Algorithmic Journalism and Metaverse Media innovative prospects in digital content creation

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Abstract:

This study, titled Algorithmic Journalism and Metaverse Media innovative prospects in digital content creation, aims to identify new concepts brought about by the digital transformation in the field of media and communication sciences, most notably algorithmic journalism and metaverse media, digital content, content creators, avatars, podcasts, In addition to revealing the methods and skills that content creators have in creating effective and innovative digital content, distinctive to attract virtual audiences in the world of metaverse, users of electronic platforms and modern digital applications, This study also seeks to provide a strategic forward-looking vision for specialists about the extent to which journalism and media can benefit from AI applications and algorithms in media work, identify the existing relationship between AI journalism and metaverse media, and identify the most important concerns and challenges facing media and journalism in the era of artificial intelligence and augmented reality technologies.

Keywords: Algorithmic journalism; meta-media; digital content; content creators; digitization.

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1. INTRODUCTION

In the world of the emergence of artificial intelligence technologies and algorithms globally and its use in many fields and its provision of government services in several countries, its employment in the media and journalistic content industry has grown and increased, coinciding with the emergence of the metaverse media stage, which in turn spawned new stages of growth of the digital media industry in the post-Web 3.0 era, the Web 4.0 period, and the Web 5.0 stage, where the latter witnessed the algorithmic revolution in the global robotics industry, and the entry of a new generation of those robots to work in many sectors in a strong way, which is the humanoid robot generation that interacts with humans.

The latter witnessed the algorithmic revolution in the global robot industry, and the entry of a new generation of these robots to work in many sectors in a strong manner, which is the humanoid robot generation that interacts most with humans, and possesses great capabilities in innovation and work, automatically, without the need to refer to humans in many jobs, especially in the functions of journalism and media, which are called at this stage algorithmic journalism and meta-media.

They have the ability to play active roles in the creation of digital media content for online journalism websites or official media organizations, For example, what Al Jazeera presented in its first conference on artificial intelligence in media on March 13, 2023, which was held at the Al Jazeera Media Institute with the participation of a group of specialists in artificial intelligence and workers in the field of media, and Al Jazeera anchor "Roaa Oger" presented the conference with the participation of the robot "Pepper" and the artificial intelligence anchor "Ibtikar" (ALJazeera, 2023).

Several issues, opportunities, challenges, ethics, and concerns were discussed regarding the evolution of algorithmic journalism in media and journalism, especially as various AI applications related to content creation enhance the stage of meta-media.

Based on this logic, we pose the following main question:

What are the innovative prospects for algorithmic journalism and metaverse media in the digital content creation?

From this, several subsidiary questions arise:
- ✓ What are the new concepts that digital transformation has spawned in the field of media and communication sciences, such as algorithmic journalism, metaverse media, digital content, Content Creators**,** avatar, digitization, podcasts?

✓ What methods and skills do content creators have in creating effective and innovative digital content to attract virtual audiences in the world of metaverse, users of electronic platforms and modern digital applications?

✓ What kind of relationship exists between AI journalism and metaverse media?

✓ What is the strategic foresight provided by specialists on the extent to which journalism and media can benefit from AI applications and algorithms in media work?

✓ What are the most important challenges and concerns facing media and journalism in the age of artificial intelligence and augmented reality technologies?

To answer the main question and the subsidiary questions, this study is divided into four sections:

✍ **Section One : A conceptual introduction to algorithmic journalism and metaverse media.**

✍ **Section Two : The relationship between AI journalism and metaverse media.**

✍ **Section Three : The methods and skills of content creators in creating effective and innovative digital content in the metaverse.**

✍ **Section Four : Strategic forward-looking visions of specialists on the use of AI applications in media work, opportunities, challenges**.

2.IMPORTANCE OF THE STUDY:

The importance of this study is due to the fact that this study addresses the most important media topics in the digital media arena, and the most prominent new concepts generated by the digital transformation in the field of media and communication sciences, which would present many new trends in the digital media environment, given the typical changes it brings about in the natural contexts of journalism and media variables, in light of the development of artificial intelligence algorithms and its generative applications, which would enhance the metaverse media , In particular, the use of humanoid robots in media work, which in turn opens up innovative horizons in the manufacture of digital content, whether belonging to official media organizations, electronic journalism platforms, or cyber citizen journalism, and poses a threat to journalists and the journalistic and media profession in general, on the other hand.

3.STUDY OBJECTIVES:

The study, titled Algorithmic Journalism and Metaverse Media innovative prospects in digital content creation, aims to :

✓ Explore the innovative prospects that algorithmic journalism and metaverse media bring to the digital content industry.

