

Multimedia

Overview of Multimedia Software Tools:

The categories of software tools briefly examined here are:

- Music Sequencing and Notation
- Digital Audio
- Graphics and Image Editing
- Video Editing
- Animation
- Multimedia Authoring

1) Music Sequencing and Notation:

Cakewalk: now called Pro Audio. The term sequencer comes from older devices that stored sequences of notes ("events", in MIDI). It is also possible to insert WAV files and Windows MCI commands (for animation and video) into music tracks

□ Cubase: another sequencing/editing program, with capabilities similar to those of Cakewalk. It includes some digital audio editing tools.

□ Macromedia Soundedit: mature program for creating audio for multimedia projects and the web that integrates well with other Macromedia products such as Flash and Director.

2) Digital Audio:

Digital Audio tools deal with accessing and editing the actual sampled sounds that make up audio:

□ **Cool Edit:** a very powerful and popular digital audio toolkit; emulates a professional audio studio – multi track productions and sound file editing including digital signal processing effects.

□ **Sound Forge:** a sophisticated PC-based program for editing audio WAV files.

□ **Pro Tools:** a high-end integrated audio production and editing environment - MIDI creation and manipulation; powerful audio mixing, recording, and editing software.

3) Graphics and Image Editing:

□ **Adobe Illustrator:** a powerful publishing tool from Adobe. Uses vector graphics; graphics can be exported to Web.

□ **Adobe Photoshop:** the standard in a graphics, image processing and manipulation tool. Allows layers of images, graphics, and text that can be separately manipulated for maximum flexibility.

□ Filter factory permits creation of sophisticated lighting-effects filters.

□ **Macromedia Fireworks:** software for making graphics specifically for the web.

□ **Macromedia Freehand:** a text and web graphics editing tool that supports many bitmap formats such as GIF, PNG, and JPEG. □4) **Video Editing:**

□ **Adobe Premiere:** an intuitive, simple video editing tool for nonlinear editing, i.e., putting video clips

into any order: Video and audio are arranged in “tracks”. Provides a large number of video and audio tracks, superimpositions and virtual clips. A large library of built-in transitions, filters and motions for clips) effective multimedia productions with little effort.

□ **Adobe After Effects:** a powerful video editing tool that enables users to add and change existing movies. Can add many effects: lighting, shadows, motion blurring; layers.

□ **Final Cut Pro:** a video editing tool by Apple; Macintosh only.

5) Animation:

□ **Multimedia APIs:**

o **Java3D:** API used by Java to construct and render 3D graphics, similar to the way in which the Java Media Framework is used for handling media files. Provides a basic set of object primitives (cube, splines, etc.) for building scenes. It is an abstraction layer built on top of OpenGL or DirectX (the user can select which).

- o **DirectX** : Windows API that supports video, images, audio and 3-D animation

- o **OpenGL**: the highly portable, most popular 3-D API.

- **Rendering Tools:**

- o **3D Studio Max**: rendering tool that includes a number of very high-end professional tools for character animation, game development, and visual effects production.

- o **Softimage XSI**: a powerful modeling, animation, and rendering package used for animation and special effects in films and games.

- o **Maya**: competing product to Softimage; as well, it is a complete modeling package.
- o **Render Man**: rendering package created by Pixar.

- o **GIF Animation Packages**: a simpler approach to animation, allows very quick development of effective small animations for the web.

6) Multimedia Authoring:

□ **Macromedia Flash:** allows users to create interactive movies by using the score metaphor, i.e., a timeline arranged in parallel event sequences.

□ **Macromedia Director:** uses a movie metaphor to create interactive presentations very powerful and includes a built-in scripting language, Lingo, which allows creation of complex interactive movies.

□ **Authorware:** a mature, well-supported authoring product based on the conic/Flow-control metaphor.

□ **Quest:** similar to Authorware in many ways, uses a type of owcharting metaphor. However, the owchart nodes can encapsulate information in a more abstract way (called frames) than simply subroutine levels.

HyperText and HyperMedia?

Hypermedia and Multimedia Ted Nelson invented the term "HyperText" 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 nonlinearly, 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 (www) is the best example of a hypertext 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.

