INTRODUCTION TO MULTIMEDIA SYSTEMS PDF, EPUB, EBOOK

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Intro to Multimedia Systems

Introduction To Multimedia. Multimedia systems. Multimedia System. Components of Multimedia. Multimedia ppt. Introduction to multimedia. Multimedia Components. Related Books Free with a 30 day trial from Scribd. Related Audiobooks Free with a 30 day trial from Scribd. Kojo Good Citizen. Eshetu Desalegn. Nor Ana. Swapnali Lakhan.

Cassandra Alonte. Karan Bhardwaj. Ntah Afiq , Cashier at u-station. Show More. Views Total views. Actions Shares. No notes for slide. Intro to Multimedia Systems 1. What is Multimedia? Multimedia includes a combination of text, audio, still images, animation, video, and interactivity content forms. Multimedia Application is an Application which uses a collection of multiple media sources e. What is HyperText and HyperMedia? It can include other media, e. Text is still the quickest programs will always use it. Total views 19, On Slideshare 0. From embeds 0. Number of embeds Downloads Shares 0. Comments 0. A multimedia system is characterized by computer- controlled, integrated production, manipulation,presentation, storage and communication of independent information,which is encoded at least through continuous time-dependent and a discrete time- independent medium.

The effect is that something in the world has changed. Two way process. Properties Various media integration High level degree of interactivity between user and computer Digital environment. Later followed by Windows 98, Windows Hypermedia has grown out of a fusion between hypertext and multimedia. Hypertext was developed to provide a different structure for basic text in computer systems : text is essentially sequential in nature, even though its structure is hierarchical chapters, sections, subsections, paragraphs hypertext was developed to permit more random access between components of text documents, or between documents, to allow a greater degree of flexibility and cross-referencing than a purely linear or sequential model would allow. Links represent semantic relationships, thus when a link exists between two nodes they must be related in some fashion : a digital image linked to a textual description of it a slide-show linked to an audio commentary Most widely used hypermedia tools are hypermedia browsers, which let users view nodes and traverse links between them, and markup languages, such as HTML, which allow users to create hypermedia webs as structured documents.

What is Multimedia? Multimedia can have a many definitions these include: Multimedia means that computer information can be represented through audio,. What is multimedia? Multimedia means that computer information can be represented through audio, video, and animation. Introduction to Multimedia. Definition What is Multimedia? Multimedia can have a many definitions these include: Multimedia means that computer information can be represented. Introduction to Computers Personal Computing What is a computer? Electronic device Performs instructions in a program Performs four functions —Accepts. Multimedia Hardware. Network LAN- to transfer data inside a local area. WAN — to transfer data in long distance.

Ethernet — method for connecting computers. Chapter 2 IT Foundation Data: facts about objects Store data in computer: — binary data — bits — bytes Five types of data. Similar presentations. Upload Log in. My presentations Profile Feedback Log out.

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A CBT lets the user go through a series of presentations, text about a particular topic, and associated illustrations in various information formats. Edutainment is an informal term used to describe combining education with entertainment, especially multimedia entertainment. Engineering Software engineers may use multimedia in Computer Simulations for anything from entertainment to training such as military or industrial training. Multimedia for software interfaces are often done as collaboration between creative professionals and software engineers. Industry In the Industrial sector, multimedia is used as a way to help present information to shareholders, superiors and coworkers.

Multimedia is also helpful for providing employee training, advertising and selling products all over the world via virtually unlimited web-based technologies. Mathematical and Scientific Research In Mathematical and Scientific Research, multimedia is mainly used for modeling and simulation. For example, a scientist can look at a molecular model of a particular substance and manipulate it to arrive at a new substance. Representative research can be found in journals such as the Journal of Multimedia. Medicine In Medicine, doctors can get trained by looking at a virtual surgery or they can simulate how the human body is affected by diseases spread by viruses and bacteria and then develop techniques to prevent it.

Multimedia in Public Places In hotels, railway stations, shopping malls, museums, and grocery stores, multimedia will become available at stand-alone terminals or kiosks to provide information and help. Such installation reduce demand on traditional information booths and personnel, add value, and they can work around the clock, even in the middle of the night, when live help is off duty. A menu screen from a supermarket kiosk that provide services ranging from meal planning to coupons. Hotel kiosk list nearby restaurant, maps of the city, airline schedules, and provide guest services such as automated checkout. Printers are often attached so users can walk away with a printed copy of the information.

