

HOW **4IR** WILL SHAPE THE FUTURE OF THE MEDIA & ENTERTAINMENT INDUSTRY

- 7G Journalism and Beyond the Media of Metaverse
- The Need of AI in Journalism Academic Programs
- From Automated Generation of Discourse to Automated Generation of Media Publications
- Arab Journalists' and Influencers' Awareness of Artificial Intelligence Journalism Technologies in Managing Social Media Content
- Artificial Intelligence and Its Usage in Social Media
- Artificial Intelligence Journalism New Concepts



AIJJ

ARTIFICIAL INTELLIGENCE JOURNALISM JOURNAL

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**ARTIFICIAL INTELLIGENCE JOURNALISM
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AIJRF

Artificial Intelligence Journalism
for Research and Forecasting

About AIJJ

AIJJ is a Quarterly Journal published by Artificial Intelligence Journalism for Research and Forecasting (AIJRF). **AIJJ** a peer-reviewed, double-blind, and an “open access” academic journal focusing broadly on Artificial Intelligence Journalism, and the Fourth and the Fifth Industrial Revolutions’ technologies in media.

Artificial Intelligence Journalism Journal (**AIJJ**) is focusing on searching and forecasting new thoughts and studies on the Fourth and Fifth Industrial Revolutions and artificial intelligence technologies and its impacts on the Media and Entertainment sector.

AIJJ journal aims to raise the awareness of the Artificial intelligence Journalism through the publication of quality research, with an emphasis on new technologies and solutions in new fields such as:

Automation content, AI and detecting fake content, Robotization of Marketing, Media of Metaverse, big data analytics, 7G Journalism, Blockchain-News, Covidization of Media Industry, Dynamic Human Skills (DHS), Artificial Intelligence

Journalism and professional code of ethics, Augmented Reality & Virtual Reality (VR) content, Intelligence-Integrated Public Relations, Cybersecurity in Media & Entertainment Industry and future of the intelligent government services and content.

AIJJ journal is interdisciplinary and publishes both theoretical and empirical work in Artificial Intelligence Journalism, and Fourth and Fifth Industrial Revolutions’ technologies.

AIJJ welcomes theoretical and empirical research studies in Artificial Intelligence Journalism and the new media era.

Aims and Scope

AIJJ is providing a scientific content for practical applications and Academic theoretical advances of the Fourth Industrial Revolution, Fifth Industrial Revolution and Artificial Intelligence (AI) in the Media & Entertainment Industry, Education, and Future of Cities, and related disciplines including (but not restricted to):

- Artificial Intelligence Journalism.
- Fourth and the Fifth Industrial

Revolutions' technologies in media.

- Artificial Intelligence and Media & Entertainment Industry.
- Artificial Intelligence and Future of Education.
- AI and Intelligent Government Services.
- Metaverse and New Media Content (Media of Metaverse).
- Fourth Industrial Revolution and Dynamic Human Skills (DHS).
- Cybersecurity in Media & Entertainment.

Key Words

Artificial Intelligence Journalism; AI Journalism; 7G Journalism; Blockchain-News; Covidization of Media Industry; Dynamic Human Skills (DHS), Artificial Intelligence Journalism and Professional Code of Ethics; AI Ethics; Augmented Reality; Virtual Reality; Intelligence-Integrated Communications; Cybersecurity in Media & Entertainment; AI and Detecting Fake Content; Robotization of Marketing; Media of Metaverse; Big Data Analytics; Machine Learning; Machine Intelligence; Deep

Learning; Data Mining; Big Data; AI in Education, AI and Intelligent Government Services; Artificial Intelligence and Future cities; Fourth Industrial Revolution; Fifth Industrial Revolution.

Artificial Intelligence Journalism for Research and Forecasting (AIJRF)

Artificial Intelligence Journalism for Research and Forecasting (AIJRF) think tank is a global leading organization in researching, forecasting, and shaping the future of Artificial Intelligence and human and the Fourth and Fifth Industrial Revelations.

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AIJRF manages and issues” Artificial Intelligence Journalism Journal (**AIJJ**), the first AI

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AIJRF also manages and supervises the Artificial Intelligence Journalism World Forum (AIJWF), the first global platform to bring together academics, media professionals and specialists in AI technologies from educational institutions, universities and the media.

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Index

Editorial Introduction:

Future of Media in AI Journalism and 7G Journalism Eras..... 13

The Need of AI in Journalism Academic Programs..... 17

Artificial intelligence and its usage in social media 39

From Automated Generation of Discourse to Automated Generation of Media Publications. What Perspectives for Human Journalists? 53

7G Journalism and Beyond the Media of Metaverse, How can Metaverse be applied in Robotisation of Marketing? An Exploratory Study: In-Depth Interviews for Marketing Experts 63

Arab Journalists' and Influencers' Awareness of Artificial Intelligence Journalism Technologies in Managing Social Media Content 89

Book reviews: 119

1. Globalization 4.0: The Future of Media in the Age of 7G Journalism, Intelligence-Integrated Public Relations Model” 122

2. Algorithms, Automation, and News: New Directions in the Study of Computation and Journalism..... 128

3. News Media Innovation Reconsidered: Ethics and Values in a Creative Reconstruction of Journalism 132

Artificial Intelligence Journalism New Concepts: 135

1. Covidization of Media Industry 136

2. Media of Metaverse..... 137

3. Dynamic Human Skills (DHS)..... 138

4. Artificial Intelligence Journalism and Professional Code of Ethics..... 140

Editorial Introduction

Future of Media in Artificial Intelligence Journalism and 7G Journalism Eras

By: **Dr. Mohamed Abdulzاهر**
Editor-in-Chief

The media has become a major part of the community's changes, keeping pace with all technological and economic changes, so that the media can create content in line with the technological tools and solutions of the times, and in line with the easiest way and technologies to reach the target audience.

When we talk about the era of Artificial Intelligence Journalism and what is happening in the Media & Entertainment or marketing content industry, we find that that era began with the beginning of the Fourth Industrial Revolution, and the entry of the world to Automated or Robotization Content, automate services, and automate human skills in line with the technologies of the Fourth Industrial Revolution.

So, Artificial Intelligence Journalism is shaping the future of the Media and Entertainment industry during the next decade until 2030, and this industry is currently estimated to be more than \$ 1 trillion in 2022, and is expected to reach more than triple that by the end of 2030.

In this **AIJJ** issue, we discuss many subjects and studies related to the future of media at the academic and the professional levels in light of the technologies of the Fourth Industrial Revolution, as well as the growth of the Media of Metaverse, and the changes that occurred in the media after Covid-19 or what I called "Covidization of Media Industry" and how the pandemic has changed the world of media and entertainment.

AI in journalism academic programs

The first study focuses on the need of AI in journalism academic programs, and how the Fourth Industrial Revolution and the artificial intelligence (AI) technologies will impact on the higher education institutions, where jobs will change dramatically in nature; students and workers will

need to adapt, and higher education will need to be able to offer students the skill set they need to enter and grow in the workforce of the future. While the great majority of academic programs in journalism today appear to focus more on theoretical and practical aspects of journalism such as news literacy, Introduction to digital journalism, journalistic reporting and writing, and global issues in journalism, industry leaders see AI already as a significant part of the future of journalism.

The study has confirmed that AI is considered as an enhancement tool to journalism. In other words, an academic degree in journalism with AI components is not expected to be a total revamp in curricula and pedagogy. Rather, the vision is more about AI-embedded components, with specific learning objectives' approach.

Study has recommended that the first step is to start to infuse AI-related content to core courses in journalism, this would sustain the existing programs, yet allow HEI to start the transition. Then gradually move to the second step by introducing a number of journalism based on AI courses/modules within the existing academic program.

Artificial Intelligence and Social Media

During the pandemic, usage of artificial intelligence technology increased in various areas of society such as social media, data security, and analysis, e-commerce, healthcare, etc. This technology provides more benefits to develop intelligent softwares and services without the help of human actions.

The **AIJJ**'s second study is discussing the future of artificial intelligence technology in use in social media, where it confirmed that artificial intelligence can track and analyze all social media activity, including recitals, customer engagements, and insights. Because of this, businesses have a better understanding of the preferences and decisions of customers. The AI tracks the purchase histories and searches histories of customers. Performance indicators are also used for search engine optimization. AI provides flawless personalization for numerous social media platforms thanks to its ability to properly analyze user-profiles and customize the whole user experience.

Automated Generation Content

“We are on our way to see the production of discourse become automated- This means that humans will only have the job of analyzing the truthfulness of materials, rather than generating them.”, another descriptive research “From Automated Generation of Discourse to Automated Generation of Media Publications”.

It shows that natural language processing (NLP) entered our daily lives with chatbots and “intelligent assistants” such as Siri, Alexa and others. Computers empowered by AI are able to automatically generate various contents as articles and books, compose hits and even paint as great artists.

the descriptive research confirmed that; such evolution changes the role of human journalists. It makes their work easier; however, they should be innovative and find the best of their added value, compared to machine capabilities. How will this profession as many others evolve? The best solution is to combine machine and journalist capabilities.

7G Journalism and Media of Metaverse
7G Journalism and Beyond the Media of Metaverse, a new exploratory study answers a question about How can Metaverse be applied in Robotisation of Marketing? by In-Depth interviews for marketing experts.

Metaverse has emerged, it has become clear that all the technologies that Facebook is currently building to be ready for use in a more advanced virtual world in Metaverse , it will be an essential component of “Robotisation of Marketing” Where all virtual and augmented reality technologies are; Tools of physical technologies for Robotisation of Marketing , and reinforced by non-physical technologies of analysis of big data and the use of 3D images and videos to build a virtual space for services and services provided to a global audience.

The study has confirmed that Metaverse technologies may create new content, but it loses the chances of its further spread because of a lack of many technologies in some countries, and the lack of awareness of many advertising and marketing specialists of the nature of these new tools and applications.

Also, Metaverse is still mysterious to many media and marketing experts, and they need to show the most important features of these technologies, and what it can offer in the production of content or marketing for services and products, and what is different from what we currently gain from artificial intelligence and virtual and augmented reality.

