Creating photo-realistic works in a 3D scene using layers styles to create an animation

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Abstract. Creating realist objects in a 3D scene is not an easy work. We have to be very careful to make the creation very detailed. If we don’t know how to make these photo-realistic works, by using the techniques and a good reference photo we can create an amazing amount of detail and realism. For example, in this article there are some of these detailed methods from which we can learn the techniques necessary to make beautiful and realistic objects in a scene. More precisely, in this paper, we present how to create a 3D animated scene, mainly using the Pen Tool and Blending Options. Indeed, this work is based on teaching some simple ways of using the Layer Styles to create some great shadows, lights, textures and a realistic sense of 3 Dimension. The present work involves also showing how some interesting ways of using the illuminating and rendering options can create a realistic effect in a scene. Moreover, this article shows how to create photo realistic 3D models from a digital image. The present work proposes to present how to use Illustrator paths, texturing, basic lighting and rendering, how to apply textures and how to parent the building and objects components. We also propose to use this proposition to recreate smaller details or 3D objects from a 2D image. After a critic art stage, we are able now to present in this paper the architecture of a design method that proposes to create an animation. The aim is to create a conceptual and methodological tutorial to address this issue both scientifically and in practice. This objective also includes proposing, on strong scientific basis, a model that gives the possibility of a better understanding of the techniques necessary to create a realistic animation.

1. Introduction

The representation of lights, shadows and textures is realized with the help of software and hardware. A photo-realistic scene is a set of different objects which were defined geometrically in 3D space, together with viewing, shadow and lighting parameters. This paper briefly presents the different possibilities for representing a 3D scene have been explored in the literature and the way that all this given effects to a scene. This article has the aim to study how the shadows and the lights applied the renderings of a photo-realistic work and the big influence that they have in a 3D scene by using layers styles for the future animation.

3D Computer Graphics is a field where technology goes together with arts as a whole with lots of possibilities. In ours days, films and video industry have been the main target of 3D computer graphics. In this reason, there is hardly a movie that does not use special effects wholly or partially created on computer [1].
When three-dimensional imagines are made interactive so that users feel involved in the scene, the experience is called virtual reality [2]. This makes it possible that scene created to look away from reality. 3D graphics is much more complex, working with textures, volumes, light sketches. Numerous sketch-based modelling techniques have been developed for meshes [3-8], parametric surfaces [9], procedural surfaces [10], volumetric models [11] and implicit surfaces [12-17].

Figure 1. Light distribution and light reflection [18, 19].

Because of recent progress in sample techniques, the digital images, sounds and video are now part of our daily life. The world designing became increasingly integrated in people’s activities each day. Recently, the development of 3D graphics opened the way to shaping complex objects or scenes in 3D [1, 5, 8].

The main advantage of the sketch-based modeling techniques over voxel-based models is their ability to provide a high-level surface paradigm based on a low-level volumetric representation [20]. Light can be used to focus a viewer’s attention on a particular object within a scene [21, 22], figure 1.

2. Creating photo-realistic scene
Some volume sculpting applications use haptic feedback to give the user a sense of shaping a virtual material [2]. The representation of lights, shadows and textures is realized with the help of software and hardware, figure 2.

Figure 2. Source of the lights on the elements in the scene.
It is well known that we are able to see an object because light reflects from the object into our eyes. Just as in nature, illumination in a realistic scene happens through a complex interaction of lights, shadows and objects. The next step is an attempt to simulate the light effect that illuminates the scene, being perceived by the observer. The ways we implement this step represent a major influence for the quality of the image and for the quantity of time required.

Light can come from a great number of sources, the most being the sun, the source of natural lighting. The software Cinema 4D provides a number of lighting options that allow us to replicate natural and artificial lighting within scenes, see figure 3.

![Figure 3. Source of the lights on the elements in the scene.](image)

Rendering realistic illumination effects for presented animated scenes with many dynamic objects is a work that needs a lot of attention. It is well known how the important is the lighting for the overall perceived realism in a scene.

The representation of Layer Styles is great resources, and can really save heaps of time when designing something. The Layer Styles provide a great base of styles that are easily editable later on figure 5.