Museum kiosk are not only used to guide patrons through the exhibits, but when installed at each exhibit, provide great added depth, allowing visitors to browser though richly detailed information specific to that display. Check Your Progress 1 List five applications of multimedia Notes : a Write your answers in the space given below. Take a step forward, and the view gets closer, turn your head, and the view rotates. Reach out and grab an object; your hand moves in front of you. Maybe the object explodes in a decibel crescendo as you wrap your fingers around it. Or it slips out from your grip, falls to the floor, and hurriedly escapes through a mouse hole at the bottom of the wall.

VR requires terrific computing horsepower to be realistic. In VR, your cyberspace is made up of many thousands of geometric objects plotted in three-dimensional space: the more objects and the more points that describe the objects, the higher resolution and the more realistic your view. As the user moves about, each motion or action requires the computer to recalculate the position, angle size, and shape of all the objects that make up your view, and many thousands of computations must occur as fast as 30 times per second to seem smooth. Using high-speed dedicated computers, multi-million-dollar flight simulators built by singer, RediFusion, and others have led the way in commercial application of VR.

Pilots of Fs, Boeing s, and Rockwell space shuttles have made many dry runs before doing the real thing. At the California Maritime academy and other merchant marine officer training schools, computer-controlled simulators teach the intricate loading and unloading of oil tankers and container ships. Specialized public game arcades have been built recently to offer VR combat and flying experiences for a price.

From virtual World Entertainment in walnut Greek, California, and Chicago, for example, BattleTech is a ten-minute interactive video encounter with hostile robots. You compete against others, perhaps your friends, who share coaches in the same containment Bay. The computer keeps

score in a fast and sweaty firefight. The technology and methods for working with three-dimensional images and for animating them are discussed. VR is an extension of multimedia-it uses the basic multimedia elements of imagery, sound, and animation. Because it requires instrumented feedback from a wired-up person, VR is perhaps interactive multimedia at its fullest extension. View all volumes in this series: Communications, Networking and Multimedia. For regional delivery times, please check When will I receive my book? Sorry, this product is currently out of stock. Institutional Subscription. Tax Exempt Orders. Support Center. Free Shipping Free global shipping No minimum order.

This is a carefully written and edited book specifically designed to be a general introduction to the broad field of multimedia Covers all the general topics of multimedia namely the principles of 'multiple' and 'media', including sound, 2D and 3D graphics, animation and text. Powered by. You are connected as. Connect with:. Thank you for posting a review! We value your input. Share your review so everyone else can enjoy it too. Your review was sent successfully and is now waiting for our team to publish it. Reviews 0. Updating Results.

Be the first to write a review. If you wish to place a tax exempt order please contact us. No notes for slide. Intro to Multimedia Systems 1. What is Multimedia? Multimedia includes a combination of text, audio, still images, animation, video, and interactivity content forms. Multimedia Application is an Application which uses a collection of multiple media sources e.

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Introduction to Multimedia Systems - 1st Edition

Definition of Hypertext HyperMedia is not constrained to be text-based. It can include other media, e. Apparently, Ted Nelson was also the first to use this term. Multimedia Systems A Multimedia System is a system capable of processing multimedia data and applications. A Multimedia System is characterised by the processing, storage, generation, manipulation and rendition of Multimedia information. This will involve many special computing techniques. Temporal relationship between data Multimedia systems may have to render a variety of media at the same instant - a distinction from normal applications. There is a temporal relationship between many forms of media e.

Video and Audio. Lip synchronisation is clearly important for humans to watch playback of video and audio and even animation and audio. Ever tried watching an out of lip sync film for a long time? Data has to be represented digitally — Analog to Digital, Conversion, and Sampling etc. Large Data Requirements - bandwidth, storage. Therefore Data compression is usually mandatory Data has to represented digitally. The digital data is large several Mb for audio and video - therefore storage, transfer bandwidth and processing overheads are high. Consequently, data compression techniques are necessary and common. Desirable Features for a Multimedia System Given the above challenges the following features are desirable if not a prerequisite for a Multimedia System: i. Very High Processing Power Needed to deal with large data processing and real time delivery of media.

Special hardware is commonplace. Multimedia Capable File System Needed to deliver real-time media - e. Needs to allow for real-time recording as well as playback of data. Direct to Disk recording systems. Special Operating System To allow access to file system and process data efficiently and quickly. Storage and Memory Large storage units of the order of GB or more and large memory 50 Mb or more. Large Caches also required and frequently of Level 2 and 3 hierarchy for efficient management. Network Support 6 Client-server systems as well as distributed systems common. Software Tools User friendly tools needed to handle media, design and develop applications, deliver media. Components of a Multimedia System Now let us consider the components Hardware and Software required for a multimedia system: i. Ever increasing popularity. Enabling Technologies - Developing at a rapid rate to support ever increasing need for Multimedia.