✓ Identify new concepts brought about by the digital transformation in the field of media and communication sciences, most notably algorithmic journalism, metaverse media, digital content, content creators, avatars, digitization, and podcasts.

✓ uncovering the methods and skills that content creators have in creating effective and innovative digital content, distinctive to attract virtual audiences in the world of metaverse, users of electronic platforms and modern digital applications.

✓ Understanding the relationship between AI journalism and metaverse media.

✓ Presenting a strategic forward-looking vision for specialists on the extent to which journalism and media can benefit from AI applications and algorithms in media work.

✓ Recognize the most important concerns and challenges facing media and journalism in the age of artificial intelligence and augmented reality technologies.

4.STUDY CONCEPTS :

4.1 Algorithmic journalism concept:

"Graefe" defined it as the process of using programs or algorithms to create news stories automatically without human intervention. (Wolker, 2018, p. 89)

Researcher "Diakopoulos" described it as technical or automated algorithmic journalism that publishes news automatically, including personalized content, recommendation systems, interactive data visualization, personalization of automatically generated news content, presentations, and changing the ways it is used in the way news is presented. (Diakopoulos, 2011)

4.2 Metaverse Media :

This is the media that takes place in the virtual studio, which simulates the real studio but in a parallel world with more distinctive capabilities than the real studio, for example, we can host thousands of people from all over the world inside this studio without being restricted by space, number, or any technical and technical matters, and the workers do not have to go to the workplace as they can work from anywhere just by wearing the Metaverse glasses. This saves the cost of establishing expensive reality studios, reduces the number of workers, and takes the cost of electricity, water, gas, and transportation bills off the shoulders of media organizations. (bremme, 2021, p. 20)

Within this studio, we can showcase video material, host anyone from anywhere in the world, live stream episodes or record them through the VR glasses and display them as a video on platforms both inside and outside the Metaverse.

4.3 digital content:

It is the process of integrating every digital document that can be stored within a support or transmitted via an online medium, these contents can be written or audiovisual, organized within the database or unorganized, so digital content is every digital multimedia document, organized or unorganized, online or offline. (Alawi, 2020, p. 66)

4.4 Content Creators:

They are individuals capable of generating ideas on topics suitable for a specific audience, then presenting these ideas in the form of content, whether visual or written. The audience can access this content through web pages, videos, and other media. The content creator is the mastermind in attracting followers through the creation of digital content on social platforms. (Issani, 2021, p. 245)

4.5 Digitization:

This process fundamentally changes the way an organization provides service to customers. Companies adopt innovative digital technologies to make cultural and operational transformations that better align with changing customer requirements. The representation of non-digital or physical objects in a digital format means that a computer system can use this information, Digitization alone is not a digital transformation, but it is an important first step in the digital transformation journey, and the latter is a much larger scale that leads to a dominant cultural transformation of the organization (Adel, 2019)

4.6 Avatar:

It is a visual form or a two-dimensional or three-dimensional symbolic image, which may directly reflect the real image or be different from it, Avatars are characterized by a set of features, including secrecy, multiple disguises, and the identity of the avatar, which is fragile and multiple, unlike a solid and single identity,The avatar forms the virtual identity as an interface for user interactions in the three-dimensional metaverse. (dudoglo & ritter, 2022, p. 09)

4.7 Podcasts:

"Oliver McGarr" defines podcasts as audio or video files in a digital format that can be downloaded from the Internet manually or automatically distributed to participants (McGarr, 2009, p. 306), and these files can be accessed directly from the desktop or transferred to a portable media device such as an mp3 player to be listened to on the go (Dumesnil, 2006, p. 02), and can be accessed directly from the desktop or transferred to a portable media device such as an mp3 player to be listened to on the move.

5.The Adopted Methodology:

In this study, the researcher followed the descriptive approach, which focuses on describing, explaining, finding new concepts or formulating other frameworks to interpret the research phenomenon, in order to achieve the objectives of the study (Bakhta, N.Y, p. 145), understand the environment of the research phenomenon, and accurately describe it qualitatively to know the nature of algorithmic journalism and metaverse media, and describe the most important innovative perspectives brought by specialists in the field of artificial intelligence regarding the digital content industry.

6.Section One : A conceptual introduction to algorithmic journalism and metaverse media.

We learned in the previous historical era that media began to spread in the 20th century, as a means of transmitting communication messages, information and news, and then moved into the field of entertainment and leisure to become an essential part of societies' lives.

