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THE CURRENT TRENDS OF AUGMENTED REALITY IN EARLY CHILDHOOD EDUCATION

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ABSTRACT

Augmented Reality has been widely used in various level of education such as higher-level education, secondary education (lower/upper secondary level), primary education, and in informal learning. However, the implementation in early childhood education is still limited. By using library research methodology, the objective of this paper is to investigate the existing work of augmented reality in early childhood education between 2009-2018. Based on the results, it shows that the publication of augmented reality in early childhood education increased slowly within these past ten years. It has been found that the main advantage of augmented reality is to enhance motivation. Early literacy has been found to be the most used topic with sampling less than 30 children. Finally, 'Marker-based' augmented reality has been widely used with mobile devices and in term of data collection methods, 'Test' has been used the most in this field of research.

KEYWORDS

Augmented Reality, Child Computer Interaction, Early Childhood Education, Preschool

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AN ALTERNATIVE GREEN SCREEN KEYING METHOD FOR FILM VISUAL EFFECTS

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ABSTRACT

This study focuses on a green screen keying method developed especially for film visual effects. There are a series of ways of using existing tools for creating mattes from green or blue screen plates. However, it is still a time-consuming process, and the results vary especially when it comes to retaining tiny details, such as hair and fur. This paper introduces an alternative concept and method for retaining edge details of characters on a green screen plate, also, a number of connected mathematical equations are explored. At the end of this study, a simplified process of applying this method in real productions is also tested.

KEYWORDS

Digital Compositing, Green Screen Keying, Visual Effects

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Dr Jin Zhi has a very wide higher education background in tradition art, design and digital moving images, film production as well as film visual effects and 3D CGI. Jin is currently working at Creative Professions & Digital Arts, University of Greenwich. In the past 10 years, Jin worked in various VFX studios including The Moving Picture, London and Cinesite Kodak Visual Effects. Meanwhile, Dr Jin also worked as a visiting lecturer in a number of universities in the UK as well as South Korea such as University of Westminster, London and Konkuk University in Seoul, South Korea. As a film VFX Compositor, Jin's visual effects works are included in following commercial feature films: Prometheus (2012), Wrath of the Titans (2012), John Carter (2012), Harry Potter and the Deathly Hallows: Part 2 (2012). Jin's expertise and research interests widely covered in different areas in film & television post-production, especially film digital compositing, film & TV visual effects productions, creating 3D CG elements for feature films as well as digital moving image design, etc. In addition, Dr Jin has been certified as a Nuke Trainer by the Foundry UK in 2015



SELECTION SORTING ALGORITHM VISUALIZATION USING FLASH

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ABSTRACT

This paper is intended to develop an algorithm visualization, particularly selection sorting for an Algorithm and Programming course. Algorithm visualization technology graphically illustrates how algorithms work. This visualization can be used to explain how all data move to the proper position in order to be sorted in a display computer for education. This research consists of 6 steps which are concept, design, obtaining content material, assembly, testing, and distribution. During the testing step, the application is run and checked to confirm that it performs exactly what the author has intended and the students can learn selection sorting algorithm by studying the visualization. Subjects of the research were students at Department of Informatics Universitas Persada Indonesia YAI for implementation of the learning. The data were analysed using the analytic descriptive method and interpreted in a narrative way based on the research findings. The algorithm visualization indicates that students increase their motivation and ability to program variety of sorting in programming language they learn.

KEYWORDS

Multimedia, Algorithm, Sorting, Flash movie, Action Script

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INFORMATION HIDING USING AUDIO STEGANOGRAPHY–A SURVEY

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ABSTRACT

Today's large demand of internet applications requires data to be transmitted in a secure manner. Data transmission in public communication system is not secure because of interception and improper manipulation by eavesdropper. So the attractive solution for this problem is Steganography, which is the art and science of writing hidden messages in such a way that no one, apart from the sender and intend recipient, suspects the existence of the message, a form of security through obscurity. Audio steganography is the scheme of hiding the existence of secret information by concealing it into another medium such as audio file. In this paper we mainly discuss different types of audio steganographic methods, advantages and disadvantages.

KEYWORD

Steganography, Cryptography ,Audio Steganography, LSB.

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AN EVALUATION OF THE USE OF AUDIO GUIDANCE IN AUGMENTED REALITY SYSTEMS IMPLEMENTED AT SITES OF CULTURAL HERITAGE

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ABSTRACT

Recently, museums and historic sites have begun reaching out beyond their traditional audience groups, using more innovative digital display technology to find and attract a new audience. Virtual, mixed, and Augmented Reality (AR) technologies are becoming more ubiquitous in our society and “virtual history” exhibits are starting to be available to the public. There are numerous studies focusing on AR, however a scant amount of research is being done at historical sites. An initial experiment used repeated measures (ANOVA) to compare and rank three different types of AR devices use data site of cultural heritage. A further experiment was the under taken to observe participants using two different AR devices with and without sound to determine if which device used or the presence of sound impact the usability of the device, or the user’s satisfaction/preference of specific devices. Several surveys, including demographic and usability surveys, were provided in order to collect a range of user data. A two-way repeated measures (ANOVA) were used to analyze the quantitative data gathered. No significant effects were observed based on the quantitative data provided by the surveys, indicating that all devices were equally usable and satisfactory, and that sound did not have a significant impact in this instance. However, the qualitative data indicated that users may prefer using AR technology on a smart phone device and preferred to use this device paired with sound.