This includes software tools, and multimedia projects development methodology. System Domain Including all supports for using the function of the device domain, e. Device domain Basic concepts and skill for processing various multimedia elements and for handling physical device. The data may be in a variety of formats: text, graphics, images, audio, and video. Majority of this data is large and the different media may need synchronisation — the data may have temporal relationships as an integral property. Some media is time independent or static or discrete media: e.

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Small files may take larger disk storage requirements due to block and sector sizes of disk partitions. Graphics are usually generated by a graphics editor program e. Freehand or automatically by a program e. Postscript usually generated this way. Graphics are usually editable or revisable unlike Images. Graphics input devices include: keyboard for text and cursor control , mouse, trackball or graphics tablet. Graphics files usually store the primitive assembly and do not take up a very high overhead. Images may be generated by programs similar to graphics or animation

programs. A bitmap sometimes called a raster image--is made up of nothing but pixels. It is the format most commonly used for photographs or hand drawings. Bitmap images typically require lots of storage space height x width x colour depth.

Bitmap images also do not expand well: each pixel is stretched into larger and larger blocks, giving the overall image a "chunky" look this is called aliasing. Images may also be obtained by scanning of photographs or pictures using a digital scanner or captured by a digital camera. Some Video cameras allow for still image capture also. Analog sources will require digitizing. Thus a x Grey scale image takes up 0. This overhead soon increases with image size so compression is commonly. They are first captured by a microphone and then digitized and stored- usually compressed as CD quality, audio requires bit sampling at Most film is shot at 24 frames per second, so that's a common frequency. Obviously, digital video requires a huge number of bits. A minute television program at that rate would consume about 62GB of storage. By the way, that figure does not include the audio portion of the program.

Clearly, 35MB per second is far greater than the bandwidth of just about any consumer network technology in existence. Therefore, like images and audio, digital video is highly compressed using advanced lossy-type algorithms. One of the things that can be done with video is to only store the parts of a single frame that are different from the previous frame. This so-called psychovisual compression closely matches the way humans watch motion pictures: most of our focus is on things that move. The other parts of the display can be much more compressed, but the loss of quality is not noticed as much. Analog Video is usually captured by a video camera and then digitized. There are a variety of video analog and digital formats. Digital video clearly needs to be compressed.

Due to the volume of data the Data format will include compression see Chapters 6 and 7. The type of storage medium and underlying retrieval mechanism will affect how the media is stored and delivered. We discuss this issue next before going on to discuss actual Multimedia storage devices. Compression and also distributed storage is necessary. Data Storage -- The strategy for data storage depends of the storage hardware and the nature of the data. Individual data e. Time critical operations can adopt special procedures. New drives are fast enough for direct to disk audio and video capture.

Conventional dying out? Other media usually ok for backup but usually suffer from worse performance than single hard drives 3. Data Compression Data Compression Uncompressed graphics, audio and video data require considerable storage capacity which in the case of uncompressed video is not often feasible in today's CD technology. The same is for multimedia communication. The data transfer of uncompressed video data over digital network requires very high bandwidth to be provided for a single point to point communication.

To provide visible and cost effective solution, most multimedia system handle compressed digital and audio stream data. Vector Quantization 3. The data stream to be compressed is considered to be a simple digital sequence and the semantics of the data is ignored. Entropy coding is an example of the lossless encoding as the decompression process regenerates the data completely. Source coding: Source coding take into an account the semantics of the data. The degree of compression that can be reached by source coding depend on the data contained. In the case of source coding a one way relation between the original data stream and encoded data streams exists.

The data streams are similar but not identical. Hybrid Coding It is the compression technique. Image and video processing applications and algorithms. In , Gugliemo Marconi sent his first wireless radio transmission at Pontecchio, Italy. A few years later in he detected radio waves beamed across the Atlantic. Initially invented for telegraph, radio is now a major medium for audio broadcasting. Television was the new media for the 20th century. It brings the video and has since changed the world of mass communications. Hooper Woolsey, Apple Multimedia Lab, people, educ. Duke is the first applet. What is HyperText and HyperMedia? What is Multimedia? Multimedia can have many definitions. These include: Multimedia means, computer information that can be represented through audio, video, and animation in addition to traditional media i. A good general definition is: Multimedia is the field concerned with the computer-controlled integration of text, graphics, drawings, still and moving images Video , animation, audio, and any other media where every type of information can be represented, stored, transmitted and processed digitally.