With the development of technology, media and technology have become closely intertwined, especially with the emergence of digital technologies, augmented reality technologies, such as metaverse, which is a virtual world that does not depend on a physical presence, one of the most important advantages of metaverse media is the live interactivity that opens the doors to innovation and creativity in new ways, supported by artificial intelligence algorithms and its generative applications , AI improves the quality of gathering and analyzing information and thus journalists will be able to access it quickly, especially political and economic information, which enhances publication, and thus journalism has become another type of journalism called algorithmic journalism.

6.1 Algorithmic journalism:

Algorithmic journalism is the latest product of the fifth technological revolution, which relies on computer algorithms and software to automatically collect, categorize, write, edit, and distribute information. (Al-Dubaisi, 2023, p. 84)

6.1.1 Characteristics of algorithmic journalism:

Characteristics of algorithmic journalism include the following:

- **Speed:** The algorithm provides rapid dissemination of news stories, as well as the availability of source data, where a news story is produced almost instantly, because the design of robot journalists (robotic or algorithmic journalism) is intended to produce massive amounts of data at a faster rate.
- **Costs:** Algorithmic journalism is less expensive, because it saves news companies money spent on workers, so fewer human elements mean lower wages, paid vacations and work insurance costs, and for news organizations that have limited resources but want to maintain the scope and quality of their coverage, automation is the perfect solution to cut costs. (Kevin crowston, 2018, p. 05)

- **error-less:** Algorithmic journalism systems are less prone to errors because they don't make critical mistakes such as spelling or math errors. In other words, they are more accurate than human journalists, provided the coding itself and the pre-programming are error-free and the underlying data is accurate.

6.1.2 Areas of Algorithmic Journalism:

Algorithmic journalism covers topics related to the latest developments and technologies in the field of artificial intelligence, including the following:

- AI applications in different fields such as medicine, industry, and financial services.
- New developments in robotics and smart technology.
- Policies and legislation related to artificial intelligence and ethics related to this field.
- Analyses and predictions on how AI will affect large sectors such as economics, politics, media, business, labor market, and culture.
-Cybersecurity and privacy issues in relation to smart data and applications. (Napoli, 2014, p. 344)

6.1.3 The innovative prospects offered by algorithmic journalism in the creation of digital media content:

Some of the innovative prospects offered by algorithmic journalism in the digital media content creation include the following:

- **Data analysis:** Using AI, data can be analyzed faster and more accurately, enabling journalists to better understand trends and tendencies and provide more concise and accurate reporting.

- **Content generation:** AI can automatically generate press articles and reports based on available data, reducing the burden of manual writing and helping to deliver content faster. (kunert, 2019, p. 05)

- **Optimize the user experience:** AI can be used to optimize the user experience on newspaper websites and apps, by delivering the right news and articles to each reader based on their interests and preferences.

- **Fighting fake news:** AI can help journalists monitor fake news and validate news by analyzing news sources and related data.

- **Optimize marketing and advertising:** AI can be used to improve ad targeting and better analyze the performance of marketing campaigns, increasing advertising efficiency and audience response rate.

6.2 Metaverse Media:

When most social media users think of metaverse, they think of virtual reality (VR), and while VR is a big part of this digital space, it is not the only aspect, as metaverse technologies are a space for a variety of digital experiences, including augmented reality (AR), mixed reality (MR), and artificial intelligence (AI); these technologies are essential for journalists and media professionals because they provide new ways to tell stories and interact with audiences or what is

called "immersive journalism. Mixed Reality (MR) and Artificial Intelligence (AI). (djerrari, 2022, p. 22)

these technologies are essential for journalists and media professionals as they provide new ways to tell stories and interact with audiences or what is called "immersive journalism" that creates a sense of being there using 3D technologies, putting the audience directly into the event and creating the experience of a person who is directly in the event.

The public follows the news through newer technologies, and one of the difficulties that may stand in the way of modern technology in the transmission of news, including the Metaverse, is the speed of the Internet in different countries.

