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ARTIFICIAL INTELLIGENCE IN ENTERTAINMENT AND MEDIAINDUSTRY

Review paper on how AI is making progress in the fields of Entertainment and Media

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Abstract : With the progress in science and technology, Artificial intelligence has flourished in the fields of media and entertainment. At present, the use of artificial intelligence in the entertainment industry mainly includes experience and personalization, search optimization, real-time object detection, predictive analysis, categorization and classification, metadata tagging automated transcription, etc. Artificial intelligence is also used for writing articles. Social media platforms such as Facebook, Instagram, Snapchat, and Pinterest use all kinds of AI technology from analytics to computer vision to provide more personalized products and services for their users. The entertainment giants such as blizzard entertainment, Walt Disney World, Google, Microsoft, and intel are creating and launching AI- driven innovations and entertaining consumers by providing them with a next- generation experience. AI in the entertainment industry has led to helping in the faster completion of movies. Its predictive analysis makes marketing faster. One can personalize its content to their liking. The use of Augmented reality (AR) and Visual reality (VR) provides a great experience for users. AI makes the visual content more interactive and interesting.

I. INTRODUCTION

Artificial Intelligence (AI) is one of the most talked about and researched areas in contemporary technology. Artificial intelligence has the ability to create and interpret texts, images, videos or any other form of communication. AI can be used to benefit a wide range of industries such as entertainment, media and marketing. It can also be used to create an engaging experience for viewers and enhance the overall quality of the content being produced. The use of AI can enhance any media content through the use of human-like behaviors such as natural conversation, speech recognition and facial recognition. However, there are certain challenges that need to be addressed before AI can be widely adopted by the entertainment industry. This article explores the use of AI in the entertainment and media industry as well as the potential benefits and limitations of this technology. "Artificial intelligence (AI) can be defined as a computer system that is capable of performing tasks that are ordinarily carried out by a human.". According to this definition, AI can carry out complex tasks such as object recognition and decision making. It can be used to mimic human behavior and to interact with humans in a natural manner. This technology has been widely used in the entertainment industry to improve the user experience and improve the efficiency and productivity of creative processes. Some examples of AI applications include voice control for digital devices, face recognition and speech-to-text conversion technologies. It has the potential to transform the way entertainment content is created and shared in the future. Currently, the technology is being used in a variety of areas such as advertising, animation and music production. However, its widespread use in the entertainment industry is limited due to the technical challenges associated with its implementation. There are also ethical concerns about the use of AI technologies and their impact on the future of the entertainment industry. This paper provides an overview of the impact of AI on the entertainment industry and outlines some of the practical challenges that need to be overcome in order to maximize the benefits of this technology.

Advances in technology have enabled the development of new technologies such as AI that have revolutionized the way people interact with the digital world. The entertainment industry is one of the most affected industries by the adoption of new technologies. In order to stay competitive, businesses in this industry are using AI solutions to automate processes and improve their operationalefficiency.

1.1 Artificial intelligence in social media

In actuality, social media would not exist without AI. Technology is used in many different elements of social networks. For instance, if you use Twitter, you may have noticed that you get suggested tweets and accounts to follow. AI examines your platform activityto identify content you would enjoy, much like how product suggestions work on Amazon. This enables them to increase user engagement and experience by getting users to stay on the platform for longer periods of time.

1.1.1 Building better ads

Many companies advertise on social media. Due to its enormous user base, it is a top contender for conversion and for generatingsales. The majority of firms concentrate on a certain type of web marketing known as pay-per-click (PPC). PPC requires you to pay a predetermined price each time a potential customer clicks on your advertisement. Of course, the ultimate aim of advertisingis to generate more revenue than expenses. However, PPC is only successful if a buyer actually makes a purchase after clicking alink. Making your content more engaging is necessary if you discover that customers aren't making purchases as a result of your PPC advertising. AI that is supported by machine learning can be helpful, just like with regular social media posting. It can write and schedule posts and find ways to optimize your PC.

