

Multimedia Auditorium Optimisation Regarding Reusable Multidimensional Systems and the Analysis of 2 Basic Comparative Samples from Turkey

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Abstract: -Multimedia in large scale auditorium interiors is a subject to be recognized among multidimensional and reusable flexible spaces. The performance areas are contemporary appliances of newly invented technologies and innovations regarding recent digital revolution. In this study the optimization on samples in Turkey are analyzed. The samples are 'the Akün Theatre & the Eurovision Song Contest 2004' Auditoriums. The two samples are comparatively examined to reach the quantity of optimal desires. The conclusion indicates the most effective formation of multimedia integration and the criteria which creating it.

Key Words: -Multimedia, auditorium, optimization, multidimensional, reusable.

1 Introduction

The term multimedia is essentially connected with numerical innovation. The meaning underlies the corporate work and systematical approach to any integrated area which is picked together around a same basis [3]. The hypothesis the multimedia brings is the faster the solutions to be reached by technical and analytical equations regarding both spatial and dimensional time recognition. The organization of multimedia performance and process is performed around the diffused analytical technical data and graphics which are reflected as a multidimensional space formulation [7].

Multimedia formulation in large scale auditorium buildings is a subject to be analyzed by stage design and systems. The recently approaches of multimedia theatre concept brings newly developed virtual applications to performance activities like theatre decoration and scene design as well as show business. The most important criteria are to bring together the databases in an ideal way of combination so as to achieve an optimal result at the end [3]. The meaning optimal relates to some basic levels. These levels could be analyzed with reference to two main factors as follows:

- The time as speed in multimedia formulation
- The stage design regarding multimedia
 - The acoustical data of the interior space.
 - The lighting process.
 - The integration of stage and the auditorium as spatial relations.

-The technical input indicating the systematical formulation etc.

In the world of television and film the use of computer graphics offers a lot of new possibilities. Non-existent environments, objects and even living creatures can be created with computer graphics programs [2]. However, the integration of the real and the computer generated worlds poses the problem of viewpoint synchronization. In the process of layering together the real-world and the computer generated images, which is called compositing, the viewpoints of the two cameras should have the same parameters, otherwise the perspective distortion and positioning of the images would make the layering process obvious and the final image would be unconvincing.

2 The Multimedia Auditorium Consisting of Multidimensional Reusable Systems

Multimedia commands the growing attention of the telecommunications, consumer electronics, and computer industry. In a broad sense, *multimedia* is assumed to be a general framework for interaction with information available from different sources, including video

A multimedia standard is expected to provide support for a large number of applications. These applications translate into specific sets of requirements which may be very different from each other. One theme common to

most applications is the need for supporting interactivity with different kinds of data.

Applications related to visual information can be grouped together on the basis of several features [11]:

- type of data (still images, stereo images, video)
- type of source (natural images, computer generated images, text/graphics, medical images)
- type of communication (ranging from point-to-point to multipoint-to-multipoint)
- type of desired functionalities (object manipulation, on-line editing, progressive transmission, error resilience).

Content creation is increasingly turning into virtual production techniques as extensions to the well-known chrome keying. The scene and the actors are recorded separately, and can be mixed with additional computer generated special effects. By coding video objects instead of rectangular linear video frames, and allowing access to the video objects, the scene can be rendered with higher quality, and with more flexibility.

Television programs consisting of composite video objects, and additional graphics and audio, can then be transmitted directly to the viewer, with the additional advantage of allowing the user to control the programming in a more sophisticated way. In addition, depending on the targeted viewers, local TV stations could inject regional advertisement video objects, better suited when international programs are broadcast [11].

