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The Evolution in Media & Entertainment Virtual Landscape

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INTRODUCTION

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Augmented, Virtual and Mixed Reality are three new IT concepts created with the purpose of providing users with knowledge and training that would otherwise be costly and difficult to replicate in the physical environment. These technologies have gained popularity across multiple applications and have begun transforming operations in industries, such as entertainment, defense, healthcare, and many others.

Since their scope has grown, innovations continue to rise, and people are keen to learn what differentiates each element from the other. VR is computer-generated simulation of a virtual, immersive, three-dimensional environment or image that users can interact by using specially designed equipment. AR enables the creation of a composite view by overlaying digital content (text, images, and sounds) through a system of devices or equipment with a view of the real world. Mixed reality (MR) comprises both AR and VR, while Extended Reality (XR) is the umbrella term including all digital interactive environments involving AR, MR, and VR. These interfaces are known for providing unique experiences to users.[1]

Each of these technologies has evolved over time, leaving room for divergence during development that includes significant breakthroughs in processing power, bandwidth, and hardware, improving their scale and longevity. Furthermore, the next big thing in the virtual landscape is the use of specialized equipment that have gradually evolved from head-mounted displays to wearables, as a natural result of the increasing massive adoption of smart devices that combine functionality, connectivity and rich digital information. Augmented reality marries the real word with the virtual, one and for this reason it makes virtual reality overwhelming.[2]

The global AR/VR market is estimated to grow to USD 766 billion by 2025 at a CAGR of 73.7 percent. North America remains the dominant player in this market, followed by Europe, which accounts for the second-largest share.[3] Notably, in the sports and entertainment segment, the value of VR reached USD 2.3 billion in 2020, and the future seems to be promising as it will reach USD 56.7 billion by 2031.[4]

SECTION 1

The Emergence of Augmented and Virtual Reality in Media

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The Emergence of Augmented and Virtual Reality in Media

Augmented and virtual reality technologies are widespread in the present, due to their ability to enhance and simplify tasks in various fields. VR environments where participants are immersed in a digital world are either realistic or fantastical, while AR are worlds where virtual objects are anchored in specific positions in the real environment. The former is typically experienced through computer monitors, but users can be distracted by real-world elements, negating the potential for true immersion. Recent innovations such as head-mounted displays like the Oculus HMDs or HTC Vive have been developed to overcome this challenge.

Entertainment is any venture that serves as a diversion and amuses people in their leisure time. This paper focuses on the development of augmented and virtual applications in the entertainment industry, which consists of the following areas:

- Film industry: live action or animated content on a large screen that engages viewers for a period of 1-4 hours
- Television industry: live-action, animated content on a small screen that indulges audience for a short period
- Gaming applications: computer or console-oriented content that gamers play for long or limited spans of time
- Music business: live-action or digital content which the attendees either watch in a stadium or listen to using equipment like headphones
- Exhibitions and shows: events such as amusement parks, museums, concerts, performance arts, sports which engage attendees for hours or days

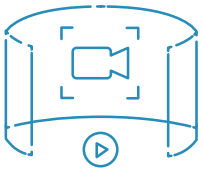
This collective assortment is often summarized under the term 'show biz'. The industry, especially the gaming sector, has experienced a boost through VR. Early interest has led to the development of new use cases that take media from what we know to a compelling, virtual environment. Researchers predict that such changes could ultimately transform the recreation industry and replace conventional forms of leisure. Exhibitions will experience an added spectacle through digitally enhanced performances.[5]

Much attention is given to this segment, as it allows two people who live apart to connect and feel close in a connected, immersive world. In face of Covid-19 which restricted movement and caused social isolation, people sought the internet as a refuge and a way to stay in touch with their distant friends and families. Both simulators offer unique experiences, for example, an AR display can help tour guides give upgraded tours where participants receive more information and visual cues. A VR display can give them a tour of a museum from the comfort of their homes. Artists and performers have more flexibility in providing virtual performances allowing them to accommodate additional work in a short period of time.[6]

As a rule of thumb, AR includes more specialized devices such as depth sensors, eye-tracking, see-through retinal displays, while VR is limited to computer monitors and head-mounted displays. The main difference between the two is whether the entire physical environment is visible to the user or not.[7]

Film Industry

This sector has undergone several changes since its inception, whether in content or in modes of display due to the changing aesthetic needs of people and the psychology of audiences. Digital technology has broken through restoration and shaped the real world in film and TV operation, especially in the production process. With brand new AI, scenes and objects that do not exist in the real world are projected onto the viewers, images from different times and spaces can be combined, and even real and illusory images can be juxtaposed. These experiences are immersive because they integrate senses such as sight, hearing, taste and touch. Human-computer interactive (HCI) films are also changing the industry by reflecting the relationship between the two. In such settings the most sophisticated intelligent body, the human, and the computer's automatic control system form a large feedback loop.



VR and AR enhance the digital effects of the film, producing scenes and objects that do not exist in real life.

In today's world, the audience's demand for verisimilitude and immersion in the work is on the rise. Films reflect a visual psychological reality. As an industrial production, a means of communication, and an art form, the film industry has always been dependent on tech innovation. The movement of the image and its modeling, the lighting and camera features, are some of the visual aspects that affect the final product, aside from the work of human artists. VR and AR enhance the digital effects of the film, producing scenes and objects that do not exist in real life, resulting in an advanced form of computer-generated imagery (CGI) that pushes the boundaries of pure visual appreciation, and deliver a multisensory aesthetic result. Conventional films involve only some of the sensory functions, but the new emotional experience encompasses all of them such as thought, emotion, sound, vision, touche, and induction, creating an all-round escapade.[8]

2016 is known as the 'first year of VR', which affected various aspects, including animation, commonly referred to as 'cartoons'. The concept of animation has given the art a high entertainment value by breaking conventional forms and creating completely new ways of shaping images, and an unprecedented level of immersion.[9]

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