1.1.2 Better analytics

You'll gather more data as you spend more time online. And we now understand how crucial this may be for expanding your company. Data can be crammed with insights to aid in the development of your business. You may have data, but how well do you comprehend it? You'll need the appropriate analytics tools to help you decode information in order to comprehend your data. The top analytics tools use artificial intelligence to provide thorough reports on your data. Therefore, you can stop straining your teeth to comprehend your audience and the stuff they enjoy. Information is instead presented in a clear and useful manner. Therefore, it can assist you in making judgements such as which of the several platforms to concentrate on and which types of material your audience wantsto see

1.1.3 Moderate your content

Social media isn't always the most enjoyable place to be, it's fair to say. You may occasionally receive rude and abusive remarks from trolls. This can harm your staff's wellness and does nothing to support the community you're aiming to create. In severe cases, you can encounter spam-posting or audience-scamming rogue accounts. It's critical that you keep an eye out for comments of this nature. It will be better for your online community if they can be taken down as soon as possible. These users, however, can be more difficult to identify when there are several comments. When this happens, having an automatic system that can detect any misconduct is helpful. AI can scan comments for spam or abusive language. Following that, it can ban users and delete any comments deemed inappropriate. This frees up more time for producing more engaging content for your audience rather than spending less time sorting through comments. The top analytics tools use artificial intelligence to provide thorough reports on your data. Therefore, you can stop straining your teeth to comprehend your audience and the stuff they enjoy. Information is instead presented in a clear and useful manner. As a result, it can assist you in making judgements about what platforms to concentrate on and whatkinds of material your audience is most interested in.

1.1.4 Improve response times

Your company may depend on customer support to survive. It's inevitable that you won't always get things right; let's face it. In business, this is typical. However, clients might not be as understanding. By giving you an opportunity to make corrections, your customer assistance is crucial at this point. Customer and employee retention increases as a result of better customer assistance. Each of us has experienced being stranded on a support line while waiting for a response to our calls. It's a protracted, tiresome procedure. Because of this, many clients increasingly favour social media discussions over phone calls. You may also benefit from this because it frees up phone lines to handle more challenging instances by resolving less significant concerns online. When your online chat agents don't answer any faster than your call agents, issues arise. There are several possible causes for a delay, such as having to deal with an increase in consumers. Yet again, those who contact you might not always see this aspect. What is the remedy? Why not enlist the aid of an AI chatbot instead of having staff members respond to all inquiries? A chatbot can significantly improve your customer service if you pick the proper strategy. Additionally, machine learning enables AI to learn from user encounters and enhance responses. When AI is unable to assist a consumer, it might direct them to a human for assistance. This

should lead to a decrease in queues since chatbots can answer basic questions. Customers can reach humans much more rapidly ifthis is not an option.

1.2 Artificial intelligence in making movies

The film business is fast adopting artificial intelligence as a game-changer. AI is revolutionising the way movies are produced and viewed, from scriptwriting and casting to special effects and distribution. While there are many advantages to adopting AI in filmmaking, there may also be drawbacks that need be taken into account. Saving time and resources is one of AI's main advantages in the film industry. Large datasets of already written screenplays can be analysed by machine learning algorithms, and new, original stories can be created using the information. This not only frees up more time for screenwriters, but it also provides new opportunities for creativity and storytelling. Additionally, casting decisions are made more accurately and effectively thanks to AI. Platforms powered by AI can examine a tremendous amount of data, including information on

previous performances and social media activity, to forecast which performers will be most successful in a certain role. This can save time and resources whileassisting casting directors in making more informed judgements.'

AI is also utilised to improve the visual effects (VFX) in movies. Adding VFX elements is made simpler and quicker by the use of machine learning algorithms that can be trained to recognise and categorise various things in a scene. This can help VFX studios save time and money while also raising the overall calibre of the movie. The employment of AI in the film business could, however, have drawbacks as well. The possibility that AI may supplant humans in the workforce is one of the main worries. There is a chance that as AI algorithms progress, they will eventually be able to take the position of human screenwriters, casting directors, and VFX artists, eliminating jobs in the film business. The loss of personal touch and human innovation is another possible drawback. Although AI algorithms are capable of creating original stories and making precise forecasts, they might lack the distinctive viewpoint and emotional nuance that come from human creativity. This might result in a standardisation of plots and a decline in the general calibre of movies. Even though AI is capable of performing the same tasks, there are a number of ways that humans can continue to work in the film industry. Focusing on the special qualities of human creativity and emotion is one strategy. While AI algorithms might be able to come up with stories and anticipate the future, they might not have the distinctive viewpoint and emotional nuance that come from human creativity. This might result in a standardisation of plots and a decline in the general calibre of movies. Filmmakers can set themselves apart from artificial intelligence and defend their continued employment by emphasising the importance of human creativity.

