Chapter one

1. Introduction to multimedia

As an introduction to multimedia, in Chap. 1 we consider the question of just what multimedia is. Since Multimedia is indeed a practical field, Chap. 1 also supplies an overview of multimedia software tools, such as video editors and digital audio programs.

1.1 What is Multimedia ?

When different people mention the term **multimedia**, they often have quite different, or even opposing, viewpoints

- A PC vendor: a PC that has sound capability, a DVD-ROM drive, and perhaps the superiority of multimedia-enabled microprocessors that understand additional multimedia instructions.

- A consumer entertainment vendor: interactive cable TV with hundreds of digital channels available, or a cable TV-like service delivered over a high-speed Internet connection.

- A Computer Science (CS) student: applications that use multiple modalities, including text, images, drawings (graphics), animation, video, sound including speech, and interactivity.

Before we go on,Let us define it from two perspectives:

I. In terms of what multimedia is all about.

It refers to the storage, transmission, interchange, presentation and perception of different information types (data types) such as text, graphics, voice, audio and video where:

Storage- refers to the type of physical means to store data.

- ✓ Magnetic tape
- ✓ Hard disk

✓ Optical disk

✓ DVDs

✓ CD-ROMs , etc.

Presentation- refers to the type of physical means to reproduce information to the user.

✓ Speakers

✓ Video windows, etc.

Representation- related to how information is described in an abstract form for use within an electronic system. E.g. to present text to the user, the text can be coded in raster graphics, primitive graphics, or simple ASCII characters. The same presentation, different representation.

Perception- describes the nature of information as perceived by the user

✓ Speech

✓ Music

✓ Film

II. Based on the word "Multimedia" It is composed of two words:

Multi- multiple/many

Media- source

Source refers to different kind of information that we use in multimedia. This includes:

◆ Text

◆ Graphics

◆ Audio

◆ Video

◆ images

Multimedia refers to multiple sources of information. It is a system which integrates all the above types.

General and working definition:

Multimedia is the field concerned with the computer controlled integration of text, graphics, drawings, still and moving images (video), animation, and any

other media where every type of information can be represented, stored, transmitted, and processed digitally

Characteristics of a Multimedia System

A Multimedia system has four basic characteristics:

- ◆ Multimedia systems must be computer controlled
- ◆ Multimedia systems are integrated
- ◆ The information they handle must be represented digitally
- ◆ The interface to the final presentation of media is usually interactive

Multimedia Applications (where it is applied)

- ✓ Digital video editing and production systems
- ✓ Home shopping
- ✓ Interactive movies, and TV
- ✓ Multimedia courseware
- ✓ Video conferencing
- ✓ Virtual reality(the creation of artificial environment that you can explore, e.g. 3-D images, etc)
- ✓ Distributed lectures for higher education
- ✓ Tele-medicine
- ✓ Digital libraries
- ✓ World Wide Web
- ✓ On-line reference works e.g. encyclopedias, games, etc.
- ✓ Electronic Newspapers/Magazines
- ✓ Games
- ✓ Groupware (enabling groups of people to collaborate on projects and share information)

1.2 History of Multimedia

A brief history of the use of multimedia to communicate ideas might begin with newspapers, which were perhaps the *first* mass communication medium, using text, graphics, and images.

Motion pictures were originally conceived of in the 1830s to observe motion too rapid for perception by the human eye. Thomas Alva Edison 'commissioned the invention of a motion picture camera in 1887. Silent feature films appeared from 1910 to 1927; the silent era effectively ended with the release of *The Jazz Singer* in 1927.

In 1895, Guglielmo Marconi sent his first wireless radio transmission at Pontecchio, Italy. A few years later (1901), he detected radio waves beamed across the Atlantic. Initially invented for telegraph, radio is now a major medium for audio broadcasting. In 1909, Marconi shared the Nobel Prize for physics ….

1.3 Multimedia and Hypermedia

Ted Nelson invented the term "Hyper-Text" around 1965. Whereas we may think of a book as a *linear* medium, basically meant to be read from beginning to end, a hypertext system is meant to be read non-linearly, by following links that point to other parts of the document, or indeed to other documents.

Hypermedia is not constrained to be text-based. It can include other media, such as graphics, images, and especially the continuous media - sound and video. Apparently Ted Nelson was also the first to use this term. The World Wide Web 0vww) is the best example of a hypermedia application.

As we have seen, *multimedia* fundamentally means that computer information can be represented through audio, graphics, images, video. and animation in addition to traditional media (text and graphics). Hypermedia can be considered one particular multimedia application.

Examples of Hypermedia Applications:

- ➢ The World Wide Web (WWW) is the best example of hypermedia applications.
- ➢ PowerPoint
- ➢ Adobe Acrobat
- ➢ Macromedia Director

1.4 Multimedia and World Wide Web

WORLD WIDE WEB

The World Wide Web is the largest and most commonly used hypermedia application. Its popularity is due to the amount of information available from web servers, the capacity to post such information, and the ease of navigating such information with a web browser.

WWW technology Is maintained and developed by the World Wide Web Consortium (W3C), although the Internet Engineering Task Force (IETF) standardizes the technologies. TheW3C has listed the following three goals for the WWW: universal access of web resources (by everyone everywhere), effectiveness of navigating available information, and responsible use of posted material.

Multimedia is closely tied to the World Wide Web (WWW). Without networks, multimedia is limited to simply displaying images, videos, and sounds on your local machine. The true power of multimedia is the ability to deliver this rich content to a large audience.

Features of Multimedia

Multimedia has three aspects:

Content: movie, production, etc.

Creative Design: creativity is important in designing the presentation

Enabling Technologies: Network and software tools that allow creative designs to be presented.