A Multimedia Application is an application which uses a collection of multiple media sources e. Hypermedia can be considered as one of the multimedia applications. Hypertext is a text which contains links to other texts. The term was invented by Ted Nelson around Hypertext is therefore usually non-linear as indicated below. Definition of Hypertext HyperMedia is not constrained to be text-based. It can include other media, e. Apparently, Ted Nelson was also the first to use this term. Multimedia Systems A Multimedia System is a system capable of processing multimedia data and applications. A Multimedia System is characterised by the processing, storage, generation, manipulation and rendition of Multimedia information.

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Large Caches also required and frequently of Level 2 and 3 hierarchy for efficient management. Network Support 6 Client-server systems as well as distributed systems common. Software Tools User friendly tools needed to handle media, design and develop applications, deliver media.

Components of a Multimedia System Now let us consider the components Hardware and Software required for a multimedia system: i. Ever increasing popularity. Enabling Technologies - Developing at a rapid rate to support ever increasing need for Multimedia.

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Introduction to Multimedia Systems Notes -

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Entropy Coding: Entropy coding is usually the last step of data compression. It compresses a sequence of digital stream without loss. For e. The processing and quantization can be repeated iteratively several times in feedback loop. The term spatial domain time domain refer to the image plane itself and approaches in this category are based on discrete manipulation of pixel in an image. Frequency domain processing technique is

based on modifying the Fourier transform of an image. Some basic compression Techniques: 1. Runlength Coding Sample image, audio and videos data stream often contain sequence of same bytes. By replacing these repeated byte sequence with the number of occurrence, a substantial reduction of data can be achieved.

This is called Run length coding. For example if a byte occur at least four consecutive times, the number of occurrence is counted. The compressed data contain these byte followed by the special flag and number of its occurrence. It converts byte between four and to into three byte. The blank in the text such as symbol or pair of blanks are ignored.

Starting with a sequence of three blanks, they are replaced by an M-byte and a byte that specifies the number of blanks of this sequence. Sequence of three to a maximum bytes can be reduced to 2 bytes. Diatomic encoding is a variation of run length coding based on combination of two bytes. This technique determines most frequently occurring pair of bytes. Huffman Coding: Huffman coding is one type of entropy coding where a given character must be encoded together with the probability of their occurrence. The Huffman Coding Algorithm determines the optimal code using the minimum number of bits. The length number of bits of the coded character will be differing. To determine Huffman code, it is useful to construct a binary tree. The leaves nodes of the tree represent the characters that are to be encoded. Every nodes contains the occurrence of probability 0 and 1 are assigned to the branches of the tree. Every character has associated weight equal to number of times the character occurs in a data stream.

Arithmetic Coding: Arithmetic coding is one type of the Entropy coding between the code symbol and code word doesn't exist because it doesn't encode each symbol separately. Each symbol is instead coded by considering the period data. Therefore coded data stream must always be read from beginning. Random access is not available. In practice the average compression rate achieved by arithmetic and Hoffman coding are similar. Transformation Encoding: Data is transformed into another mathematical domain suitable for compression. The inverse transformation most exists and is known to the encoding process. The most widely known example is the Fourier Transformation which transforms data from the time into frequency domain. The most effective transformation for image compression is discrete cosine transformation and fast Fourier transformation.

An Authoring System is a program which has pre-programmed elements for the development of interactive multimedia software titles. Authoring systems vary widely in orientation, capabilities, and learning curve. There is no such thing at this time as a completely point-and-click automated authoring system; some knowledge of heuristic thinking and algorithm design is necessary. Whether you realize it or not, authoring is actually just a speeded-up form of programming; you don't need to know the intricacies of a programming language, or worse, an API, but you do need to understand how programs work. However, the content creation graphics, text, video, audio, animation, etc. Authoring involves the assembly and bringing together of Multimedia with possibly high level graphical interface design and some high level scripting. Programming involves low level assembly and construction and control of Multimedia and involves real languages like C and Java.

Below we summaries issues involved in Multimedia content and technical design. You can write it, illustrate it, wiggle it, hear it, and interact with it. Scripting writing Rules for good writing: 1. Understand your audience and correctly address them. Keep your writing as simple as possible. Make sure technologies used complement each other. Graphics illustrating Make use of pictures to effectively deliver your messages. Instead, for example, slide the bullets in and out. When to Animate "A leaf doesn't flutter if the wind doesn't blow.

Music - set the mood of the presentation, enhance the emotion, illustrate points 2. Sound effects - to make specific points, e. Memory and Disk Space Requirement Rapid progress in hardware alleviates the problem, but software is too "greedy", especially the multimedia ones in terms of memory requirements. These art styles can be combined with e. Storyboarding The concept of storyboarding has been used by animators and their like for many years. The storyboard evolves as the media are collected and organised: new ideas and refinements to the presentation are made.

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