6.2.1 Characteristics of Metaverse media:

Metaverse media has characteristics that are derived from the metaverse space itself:

- **Power:** Metaverse media is very powerful and able to withstand high pressures from the amount of false and true news.
- **Flexibility:** Metaverse media is characterized by its ability to edit breaking news.
- **Resistance:** Metaverse media can resist the external factors surrounding traditional media organizations.
- **Lightness and speed:** Metaverse media is characterized by the lightness of the network and the speed of editing breaking news, making it easy to download applications that enhance the credibility of the news.
- **Stability:** Metaverse has a high stability of the information contained in it, making it resistant to viral interactions that are harmful to the information, and contributes to the stability of virtual information. (kadry, N.Y, p. 160)

6.2.2 Cloud services contributing to the metaverse media creation:

Metaverse media can rely on cloud services in the stages of media content production, editing, storage, or even in the stages of broadcasting and delivering it to the target audience, including the following:

- Reduce the financial cost of creating and managing media content.
- Providing huge spaces for media content and press releases.
- Providing continuous updates and quick access to information to the public.
- Creating new forms of business and financial resources.
- Speed in storing and retrieving data and information. (Daher, 2022, p. 272)

6.2.3 Metaverse Media's innovative prospects on digital content creation:

Metaverse Media has also brought innovative prospects to the digital content industry, including:

- **critical thinking:** Metaverse media entailed fact-finding, critical thinking, and presenting multiple opinions on different issues.
- **Openness and interaction:** Metaverse media encourages readers to participate and interact with digital media content and offer their opinions.

- **Technological development:** Metaverse media has relied on modern technology to spread digital content and present it in an innovative way.
- **Diversity and comprehensiveness:** Metaverse media has tried to be diverse in its topics and more comprehensive in its coverage of different groups and issues.
- **Searching for the truth:** Metaverse Media is keen to search for the truth and report events accurately and objectively with the help of artificial intelligence algorithms. (lin, N.Y, p. 160)

7.Section Two : The relationship between AI journalism and metaverse media.

AI journalism and metaverse media are closely related, as both aim to use technology and innovation to improve and develop media work practices and traditional journalism in general, as AI journalism focuses on using data, analysis and smart applications to generate advanced and personalized digital and media content for the audience, while metaverse media aims to take advantage of augmented and virtual reality to provide advanced and distinctive media experiences for the receiving audience, in addition, smart technologies such as AI and metaverse technologies can help guide journalistic issues more accurately. (pauline, 2023, p. 10)

In addition to the above, AI journalism can help improve the processes of online journalism and data analysis in the metaverse space, and may increase the ability of online journalism to analyze and present news more accurately and effectively, and AI journalism can also enhance the field of metaverse media by providing better and faster analytical tools to understand data and generate professional reports, so it can be said that AI journalism enhances metaverse media *.*

8.Section Three : The methods and skills of content creators in creating effective and innovative digital content in the metaverse.

Some of the techniques and skills that digital content creators must possess to create innovative, distinctive and engaging digital content for virtual audiences in the world of metaverse include:

- **Research and analysis:** Content creators should conduct extensive research to understand the needs and interests of their target audience, as well as current ideas and trends in digital content.
- **planning and organization:** Content creators must be able to identify appropriate ways to organize digital content in a logical and engaging way.
- **Writing and editing:** Content creators must have good editorial skills to write engaging and interesting content, and conduct thorough editing and proofreading of digital content.

- **Photography and Design:** Content creators should have skills in photography and design to add visually appealing aspects to digital content. (quarterly, 2022)
- **Communication and interaction:** Content creators must be able to communicate and interact with their target audience effectively and engagingly.
- **Use of technology and digital tools**: Content creators must have a thorough knowledge of the technology and digital tools available to create innovative and engaging digital content.
- **Digital Marketing:** Content creators must have knowledge of digital marketing tactics and strategies for spreading and promoting digital content.
- **Innovation and creativity:** Content creators must be able to think creatively and come up with new and unfamiliar ideas in creating digital content.

9.Section Four : Strategic forward-looking visions of specialists on the use of AI applications in media work, opportunities, challenges.

9.1Strategic and forward-looking visions of specialists on the use of artificial intelligence in media work:

The forward-looking strategic visions of specialists on the use of AI in media work are:

- Optimizing and developing media production processes, journalistic editing, and filtering digital media content.

- Improving the user experience and increasing the effectiveness of marketing and promoting media products through the use of AI applications.

- Improving the quality of media content, analyzing data and trends to understand audience interests, and better directing communication and media messages to the target audience.

- Improve digital marketing strategies and deliver a personalized and customized user experience.

- AI can be used to analyze media performance, measure success and response to media content, and better direct efforts and investments. (china, 2021)

Overall, the forward-looking strategic vision in the use of AI in media work aims to enhance the interaction between the media and the audience and improve the efficiency and effectiveness of media work in general.

9.2Concerns and challenges for media and journalism in the age of artificial intelligence and augmented reality technologies:

One of the fears that analysts anticipate is that metaverse media will be very influential on the audience, especially with the presence of artificial intelligence applications, as the audience is

present inside the event and if used unethically may lead to controlling and directing public opinion.