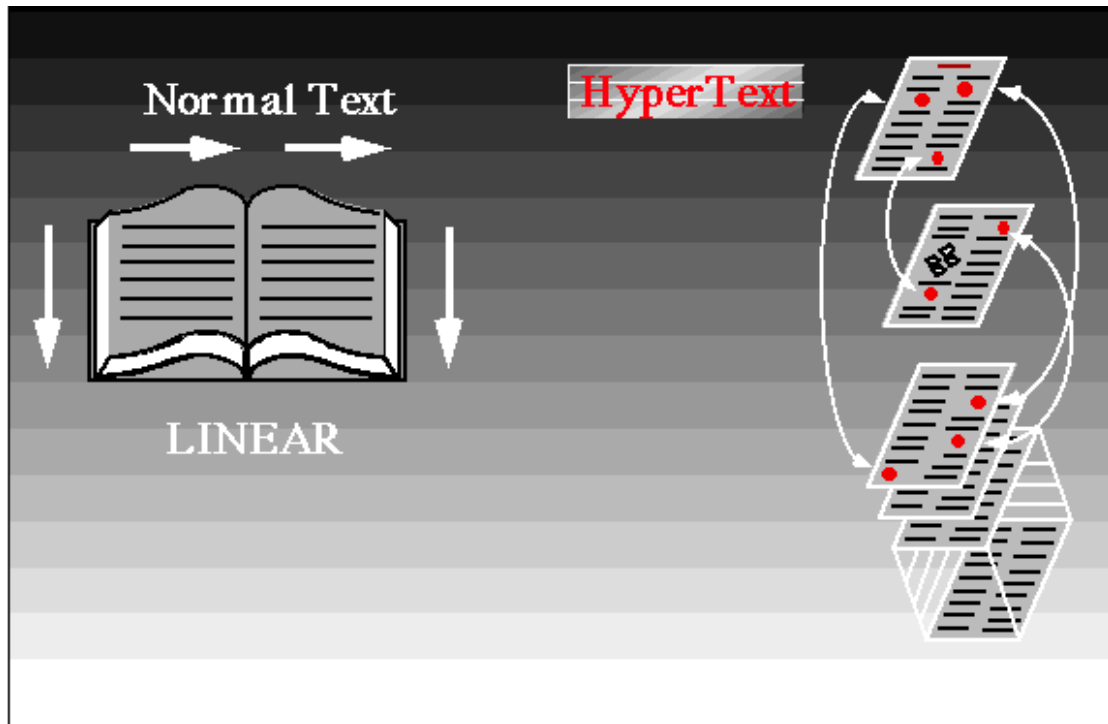
8 Chapter 1 Introduction to Multimedia Normal

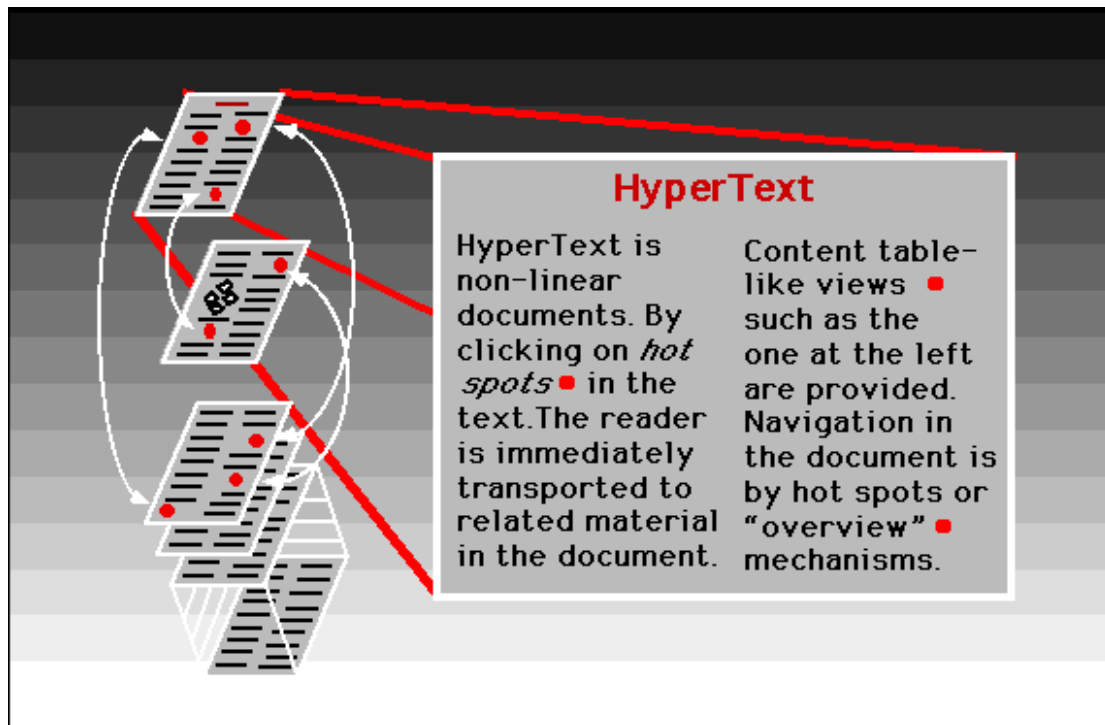
Examples of typical multimedia applications include: digital video editing and production systems; electronic newspapers and magazines; the World Wide Web; online reference works, such as encyclopedias; games; groupware; home shopping; interactive TV; multimedia courseware; video conferencing; video-on-demand; and interactive movies.