KEYWORDS

Augmented Reality, Audio Guide, Cultural Heritage, Human Computer Interaction (HCI), Usability

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OPTICAL BRAILLE TRANSLATOR FOR SINHALA BRAILLE SYSTEM: PAPER COMMUNICATION TOOL BETWEEN VISION IMPAIRED AND SIGHTED PERSONS

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ABSTRACT

In this paper we proposed a system; Optical Braille Translator (OBT), that identify Sinhala Braille characters in single sided Braille document and translates to Sinhala language. This system also capable of identifying Grade1 English Braille characters, numbers, capital letters and some words in Grade 2 English Braille system. Image processing techniques were used to developed the proposed system in MATLAB environment. The translated text displayed in a word application as the final outcome. Performance evaluation results reflect that the proposed method can recognize Braille characters and translated to user selected language either Sinhala or English efficiently, over 99% of accuracy.

KEYWORDS

Braille, Braille Recognition, Image Processing, Optical Recognition, Sinhala

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SATELLITE IMAGE COMPRESSION ALGORITHM BASED ON THE FFT

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ABSTRACT

Image compression is minimizing the size in bytes of a graphics file without degrading the quality of the image to an unacceptable level ,the reduction in file size allows more images to be stored in a given amount of disk or memory space, it also reduces the time required for images to be sent over the ground This paper presents a new coding scheme for satellite images. In this study we apply the fast Fourier transform and the scalar quantization for standard LENA image and satellite image, The results obtained after the (SQ) phase are encoded using entropy encoding, after decompression, the results show that it is possible to achieve higher compression ratios, more than 78%, the results are discussed in the paper.

KEYWORDS

Encoding Entropy, Fast Fourier transform, Compression, SQ.

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Comparison of Content Based Image Retrieval Systems Using Wavelet and Curvelet Transform

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ABSTRACT

The large numbers of images has posed increasing challenges to computer systems to store and manage data effectively and efficiently. This paper implements a CBIR system using different feature of images through four different methods, two were based on analysis of color feature and other two were based on analysis of combined color and texture feature using wavelet coefficients of an image. To extract color feature from an image, one of the standard ways i.e. color histogram was used in YCbCr color space and HSV color space. Daubechies' wavelet transformation and Symtel's wavelet transform were performed to extract the texture feature of an image. In this paper a color image retrieval system is illustrated, in which the novelty lies in the use of a fuzzy partition of the HSV color space and wavelet transformation of the fuzzified new image. To increase efficiency of the system finally an image retrieval method was proposed using curvelet transform of an image, which provides an opportunity to extract more accurate texture feature for image retrieval. After obtaining all experimental results, a comparative study was done. From the result it was inferred that curvelet based method gave a better performance as compared to other methods.

KEYWORDS

CBIR, wavelet transformation, Color histogram, YCbCr, HSV, curvelet transform

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LOGO RECOGNITION USING TEXTUAL AND VISUAL SEARCH

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ABSTRACT

The amount of digital data transmitting via internet has reached an enormous level. In order to conduct efficient web data analysis, effective web mining tools are needed. Logos, which represent companies' brands, are highly regarded in a business world. These logos embedded in ordinary pictures could give an indication of popularity of the companies and their products in a region. Therefore, it is imperative to build a computer system to extract company logos from these pictures. In this paper, a Logo on Map (LoM) system is proposed, which consists of three modules: picture extraction module (PEM), logo matching module (LMM) and web mapping module (WMM). Only the first two modules are covered in this paper. The PEM is based on a keyword textual search while the LMM is a visual search using SIFT (ScaleInvariant Feature Transform) algorithm. The three experiments are conducted using different sets of pictures extracted from the Flickr® website. The experimental results have proven that visual search is more accurate than textual search and also demonstrated that LoM could be used to discover hidden knowledge beyond logos.

KEYWORDS

Web Mining, Logo, Flickr API, Textual Search, SIFT, Visual Search, LoM (Logo on Map).

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REVIEW OF BLACK HOLE AND GREY HOLE ATTACK

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ABSTRACT

Black hole and Grey hole attack is most happening attacks in Mesh networks. Mesh networks means nonstatic networks with making loops of networks with the help of active hotspots. In Wireless networks all the communication between the nodes is happening wirelessly and the nodes are so much resource constraint that it is difficult to employ any security solutions of other ad hoc networks. So they are attacked by malicious nodes. In black hole attack the attacker windup all the information and dropped it. In black hole attack, the series of RREQ (route request) and RREP (route reply) follows the smallest way of networking communication. The fault node always transmit RREP message as it receives RREQ, while managing the receivers sequence number. By the help of fault node packets are dropped. Sometimes faultnode is authorised and otherwise it is unauthorised. Black hole attack is type of routing attack and can bring harm to whole network. Grey hole attack is the kind of denial of service attack. In this attack, the router which is mesh behave just not well and a subset of packets are forward and handle by receiver but leave by others. The presences of these attackers are hard to detect in wireless networks because over the wireless link the packets are lost due to bad channel quality. This paper deals with the study of analysis of delay occurs by these attack in Wireless Mesh networks and its types and also discuss about previous study by which we get idea about attack occurs in networks and also study various techniques to detect and prevent network from black hole and grey hole attack. Then we discuss about their result by using simulator OPNET.

KEYWORDS

Black hole attack, Grey hole attack, MRP, OLSR, RREQ, RREP, RERR, OPNET.

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