Another strategy is to concentrate on tasks that AI cannot or will not be able to complete. For instance, it might be more challenging for AI to complete activities that call for human empathy, social aptitude, or physical agility. Humans can continue working even in the face of adversity by concentrating on certain tasks. Humans can also maintain their competitive edge by constantly learning about and adjusting to new technologies. It will be crucial for humans to keep up with the most recent discoveries and learn how to use AI tools successfully as AI algorithms become more sophisticated. To keep up with trends and gain new abilities, this may entail working with AI specialists, attending workshops, or completing courses. Humans can continue to have value in the film industry by making investments in their own training and growth. Overall, it is obvious that AI is significantly changing the movie business. AI is revolutionising the production and viewing of movies, from scriptwriting and casting to VFX and distribution. While there are many advantages to adopting AI in filmmaking, there may also be drawbacks that need be taken into account. It will be crucial to establish a balance between the benefits of technology and the importance of human creativity asAI develops.

1.3 Artificial intelligence in journalism

In recent years, artificial intelligence has played a significant role in journalism. Many businesses have internal software that can produce news items in a matter of minutes or even seconds. Data is all that artificial intelligence need. Now, this information may take the shape of numbers, audio, or video. Newsworthy stories about them will be generated by the programme. With the use of language processing software, major media institutions including the Washington Post, BBC, and Bloomberg are employing AI to write news pieces. Imagine supplying any form of data to an AI programme, including the specifics of a business's assets. In that instance, the computer programme will automatically evaluate the data and provide you with a published-ready piece. Codifying data may frequently be time-consuming and challenging for humans, especially when it involves broad trends. However, AI can quickly do this. Journalists are now employing artificial intelligence to monitor important economic trends and trends in the world, which helps them analyse new developments and make predictions about the future in their stories. The use of AI in journalism also helps to lessen prejudice in the interpretation of the data, which is an intriguing and significant aspect. It would be difficult to physically find and pinpoint the biases in journalism, but a bot could do it far more quickly.

The architecture that AI utilises to produce customised designs for users is the same one utilised for every other social media network. In essence, AI bots can determine how frequently a person reads a certain newspaper section. These bots may also identify the kind of articles, the nature of the newspaper, and the audience's demographics, among other things. These parts may include information on the kind of pages users spend more time on, the content of the pages, and any information pertaining to any online personas the user may have. AI therefore gathers all of this data and creates customised designs that would appeal to the reader depending on the reader's past preferences.

In conclusion, artificial intelligence is an excellent technology that has numerous advantages for the media industry. The fact that several news organisations are currently utilising AI is evidence of its dependability.

II. HOW IS AI TRANSFORMING THE ENTERTAINMENT INDUSTRY?

In 2021, North America dominated the market and produced more than 38% of total revenue. The media and entertainment market in North America is anticipated to develop at a CAGR of 24.2% and surpass US$ 65 billion by 2030. The main cause of this increase is the enormous R&D investments made by enterprises to provide software solutions for Al-based virtual production.Al is used for voice and speech detection in one of the most significant developments in the region.

Given the large investments being made in artificial intelligence (Al) initiatives and related research and development (R&D)activities, the region is anticipated to offer significant potential for industrial expansion. As an example, a PlayStation gamedeveloped by Epic Games, Inc. will be launched in June 2020 using the improved Unreal Engine 4.25. VFX software called anunreal engine is used to produce, pre-visualize, and edit real-time visual effects. There are more endeavours being made by the filmindustry, such as the use of Watson, an AI system created by IBM, to create a trailer for 20th Century Fox's horror film "Morgan."By 2030, the media and entertainment market in APAC is expected to have grown from 3.6 billion US dollars in 2021 to 45 billion US dollars. The market is predicted to expand at a CAGR of 25.8% over the anticipated time frame. Because of the widespread use of content creation technologies including high-resolution cameras, content development software, and cellphones, anyone can now create, publish, and distribute literary, visual, and audio content. Regional traditional media

outlets like cable and radio have been replaced by on-demand streaming services like Netflix and YouTube as a result of the internet's growth.