AI Journalism Awareness

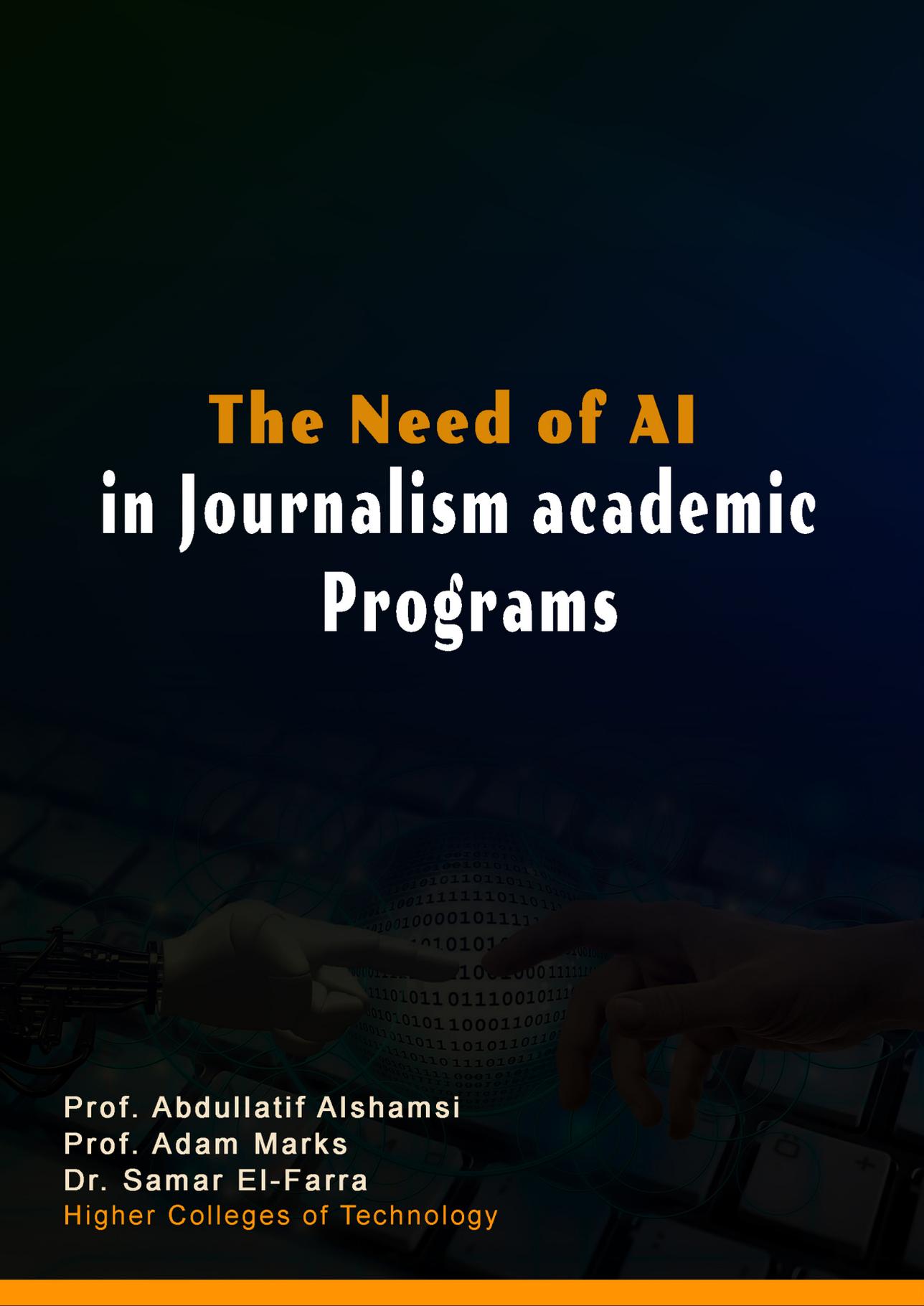
There are various social portals have used artificial intelligence in a number of directions, especially techniques related to text, image, and video analysis. to remove inappropriate and misleading content, especially during the Covid-19 crisis. Artificial intelligence techniques have also been widely used in marketing, digital customer service, as well as content creation, analytics, and distribution applications.

“Arab Journalists’ and Influencers’ Awareness of Artificial Intelligence Journalism Technologies in Managing Social Media Content “ a new study is checking the level of awareness among Arab journalists about artificial intelligence technologies

used on different and most widely used social media platforms in the Arab world.

New Concepts in AI Journalism
In each new issue of the Artificial Intelligence Journalism Journal, we will present some of the new concepts and definitions that appear with the technologies of the Fourth and Fifth Industrial Revolutions and Media & Entertainment Industry, and within the current issue we provide a simplified explanation of the following concepts:

- Covidization of Media Industry
- Media of Metaverse
- Dynamic Human Skills (DHS)
- Artificial Intelligence Journalism and Professional Code of Ethics
- Blockchained-News



The Need of AI in Journalism academic Programs

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Abstract

As the world embark on the Fourth Industrial Revolution, and witness new developments in technology, especially in artificial intelligence (AI), it is important that higher education institutions, appreciate that jobs will change dramatically in nature; students and workers will need to adapt, and higher education will need to be able to offer students the skill set they need to enter and grow in the work force of the future. While the great majority of academic programs in journalism today appear to focus more on theoretical and practical aspects of journalism such as news literacy, Introduction to digital journalism, journalistic reporting and writing, and global issues in journalism, industry leaders see AI already as a significant part of the future of journalism. AI has the potential for profound influence on how journalism is made and consumed. Based on employment projections for the next 5-10 years, and the strategic direction of the United Arab Emirates (UAE) government, higher education, and Industry needs, this paper presents a model for an undergraduate academic degree in Journalism with a specialization in AI. The proposed

degree is the first of its kind, and is structured to introduce students with the skills, competencies, and the technologies needed in the future journalism market.

Introduction

While our digital world is expanding every day, journalism is adapting to new digital forms and shapes as well^[1]. Data sources are becoming more diverse, and the information we can draw from those sources are far deeper, and more interesting. With advanced technologies, Journalism can extend its abilities to read thousands of documents, use text sources, digital images, audio, and video files and data types. These changes are particularly important when we consider the skills and competencies of journalists.

As we embark on the Fourth Industrial Revolution (4IR), and witness new developments in technology, such genetics, artificial intelligence, robotics, to name but a few, it is important that HEI acknowledge and prepare for the consequent changes, and potential opportunities, and challenges in industry and the job market. In addition, technological

changes, whether socio-economic, geopolitical and/or demographic will have an impact on industry needs, the job market, and subsequently how academic degrees should look like^[2].

The FIR is not about the mere improvement in productivity using technology, it is about the pace and scale of change. In the past, computerization, and automation replaced only routine and repetitive tasks. Now, technology is being used in jobs that require pattern recognition and other non-routine cognitive tasks.

Some industries will have to adjust; while others will undergo a fundamental transformation. Some jobs are likely to disappear, while others will change in nature. This change is not only concerned with fresh graduates, but also with continuous professional development and lifelong learning. The bottom line is that students, academic staff and HEI leadership will need to engage in a serious transformative journey to be able to offer the society with working forces ready for the foreseeable future. Hence, incorporating those required skills in the learning experience of students is warranted. Inevitably, tomorrow's school and college-

graduates will be those designing and filling job roles that are yet to be created. The employment of news analysts, reporters, and journalists is projected to grow 6 percent from 2020 to 2030, about as fast as the average for all occupations^{[3],[4]}.

About 5,400 openings for news analysts, reporters, and journalists are projected each year. Many of which to replace workers who transfer to different occupations or exit the labor force. The US labor bureau forecasts that declining advertising revenue is expected to impact the long-term demand for traditional workers. Traditional journalism is expected to continue to decline over the decade. Consumers are increasingly publishing content online and on mobile devices. As a result, traditional forms of revenue are likely to change as well^[5].

Declining revenue will force news organizations to downsize and employ fewer journalists. Increasing demand for online news may offset some of the downsizing. However, because online and mobile ad revenue is typically less than print revenue, the growth in digital advertising may not offset the decline in print advertising, circulation, and readership^[6]. News organizations

also continue to consolidate and increasingly share resources, staff, and content with other media outlets ^[7]. For example, reporters working for a media outlet may gather and report news that is published in multiple newspapers owned by the same parent company ^[8]. As consolidations, mergers, and news sharing continue, the demand for journalists may decrease. However, in some instances, consolidation helps limit the loss of jobs. Mergers may allow financially troubled newspapers, radio stations, and television stations to keep staff because of increased funding and resources from the larger organization.

The literature and case studies reported in the use of AI in Journalism appear to be supportive for the most part ^[9]. In his 2019 book “the 4IR and Media Restructuring”, Abdulzher states that “AI Journalism complements the development of the media industry since the era of the first industrial revolution”. He further states that “Artificial Intelligence Journalism will create a new revolution in the media industry, where there are no geographic or legal borders, no restrictions imposed by governments on the freedom of News broadcasting

and to access to information” ^[10]. The 2017 study by Columbia Journalism School present AI as a combination of tools that “can help journalists tell new kinds of stories that were previously too resource-impractical or technically out of reach”. AI is expected to enhance, rather than replace, journalists’ work. The intersection of AI and data offers new opportunities for consumers’ engagement, and news feed personalization. At the same token, the study acknowledges a knowledge gap and communication gap between technologists designing AI and journalists using it; and potential challenges with this comes a number of challenges, including ethical ones ^[11]. The literature and case studies recommend the investment in training editors and reporters in AI. As AI tools enter newsrooms, journalists need to understand how to use new resources for storytelling—not only ethically, but also efficiently ^[12]. Other recommendations include the use of existing AI tools, like chatbots as opportunities for thinking about how to values and standards to new journalism technology ^[13]. The recommendation also include partnerships with academic institutions to align the curriculum, and advance the skills

of students in this area. This paper takes an exploratory look toward the recommendation of aligning journalism academic programs, and introducing the needed skills for AI in journalism industry^[14].

While Higher Education Institutions' (HEI) strategic plan naturally focuses on corner stones, such as academic program rigor, quality, students, faculty, research and scholarly activities, community engagement, etc.^[15] More and more HEI today pay special attention to the dynamics of the external social environment, in particular trends in the international economy, which are likely to have an impact on the university in the near future, especially:

- The dramatic changes in the job market.
- The continuous and rapid evolution of information technology.
- The need for life-long skills to equip students to adapt to a changing competitive working environment.

While the great majority of academic programs in journalism today appear to focus more on theoretical and practical aspects of journalism such as news

literacy, digital journalism, journalistic reporting and writing, and global issues in journalism. Industry leaders already see AI as a significant role player in the future of journalism^[16]. AI has the potential for great influence on how journalism is made and consumed. Based on employment projections for the next 5-10 years, and the strategic direction of the UAE government, higher education, and Industry needs, this paper suggest a model for an undergraduate academic degree in journalism with different approaches to embed AI within the curriculum. The proposed degree is the first of its kind, and is structured to introduce students with the skills, competencies, and the technological capacity and mastery needed in the future journalism market.

Methodology

The increasing utilization on AI technologies in journalism highlights the importance of this paper. This paper is based on narrative review to provide an overview of journalism academic degree AI needs. This paper is based on a number of key resources from the literature, industry reports, and HEI strategic plans, including

studies that provide a view of future demand for jobs and skills from different perspectives, including, the result of a study commissioned by the UAE Ministry of Human Resources, “Marsad to assess the demand and supply in the UAE labor market”; A study carried out by the British Council, “Future Skills Supporting the UAE Future Workforce”; A report prepared by the Abu Dhabi Suitability Week, “ADSW Future Skills 2030^[17]. World Economic Forum Reports, World Development Report 2019^[6] and the study conducted by Charlie Beckett in 2019, examining 71 news organizations in 32 different countries regarding AI and associated technologies^[18]. A wide range of journalists working with AI answered questions about their understanding of the concepts of AI, how it was used in their newsrooms, and their views on the wider potential and risks for the news industry. The Author is an academic veteran, leading the largest higher education institution in the UAE. The literature in data journalism and adaptation to AI provides a solid foundation that could be used in building and designing new academic programs. Diakopoulos, 2013, 2014; Hamilton & Turner, 2009; Howard, 2014;

Fink & Anderson, 2014; Lewis & Westlund, 2015; Parasio, 2015; and Houston, 2015 are good references for how social science methods were applied to journalism. Data and computational journalism have also been discussed in the literature by Coddington, 2015; Flew, Spurgeon, and Heravi, 2017). Broussard, 2014 discusses how AI systems can be used for investigative journalism. Based on the above, this paper examines the structure of a number of undergraduate academic programs in journalism, and suggests a rather introduction or discussion not a manual for implementation.

