INFLUENCE OF AI IN MEDIA AND ENTERTAINMENT INDUSTRY

Pregledni članak

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Abstract
The media industry is by its very nature inclined to introduce innovations and new technologies. In order to fulfill the set goal of its continuous development, offer the highest quality content and improve the user experience, it tries to integrate the latest achievements of the digital revolution as much as possible. Users of media industry products have ever-increasing expectations and impose demands on the media industry that are increasingly difficult to meet. In order to adequately respond to the complex demands of consumers, the media industry has recently been relying more and more on the help of artificial intelligence. Artificial intelligence in the media industry has various applications that are transforming the creation, distribution and consumption of content. Artificial intelligence algorithms are used when analyzing user behavior and preferences in order to suggest newer and more impressive content to that user. This paper discusses the integration of artificial intelligence technologies, such as machine learning, deep learning with AR and VR, and ways of using them for the creation, distribution and consumption of media content. The paper provides an insight into the key advantages of using artificial intelligence technologies in the media industry and focuses on presenting the challenges that artificial intelligence poses in the media industry, which include a combination of technological, ethical and regulatory aspects.
Keywords: *Artificial intelligence, media, entertaiment, industry.*

1. Introduction

In today's world, where information is available at every corner. It is critical for the media industry to keep up to date on the latest trends that can increase efficiency and better flow of information to people. One of these trends is AI (Artificial Intelligence). It has been a game-changer, penetrating nearly every area of our lives and offering a higher level of productivity. The media industry is one of the areas that has been affected by artificial intelligence, and it’s increasing every day. One of the big media giants that use AI (Artificial intelligence) is Warner Bros. They use this technology to manage their films and budgets. In modern society where we have multiple media and social media platforms for sharing news, the influence of artificial intelligence can be crucial for delivering quality, trutifuly news and avoid fake news to make impact from miss information of people.

2. Artificial Intelligence: What Is It?

One of the most significant areas in computer science and engineering is artificial intelligence. Artificial Intelligence (AI) is one of the numerous significant developments in computer science that have occurred since the end of World War II. Artificial intelligence models the processes of human learning by using machines to learn from massively labeled datasets. Computer systems then use these patterns to analyze and predict data. Artificial Intelligence.

Programming of AI (Artificial intelligence) is the getting to simulate most cognitive functions of human abilities to learn, creative thinking, self-correction and logical thinking.

Artificial intelligence currently has a variety of subfields of subgroups, that range from : learning, perception, to specific fields such as playing chess, driving a car and diagnosing diseases.

In our world right now, AI is starting to be an important part of our lives in everyday life.We have several subgroups or subcategories that are important to mention for this paper and there are : machine learning, deep learning, and computer vision.

2.1 Machine Learning

Machine learning is one of the branches in artificial intelligence. Machine learning focuses on using large datasets and algorithms to mimic how humans learn and progressively improving precision.

Machine learning have three primary categories:

- Supervised machine
- Unsupervised machine learning learning
- Semi-supervised learning

New technological advances trough past decades in processing power, data storage and cloud computing is enabled big impact for developing new products that are based on machine learning. One of that example coming form enterntaiment indutry it is Netflix’s recommendation engine for their users. Recommendation engine analyze data from users what they watch (categories of movies or tv shows), from that data recommendation engine can

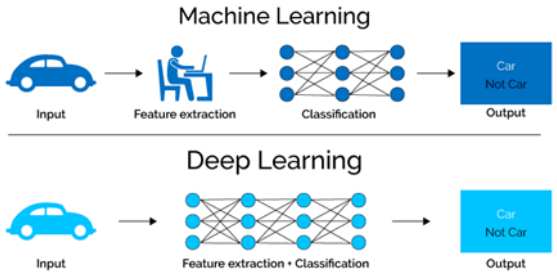
make prediction what user will want to watch in near future. With this we get fully personalized content for each user on platform.

These insights influence application and business decision-making and, ideally, important growth indicators.

2.2 Deep Learning

Machine learning, which is basically three- or more-layered neural networks, allows models to surpass human intelligence and performance while achieving state-of-the-art accuracy. The types of data that are used and the learning process are the primary distinctions between deep learning and standard machine learning.

The main difference between classical machine learning and deep learning is by type of data that it works with and the method from which it learns.