III. AUGMENTED REALITY AND VIRTUAL REALITY

3.1 Augmented Reality

With the use of an AR device, real-world objects and environments can be overlaid with 3D virtual objects, which can then interact with the real-world objects to produce the desired meanings. This is known as augmented reality. A picture of the real world is enhanced with digital data and computer-generated graphics in augmented reality, as opposed to virtual reality, which aims to replicate and replace the complete real-life environment. By including video, infographics, photos, sound, and other features, it aims to alter perception. A gadget that generates AR content overlays virtual 3D graphics on actual items based on how geometrically similar they are. The system's ability to determine an object's orientation and position in relation to other items is a requirement. On mobile devices, AR glasses, and other displays, the merged image is projected.

On the other hand, there are wearable gadgets that enable users to watch augmented reality content. AR glasses do not fully immerse users in virtual worlds like virtual reality headsets do. The wearers of the glasses can add to or overlay a virtual objecton a real-world object, such as placing augmented reality (AR) markings on machines to indicate repair areas. When using AR glasses, a user can view the surrounding real objects and environment along with the enhanced virtual image. Although the word was initially used in the military and on television in 1990, AR is now used in a variety of industries, including gaming, education, and training. Most of it is used in the form of AR apps that can be downloaded and used on desktops and smartphones. Modern cell phone technology, including GPS, 3G and 4G, and remote sensing, has improved it.

1968: Ivan Sutherland and Bob Sproull created the world's first head-mounted display with primitive computer graphics.
1975: Videoplace, an AR lab, is created by Myron Krueger. The mission was to have human movement interactions with digital stuff. This technology was later employed on projectors, cameras, and on-screen silhouettes.
1980: EyeTap, the first portable computer won in front of the eye, developed by Steve Mann. EyeTap recorded images andsuperimposed others on it. It could be played by head movements.
1987: A prototype of a Heads-Up Display (HUD) was developed by Douglas George and Robert Morris. It displayed astronomicaldata over the real sky.
1990: The term augmented reality was coined by Thomas Caudell and David Mizell, researchers for the Boeing company.
1992: Virtual Fixtures, an AR system, was developed by the U.S. Airforce's Louise Rosenberg.
1999: Frank Deigado and Mike Abernathy and their team of scientists developed new navigation software that could generaterunways and street data from a helicopter video.
2000: ARToolKit, an open-source SDK, was developed by a Japanese scientist Hirokazu Kato. It was later adjusted to work withAdobe.
2004: Outdoor helmet-mounted AR system presented by Trimble Navigation.
2008: AR Travel Guide for Android mobile devices made by Wikitude.
2013 to date: Google Glass with Bluetooth Internet connection, Windows HoloLens – AR goggles with sensors to display HDholograms, Niantic's Pokemon Go game for mobile devices.

3.2 Virtual Reality

Virtual reality (VR) is a computer-generated experience that can be accessed through specialized equipment, such as head-mounted displays (HMDs). In VR, users are exposed to a simulated environment and interact with it through the use of special controllers or motion tracking sensors. By donning an HMD and stepping into the virtual world, the user is able to experience a sense of presence within the virtual environment. Different applications have been developed for VR, including games, entertainment, medical training, and education. While VR has been in development for decades, the technology has recently seen significant advances that make it commercially viable. As a result, this technology is becoming more and more accessible to the general public.

Current applications of virtual reality can be classified into several categories. Most applications are commercial in nature and provide entertainment for users. These applications include video games, 3D movies, and interactive virtual environments. Other applications are used for scientific research and medical training. Most of these applications are currently used by industry researchers and not the general public. Applications that involve the public include virtual tourism, data visualization, and various educational experiences. These applications have tremendous potential and have exciting implications for the future of computingand technology.

In the past, virtual reality technology was expensive and required specialized computers and other equipment. However, recent advances in technology have made these applications accessible to a wider audience. It is now possible to purchase a VR headset for less than $100 and experience a variety of virtual environments. These headsets are inexpensive and easy to use, which makes them accessible to everyone. As the technology becomes more affordable and user-friendly, more and more applications will be developed for the public. The potential of virtual reality technology is truly exciting.