Industry trend for the next five years

A 2019 World Economic Forum report shows the main drivers for change in the media industry as mobile, internet, and cloud technology; processing power, and big data; are changing nature of work. Notice that technology related drivers account for the majority of responses. Figure 1 shows drivers of change in the media industry. Figure 2 provides a projection of the work disruption within the media industry in the next 5-10 years⁶. The World Economic Forum 2020

future of jobs report key findings indicate that the pace of technology adoption is expected to remain and may even accelerate in some areas; the report also advocate that automation, in tandem with the COVID-19 will continue to create ‘double-disruption’ to businesses; skills gaps will continue to be high as in-demand skills across jobs change in the next five years; the future of work has already been shaped for the majority of the online white-collar workforce; Online learning and training is on the rise; the window of opportunity to reskill and upskill has become shorter^[4]

Drivers of Change

Top Trends Impacting Business Models

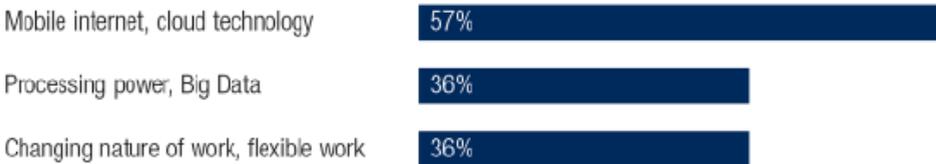


Figure 1: Drivers of Change in Media Industry³²

Workforce Disruption

Industry Average



Main Job Families

Job families	Expected change, 2015-2020	Skills stability	Current share of female workforce	Ease of recruitment, current	Ease of recruitment, 2020
Arts, Design, Entertainment, Sports, and Media Advertising and Public Relations Professionals Telecommunications and Broadcasting Technicians	stable -0.59%	66%	49%	very hard	harder

Figure 2: Workforce Disruption in Media Industry³²



Figure 3: Increasing and Decreasing jobs before 2025³²

Extrapolating from the figures shared in the Future of Jobs Survey 2020, it is expected that by 2025, redundant roles will decline from 15.4% to 9%, and emerging professions will grow from 7.8% to 13.5%. The report estimates that that by 2025, 85 million jobs may be displaced by advanced IT technologies, while 97 million new roles will be created in adaptation to the new markets, across the 15 industries and 26 economies covered by the report. Figure 3 shows top 20 jobs, increasing and decreasing based before 2025, based on the survey.

Industries and researchers expect the trends in the next 5-10 years to include significant increases in automation, and digitization, across different industries; significant job disruption because of the requirement for new talents and skills; the gap that separates human’s intellect, from machines and algorithms intellect will narrow ^[19] the emergence of new tasks which require new skills and competencies will increase; as the rates of fewer ‘jobs for life’ will increase; the need for all workers to become ‘lifelong learners’ is likely to dramatically increase; the number of persons who will be free lancers and mobile is likely to spike ^[20].

In journalism, consolidation and mergers in the journalism industry, the decreases in advertising revenue, and the increased adoption of technology are expected to result in more efficient allocation of resources and assignments, subsequently limiting the number of new hires. Journalists with new media skills and specialized knowledge are more likely to be employed. Not to mention that the COVID-19 pandemic and related global recession of 2020 have created a highly uncertain outlook for the labor market^[21].

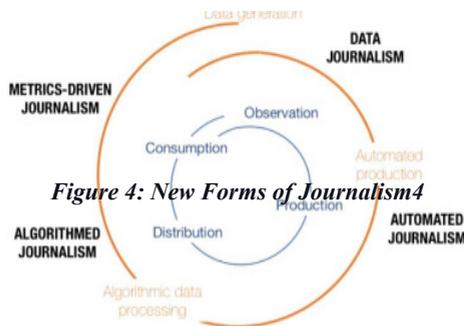
Despite the dramatic changes due to the emergence of AI in Journalism, there are professional, and ethical challenges that need to be addressed^[22]. For example, under the category of professional challenges, an AI system may lead to a greater bias^{[23],[24]}; an AI system may lack control and oversight. Similarly, on the ethical side, an AI system may suffer transparency, data quality, fact-checking, and fairness challenges.

AI and Journalism Industry

In general, and at the most basic definition, AI refers to a branch

of computer science focused on simulating human intelligence, in other words, the training of a machine to learn from data, recognize patterns, and make subsequent judgments, with little to no human intervention. Within the context of communication and journalism, AI refers to technologies that are designed to function as a communicator, rather than a mediator, such as conversational agents, social robots, and automated-writing software^{[25],[26]}. This is beyond the automation and digital transformation that transformed journalism as an institution through undercutting business models, upending work routines, and unleashing a flood of information alternatives to news, among other things^[27]. Artificial intelligence, algorithms, robots, and other technologies are critical to the new media ecosystem^[28]. Companies such as Minecraft, Facebook, Google, and Microsoft are investing today in AI, introducing the conveniently named - “Robot Journalism” or “Algorithm journalism”, those are not robots, but in fact algorithms programmed to transform data into texts^[29]. In his book, “Automating the News: How Algorithms are Rewriting the Media”, Nicholas

Diakopoulos argues that “the future of AI in journalism has a lot of people around.”⁴ He argues that the new “quantitative and novel” forms of journalism have drawn significant attention in academic literature and in the media sector. Loosen, 2018 highlight the four new forms of journalism, data journalism, algorithm journalism, automated journalism, and metric-driven journalism, as shown in figure 3^{[30],[31]}.



Data journalism refers to the process of extracting useful information from data, and writing articles with added visualization to help readers to understand the significance of the story.

Algorithm Journalism: Refers to the intersection between data technology and journalism such as the combination of algorithms, data, and knowledge from the social sciences to supplement

the accountability function of journalism.

Automated Journalism refers to the emphasis in the increasing amount of content that is being produced automatically and by means of technologies being developed by automated content solutions, such as algorithmic processes that convert data into narrative news texts with limited human intervention.

Metrics-Driven Journalism: Refers to the attempts to make sense of the increased amount of audiences’ digital traces with the potential to influence decision making and news production process.

The evolution of artificial intelligence techniques have certainly reshaped newsrooms, especially in news production and dissemination. In Figure 4 below, Loosen (2018) pointed out that the technology facilitated by advances in the field of automated content production.

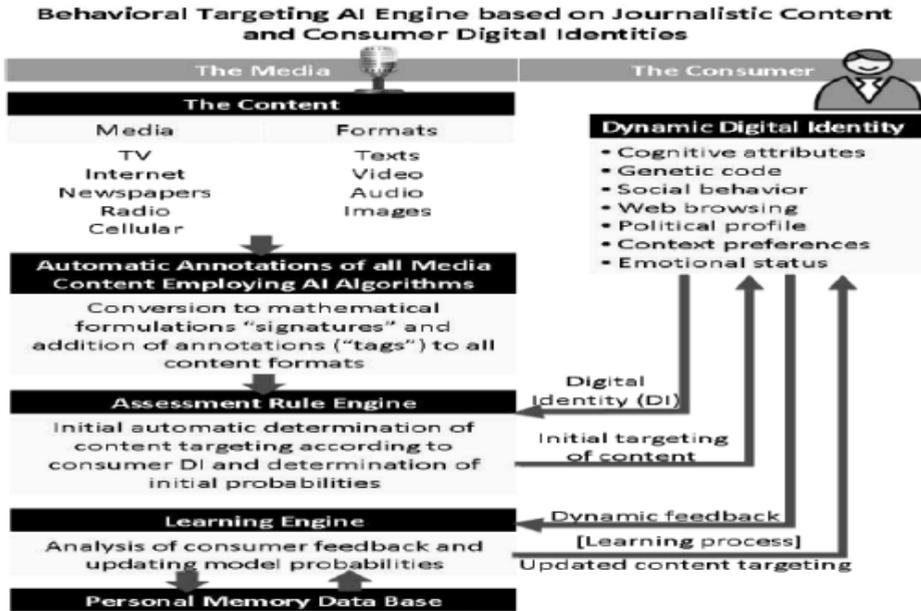


Figure 5: Automated Content Production²⁵

Today, it is not entirely unheard-of to have articles written entirely by AI. For example, the Washington Post has developed its own AI solution, called “Heliograph“, to support its editorial team during the 2016 Summer Olympics in Rio. “Heliograph” was used after that to produce 850 articles on political and sports news^[32]. AI in journalism is now used to improve content improvement, marketing efficiency and economic feasibility, automation of information validation within the information material, or to speed up the classification of information contained within a massive stream of data^[33].

Practitioners and industry leaders believe that AI in journalism is not luxury; it has the potential to enhance journalism in many significant ways^[34]. Abdulzاهر (2019) argues that AI in Journalism can be represented in 4 main themes: Creating Tools, Content Coining, Audience Diversity, and Continuing Reactions^[2]. AI can offer better new gathering (e.g. automatic tagging, entity extraction, etc.) news production (e.g. better machine-generated content, etc.), and better customization (e.g. engines AI could provide significant value in audience engagement, story discovery, and labor efficiently). AI can also facilitate critical tasks such

as automated translation and text generation^{[35],[36]}. Furthermore, AI has proved useful with customizing media news, news flow, and the relationship with public. Additionally, new distribution avenues are now better facilitated by offering new platforms and tools, such as drones, voice, image and text generation, and wearables^[37]. Specific examples may include:

- Better personalized distribution of content
- More efficient, automated production of content
- Dynamic pricing both for advertisements and subscriptions
- extractions of more stories in existing data and vice versa
- Better automated transcriptions
- Make content moderation manageable
- Fake news/deep fakes recognition
- New tools for debunking
- Enhanced image/video search
- Deeper sentiment analysis

Academic programs in Journalism

In general, most undergraduate academic programs in Journalism require between 120-150 credit hours. The degree types vary from a Bachelor of Journalism, to a Bachelor of Arts/science in Journalism, or a Bachelor of Arts in Journalism and Mass Communication. Depending on the degree type, a program is usually composed of general education requirements, journalism requirements, communication requirements, liberal arts requirements, and number of elective courses. The Accrediting Council on Education in Journalism and Mass Communications (ACEJMC) is the accreditation agency responsible for the evaluation of professional journalism and mass communications academic programs. ACEJMC requires that students take a minimum of 72 semester credit hours for a baccalaureate degree outside of journalism and mass communications discipline, and meet the liberal arts and sciences-general education requirements of the institution.

Academic programs in Journalism are offered by many

Higher Education Institutions (HEI) in the US and abroad, including Arizona State University Walter Cronkite School of Journalism and Mass Communication, Drake University School of Journalism and Mass Communication, Temple University Klein College of Media and Communication, Ohio University E.W. Scripps School of Journalism, University of Colorado at Boulder, University of Florida College of Journalism and Communications, Florida International University School of Journalism and Mass Communication, and University of Georgia College of Journalism and Mass Communication.

The world's first journalism school, opened in 1908, at the University of Missouri, UNC Chapel Hill in North Carolina, which offered combined programs in business, science, health, or law to better prepare students looking to practice journalism in those industries. Columbia Journalism School offer a degree in journalism with areas of study in data, documentary, investigate, multimedia, broadcast, business, arts, audio, politics, international, science, and writing. Table 1 shows examples of the distribution

of requirements in some of the examined academic programs. As shown in table 1, undergraduate degrees in journalism are distributed across journalism, liberal arts, communication, and general education requirements. Courses with technology component are mostly related to Interactive Design and Development, News Videography, Photojournalism, Social Media, Multimedia, Audio/Visual Newsgathering, Data Journalism, etc.