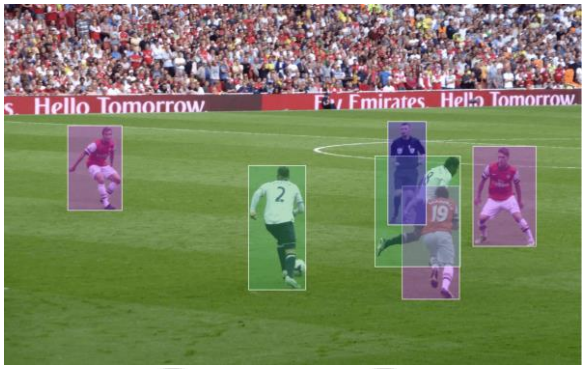
Picture 1: Diffirence between Classical machine learning and Deep learning

Soruce: https://i0.wp.com/semiengineering.com/wp-content/uploads/2018/01/MLvsDL.png?resize=733%2C405&ssl=1

Deep learning is an important wheel in many AI applications and services. Example can be in automation everyday physical tasks without human interaction. AI – Deep learning today is in every product type we use as consumers, from digital assistants, smart TV-remotes and, of course, self-driving cars.

2.3 Computer Vision

Computer vision is a field of AI(Artificial intelligence) that trains computer how to understand the visual world. Using digital assets such as images and videos with deep learning models, machine can identify and classify objects and make reaction about to what they see. In the 1950s, early experiments with computer generated with computer vision, emerge first neural networks to detect the edges of an object and to sort objects into categories like circles and squares. Computer vision mimics the functions of human eyes but with much less time to do it with cameras, data and algorithms, rather than retinas, optic nerves and visual cortex.



Picture 2: Example of usage computer vision in sports

Soruce:https://www.superannotate.com/blog/computer-vision-in-sports

Computer vision technology has significantly revolutionized film and television, offering many applications that enhance storytelling, visual effects, and production processes. Famous research at Oxford on the automatic reconstruction of 3D information from 2D image sequences has been used in movies like Harry Potter and Lord of the Rings.

3. Challenges in media industry with AI

With high expectations from audiences towards the media and the entertainment industry for new and cutting edge technologies that enable users easier and more personalized content and more engaging user experiences. Everyday growth in industry makes that possible.

Through growth, users get more access live broadcasts and on demand coverage. In today's world public consuming news and media the not just on their TV like in old days nowadays, news and entertainment is available across all devices and platforms. One of the challenges in the risks of algorithmic biases from AI. With data that AI is consuming can reflect human biases or getting correlations with that biases, the AI system can make decisions that disadvantage certain people groups. That means can include discrimination on basic of age, gender or even race.

There are concerns about job displacement as automation through AI could and will replace certain tasks traditionally done by humans. One major concern is privacy issues that arise with the collection and use of user data for personalized content and advertising. Rapid evolution of AI technology requires constant adaptation, which can be challenging for media companies to keep up with. Balancing innovation with ethical considerations remains a key challenge for the industry.

4. Influence of AI in industry

Today's influence of artificial intelligence in the media and entertainment industry extends across varius categories, transforming content creation, distribution and consumption. One of impact that was revolutionary in personalized content creation is recommendation systems,

where AI algorithms analyze user behavior and preferences to suggest newer and impressive content to that user. With personalized content platform willingly makes clients/ users to use more of their platform and with that they make more profit per user.

With artificial intelligence some of time-consuming tasks can be automatized. For example after the editor finishes with editing, video material can be automatically added to the list for live broadcasting, making production more efficient. Additionally, transcription services powered by AI (Artificial intelligence) contribute to faster and more accurate content creation.

We can analyze user data based on individual preferences and improve advertising strategies for unknown markets with artificial intelligence to run targeted and personalized campaigns. In this way, the user experience can be improved and, with greater effectiveness in reaching more users, our profit can increase.

High costs and challenges accompany these advances in the industry. AI (artificial intelligence) can unintentionally reinforce or magnify existing biases in training data, algorithmic bias is a serious cause for concern. The massive collection of user data for tailored content recommendations and targeted advertising also raises privacy concerns. Due to the large amount of user data, one of the main things is security and good encryption systems that only the AI platform can use that data, but not anyone else.

The ongoing debate about potential job displacement caused by automation. As artificial intelligence takes over routine tasks, there is a need to retrain the workforce to adapt to the evolving technological landscape. In essence, while AI brings innovation and efficiency to the media industry, caution is key for responsible and sustainable integration

5. Benefits and Examples of using AI in entertaiment and media industry

There are more then one of the benefits for using AI in media and entertainment industry, AI can be useful and improve productivity of humans. Benefits are :

1. **Enhanced User Experience**
    a. AI-driven features, like chatbots and voice assistants, improve user interactions, providing quick response and a seamless experience.
2. **Cost Efficiency:**
    a. Automation of repetitive tasks through AI reduces operational costs and allows media companies to allocate resources more effectively.
3. **Innovative Storytelling:**
    a. AI technologies, such as virtual reality (VR) and augmented reality (AR), enable new and immersive storytelling formats, providing unique experiences for audiences.

