ANIMATION

Animation is a method in which pictures are manipulated to appear as moving images. In traditional animation, images are drawn or painted by hand on transparent celluloid sheets to be photographed and exhibited on film. Today, most animations are made with computer-generated imagery (CGI). Computer animation can be very detailed 3D animation, while 2D computer animation can be used for stylistic reasons, low bandwidth or faster real-time renderings. Other common animation methods apply a stop motion technique to two and three-dimensional objects like paper cutouts, puppets or clay figures.

Commonly the effect of animation is achieved by a rapid succession of sequential images that minimally differ from each other. The illusion—as in motion pictures in general—is thought to rely on the phi phenomenon and beta movement, but the exact causes are still uncertain. Analog mechanical animation media that rely on the rapid display of sequential images include the phénakisticope, zoetrope, flip book, praxinoscope and film. Television and video are popular electronic animation media that originally were analog and now operate digitally. For display on the computer, techniques like animated GIF and Flash animation were developed.

Animation is more pervasive than many people realize. Apart from short films, feature films, television series, animated GIF's and other media dedicated to the display of moving images, animation is also prevalent in video games, motion graphics, user interfaces and visual effects.[1]

The physical movement of image parts through simple mechanics – in for instance moving images in magic

lantern shows – can also be considered animation. The mechanical manipulation of three-dimensional puppets and objects to emulate living beings has a very long history in **automata**. Electronic automata were popularized by **Disney** as **animatronics**.

HISTORY:-

Before cinematography:-

Although examples of sequential images can be found occasionally throughout the history of art, there is no evidence of any related technology that enabled the artists to view such series in motion before 1832. Other ways to create moving images, by manipulating figures by hand or with mechanics, can be recognized in puppetry, automata, shadow play and (since around 1659) the magic lantern.

In 1833, the phénakisticope introduced the stroboscopic principle of modern animation, which would also provide the basis for the zoetrope (1866), the flip book (1868),

the praxinoscope (1877), Muybridge's zoopraxiscope (1879) and cinematography.

A few years before the breakthrough of cinema in 1895, Charles-Émile Reynaud had much success with his *Pantomimes Lumineuses*. These animated films each contained 300 to 700 frames that were manipulated back and forth to last 10 to 15 minutes per film. Piano music, song, and some dialogue were performed live, while some sound effects were synchronized with an electromagnet. From 28 October 1892 to March 1900, Reynaud gave over 12,800 shows to a total of over 500,000 visitors at the Musée Grévin in Paris

Simulation

A **simulation** is an approximate [imitation](#) of the operation of a process or system; that represents its operation over time.

Simulation is used in many contexts, such as simulation of [technology](#) for [performance tuning](#) or optimizing, [safety engineering](#), [testing](#), [training](#), [education](#), and [video games](#). Often, [computer experiments](#) are used to study simulation models. Simulation is also used with [scientific modelling](#) of natural systems or human systems to gain insight into their functioning, as in [economics](#). Simulation can be used to show the eventual real effects of alternative conditions and courses of action. Simulation is also used when the real system cannot be engaged, because it may not be accessible, or it may be dangerous or unacceptable to engage, or it is being designed but not yet built, or it may simply not exist.[3]

Key issues in simulation include the acquisition of valid sources of information about the relevant selection of key characteristics and behaviors, the use of simplifying approximations and assumptions within the simulation, and fidelity and validity of the simulation outcomes. Procedures and protocols for [model verification and validation](#) are an ongoing field of academic study, refinement, research and development in simulations technology or practice, particularly in the work of [computer simulation](#).

Simulation in education and training

Simulation is extensively used for educational purposes. It is used for cases where it is prohibitively expensive or simply too dangerous to allow trainees to use the real equipment in the real world. In such situations they will spend time learning valuable lessons in a "safe" virtual environment yet living a [lifelike experience](#) (or at least it is the goal). Often the convenience is to permit mistakes during training for a safety-critical system.

Simulations in education are somewhat like training simulations. They focus on specific tasks. The term 'microworld' is used to refer to educational simulations which model some abstract concept rather than simulating a realistic object or environment, or in some cases model a real-world environment in a simplistic way so as to help a learner develop an understanding of the key concepts. Normally, a user can create some sort of construction within the microworld that will behave in a way consistent with the concepts being modeled. [Seymour Papert](#) was one of the first to advocate the value of microworlds, and

the Logo programming environment developed by Papert is one of the most well-known microworlds.

Project Management Simulation is increasingly used to train students and professionals in the art and science of project management. Using simulation for project management training improves learning retention and enhances the learning process.

Social simulations may be used in social science classrooms to illustrate social and political processes in anthropology, economics, history, political science, or sociology courses, typically at the high school or university level. These may, for example, take the form of civics simulations, in which participants assume roles in a simulated society, or international relations simulations in which participants engage in negotiations, alliance formation, trade, diplomacy, and the use of force. Such simulations might be based on fictitious political systems, or be based on current or historical events. An example of the latter would be Barnard College's *Reacting to the Past* series of historical educational games.[21] The National Science Foundation has also supported the creation of reacting games that address science and math education. In social media simulations, participants train communication with critics and other stakeholders in a private environment.

In recent years, there has been increasing use of social simulations for staff training in aid and development agencies. The Carana simulation, for example, was first developed by the United Nations Development Programme, and is now used in a very revised form by the World Bank for training staff to deal with fragile and conflict-affected countries.

Military uses for simulation often involve aircraft or armoured fighting vehicles, but can also target small arms and other weapon systems training. Specifically, virtual firearms ranges have become the norm in most military training processes and there is a significant amount of data to suggest this is a useful tool for armed professionals.