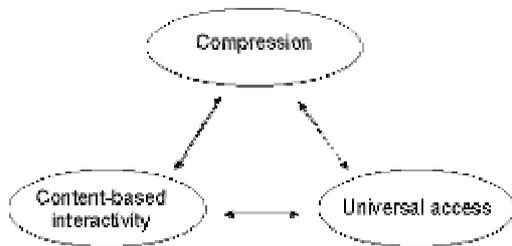


Figure 1: Functionalities offered by the MPEG-4 visual standard

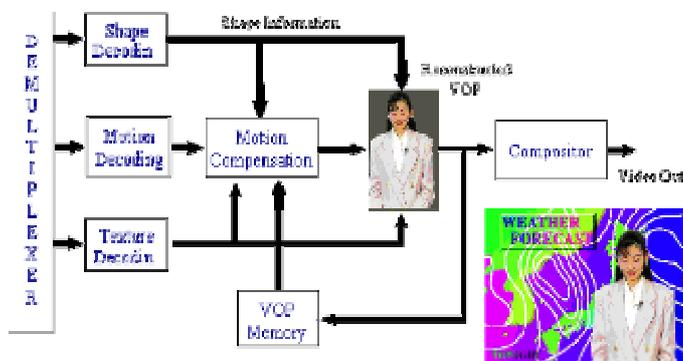


Figure 2: Example of VOP based decoding in MPEG-4

3 Multimedia Auditorium Optimization on Some Basic Samples in Turkey Regarding Reusable, Multidimensional Aspects

Multimedia activation in the stage-based performance could be realized among auditoriums, television stations, web based communication, digital and numerical data by technical aperture etc. In this case study the formation and virtual reality of multidimensional aspect of multimedia activity and the optimization of it among spatial appliance by auditoriums are analyzed.

In the first part the multimedia theatre will be evaluated by optimal standards. In the second part the multimedia concert stage will be explained by the same criteria. The comparison will bring solution for the conclusion where the optimal system performance and how it has been supplied will be analyzed regarding spatial aspects.

3.1 Akün Theatre in Ankara Turkey as a sample

‘Akün Theatre’ is in Ankara, the Capital City of Turkey. The theatre has changed its function from a cinema hall to a theatre interior as to compensate the need of a multidimensional theatre hall by contemporary solutions. But the interior has been completely changed overall [7].The interior carries a function of creating a different atmosphere inside from the outer in order to display a virtual interior.

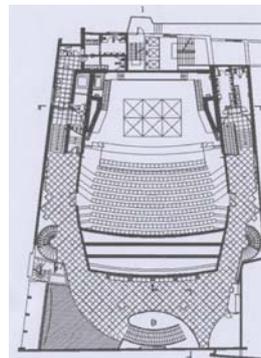


Figure 3 1st Floor plan

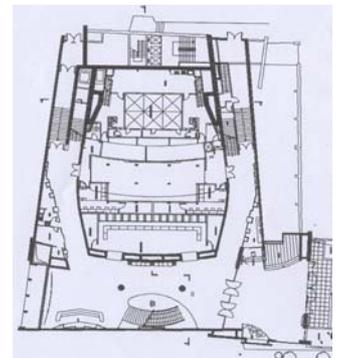


Figure 4 Basement plan

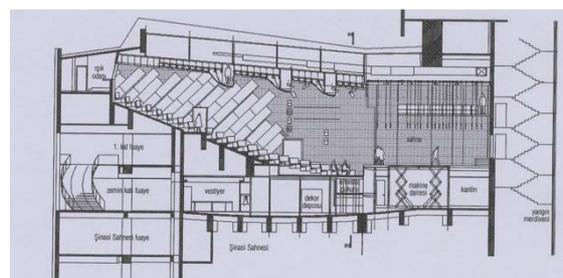
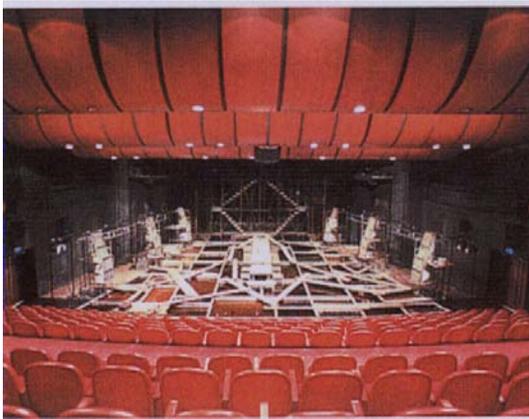


Figure 5 Side plan view



Picture 1 The Interior view of the theatre from the auditorium.



Picture 2 The stage of the theatre.