Hypertext is a text which contains links to other texts.

The term was invented by Ted Nelson around 1965.

Hypertext is therefore usually non-linear (as indicated below).

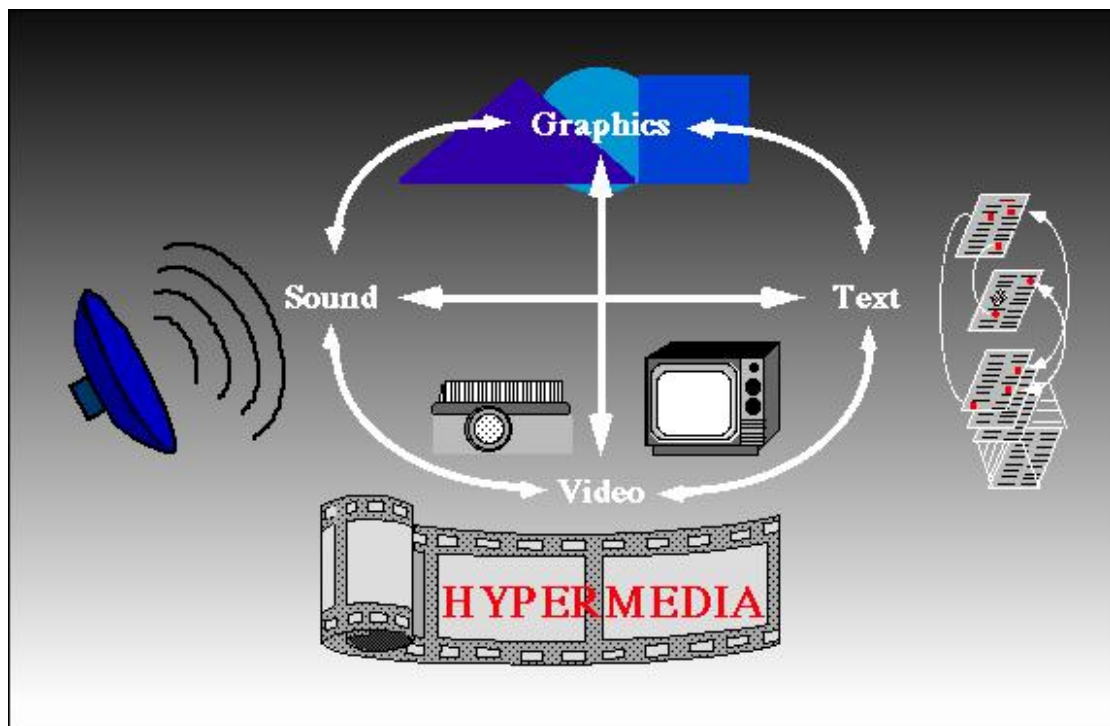




Amazingly, one of the most predominant networked multimedia applications has its roots in nuclear physics! As noted in the previous section, Tim Berners-Lee proposed the World Wide Web to CERN (European Center for Nuclear Research) as a means for organizing and sharing their work and experimental results. The following is a short list of important dates in the creation of the WWW:

Definition of Hypertext

HyperMedia is not constrained to be text-based. It can include other media, e.g., graphics, images, and especially the continuous media - sound and video. Apparently, Ted Nelson was also the first to use this term.



Definition of HyperMedia

The World Wide Web (WWW) is the best example of hypermedia applications.