The aim of this work is based on teaching some simple ways of using the Layer Styles to create some great shadows, lights, textures and a realistic sense of 3 Dimension. The Layers Styles provide a unique spin on a simple circle, transforming it into an orb suitable for a realistic scene. The representation of Layer Styles is a great way to create fun and interesting photo-realistic effects and text effects without requiring a lot of effort, or even a lot of skill, figure 5.

The representation of Layer Styles helps by light and color theory to begin applying drop shadows, strokes, gradients, inner and outer glows and more to your images with layer styles, creating everything from subtle color effects to the wildest and craziest text effects anyone’s ever seen. That, plus it also helps to have some free time on your hands, since layer styles can become a bit of an addiction. Layer styles are special effects that can be quickly and easily applied to individual layers in a realistic scene to drastically change the appearance of something in very little time.

The change or modification of camera parameters can be operated from accessing the ‘Modify’ command panel in the ‘Parameters’ field. At the same time, values for Lens, FOV (coverage angle) and Orthographic Projection can be operated here. Video clips and movies are very similar and, in spite of some minor differences, they merge into a single one [23].

They have the same underlying technology: high frequency rendering of similar frames in order to create the illusion of movement. Movies and animations are accompanied by sound so they can appear more real. The frame frequency most frequently used in the multimedia field is 25-30 FPS (frames per seconds). As the FPS value increases, the quality of the movie also increases but also demands more resources. This piece of work shows how dynamic rendering is applied to the scene. Playing the scene means the representation of images after modelling, structuring and animation of texts is done.

3. Future works
The present research tried to answer some existent questions through the lens of the objectives, but generated other matters that could be tackled through future research and analyzes. For future research, we propose the extension of comparative analysis for dynamic rendering types.
Simultaneously, as a new trend for future research, we suggest the creation of a more complex scene that includes knowledge of dynamic rendering influence on scene creation. This way, in order to optimize the projection solutions it becomes mandatory to perform a detailed study on the algorithms for light sources and shadows.

In the future works, we will focus our efforts on developing a new photo-realistic scene and to study how the lights and the shadows can change the way that audience will perceived a scene because, we think that the progress made in hardware and software fields, the renderings can be easily integrated in scenes of high complexity. A quality animated scene will be proposed. The quality of industrials scene is an extremely complex matter, difficult to describe objectively. This will be also a subject to discuss in our future works.

4. Conclusions

The graphic representation is the connection between imagination, reason and objective reality. This article presents how the shadows and the lights apply renderings of a scene. Today, for designing a photo-realistic scene, it is necessary to know, understand and anticipate the needs of the person that watch the scene. In the study in this paper it has found that due to the contribution of animated scene, a person compare information that he to his knowledge or experience. We have presented a series of articles relating to photo-realistic scene, trying to define how the lights and the shadows influence a 3D animation in a real evolution of the design field. One of the useful properties of Layer Styles are there relationship to the layer contents. Since the style is actually a separate entity that is just linked to the layer, it will continually update itself as a layers contents are edited or moved. Furthermore, the effects can easily be adjusted after applying them, making them non-destructive in nature.

This article aims to emphasize the approach of applying integrating methods for light sources and shadows in the proposed 3D scene. Rendering and dynamic 3D lighting play an important role for achieving a realistic scene, as close as possible to reality. Each type of rendering is specific for a certain characteristic depending on requirements for each user. In this regard, the comparative analysis led to a clear outcome. Considering the rendering for the chosen scene, we have concluded that Mental Ray rendering type is the one that gives more credibility to the scene and denotes an aspect of profound realism.

The results from the research comprise a scene presentation where rendering and dynamic 3D lighting play an essential role in the process of creating the animation. This research tackles the performance issues in the field of geometrical modelling, starting with the gaps from this sector, namely the insertion of profound realism in the process of creating animated 3D scenes. Thus, the research tries to approach this vast subject by interpreting the essential dynamic rendering features involved in the geometrical modelling field, highlighting the predictive valence of these features in relation to the performance of complex 3D scenes.

Acknowledgements

The author wishes to thank the Sectorial Operational Programme Human Resources Development 2007-2013 of the Romanian Ministry of Labour, Family and Social Protection through the Financial Agreement POSDRU/107/1.5/S/76813. The author also wishes to thank Mr. Cezar Pantelimon for all his support in this paper’s work.

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