The interior organization has been designed to compensate 4 different spatial characters. These changes bring multifunctional interior usages under the concept of reusability. The reusable spatial aspects are the basic point and the concept of performance spaces.

The multimedia surrounds the interior atmosphere by the help of the technical disciplines adapted to create a visual effect in the real and dominant architecture.

The multidimensional inner space allocation regarding flexible stage and auditorium construction is another subject to be recognized [7].

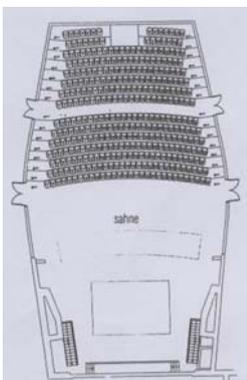


Figure 6 (444 people)

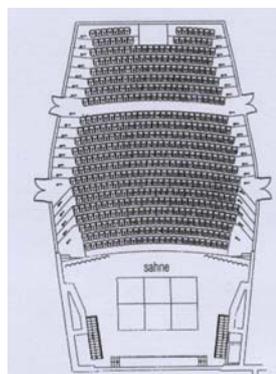


Figure 7 (554 people)

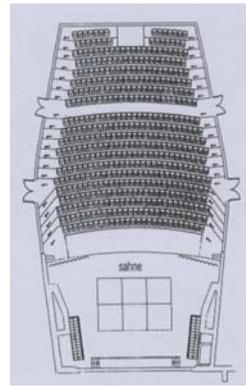


Figure 8 (503 person)

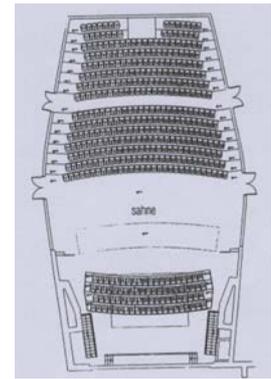


Figure 9 (362 person)

3.2 The Stage Design of the Eurovision Song Contest 2004 in Turkey

Under the same sky: that's the title given to the stage design for the 2004 Eurovision Song Contest in Istanbul. 36 stars from various cultures and religions will compete in the Eurovision Song Contest in May, united under that same sky. What's awaiting the audience? They will witness fireworks of colors and shapes. The stage offers the best possible conditions for this, as the venue allows a good view from all seats. While for the artists, it offers sample space for their performances along with thrilling lighting effects.

The design was reminiscent of Turkey's world-famous architectural monuments, the 'Hagia Sofia' (Church of the Divine Wisdom) and the 'Blue Mosque' in Istanbul. Istanbul conjures up images of fairy tales from the Arabian Nights, with tolerance, a peaceful multicultural society, respect and joy being core values. The centre of the stage, like the nave of a cathedral or the main prayer room of a mosque, is the focus of attention: a dome consisting of "minarets of light" frames this structure and, at the same time, lends depth to the design.

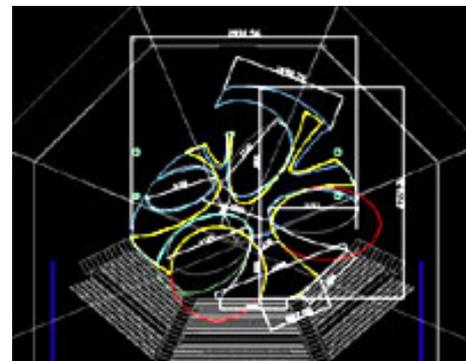


Figure 10 The conceptual framework of the stage.

The interior organization finds its real meaning and ambiance during the performance. Place is designed according to that criteria. The real interior by no virtual means seems to be a very different atmosphere when the performance started.

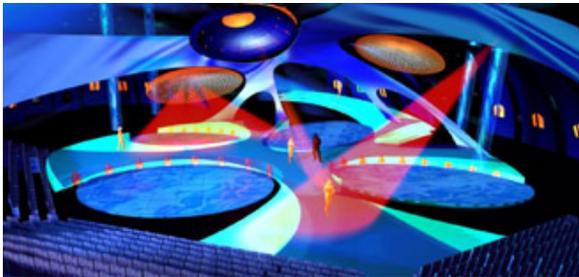


Figure 11 The virtual creation of the stage.