HEI	GEN	COMM/ Liberal Arts/ OTHR	JOUR	ELEC	TOTAL
Canadian University	36	42	30	15	123
Michigan State University	39	42	42	0	123
Arizona State	45	39	38	3	125
Drake University	36	24	44	20	124
Temple University	19	41	46	0	124
New York	42	18	36	21	117
Maryland	15	65	42		122

Table 1: Requirements Distribution of Journalism Academic Programs

The dialogue in how journalism academic degrees should be reshaped is a never ending one. Academicians and practitioners have argued that neither the practical model nor the academic model is ideal for working journalist. A fusion of the two models could be the answer. Some of the suggestions changes that may help replicate the job environment while studying include; the replacement of undergraduate journalism skills courses with campus journalism and professional internships. Skills training should be phased out of graduate journalism school curricula. Certain advanced courses, such as investigative and documentary journalism, should be retained, along with the core media courses (law, ethics, history, criticism, etc.). More schools should implement focused seminars on the fellowship model for working journalists.

Proposal and Conclusion - Journalism with AI academic degree

In conclusion, at this time, AI is considered as an enhancement tool to journalism. In other words, an academic degree in journalism with AI components is not expected to be a total revamp in curricula and pedagogy. Rather, the vision is more about AI-embedded components, with specific learning objectives' approach. The proposal here does not also advocate any curricular adjustments that might entail longer graduation times, or increased cognitive load.

Depending on supply and demand, HEI may select one of several approaches that are not mutually exclusive, such as:

1. No substantive change to the existing program. Offering

courses in AI as electives is a plausible starting point.

2. No substantive change to the existing academic program, or core courses. AI content/modules can be included in some of the technology-related courses; or integrated in an introductory course, for example, AI, machine learning and deep learning in journalism. For example to enhance skills and competencies required to identify fake news, the course would have a module showing how AI can be used to facilitate the detection of false information, as opposed to the time-consuming and subjective manual process.
3. No substantive change to the existing academic program. Introduce one or more course in AI. For example, a courses can be offered to illustrate how AI can assist in multiple-source data –analysis; conversion of speech into texts, or texts conversion into audio; how the use of smart software, can assist in identifying fake news. Students can receive training in a lab environment to software such as Factmata1, which is an AI based software

that can reduce misinformation and abusive content online. Another course with a lab can be introduced within the context of news editing in alignment with the editorial policy, for example rephrasing the story to fit the editorial policy of each medium. A software similar to Urbs, which is used by the Associated Press is a good example. AI can also be introduced within the context of content personalization. The course/module can shows students how AI can assist users and businesses to create their personalized news agenda, as well as the possibility to generate news in multiple languages, making content personal, relevant, and favorable^[38].

4. Substantive change to the program. Introduce AI as a concentration. This may include dedicated journalism-AI courses on the integration of areas such, sentiment analysis, content management and moderation, automated transcription, image and video, fake news/deep fakes recognition, and new tools for debunking .

As an academician, I have

to keep in mind a number of internal and external factors that would guarantee the feasibility, sustainability, and relevance of any academic program, hence my recommendation to make this transition to Journalism with AI in a few incremental steps. The first step is to start to infuse AI-related content to core courses in journalism, this would sustain the existing programs, yet allow HEI to start the transition.

Then gradually move to the second step by introducing a number of journalism based on AI courses/modules within the existing academic program; and then eventually move into a concentration or specialization within the program. Proposed journalism-AI courses would focus on areas such as introduction to AI, sentiment analysis, content management and moderation, automated transcription with AI, image and video, fake news/deep fakes recognition, and new tools for debunking, and some of the modules proposed earlier. A proposed distribution of requirements is shown in table 2.

GENERAL ED	Journalism	JOR-AI	ELEC	TOTAL
27	48	15	30	120

Table Two: Requirements Distribution of Journalism Academic Programs with AI

Category	Examples of courses to choose from
General Education	<ul style="list-style-type: none"> • Emiratis Studies • Arabic Concepts • English Composition I • English Composition II • Mathematics • Natural Science • Innovation and Entrepreneurship • Introduction to information technology • Methods of research
Core Courses	<ul style="list-style-type: none"> • Journalistic Storytelling across Media • Journalism in the Digital World • News Gathering and Assessment • Media Ethics and Law • Storytelling: Interactive News • Storytelling: Magazine and Feature Writing • Video Journalism-Video Producing Broadcast/Web • Advanced Online Storytelling • Exploring Future Digital Journalism • Social Media Practice in Journalism • Data Journalism Research and Investigation • Journalism Newsroom • Editorial Design • Feature Writing • Photojournalism • Magazine Writing and Editing • Radio Newsroom • Television Newsroom
Electives	<ul style="list-style-type: none"> • Mobile Journalism • Fashion Journalism • Gender and the Media • Media and Religion • Sports, Media and Society • Sports Journalism • Politics and Journalism • Health Journalism • Digital, Social and Mobile Marketing • Trauma Journalism
AI	<ul style="list-style-type: none"> • AI, machine learning and deep learning in journalism • Sentiment analysis • Content management and moderation • Automated transcription • Image and video • Fake news/deep fakes recognition • New tools for debunking.

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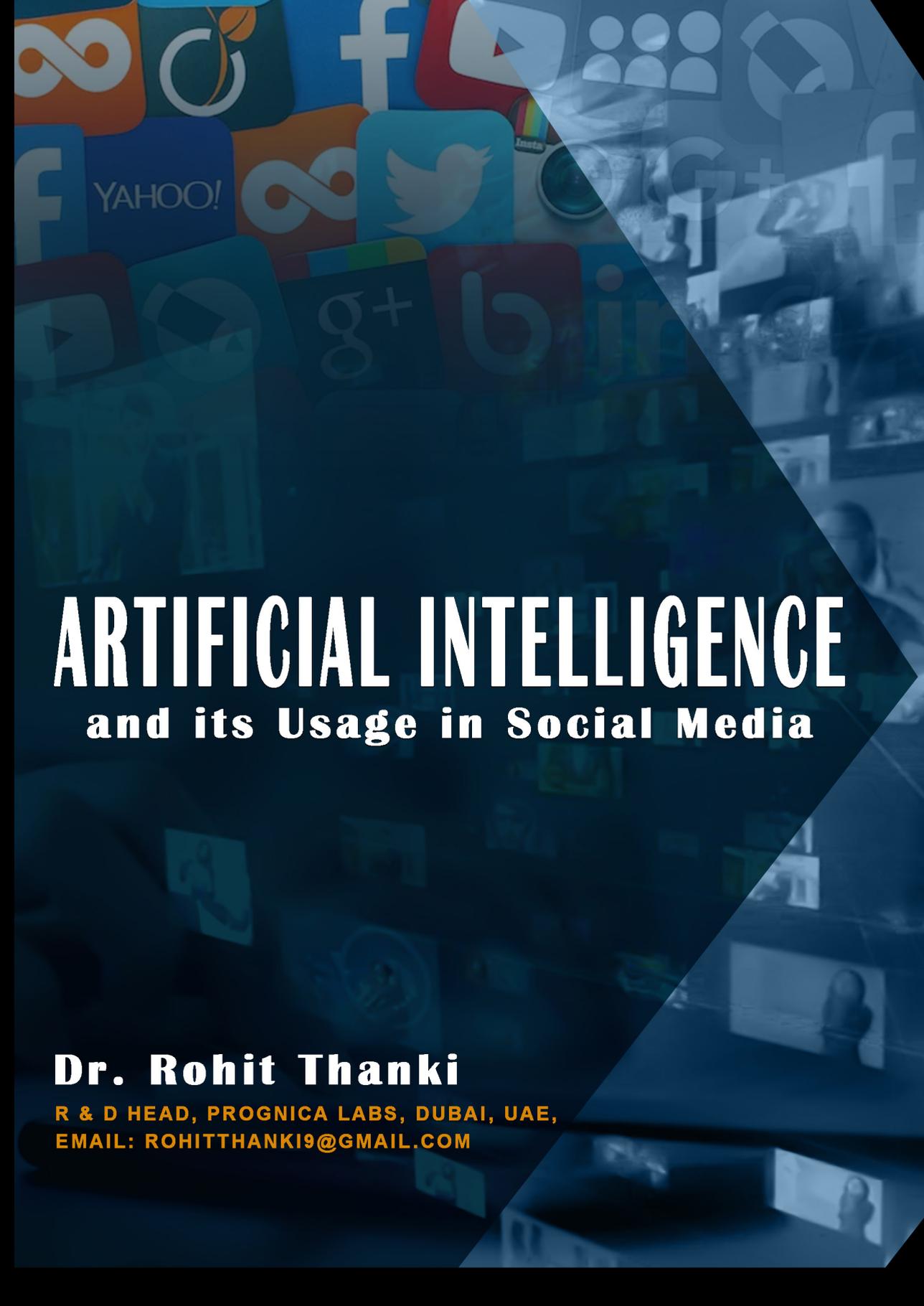
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ARTIFICIAL INTELLIGENCE

and its Usage in Social Media

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Abstract:

During the pandemic, usage of artificial intelligence technology increases in various areas of society such as social media, data security, and analysis, e-commerce, healthcare, etc. This technology provides more benefits to develop intelligent softwares and services without the help of human actions. Recently, many researchers and companies have been working to develop various strategies for social media. This article discusses the basic information of artificial intelligence and its usage in designing the system for social media. Also, the article gives information on various AI tools used in social media.

Keywords:

Artificial Intelligence, Machine Learning, Social Media, Strategy, Tools.

1. Artificial Intelligence (AI):

A computer system with artificial intelligence can perform tasks usually carried out by humans. Machine learning and deep learning are among the methods used in these systems. One artificial intelligence

(AI) application is machine learning (ML). ML algorithms enable systems to learn automatically. With this system, learning can be made simpler without much coding. Essentially, machine learning involves developing and implementing a new model based on computers and software to access information and learn from it. Algorithms identify unique features in the input data that help make better decisions. Applications of these algorithms include medical image processing, computer vision, biometrics, object detection, and automation [1, 2]. Machine learning consists of three types [1, 2]: supervised, unsupervised, and reinforcement.

1.1. Supervised Learning

Real-time applications and practical approaches mainly use this kind of learning. In this learning process, the model tries to learn information from previous experiences of data that has been given to it. As an example of this learning, the input (x) and output (y) is taken, and an algorithm is determined that offers a mapping function (f) from the input to the output, such as:

$$y = f(x) \quad (1)$$

Classification and regression are two types of supervised learning problems. The output is a classification problem's value, group, or category. For example, "cat" or "dog." The regression problem is when the output is constant or accurate, such as temperature or currency. Several algorithms have been developed for supervised learning, and each uses a different method to predict the output [3].

1.2. Unsupervised Learning

The algorithms in unsupervised learning seek to discover a unique pattern or feature on their own. In math, this type of learning is when an input (x) does not correspond to an output (y). Learning this way is called unsupervised since the machine or system finds the answer independently without being given the correct answers. Unsupervised learning algorithms are used mainly for clustering and association problems.

1.3. Reinforcement Learning

A machine or system learns this by taking a particular action that

maximizes output. Then, it uses various software and algorithms to find the best production or behavior the machine can provide for a given input.

