz for VFX can differentiate between a good movie and a great movie. A Previz VFX Supervisor not only decides shots but the whole sequences, the camera angles, spacing, lenses and everything about a film.

Modern Previz team uses computer animation to show the director's choices in motion. The Previz starts at the pre-production stage and it provides entire cast and crew clear vision about how the actions would be during the shooting process.

Previz for VFX is usually created by 3D tool in virtual environment.

Pre-Visualization Supervisor Mark Nelson said in one of his interview that *"We replaced creatures with various designs four or five times throughout the Previs process and that is the kind of job during Pre-Visualization."* Film Maleficent had 1,200 Previs shots and 30 different sequences. Previs may look like simple grey shapes with characters or it may look like sophisticated stunning video games. Previs artist may add temporary music and dialogues into the edited rough version of the complex shots.

Making Use of Pre-Visualization in Movies:

In the Movie like "*Rise of the Planet of Apes*" group of Previz artists choreographed every shot featuring a digital ape VFX artists created rough version of the complex shots. Previz VFX artists created about 1500 shots for Previz with 50 artists working on different stages for this movie of Ape. In case of this movie static storyboard failed to convey enough description because it had too much action. Previz animatics of Apes gave clear idea about the director's vision to the VFX artists from focal length to lighting.

Best Software used for Pre- Visualization:

For big movie project director hires VFX Company to do the Pre-Vis.But in case you are not in a position to hire Pre-Vis team then you can use Software like Lightwave 3D, Maya, Autodesk Motion Builder, Softimage XSI which are commonly used for Pre-Vis.

Photorealism: Most Important trend.

The word "photorealism" has gathered much-deserved attention and applications across all traditional and modern-day artistic endeavors. In simple words, photorealism is a visual effects technique that includes drawing, painting and all graphic material available at a photographer or filmmaker's disposal and then using different platforms and mediums to make the gathered information as life-like as possible. Although photorealism originated from pop art, it has evolved considerably over the years. Photorealism has survived this long because it has been undiluted and has managed to stay consistently compelling.

Understanding Photorealism.

A huge misconception is that all a VFX artist does is make an image as realistic as possible. The approach to creating a VFX sequence depends on the object in question and whether it follows the laws of nature or not. For example, if a VFX supervisor is to shoot a car or an animal, he chooses the photograph which has the most detailed texture, composition or light to enhance and make it look more realistic on screen. But when it comes to preparing for a sequence that has an alien ship or sci-fi props like the ones used in StarWars, there's nothing much to compare the image to. It all now boils down to the VFX artist's vision, creativity and skills to use all the information and create magic on-screen.

Mind-blowing Examples of Photorealism:

To cite some examples of the use of photorealism in VFX, we can refer to the imagery used in movies like *Marvel's Guardians of the Galaxy and Disney's The Jungle Book*. The use of realistic imagery and the finished product gives you a preview of what photorealism can do for the VFX industry and not just limited to the movie business.

Best Software used for Photorealism:

The most widely-used rendering software or image-enhancing tools include 3Delight, Arnold, Artlantis, Clarisse, Maxwell Render and Octane Render Solid works Visual.

II.   CONCLUSION:

Hence, the main motive to use VFX and SFX in our movies and Games is to provide the quality work in such a way that audience watching the content should not able to distinguish between the real and visual part of the film and every content must seem like real natural world, to achieve such visual there are needs of trends to be generated in industries and follow them accordingly upon the demands and the variations.

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