The basic point of the interior organization is the conceptual work of the multidimensional digital technical organization declining the reusable space by no time loss and efficiency of manpower but by the help of the digital reflections which is the data of the multimedia structure.

Abdi Ipekçi Sports Hall at Istanbul will be place of hosting of Eurovision *Song Contest 2004*. Sports Hall has been constructed at the end of 80th, but modernized recently. It was capable of seating 15 000 persons, but obviously, had problems with the acoustics.



Picture 3 The view of the stage during the performance.



Picture 4 The construction processes of the stage.



Picture 5 The building of the stage structure.

4 The Comparison of the Samples for System Optimization as the analysis

When the two samples are analyzed some similarities and differences have been occurred in order to reach optimal properties.

The similarities are:

1-Both theatre and concert hall interiors are places that are reusable and multidimensional. In fact different disciplines come together to create a virtual and relaxing atmosphere.

2-The multimedia affection creates the main structure of both of the auditoriums.

The differences are:

1-The spatial characters are different in the two samples. ‘the Akün Theatre’ as an interior, is noted for its dominant and more realistic interior while the ‘Stage of the Eurovision 2004’ is somehow more dominant with its multimedia aspect of the virtually based system. The interior is noted not for its visual features but for the features it gains while a performance is active. This is the main difference of the two places.

2-The multidimensional interior synchronizes the reusability by different conjunctions. In the theatre interior multimedia effectiveness is hardly to be recognized by virtual means but in the concert hall this situation is a complex and more technical activity where multimedia is optimal by different parameters.

4-1 Time-Space and Multimedia Optimal System Design Relation

Optimal Design allocation is a subject to be recognized by time that can be defined as the 4th dimension of space also. Time is an important factor in order to activate speed property. In these types of auditoriums speed is the basic point of creating the multidimensional inner space. If the desired work to be applied is done in a fast and effective order then the optimum quantity of multimedia sequence is reached. Then the most important criteria to be taken into

consideration are the time and speed integration in all the spatial and multimedia approaches by the way.

Multimedia is a system of a conjunction of pieces to serve as one that is the virtually created atmosphere by the help of speedy actions in balance and parallel equations with each other. This is the ideal way to reach optimal system performance.

Time is the most important variable for the auditorium spaces to determine the multidisciplinary team work going on in progress and dynamism. The dynamic and co-operated team work synchronizes as one [2]. The time and therefore speed formation is the main and basic element of the system optimization.

4-2 Multimedia as Virtual Reality

The appliance of multimedia as a visual reflection in auditoriums ends up with the cognition of virtual reality if it is supplied by optimal requirements [7]. In this work the materials and suppliers for multimedia formulation is examined in a stage dimension where both the real and virtual image is harmonized together as both the samples containing auditorium interior.

When we compare the two samples it could be analyzed that the stage of the Eurovision Song Contest 2004 is much more activated by multimedia creators than the theatre stage. This difference would naturally occur according to the functional difference but it is not the main reason for the different recognition. The main difference is the optimal system integration. The optimal criterion in system performance is more dynamic and virtual in concert stage as the meaning of the auditorium is variable in other words the stage has two meanings, during the performance and after the performance. During the performance the multimedia optimization is at the top while the stage is empty it means nothing and no sense at all. But in the theatre interior the visual recognition of the inner atmosphere doesn't change that much.

Virtual Reality is the basis of multimedia optimization in auditoriums. As the effort is minimized in reflecting the desired aesthetical and technical performance and the cognition is maximum among image analysis rather than real set decoration then the optimal quantities are meant to be supplied.

Virtual images are created by two basic elements:

- three dimensional view,
- multimedia integration.

The three dimensional view is the multidimensional aspect of the multimedia integration in stage performances. By the help of the virtually designed image the real and the mystic atmosphere of the interior is mixed to generate an optimal system performance [2]. The enormous popularity of cellular phones and palm computers indicates the interest in mobile

communications and computing. Using multimedia in these areas would enhance the user's experience and improve the usability of these devices. Narrow bandwidth, limited computational capacity, and reliability of the transmission media are limitations that currently hamper wide-spread use of multimedia here. Providing improved error resilience, improved coding efficiency, and flexibility in assigning computational resources would bring mobile multimedia applications closer to reality.