Machine learning algorithms cannot meet all the requirements of real-time applications. Thus, finding suitable algorithms is a challenging task that requires trial and error. Researchers [1 - 5] suggest selecting algorithms based on the input data's size, nature, and type of output needed to solve this problem. Thus, in practice, machines are used to reinforce learning. It exposes itself to the platform where it continuously trains itself to improve predictions. In real-time machine learning applications, multimedia data such as images, videos, speech signals, etc., are used as inputs. Due to its simplicity and ease of understanding, the machine learning image is popular in the research community [6].

2. Usage of AI in Social Media

Artificial intelligence (AI) is a subject that compasses various technologies such as machine learning, deep learning, computer vision, signal processing, and others.

AI technology enables computer systems to do particular tasks or applications on par with humans. For example, deep learning-based object detection algorithms are widely used in self-driving cars worldwide. Also, various online platforms such as Amazon and Netflix used recommendation algorithms to suggest items and movies based on your search pattern. AI technology is playing a significant role in developing most social media sites. As a result, AI is used in the back end of many famous social networking platforms. Also, increase user compatibility, social media platforms used AI technology and its upgrades. For example, machine learning based algorithms along with face recognition are used by Facebook for advertising purposes. While LinkedIn used AI to provide job suggestions. Artificial intelligence improves social media marketing in two significant ways [7]:

1. Decrease Operating Costs:

AI can convert important tasks by fully or partially automatic processes that reduce operation time. These tasks may include scheduling and posting content, fetching important information from relevant sources or links, and

speeding up the searching process you want to post.

2. **Increase Revenue:** Using AI can also improve social media posts and strategies, leading to more engagement and better results. By analyzing the data, AI can help you determine which content is most effective, which audiences are most suitable, and which channels should be used. This technology can even generate more effective ads for you.

3. Advantages and Disadvantages of AI in Social Media

The benefits and disadvantages of AI technology in social media are described as per below [8]:

3.1. Advantages of AI in Social Media

There are apparent advantages to social media platforms from using artificial intelligence [8].

- Previously, content and ads couldn't be precisely targeted. However, the increased usage of their platforms and the

increased click-throughs on advertisements increase revenue.

- Many challenging problems around content moderation that social media companies face is hard to solve without artificial intelligence. However, this is a step forward for both platforms and users alike.
- AI is also useful for diehard users. It's essential to receive more content that appeals to you on social media.
- It's also important to remember that users are also consumers, and consumers gain when they're shown relevant advertisements for products they want.
- AI enables social media marketers to take advantage of considerable efficiencies in creating social campaigns. Moreover, AI achieves better performance by accurately targeting consumers and predicting outcomes.

3.2. Disadvantages of AI in Social Media

AI in social media has its

disadvantages as per below [8]:

- AI algorithms at Facebook developed due to the company's maximization of engagement actively spreading misinformation, division, and hate. The effects were both mental and physical for users and were very negative. Also, Instagram's content (selected by algorithms) created negative body image feelings in young girls.
- AI for engaging users is often explicitly designed in many cases. Divisive, polarizing content that causes outrage tends to generate the most engagement.
- Social media marketers can also have problems with this. Artificial intelligence (AI) failures at major social media platforms can result in your brand's content appearing next to hate speech or inappropriate material, damaging your reputation.
- Marketing professionals could also be tempted to use AI tools to increase engagement for their campaigns, continuing

a cycle of polarization for attention and brand recognition.

4. Examples of AI in Social Media

The AI can be used in various services of social media as per below [8]:

*** Social Content Creation and Management:** Intelligent automation and machine learning can help you create sharable content for every social media platform you use and then control how that content is distributed.

- Easily create social media posts: An AI tool can learn what social media posts work and advise you on what to share next by using historical data. It can then help you scale your posting.
- Determine what messages to share on each platform: Using artificial intelligence, your brand voice can be automatically developed across platforms such as Facebook and Instagram to increase social media engagement.
- Manage social media more

efficiently: With artificial intelligence, you can analyze your audience across multiple social channels and manage your work accordingly.

*** Social Insights and Social Listening:** There are many tools for analyzing social media content, profiles, and audiences powered by AI.

- They are measuring brand and social trends. Social media intelligence powered by artificial intelligence can help companies measure and improve brand equity, detect consumer trends, and understand target audiences.
- Decide which content has the most significant impact. Artificial intelligence-powered social media tools can analyze your posts and those of other companies and recommend when to post and what creative to use.
- Images and facial recognition can locate products, logos, and brands in online posts.
- Conduct influencer marketing on social networks at scale by identifying the right influencer.

* **Social Advertising:** You can now use artificial intelligence to write social media ads for you. By predicting which language will improve performance at scale, AI can optimize ads for clicks and conversions.

- Create Facebook and Instagram ads. AI can currently create short-form ad copy for Facebook and Instagram.
- Management and improvement of social media advertising. In addition, AI can provide recommendations to improve performance based on data analysis of PPC advertising across Facebook and Instagram.

5. AI Tools for Social Media

The important AI tools that are used to streamline any social media strategy are described as per below [7 – 9]:

1. **Yotpo [10]:** With clever technologies like Yotpo, we can now manage client reviews, another time-consuming task. You can improve your

goods and services based on its moderating tool, which analyzes consumer feedback and attitudes. By collecting and providing essential reviews to potential customers, it is also possible to increase sales.

2. **AI-writer [11]:** Artificial intelligence can also be used for content creation instead of just performing data-processing tasks. AI-Writer generates complete blog entries by simply entering a headline. However, even though the content isn't flawless, and the output isn't always perfect, content producers can still save time creating blog posts.
3. **Exceed [12]:** 'Exceed. ai' is a sales tool powered by artificial intelligence (AI), automating email communication and personalizing conversations. Potential clients are presented with a natural experience using this marketing automation technology. They have conversed

before they are transferred to an actual sales representative, assessing their product needs.

4. **NetBase [13]:** Brands have been using social media listening for decades, but NetBase goes one step further by adding machine learning and artificial intelligence. Its artificial intelligence-powered system analyzes social media conversations in real-time to provide you with real-time feedback on how your audiences are reacting to your newest brand news and changes. By using these insights, marketers can better defend their brands, manage crises, and optimize campaigns.
5. **Intelligence Node [14]:** The Node platform is an artificial intelligence platform that uses data from people and organizations to predict how companies could better engage their customers, workers, investors, and partners. The program links online elements like people,

products, and companies to identify those most likely to convert or buy. These predictive insights can be helpful in various applications, including marketing automation, management consulting, and job applicant monitoring.

6. **Atomic Reach[15]:** If you had a content marketing assistant on staff, Atomic Reach's artificial intelligence technology does the job. Organizations can convert content into sales using its content switchover platform, which uses conversion optimization and business analytics. Even though it can aid SEO, its findings are much more ROI-oriented, observing what drives conversions and allowing blog headlines and tone enhancements to be seamless.
7. **Seamless[16]:** Using seamless.ai, users can search and sort through extensive contact databases quickly. This sales intelligence application

assists in stacking contact information (emails, mobile numbers, etc.) and automatically generates a list of prospects without the laborious process of list creation and research, data input, and other tedious tasks.

8. **Crayon[17]:** Crayon automates competitive analysis using artificial intelligence. Advertisers gain access to the latest market news and developments with the help of its technology, allowing them to spot trends and make rapid, educated decisions.
9. **Unscreen[18]:** With Unscreen, video backgrounds are entirely removed from videos using artificial intelligence. You used to need complicated procedures to capture background-free video, but Unscreen now turns this task into a breeze. In addition, Unscreen lets you replace the static or video wallpaper after removing the backdrop.

10. WordStream

[19]: WordStream is an artificial intelligence-based program that uses machine learning to improve ad performance. The software analyzes PPC ads on social media networks, and recommendations are given based on data. As well as online sellers and marketing agencies, the platform is available to small businesses and large corporations. The tool can help them determine if their PPC campaigns were successful and facilitate scaling, training, and driving dynamic online growth, ultimately generating a solid return on investment. The most talked-about feature is its 20-Minute Work Week. The tool streamlines marketing decisions and allows marketers to send updates and suggestions about improving campaigns.

11. **Pattern89 [20]:** In Pattern89, marketing and ad campaigners are empowered to take control of the essential ad management tasks, including channel

recommendations, budget allocation, and bid optimization. Besides offering suggestions for improving the ad campaign's performance, Pattern89 also guides targeting the audience and adjusting the budget. Additionally, the platform provides a Creative Ads Manager tool. You can analyze all your past ads with filters, including ad targets, audience, campaign objective, and ad set, among others.

12. Phrasee [21]: Using Phrasee, companies can optimize their marketing copy using artificial intelligence. Due to its natural language generation system, the platform makes marketing copy sound more human. As well as predicting what language will work and which won't, its deep learning engine does this more accurately. The tool analyzes data from social media, emails, and other online posts to determine which marketing assets are most minor and most effective. You can

use Phrasee to test your ad copy or to use the one that the platform suggests.

13. Linkfluence [22]: You can monitor and analyze your social media channels with Linkfluence, an AI-based social media management tool. Linkfluence helps you understand your brand's social media activities and understand your audience. This tool uses the data deluge generated by social media users every day to assess the impact. Your brand's position in the marketplace will become more apparent when you know what makes it unique. In addition, you can set intelligent objectives after tracking your brand equity on social media. On the other hand, you can create the most appropriate products and services and custom marketing campaigns to match by analyzing and predicting customer trends.

14. Cortex [23]: You can customize your content to meet the needs of your

audience with Cortex. Additionally, you can use Cortex to study your competitors in detail. Through a data-driven creative approach, the platform helps marketers learn what trends resonate with their customers and how to leverage them to stay ahead of the competition. Social media is completely automated with the AI-based platform. Cortex helps you plan, schedule, create and optimize social media posts faster and more efficiently.

15. Socialbakers

[24]: Socialbakers is a tool that gives you advanced audience insights. It is an AI-based tool that allows marketers to create unified feeds, track and manage influencers, and monitor social media on all platforms. You can also use the analytical dashboard to analyze the success of your posts and find the best posting times with its innovative scheduling tools.

16. HubSpot [25]: The HubSpot social media

management tool allows you to create social media posts based on the metadata of the link. It is probably one of the most popular AI-based companies. HubSpot is easy to use. There are no complicated instructions. You can create a post by simply clicking on the 'Create Post' link and pasting the link into the text box. Upon entering the information, it will display a short description, a photo, and a link to the page. Upon posting, you will see a copy of the post, which you can change to fit your style.

17. Sprout Social [26]: This is one of the top tools for managing communities on social media. Automated tweets can be generated with Social Sprout to communicate with readers, followers, or fans. Furthermore, direct messages can be managed through the dashboard. This artificial intelligence-based software can analyze tweets based on their sentiment and wording. So even though the platform

won't take over the entire conversation with your customers, it will expedite the process.

18. Lately [27]: A social media campaign is created using Lately's ability to recognize context from content. The AI-based platform also offers a dashboard containing all the tools for managing and scheduling social media projects. Utilize its historical metric analysis feature to maximize the impact of your posts. Additionally, you can use it to improve the content and find the best posting time. Messages can be customized based on information or URLs, similar to Social Sprout.

19. Persado [28]: With Persado, you can connect authentically with your target audience and create meaningful relationships. The platform uses artificial intelligence and machine learning to create emotional profiles tailored to specific audiences. Through this tool, you can analyze

campaign responses in the past and customize your content to reflect your brand's personality.

Conclusion

With artificial intelligence, you can track and analyze all social media activity, including recitals, customer engagements, and insights. Because of this, businesses have a better understanding of the preferences and decisions of customers. The AI tracks the purchase histories and searches histories of customers. Performance indicators are also used for search engine optimization. AI provides flawless personalization for numerous social media platforms thanks to its ability to properly analyze user-profiles and customize the whole user experience.

