

The background features abstract, overlapping geometric shapes in various shades of green, ranging from light lime to dark forest green. These shapes are primarily located on the left and right sides of the frame, leaving a large white central area for the text.

INTRODUCTION TO COMPUTER ANIMATION

WHAT IS 3D ANIMATION

- ▶ Animating objects that appear in a three-dimensional space. They can be rotated and moved like real objects. **3D animation** is at the heart of games and virtual reality, but it may also be used in presentation graphics to add flair to the visuals.

HISTORY OF COMPUTER ANIMATION

- ▶ computer animation began as early as the 1940s and 1950s, when people began to experiment with computer graphics - most notably by John Whitney. It was only by the early 1960s when digital computers had become widely established, that new avenues for innovative computer graphics blossomed. Initially, uses were mainly for scientific, engineering and other research purposes, but artistic experimentation began to make its appearance by the mid-1960s. By the mid-1970s, many such efforts were beginning to enter into public media. Much computer graphics at this time involved 2D imagery, though increasingly, as computer power improved, efforts to achieve 3-dimensional realism became the emphasis. By the late 1980s, photo-realistic 3D was beginning to appear in film movies, and by mid-1990s had developed to the point where 3D animation could be used for entire feature film production.

Important areas where animation is extensively used.

- ▶ Film
- ▶ Education
- ▶ Entertainment
- ▶ Advertisement
- ▶ Marketing
- ▶ In Scientific Visualization
- ▶ Creative Arts
- ▶ Gaming
- ▶ Simulations
- ▶ Medical

Film



- ▶ A **computer-animated film** is a feature film that has been computer animated to appear three dimensional . While traditional 2d animated films are now made primarily with the help of computers, the technique to render realistic 3D computer graphics (CG) or 3D computer generated imagery (CGI), is unique to computers.
- ▶ The first completely computer-animated movie was **Toy Story** (1995), but **VeggieTales** is the first American fully 3D computer animated series sold directly (made in 1993); its success inspired other animation series, such as **ReBoot** in 1994.

Education

- ▶ Everybody understands that humans have a tendency to remember videos and images more than textual content. So it is natural that animation for educational purposes can be effectively utilized to enhance the reception levels of the students and trainees. As animated videos can effectively improve the quality of reception of the learners, it brings about exceptional changes to the academic capabilities of people without any doubt. Graphics is already used by several education portals and platforms where even the most complex and difficult concepts are shared to the students with greater reception.

Entertainment

- ▶ There is no doubt there are various uses of animation multimedia and entertainment and perhaps it is extensively used for entertainment and perhaps it is the greatest **use for computer graphics**, as we know it. Diverse animation services are offered by several top animation companies to be used for entertainment in a range of platforms such as TV, internet and even on the phones. There are several animation series and movies created for children and adult audience that can be enjoyed as normal live-action movies. Famous animation programs such as Tom and Jerry, Mickey Mouse and Donald Duck are created to make everyone laugh all the while sharing important life lessons and moral values. Apart from such series, even a range of movies is created targeted at a wider audience that includes children and adults. Studios like Pixar, DreamWorks and DC Animation Studios are primarily involved with making animated movies.

Advertisement

- ▶ Advertisements are always about creative visualization and hence, it plays an important role in making effective commercials that can capture the imagination of the audience luring them to buy the product being advertised. Apart from using this for creating advertisements on TV, the advent of internet has also led to the creation of a new platform where animated advertisements can be used in search and display advertisements. If you consider advertisements without animation, large portion of the advertisements will be rendered uninspiring and boring.

Marketing

- ▶ Animation brings lots of creativity to your marketing, which helps you to reach more demographics. An animated 3d demonstration of your product's benefits instantly and it may be a more effective conversion.

In Scientific Visualization

- ▶ It is extensively used to create accurate and representative scientific visualization for the purpose of research and analytical studies. It can be effectively used to represent and create 3D models for a wide range of objects for realistic visualizations. An example could be in medical diagnosis where parts of body can be effectively studied and problems can be diagnosed more efficiently.

Gaming

- ▶ It is an industry where everything is dependent on animation as most **3D characters for games** are created with animation. It is the very basic upon which everything on a game is modeled and created. Also read our article about 3d character modelling practices for gaming industry. All such activities as texturing, lighting and rigging are done by several graphic professionals as per the requirements of the clients

Simulations

- ▶ Simulations are utilized in areas where real life training of people is dangerous or cannot be controlled. Military training exercises is one of the most adequate examples for this type of application of animation. Simulations are also used to train pilots without having to invest heavily on machines and fuel and without causing any damage to the trainees in case of any mishaps. Simulations are also used by various organizations to predict the outcome of a range of activities.

Medical

- ▶ Animation is widely used in the medical industry these days. This allows professionals and medical students to visualize the details of the human anatomy with clarity. The use of animation in medical field is increasing over the years. You can view details of the human anatomy through medical animation, even the ones that the naked eyes cannot see. As a result, surgeons are able to explore the replicas of human body, before conducting surgeries. New interns can get effective training on complex techniques of surgery. 3D animation can visually convey the intended message. Hospitals and other healthcare institutions have realized the benefits of 3d medical animation, and are pairing up with reputed platforms providing animation services.

Architecture and Engineering

- ▶ 3D animation has greatly shaped the marketing mechanism of the real estate and engineering industry. In architecture, it is necessary to explain the proposed designs to potential customers in a simplified manner. The importance of 3d animation in architecture lies in the fact, that these can be produced in quick time and reasonable costs. Besides, they simplify the interpretation process of the structure of the buildings. The construction firms can integrate every detail of the proposed plans in these animations. Designers are aware of the versatile application of animation and integrate these while designing the interiors.