In recent years, virtual reality has become increasingly popular. This is due in large part to the recent technological advances in this field that have made it more affordable and accessible to the general public. However, despite its growing popularity, there is still a lot of misinformation about virtual reality floating around the internet. One of the most common misconceptions is that virtual reality is the same as augmented reality. While these technologies are similar in some ways, they are very different in others. AR (augmented reality) is a technology that makes it possible to enhance the real world with computer-generated images and other data. Virtual reality is a technology that creates a simulated environment that is

artificially created and allows users to interact with it as if they were actually there. While these technologies are closely related, they have very distinct differences. It is important to understand these differences in order to fully understand the capabilities of both technologies. In other words, virtualreality is basically:

Believable: In order for the illusion of virtual reality to persist, you must truly believe that you are in your created environment(on Mars, for example), and you must maintain that belief.

Interactive: The VR environment must follow your movements as you move around. A 3D movie can take you to the Moon or the ocean floor while you view it, but it is not interactive in any way. Why does it matter that something is computer-generated? We can only create credible, interactive, alternate realities that change in real time as we move about them with the help of sophisticated equipment and realistic 3D computer graphics.

Explorable: A VR world must be sufficiently large and detailed for you to explore. No matter how accurate a picture may be, it only depicts one scene and one point of view. A vast and complicated "virtual world" can be described in a book, but you can onlyactually explore it in a linear fashion, just as the author describes it.

Immersive: VR must involve your body and mind in order to be believable and interactive. While war painters' paintings can provide us with snippets of fighting, they will never be able to properly capture the sight, sound, smell, taste, and physical sensation of warfare. It's not the same as using a real flight simulator, where you sit in a hydraulically operated mockup of a real cockpit and feel real forces as it tips and tilts, and even less like actually flying a plane. You can lose yourself in a very realistic, interactive experience while playing a flight simulator game on your home PC for hours (the landscape will constantly change as your plane flies through it).

IV. SOME REAL-LIFE APPLICATION OF AI

4.1 Movie Recommendation Engine

The secret to attracting and keeping clients is to provide personalised recommendations to each user. It can be really difficult, particularly if your company runs an entertainment platform with more than 7000 different pieces of material. Advanced personalisation is a practical approach to beat rivals given that AI can automatically choose and deliver information to the proper consumer.

4.2 AI in Gambling

The benefits that come with using AI are also enjoyed by representatives of the gambling sector. For instance, to maximise their efforts in gaining the trust of sports fans, sports betting organisations and online gambling platforms use solutions based on artificial intelligence.

4.3 Real-Time Object Detection During Entertainment Event

Top-notch computer vision capabilities make it possible to use object detection for marketing purposes. That can imply detecting brand logos on sports gear or billboards placed around venues. Such sources of data are of value for marketing teams running campaigns to increase brand awareness. Object detection models are based on neural networks that enable recognition and targeting in real-time, even in cases of blurred images or image noise. Users can run the networks on their mobile devices across platforms.

4.4 AI, Machine Learning and Data Science at Netflix

Netflix has realized the benefits of using AI in media production. The company has used ML algorithms to predict Network quality, video quality, and all other technical challenges that happen during video streaming. Film Editing (Post-Production) allows Netflix to stream video frames as an initial point for thumbnail generation or using hundreds of frames from an existing film. Auto-generating of thumbnails shows users who see 'A' are more likely to see the continuation i.e. 'B'.

V. LIST OF TOP AI IN MEDIA AND ENTERTAINMENT MARKET COMPANIES

- Amazon Web Services inc
- EMG
- Gearhouse South Africe Pty. Ltd.
- Gravity Media
- GrayMeta
- IBM Corporation
- LMG LLC
- Matchroon Sports Ltd.
- Synthesia Ltd.
- PlaySight Interactive Ltd

VI. CONCLUSION

The global sales of the media and entertainment industry are expected to increase from USD 2 trillion in 2020 to around USD 2.6 trillion by 2024, according to market research predictions. It is anticipated that AI will play a bigger role in media and entertainment in the years to come. By exploring and experimenting with AI use cases, media and entertainment companies are maximising their financial performance while improving the consumer experience and entertainment value provided. The employment of data scientists and mathematicians, both of which are essential to AI, is expected to increase by 31.4 percent by 2030, according to the Bureau of Labor Statistics. The involvement of artificial intelligence in the media and entertainment industry is going to play a beneficial role and is a total game changer in 2023 and the years ahead.

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