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**From Automated Generation of Discourse
to Automated Generation of Media Publications
What Perspectives for Human Journalists?**



Prof. Eunika Mercier-Laurent
Chair IFIP Technical Committee Artificial Intelligence

Two texts produced by rytr¹ from the first part of the title:

“We are on our way to see the production of discourse become automated - This means that humans will only have the job of analyzing the truthfulness of materials, rather than generating them.”

“AI is here to help! Our AI will migrate narratives to news and other professions; pushing the boundaries of what we know as media. With our AI, we can take steps towards transitioning discourse from physical language to a more intelligent and automated experience. No longer constrained by human intellect and time, we can push out more content and find better results without the limitations of current technology.”

The natural language processing (NLP) entered now to our daily lives with chatbots and “intelligent assistants” such as Siri, Alexa and others. Computers empowered by AI are able to generate automatically various contents as articles and books, compose hits and even paint as great artists.

Over the last few decades, we can observe journalism evolving in a number of ways, moving

with the times through print, radio, broadcast, and now digital journalism mediums. Today, new forms of “automated journalism” are prototyped. For the most, they use Natural Language Generation (NLG) of stories from data.

Such evolution changes the role of human journalists. It makes their work easier; however, they should be innovative and find the best of their added value, compared to machine capabilities. How this profession as many other will have evolve? The best solution is to combine machine and journalist capabilities.

1. Genesis of NLU/NLP

The natural language is still a mean for communication, sharing thoughts, expertise, feedback, information and ideas. Speaking language includes emotions, background, opinions but is also a subject of imperfections, may be ambiguous and related to a given culture. Written text depends on the talent of a writer to transmit information about a given topic. However, it may include personal opinions and interpretation in function of the writer’s knowledge of a given field, beliefs and context.

1 <https://rytr.me/>

Natural Language Understanding (NLU) and Processing by computers has been one of the earliest concerns of AI researchers even before the official birth of Artificial Intelligence in 1956.

The first patent for translation machine was granted in the 1930s. The need for machine translation increased by the Cold War was intensified by globalization and Internet services.

The true evolution in the field of NLP comes in the year 1957 when Noam Chomsky² introduced the syntactic structures. Elaborated by Chomsky “formalized theory of linguistic structure” revolutionized the field of linguistics by considering language as a uniquely human, biologically based cognitive capacity.

Since many researchers have been working on various aspects of natural language processing by computers, such as signal processing (speaking language), grammars, ambiguity, semantics, automated translation and generation of text (discourse, marketing letters, answer the client claims) and latter

multimedia content. See also³

The first programming language for natural language processing Prolog was invented at the University of Marseille Luminy by the team of Alain Colmerauer in the early 1970.

The researchers of Xerox Research Center (XRCE) in Grenoble, France have been working on natural language understanding and processing, IBM Research⁴, Bull CEDIAG and academic researchers as well (Sorbonne University, LIMSI – Orsay among others). All these efforts devoted mainly to Natural Language Understanding and Automated Language Processing led to products and applications exploring semantics in various context. IBM research results are implemented in Watson machine.

The first papers on automated generation of content and especially discourse were published in early 1980s⁵

2 Noam Chomsky: The Logical Linguistic Theory (1955-1975), see also <https://www.britannica.com/biography/Noam-Chomsky>

3 Natural Language Processing: History, Evolution, Application, and Future Work. https://www.researchgate.net/publication/350058919_Natural_Language_Processing_History_Evolution_Application_and_Future_Work [accessed Jan 24 2022].

4 <https://research.ibm.com/teams/natural-language-processing>

5 Laurence Delort. Structure communicative du discours : étude pour la génération automatique de

2. From NLU to NLP

The third hype of AI, triggered mainly by marketing needs to address more clients and sell more, changed the logic from Knowledge-based AI to simple exploring of data using analytics and latter various artificial neural networks-based algorithms. The “understanding” applying linguistic principles has been replaced by generation of text and multimedia from available and selected data using predefined models.

First, the initial unit interprets the data (audio or text) provided and then start making sense of the data, and after proper processing of the data, the actual steps are followed by the machine to eliminate some replies or get the work done.

NLP connects several disciplines such as computer science, information engineering, artificial intelligence, and linguistics. The concern of NLP is the interaction between a computer and human languages. NLP areas include now speech recognition, machine translation, automatic text summarization, part-of-speech

textes.. Actes de la Rencontre des Étudiants Chercheurs en Informatique pour le Traitement Automatique des Langues (RÉCITAL-03), 2003, pp.449-458. halshs-00081561

tagging, etc. Generally, NLP is used in many real-time applications like smart homes, smart offices like Alexa, Cortana, Siri, and Google Assistant.

Data exploration content generation has begun probably for marketing needs with automated production of email campaigns, automated generation of answers to clients complains. Nowadays such generation has been extended to many fields, such as generation of reminders for taxes payment even for letters related to Covid pandemics.

Nevertheless, efficient for marketing and other services this kind of automated letters is frustrating for clients and for healthy people receiving surprisingly information about positive test by error.

Massive generation of emailing without any target is also polluting (each email containing simple text generates 4g of carbon oxide).

3. How automated journalist works?

The basic principle of Automated generation of multimedia content is shown in Figure 1 and is composed

of following steps:

1. The software collects available data on a given topic
2. The algorithm employs statistical methods to identify important and interesting events
3. the software classifies and prioritizes the identified insights by importance
4. and arranges the newsworthy elements by following predefined rules to generate a narrative.

Such generation of content strongly depends on the quality of data.

OpenAI elaborated more sophisticated tool called GPT 3 (Generative Pre-trained Transformer 3). It is an autoregressive language model using deep learning (instead of statistics) to produce human-like text. Today it is able to generate content for various needs such as marketing, text completion and style rewriting, generating the quiz and some others⁷.



Fig 1. Automated generation of news (source⁶)

6 Andreas Graefe: Guide to Automated Journalism, Columbia Journalism School, 2016

7 <https://gpt3.website/>

The cornerstone of NLP models used to create simulated text are **Generative Pre-Trained Transformers (GPT)** models:

- **generative:** the ability to generate new data instances.
- **pre-trained:** the model is pre-trained on a set of text data, meaning that the training need only be done once and can be reused in the future. GPT models are also amenable to transfer learning, which conceivably allows them to be used as a base for other NLP tasks.
- **transformer:** a model architecture developed by Google in 2017 that is both computationally efficient and shown to be helpful in translating main languages.

For more information about GPT-3 see⁸

4. Some NLG tools

My WP life⁹ provides the list of ten AI-based tools for multimedia content generation.

⁸ <https://www.xyonix.com/blog/modern-ai-text-generation-exploration-gpt-3-wu-dao-2-nlp-advances>

⁹ 10 best NLG tools <https://mywplife.com/software/ai-content-generator-software/>

Not easy to know the efficiency without buying the professional version. Even those saying offering free try ask for your credit card data! The ethics for software producers/vendors is still to elaborate – let us see the basic characteristics of the given software BEFORE signing.

Among them Jarvis¹⁰ is ranked first but impossible to try for free.

We tried Rytr with as input “AI will replace human journalists” and asked for two variants of automatically generated text.

Result 1

“The machines are coming for us next!

AI (artificial intelligence) is threatening 27% of all jobs in America and it’s not stopping there. As the next generation enters the workforce, it’s welcoming us with a “hello” from our future overlords.

Every industry is in jeopardy: social work, transportation (autonomous cars), and even business and banking”

Result 2

“Artificial intelligence was

¹⁰ <https://www.jasper.ai>

predicted to automate over 40% of the workplace by 2030.

Lately, everyone's talking about AI-powered tools that can replace human journalists, making content more accurate and compelling.

There are still many aspects of journalism that are uniquely human. As long as there are humans in the profession, they will do what they do best while artificial intelligence handles the more routine work.

Another try with input "Synergy human and automated journalist" in category "post and caption ideas"¹¹ gave the following results:

Result 1:

"Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it's the only thing ever has." -Margaret Mead.

A journalist is no longer an individual expert who reports on facts, but rather a large system of experts who create collective facts through collaboration and crowdsourcing. And because experts know far more than one person can ever hope to know, journalistic systems need to

understand facts too."

Result 2:

"We're all storytellers. And we know that the best stories squeeze their characters and plots with empathy and understanding, in order to fully explore key concepts and evoke emotion in readers.

With the power of AI and automation, any business (even ours) can create compelling stories for social media at scale.

Where business leaders used to lack the content capacity to move people on-message deeply, they can now edit 'human'".

Using Rephrase function provided:

"There's a huge demand for quality reporting nowadays. As the world is changing every second, people want the latest and the newest.

The challenge is to produce enough posts with a human touch, while still getting all other marketing tasks done

Luckily, a modern automated reporting task should be a good fit for many businesses.

¹¹ <https://rytr.me/use-cases>

One of the benefits of this solution is to maintain an authentic voice that human.”

Rytr offers other functionalities such as expand, plagiarism and more.

We also tried zyro¹² ranked among ten best NLG software.

Entered text: “Artificial Intelligence based generators will replace journalists.”

Result:

“Artificial Intelligence based generators will replace journalists. Not only that but we are also looking at an AI built by a computer to look for stories and report on them with higher quality journalism than any other journalist out there. You see, the next generation of news organization has entered its golden age where it is expected not just in mainstream media, which doesn’t use artificial intelligence (AI) as much as many think, because some newspapers have more coverage per article; but rather independent or non-biased reporting within big business – The New York Times, Bloomberg, CNBC, Yahoo! News, CNN, USA Today etc. As I predicted last year when analyzing this topic:

¹² <https://zyro.com/>

Artificial General Intelligence could com...”

Another request: “Automated generation of multimedia content about Artificial Intelligence”

Result:

“For anyone who’s been paying attention to the AI bubble, it seems that machine intelligence is going to have an effect on our lives. We can predict what technology will do based only upon historical precedent; we know exactly how things are supposed you and me – whether or not something good happens. And this sentiment rings true for us today! Just like a computer learns its functions in order (in some cases) before being fully operational, software must learn by trial-and error prior application from very different systems, write Vartanian and Lobo. Even more fascinating: The researchers describe these learning algorithms as operating autonomously.”

Other mentioned tools are: Article Forge, Writesonic, Kafkai, Article Builder, Copysmith, SEO Content Machine and Articoolo. All are organized by categories and it is up to the user or journalist to

select the best suited category to his/her activity.

5. Next challenges

Paradoxically there is still much more information generated that people can read and watch. Most of them provide similar content. The main challenge remains to provide a different, high quality and verified content.

With the trend of fakes the next need and challenge for AI is to detect automatically the fakes in various fields and in posts.

Another challenge that has been partially addressed by knowledge-based methods is the detection of true experts from their writings and posts. The current data exploration is not able to make a distinction between the quantity and quality. Human journalist can do it at the condition of exploring related information (with a help of AI) and critical thinking.

6. Conclusion

Automated journalism requires high-quality data in structured and machine-readable formats. All mentioned tools are able to accelerate the production of

contents, even verify plagiarism. However, the effort has to be made on detecting fakes in data and in general be sure of using the good quality and verified data.

Automated journalism will likely replace journalists who merely cover routine topics, but will also generate new jobs within the development of news-generating algorithms.