Multimedia commands the growing attention of the telecommunications, consumer electronics, and computer industry. In a broad sense, multimedia is assumed to be a general framework for interaction with information available from different sources, including video.

With the use of the 2D and 3D coordinate information about the markers, and with the estimated camera parameters as inputs, the precise camera parameters can be calculated [2]. Our viewpoints of the real world and the virtual world become synchronized, making it possible to integrate the two worlds. A computer generated image from the virtual camera positioned in the virtual world of virtual objects has the same perspective projection as that of the real world. The two images can be layered on top of each other with the use of either the alpha map generated for the rendered image, or using one of the colors of the real world's picture to produce an alpha map with chrome-keying.

Depending on the use of the camera-matching system, either the computer generated or the real world image can be the foreground or the background image during compositing. In the case of an image sequence, if the camera parameters are constantly synchronized and updated from frame to frame, the image layering can produce the effect of reality enhancement, i.e. augmentation.

In a vision-based camera matching the primary input for the system is a picture taken of a real scene. This picture can be a single image taken by a regular camera and then scanned into the computer, a digital photograph, or a sequence of images digitized from a video recording.

When recording an image, measurements need to be taken of 4 points, which can be later recognized on the picture. If the 4 points are simply recognizable features, like corners of objects, their 2D image coordinates can later be manually specified or high level feature tracking algorithms can be used to identify and track points, used as markers. If the 4 points are clearly marked in the real world, by color coded markers, their 2D coordinates can be automatically recognized and tracked throughout the image sequence. Automatic marker recognition enables

sub-pixel precision specification of the 2D coordinates of the markers.

4-2 Some Similar Researches in the Scientific Literature

In a research called as 'Hyperactive Network Architecture for Multimedia Telematics Applications', defining a new type of communications architecture characterized by flexible, multi-modal specialization of network nodes as virtual sub networks; mobility and virtualization of the net functions in hardware and software; it is mentioned that Network elements can contain several exchangeable modules capable of executing diverse network functions in parallel [13].

In another research, consisting of the work 'Experiences Using Domain Specific Techniques within Multimedia Software Engineering', it was concluded that the effectiveness of domain specific techniques has been demonstrated anecdotally and through early project success assessments. It is clear that such techniques are practical and should continue to be refined and expanded to other domains [14].

In the research called as 'Audiooptimization: Goal-Based Acoustic Design' [4] it was identified that the role of optimization in a design system is to find the configuration in the feasible design space that best matches desired performance goals. The choice of an optimization technique depends on the nature of the design space and the types of constraints.

In a paper; called as 'novel approach to fingerprint alignment based on the optimization of cost functions' the optimization is performed in two stages: the first stage provides a robust initial registration based on non-minutiae features and the second stage proceeds by fine tuning the alignment parameters using minutiae [6].

By the way we can see that in scientific literature researches done accordingly with the multimedia affection is mostly concluded as the optimal synchronization of systems regarding the theme it is capturing. This logic is the same as the results and conclusions reached by the analysis of this study.

5...Results and Conclusion

After the analysis of multidimensional multimedia auditorium optimization on two samples the **results** of this study indicates that it is created by the factors like; 1-digital and technical data and allocation, 2- time and spatial contribution reaching optimal desires, 3- virtual reality as cognition, 4- architectural aspects, 5- -function related, 6- multidimensional spaces, 7- aesthetical and technical synchronize in parallel distribution all over, etc.

The **conclusion** could be summarized as follows:

The comparison of the two samples showed that the multimedia optimization is at the top regarding technical and digital system integration into the spatial criterion. The most important factor is that the optimization is better being supplied by technical data but not by the quality of the interior organization of the auditorium. Multimedia is something more different and on forward than spatial solutions. It is the term of new, technical, multidimensional and contemporary hypothesis of futuristic aspects in performance areas. As a conclusion of this study it is identified that the usage of multimedia concerning auditorium interiors should be adapted to studies related with optimization criteria. And a specific appliance project work regarding multimedia should be prepared in order to gain the efficient value of this work in the future.

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