In this context, the researcher (Gene Eglise) in his book Moving Borders calls for a review of modern concepts of media and culture and how these concepts have been affected by technological and cultural development in the world, and gives an opportunity to think about how to deal with them and achieve balance in a rapidly changing world, a world in which media will be a dominant weapon, and a world in which the media will be a dominant weapon. (Christoph, 2022, p. 587)

9.3 Some of the concerns that experts in the field of AI journalism are also unanimous:

✒ **Threatening jobs**: The use of AI in media and journalism may reduce the need for human labor by replacing some media and journalism jobs with AI technologies, leading to job losses and threatening the sources of income for those working in this field.

✒ **Impact on media neutrality**: AI can affect media neutrality by analyzing data and directing content according to audience preferences, which can lead to the promotion of similar opinions and reduce media diversity.

✒ **The danger of circulating fake news**: AI can be used to produce and circulate false and misleading news, which can affect the public's credibility and trust in media and journalism.

✒ **Copyright and intellectual property**: AI is based on artificial neural networks and needs comprehensive sets of data to train on, often including images, videos, sounds or text. AI tools may use copyrighted databases without the permission of their owners, and those responsible for sourcing this information are now complaining that their work is being used without their consent, credit, or any compensation. (H.Gaon, 2021)

✒ **Privacy and security**: The use of AI in media and journalism may threaten privacy and cybersecurity, as users' personal data may be collected and analyzed without their knowledge or consent, posing a threat to their privacy and cybersecurity.

According to experts in media and communication sciences, the future of media in the era of artificial intelligence and augmented reality technologies will carry the new with it, but traditional media will not disappear but will merge into a virtual metaverse, and that humans will always need to challenge and achieve, and the success of artificial intelligence algorithms will be a catalyst for human creativity, but many questions remain, including: How will religious and moral values be in a future governed by AI? Will the promising metaverse media augmented by AI algorithms retain the power of moral and professional conscience? All these questions require experts, researchers, and academics to research their details and provide recommendations and

proposals that benefit humanity in a world governed by smart algorithms and augmented reality technologies.

10.Results :

The study came up with the following findings:

✓ It turns out that algorithmic journalism covers topics related to the latest developments and technologies in the field of artificial intelligence, including artificial intelligence applications in various fields such as medicine, industry, and financial services, new developments in robotics and smart technology, policies and legislation related to artificial intelligence and ethics related to this field, analysis and forecasts on how AI will affect the economy and the labor market, cybersecurity and privacy issues related to data and smart applications.

✓ shows that the innovative prospects that algorithmic journalism will bring to the digital media content industry are: Data analysis, content generation, improving user experience, combating fake news, optimizing marketing and advertising.

✓ It turns out that the innovative prospects that metaverse media will offer in the digital media content industry are as follows: critical thinking, openness and interaction, technical sophistication, diversity and inclusiveness, and truth-seeking: Critical thinking, openness and interaction, technological development, diversity and inclusiveness, and the search for truth.

✓ It turns out that AI journalism enhances the field of metaverse media by providing better and faster analytical tools to understand data and generate professional reports and smart digital media content.

✓ It turns out that the methods and skills that digital content creators must possess to create innovative, distinctive and attractive digital content for virtual audiences in the metaverse are: Research and analysis, planning and organization, writing and editing, photography and design, communication and interaction, use of technology and digital tools, digital marketing, innovation and creativity.

✓ The most important forward-looking strategic visions of the specialists about the use of artificial intelligence in media work are: improving and developing media production and editing processes, filtering digital media contents, improving the user experience and increasing the effectiveness of marketing and promoting media products, through the use of artificial intelligence applications, improving the quality of media content, analyzing data and trends to understand audience preferences and better direct communication and media messages to the target audience, improving digital marketing strategies and providing a personalized and customized user experience, the possibility of using artificial intelligence

✓ The most important concerns facing media and journalism in the age of AI and AR technologies are: Impact on media neutrality, risk of sharing fake news, threat to jobs, copyright and intellectual property, privacy and security.

11.CONCLUSION:

In conclusion, it can be said that algorithmic journalism and metaverse media constitute a new media revolution that is fully compatible with the modern technologies of the information and industrial revolution, especially since artificial intelligence algorithms seemed to everyone to have a great impact on media and journalism, after digitization has swept many vital areas in societies, hence we find that algorithmic journalism is growing significantly in the world of journalism and digital media, and will inevitably lead to radical changes in the natural contexts of traditional media variables, which will affect producers, as well as consumers who are generally readers and followers of the media.

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