About the Author

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7G

JOURNALISM AND BEYOND THE MEDIA OF METAVERSE

HOW CAN METAVERSE BE APPLIED IN
ROBOTISATION OF MARKETING?

AN EXPLORATORY STUDY
ON A SAMPLE OF
MARKETING EXPERTS
JANUARY 2022

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Index

Abstract.....	65
Introduction	66
New Concepts	67
Difference between:	
Media of Metaverse content and 7G Journalism.....	70
Metaverse and Marketing	72
Metaverse and Robotisation of Marketing	74
The Exploratory Study:	
Marketing Experts and the Uses of Metaverse.....	79
Outcomes	82
Study Graphs	83
EndNotes	87

Abstract

When CEO of Facebook Mark Zuckerberg has announced at the end of last July 2021 that: he is expecting in the coming years people will transition from seeing Facebook primarily as a social media company to seeing it as a metaverse company, where the metaverse is the ultimate expression of social technology. Facebook had previously planned to be the largest provider of virtual and augmented reality technologies, when it acquired the virtual reality glasses company Oculus VR, maker of the Oculus Rift virtual reality headset, in 2014 in a \$ 2 billion deal.

Which has currently opened many technology giants' eyes to invest in metaverse, and it is expected that competition will intensify during the next five years between the five big players "Facebook, Amazon, Microsoft, Apple, Google", which will bring about a major revolution in the media and entertainment industry, especially in relying on new tools and applications are more sophisticated than the technologies of Artificial Intelligence Journalism.

For an instance: in the first week of this year 2022, the electronics

giant Samsung has revealed it has opened a virtual store inside the Decentraland metaverse. Modeled from the physical store Samsung 837, Samsung's metaverse store is called "Samsung 837X."

How can metaverse affect the media and entertainment industry, and how can it change many tools and technologies in the world of marketing.

Through In-depth interviews for marketing experts of the opinions of a sample about the extent to which they use artificial intelligence technologies, and Metaverse in the marketing content industry, and their awareness of the importance of these technologies, and the most important challenges which will face Metaverse in the future. The samples have been selected from several international and local companies in the UAE, and through their regional offices in GCC region.

Introduction

Two years ago, I have started searching and forecasting an era and a new form of “Post-Artificial Intelligence Journalism”, a type of media that fully corresponds to the Fifth Industrial Revolution in the middle of the next decade, I have coined a new term, which I call “7G Journalism”, and linked the term to expanding the adoption of new technologies that are more advanced and more capable of creating and transmitting media content through human microchips.

The intelligent human microchips will work as media tools, smaller than the fingertip, implanted under the skin, and directly connected to stations and satellites, with huge and free Internet speeds, through the seventh generation networks, that will cover every inch of the earth.

I also previously put forward of “Robotisation of Marketing”, which will finalise the era of “Digital Marketing” and transfer advertising and marketing content from digitization to automation, which is relying entirely on artificial intelligence technologies, whether material or immaterial in promoting services and products, and reaching

the target audience, and forecasting the consumer behaviour.

Now that Metaverse has emerged, it has become clear that all the technologies that Facebook is currently building to be ready for use in a more advanced virtual world in Metaverse, it will be an essential component of “Robotisation of Marketing” Where all virtual and augmented reality technologies are; Tools of physical technologies for Robotisation of Marketing, and reinforced by non-physical technologies of analysis of big data and the use of 3D images and videos to build a virtual space for services and services provided to a global audience.

But how can such new technologies shape the future of the Media and Entertainment industry, creating more effective and more ubiquitous tools and solutions? It requires many studies on content makers on the one hand, and on industry experts on those technologies on the other.

If Artificial Intelligence Journalism is causing a great revolution in media technologies, and the content industry in all its forms, then Metaverse is one of the latest of these technologies, and one of the most important new tools

in the Robotisation of Marketing industry.

In the current prospective study, I am trying to identify the future of Metaverse in light of the growth of Artificial Intelligence Journalism, and the “7G Journalism “ later, and through the In-depth interviews for marketing experts in different fields about the importance of Metaverse technologies in the marketing industry, and the most important advantages that it can provide. Also, what are the challenges that this Metaverse could face, especially when most of the technology giants and content creators are pumping billions of dollars into the world of Metaverse over the next ten years.

New Concepts

- **Media of Metaverse**

Here, I am talking about a media industry through virtual tools and solutions only, as it is currently manufactured by some physical and non-material artificial intelligence tools, on top of which is what Facebook announced from the “Metaverse” industry.

Metaverse media is creating news or promotional content based on a 3D virtual environment. , includes a specific audience mixed between the virtual and the real, and accepts interactive messages between the same audience or the audience and the content makers at a time specified by the recipient and in an environment made by the sender and receiver together. Metaverse is the next big technology platform, attracting online game makers, social networks and other technology leaders. It presents an opportunity for leading online entertainment and social media companies to capitalize on new revenue streams.

The global Metaverse revenue opportunity could approach \$800 billion in 2024 vs. about \$500 billion in 2020, based on our analysis and

Newzoo, IDC, PWC, Statista and Two Circles data. The primary market for online game makers and gaming hardware may exceed \$400 billion in 2024 while opportunities in live entertainment and social media make up the remainder, according to Bloomberg¹.

When we mention the “Media of Metaverse” as a term that refers to the creation of virtual spaces for the providing and transmission of media or promotional content or virtual events between a specific audience without being restricted to a place and through virtual or augmented reality tools and solutions.

It can be said that the Metaverse industry or “the Media of Metaverse” came as a natural result of the great losses that hit media and entertainment sector as a result of the Covid pandemic, which prompted many technology and media giants in the world to search for more effective and more accessible ways to the public, without a direct communication between people. This prompted Facebook to provide a huge financial package to invest in the world of Metaverse, as a more interactive alternative and the ability to publish content globally.

Interactive content is nothing new at this point. From Netflix’s intriguing attempts at creating choose-your-own-adventure episodes, to HBO’s more elaborate attempt at non-linear content with Mosaic, content creators have been experimenting with new formats to boost viewer engagement. However, 2D interactive content lacks the kind of immersion that a 3D interactive experience can offer. Today, video games often produce some of the most engrossing fictional narratives that the entertainment industry has to offer, and the rise of Metaverse will make that more evident, forcing content creators to contend with the power of immersive storytelling.

Virtual reality content has been applauded by many for the total immersion it enables, and there is a far-off version of the Metaverse that will be accessible via VR. However, the reach of VR content will remain limited until VR hardware adoption picks up. So, the discussion around the Metaverse tends to concentrate on gaming environments for now².

- **7G Journalism**

The 7G Journalism will rely on “Human Microchips” in all stages of communication, which will enhance this new generation of media and

communication between people.

7G Journalism will rely on very advanced new tools and solutions to analyse big data related to everything around us: people, communities, events, organisations. It will be possible to create a detailed case history on every individual, group, etc before forecasting news related to them, a bit like forecasting the weather or financial markets based on what's happened before. In the 7G Journalism era, the news production process will rely on prior data to predict events, whether they be political, economic, or social.

It will be much harder for states and governments to control the media like they do now. 7G Journalism will make it possible for anonymous media players to broadcast the news and exert influence on people and communities, which is likely to have both a positive and negative impact. Media will become like a ghost, moving incredibly quickly and wielding even more power than it does today.

AI Journalism will become increasingly advanced and more effective, and it has the potential to truly revolutionise the media industry, especially as new

technologies emerge. But as we head into the Fifth Industrial Revolution (expected to arrive in 2040) it will be phased out by Seventh Generation (7G) Journalism, which will be a more advanced, faster, and influential type of media. Media institutions as we know them today will cease to exist – they will transform into a network of millions of information centres spread across the globe. 7G Journalism will be synchronised with 7G networks, which will rely on direct communication between people through human microchips. These tiny devices will replace television, radio, and news platforms. These microchips will replace all current media tools used to broadcast news; they will operate through smart electromagnetic waves transmitted through the Internet of Bodies (IoB).

7G Journalism will be synchronized with the Seventh-Generation networks that will cover all points on the globe with strong free internet networks with no interruption. 7G Journalism will rely on individual contributions and direct communications between people via human microchips, where there is no television and radio, news platforms, and nothing called smart applications. The 7G

Journalism will also replace all current media tools by images and automatic content broadcast from central stations and multiple satellites, and operate via smart electromagnetic waves that are captured by the public through human microchips, and through the Internet of bodies, which will be the best way of communication at that time³.

Difference between Media of Metaverse content and 7G Journalism

1. **Media of Metaverse:** It still relies on the traditional management of media outlets with a traditional way led by: a state, institution or a company.

7G Journalism: It relies on individual or institutional dynamic management in managing media outlets without being bound by the authorities of a state or giant institution.

2. **Media of Metaverse:** It creates virtual worlds that mimic reality that may be fiction and not reality and cannot convey reality outside the narrow framework of the individual who lives it or the group that shares it only.... for example, imagine “certain events” or illusory victories.

7G Journalism: It creates and reflects real worlds that are more widespread and are more affected by the participation of individuals in creating and transmitting real content through the

intelligent microchips, and even forecasting real news before it happens.

- 3. Media of Metaverse:** It use tools and solutions of communication through traditional communication models that are mainly controlled by the sender, message, receiver, audience, and feedback, just like traditional media.

7G Journalism: It relies entirely on the interactive circular communication model, which was previously formulated in the “Artificial Intelligence Journalism Model of Communication” where the media communication process will be applicable to the AI technologies. It relies on a continuous, interactive, circular and reciprocal technique to the message (the content) in which each element of the communication process, otherwise the message carries out other elements’ tasks equally in message transmitting.

In the 7G Journalism

all elements of the communication process in the AI model are performing a continuous, direct, circular and interactive role, whether in presence of humans or otherwise and can be replaced by one of technologies of AI journalism and Fourth Industrial Revolution.

Metaverse and Marketing

There is no doubt that the emergence of the world of Metaverse as it has been announced by Mark Zuckerberg, Co-founder and CEO of Meta Platforms, it will contribute to moving the marketing and advertising industry to a new era, that depends entirely on tools and solutions that are faster and more accessible to the public, and relying on the continuous interaction to the products and services provided.

The global Metaverse market is expected to register a CAGR of 41.7% during the forecast period, 2021–2030. The major factors driving the growth of the Metaverse market are the increasing focus on converging digital and physical worlds using internet and growing demand for metaverse to purchase digital assets using cryptocurrencies. However, cyber-threats in Metaverse is hindering the market growth. Although, technological advancement is creating an opportunity in the market.

There are many reasons why marketers are flocking to the metaverse. It's new, and faster connections finally exist to support

growing environments. But maybe the most important reason is marketers want to target and keep Millennials and Gen X up-to-date and engaged with their products and technologies, and Metaverse allow them to target these audiences in a new way. And from the engagement brands are already getting, it's clear this marketing strategy is working, and here to stay. Because branding, marketing, and advertising in the Metaverse is so new, the prices are still quite low to run a campaign. If you're a brand or business with an open mind and your target audience spends time on a Metaverse, it's time to give it a go. Keep in mind, regular ads won't work – you'll need to think creatively and use engagement as your main KPI. Since this technology is new, the measurement and tracking we're used to with other marketing tactics isn't there yet, but it's only a matter of time before the metrics catch up⁴.

Advertising can be defined as a “paid, owned, and earned mediated communication, activated by an identifiable brand and intent on persuading the consumer to make some cognitive, affective or nalysingl change, now or in the future”. Though the inclusion of owned and earned media in the definition can be debatable, and

there are many ways to define advertising⁵.