While these benefits showcase the positive impact of AI in the industry, its’s important to address challenges, such as ethical considerations, to ensure responsible and inclusive use of these technologies. One of example using AI with argument reality in TV studio showing pontetial danger from flooding of city.

Picture 3. Example of using Argumented reality with AI in TV studio

Source: https://www.newscaststudio.com/2018/09/13/weather-channel-flooding

One more example is Stagecraft from ILM studio for visual effects. Their ways of innovative and creative thinking changing future of filming movies and TV shows.

Stagecraft is the largest and most sophisticated virtual filmmaking environment in the industry. It’s 6 meters tall, 270 degrees around , and 22 meters across.

Stagecraft is not some static background, but it has enormous LED screens such as we can see at conferences and concerts, but it’s smarter and bigger than any of those.

Picture 4 – Stagecraft – filming Star Wars mandolorian TV -Show

Soruce: https://techcrunch.com/2021/04/01/ilm-shows-off-the-new-stagecraft-led-wall-used-for-season-2-of-the-mandalorian/

Just 5 years ago, this kind of innovation like Stagecraft was not ready for use. There was no technological progress. But now he is ready. With stagecraft, backgrounds are generated live with photorealistic 3D using the most powerful graphics processors. Scenes are directly affected by camera movements and settings. If the camera is moved to the left, the picture is as if it were a real scene and everything is happening in real time. This is very difficult to achieve, but with the help of Unreal Engine for 3D rendering, processing and creation of scenes, ILM has created a new way of working.

Picture 5 : Shooting Star Wars Mandalorian

Soruce: https://www.indiewire.com/features/general/the-mandalorian-ilm-stagecraft-1202212389/

6. Solutions for AI challenges

Addressing the challenges posed by AI in the media industry involves a combination of technological, ethical, and regulatory solutions:

1. **Algorithmic Transparency and Fairness**
   a. Implement transparent AI algorithms to understand and mitigate biases
   b. Regularly audit algorithms for fairness and accuracy, adjusting them as needed
2. **Ethical Guidelines and Standard**
   a. Establish and adhere to ehical gudilines for AI use in media
   b. Encoruage industry-wide standards to ensure responsible AI usages
3. **User Privacy Protection**
   a. Implement robust privacy polices and ensure transparent communication with users regarding data usage.
   b. Employ privacy preserving techniques, such as anonymization to protect user identities
4. **Human AI collaboration**:
   a. Promote collaboration between AI systems and human professionals, emphasizing the strengths of both
   b. Provide training programs for media professionals to work alongside AI tools
5. **Continuous Monitoring and Evaluation**:
   a. Regularly monitor AI systems to identify and rectify biases or errors
   b. Evaluate the societal impact of AI implementations and adjust strategies accordingly.
6. **Regulatory Frameworks**:
   a. Advocate for and comply with regulatory frameworks that govern AI in the media industry.
   b. Engage in industry-wide discussions to contribute to the development of balanced regulations.
7. **Education and Skill Development**
   a. Invest in traning programs to upskill media professionals for new roles in AI-driven landscape.

7. Conclusion

In conclusion of this paper, the influence of artificial Intelligence (AI) on the media and entertainment industry has ushered in a new era by new challenges nad advancments. The integration of AI technologies, such as machine learning, deep learning with AR and VR, has revolutionized content creation, distribution, and consumption. With many examples that can impact on positive way such as: Better personalized recommendations, automated production, real time camera tracking with ar background and much more. Machine learning empowered media and entertainment organization with best analytics to better understand individual preferences.

With all that benefits comes with price of ethical considerations, issues with data privacy, algorithmic bias and potential job displacment, getting balance between new technological innovation and ethical and security questions are important to ensure AI enhances rather then compromises the quality of media and entertaiment content. The dynamic ways of AI demands continuous adaptation between creators of content, technological innovators and policymakers. With better transparency and inclusive practices will be imperative to getting risks associated with AI in media and entertainment to the minimum . Only through a concered effor to harness the potential of artificial intelligence while avoid its pitfalls can the media industry truly thrive I the digital age.

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