As it was before for the Internet, the Metaverse is not just another new medium but might become a realized idea that can change all aspects of advertising and marketing. Because the Metaverse is interactive in nature and involves embodied users through their avatars, the original interactivity modes might need to be updated in the Metaverse by including the second or embodied self-perspective.

The Metaverse has become one of the most popular channels for brand experimentation throughout 2021. Early innovators are seeking to establish a foothold before the virtual realm becomes fully realised and commercial opportunities get harder to come by⁶.

But while some brand case studies have proven successful at reaching wide audiences, the long-term value of marketing in the Metaverse remains a mystery. Furthermore, while the gold rush has been led by certain categories of brands that lend themselves naturally to virtual goods and events, such as luxury, others have a trickier job proving their value virtually.

Digital reality refers to the wide spectrum of technologies and affordances that include Augmented Reality, Virtual Reality and Mixed Reality, 360° video, and the immersive experience, enabling simulation of reality in various ways.

Digital reality can play significant roles in collecting, classifying and distributing data, it would thus become increasingly essential for processing the companies' big data, as well as dealing with the variability of the task, where it can also offer various prospects for enterprises to transform areas such as internal workforce communication and collaboration, workforce training and

Metaverse and Robotisation of Marketing

Robotisation of Marketing, as a current stage, has started for 4 years now, when the world has begun to use the first of artificial intelligence technologies and algorithms in analysing marketing content, designing advertisements, automatically classifying, and reaching the target audience.

Thus, Robotisation of Marketing phase currently continues along with the digital marketing, but with the growth of Robotisation of Marketing tools and solutions, digital marketing will decline over the next five years, to be replaced by artificial intelligence's tools and technologies as well as the Fourth Industrial Revolution⁷.

Therefore, there is no talk about digital marketing in terms of using virtual reality or augmented reality technologies, analysing big data for customers and markets, or conducting consumers' research and their preferences when relying on reading natural languages through smart applications or social media.

Here, the difference between digital marketing and the tools it relies upon appears clearly: such as search engines, e-mail, newsletters,

digital market surveys, and other tools that have become or will soon become part of history in terms of tools to reach the audience or influence their buying analysing throughout the various stages.

Digital marketing depends primarily on computer applications and smart phones, so what if these computers and smart phones disappeared, can we find digital marketing effective? Or, rather it would become a stage that has passed, just like the future of traditional journalism in the face of Artificial Intelligence Journalism.

Therefore, the future depends on the growth of artificial intelligence technologies and advanced technology, and the technologies of the Fourth and Fifth Industrial revolutions, which is fully consistent with the stage of Robotisation of Marketing and the growth of the use of these tools in all stages of marketing including:

- Initial search
- Planning
- Defining the audience
- Building databases of audience characteristics
- Choosing the appropriate

media and advertising medium.

- Making the automated content for some commodities or service or even data and information for countries or institutions in the event of conducting media campaigns for those entities.
- Choosing the audience and measuring their reactions.
- Each media outlet as well as each different stage of managing media and advertising campaigns are evaluated.
- Submitting proposals to ensure the improvement and development of marketing or media campaigns in an automated manner in accordance with artificial intelligence technologies, tools, and solutions of the Fourth Industrial Revolution.

Metaverse technologies are one of the most important tools of Robotisation of Marketing (RM), where the concept of RM refers to the use of artificial intelligence technologies to reach the target audience, automation of the advertising content, and to forecast

the consumers behaviour of certain audiences.

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Metaverse technologies are one of the most important technologies of Robotisation of Marketing (RM), which rely on two different types of technologies: digital technologies and physical technologies, and both have many tools and solutions that can play a significant role in the Robotisation of Marketing era.

Physical technologies in RM are all the technologies that can be touched as devices, or any kind of tools and solutions that can transmit content, whether it is through live broadcasting, or traditional publishing.

Virtual and Augmented Reality tools and solutions (the main tools of the Metaverse) are the primary dynamic tools for accelerating Robotisation of Marketing. It allows the audience to simulate reality in

different ways.

Through Robotisation of Marketing, virtual reality technologies can play important roles in data collection, classification and distribution, and thus become increasingly necessary for the processing of big data for companies, as well as dealing with different tasks, as it can offer different prospects for organisations to support communication and content transmission such as: internal communication and collaboration For workforce, workforce training and simulation, customer service, in addition to managing marketing and advertising maps.

Digital (virtual) reality technologies, especially augmented and virtual reality, can enhance the strength of the commercial identity of organisations or companies, and also support brand promotion in Robotisation of Marketing, that would enhance the experience of identifying places, services or products in a live and direct way.

- **Reality Media vs. Virtual Media**

When we are talking about the future of Metaverse, it is difficult

to predict the growth of Metaverse globally in the way that Facebook aspires to, due to the presence of several technological challenges on the one hand regulation challenges too.

- **Technological Challenges**

At the level of technological challenges, there are five challenges are facing the growth of Metaverse over the next five years:

1- The varying speed of the Internet around the world: There are some countries that started their experiments on the 5G networks, and others that work with the 4G, and many countries around the world are still stuck in the 3G networks, which makes the enjoyment of any new technologies provided by Metaverse subject to the availability of fast Internet around the clock. This presents a major challenge to the success of Metaverse on a global scale.

2- People's Privacy: In the world of Metaverse, every user needs a connection that can be uniquely identifiable (similar to an IP address). This means that a headset can be used to track and locate people against their will. Individuals who use camera devices

with Metaverse services and devices can be used to extract data.

3- Interoperability. Right now, even so-called Metaverse precursors such as “Fortnite” do not allow players to recreate their own user-generated content (UGC) on other platforms. To allow for true interoperability between platforms, the corporations that own these platforms must relinquish some control over their player bases’ content and user experience. This process is already underway. Sony, a notorious holdout against cross-platform play, recently moved to allow PlayStation users to more frequently interact with players on other consoles⁸.

If this feature will not be existing, Metaverse may face big challenges and become less popular globally.

4- Increasing the gap between developing and developed countries in relying on such technologies, as Metaverse requires advanced technologies and tools, which may be completely far from many poor countries, and their infrastructure cannot bear or deal with, which is a great challenge facing the spread of Metaverse globally.

5- Enhancing trust between Metaverse and competing

companies and ensuring the flow of revenue away from technical and competitive problems, as Metaverse must ensure the confidence of the major players in the world of marketing and digital games, ensure revenue flow and reach the audience, and ensure the continuity of the virtual work environment away from the problems of closure by governments. Giant companies cannot invest millions of dollars in virtual space without providing guarantees of securing their investments in the future.

- **Legislative and Regulatory Challenges**

A- Professional and ethical rules: For publishing content and Intellectual Property Rights (IPRs), professional rules governing such technologies, and penetrating the privacy of others, are all challenges that Metaverse will face in the future.

For instance; How Can regulations be applied against ethical violations between users in different countries, while users are not completely identified.

There are many, many legal challenges that need a world code of ethics, and global organizations

implement such legislation and ethical rules. It is difficult especially in light of the different legislation from one country to another. As we can see now t many countries and organizations have big issues in setting ethical or professional rules for artificial intelligence technologies, tools and solutions of the Fourth Industrial Revolution, so how can control legislation be established for Metaverse.

The European Union is drafting new digital rules for the 27-nation bloc that call for reining in big “digital gatekeepers,” requiring them to be more transparent about their algorithms that determine what people see on their feeds and making them more accountable for content on their platforms, which will be changed all the future rules in Metaverse.

Metaverse will also have legal implications. One issue will be collaboration and interoperability among different Metaverse creators. If the purpose of the Metaverse is to allow people to interact in a digital world, each Metaverse should be accessible from all devices and headsets. This may involve technology companies having to agree to certain standards for a metaverse so that they can

interoperate among different creators, or each company will have to comply with the technology constraints built by its predecessors and license the rights to use another company’s underlying technology in order to build its own Metaverse⁹.

B- Digital Gatekeeper: It means the challenges in which Metaverse collides with the authority of countries and governments, Metaverse will face the same challenges if it does not find a specific mechanism to control violations or fake content against some governments and international organisations.

The Exploratory Study: Marketing Experts and the Uses of Metaverse

*In-Depth 15 Interviews for
Marketing Experts*

- **Study objectives:**

1. This study seeks to examine the extent awareness of promotional and advertising content makers with the new technologies offered by Metaverse in the marketing content industry.
2. This study aims to clarify the extent to which some international companies rely on virtual or augmented reality technologies in the presentation of products and services, as a first step in the world of Metaverse.
3. This study is to Recognize the experience of promotional content makers (marketing experts) in training or actual use of some Robotisation of Marketing technologies or Metaverse.
4. It identifies the most important features that Metaverse can provide in the

content marketing industry.

5. This study aims to investigate the challenges that may face marketing experts and prevent their use of Metaverse technologies in the marketing industry, and reaching out to the target audience.

- **Research methodology**

The exploratory study seeks to collect all available information related to a new phenomenon, with the aim of identifying its features and foreseeing its future.

As the current study aims to collect all information about Metaverse and the marketing industry, and the extent to which marketing experts rely on these technologies now or in the future, with a description of the most important challenges that experts in the marketing sector may face about the use of these technologies or their effectiveness in reaching out to the target audiences. Through In-depth Interviews for 15 experts in marketing and advertising were met through In-depth interviews for 15 local and international companies in : “UAE, United States, India” through

a questionnaire form and phone calls, and the study aimed at the following:

1. To define the extent to which marketing experts have adopted or experienced Metaverse technologies.
2. To identify the reasons for the reluctance of some to go into that experiments.
3. To determine the most important features that Metaverse would provide to marketers.
4. To define the most important challenges facing marketing experts when using Metaverse in advertising for products and services.

By analysing the results of in-depth interviews, several conclusions were reached, including:

First: 85% of the study sample did not experience Metaverse in creating any content, or at least the experiment of using it, for several reasons, namely:

1. These tools have not yet been adopted by the companies or institutions in which they work.
2. Some consider that

Metaverse is not important in reaching or influencing the target audience because these technologies are not widely spread at the present.

3. It cannot be relied upon on a large or daily basis in marketing content for various services or products.
4. Their belief that these technologies can only be used in games or promoting museums and tourist places only.

Second: The remaining 15% of the sample is distributed between: Only 5% used Metaverse as an experiment or practical training through virtual or augmented reality technologies, and on a small scale to promote some commodities such as: watches, or hotels.

As for only 10%, they practiced the work as an individual training only, and to identify the most important uses of Metaverse in marketing in general, without actual use.

Third: The most important advantages that Metaverse can provide to marketers, according to the analysis of the answers of the analytical study samples were the following:

1. Providing a virtual environment that resembles a workplace, a store, or a local market.
2. Measuring the public's natural reactions to the offered services or products without meeting them face to face.
3. It is a more advanced and effective way to display some services or products in light of the outbreak of the Covid-19 pandemic, and it will provide a creative environment for marketing.
4. Believing that Metaverse is only one of the social media, and promoting through those apps does not require all the effort and announced material costs.

Fourth: The reasons for the reluctance of some to go into Metaverse experience:

1. Some considered that Metaverse is an imaginary world that has nothing to do with reality, and it still has years to go until it can be used by the public.
2. Going through Metaverse experience requires certain skills, and training in technologies and tools that are not currently available.
3. Some people think it has no value now, as direct marketing ways and less

reliance on machines and technological solutions are more effective from their point of view, especially in the field of real estate or renting.

Outcomes

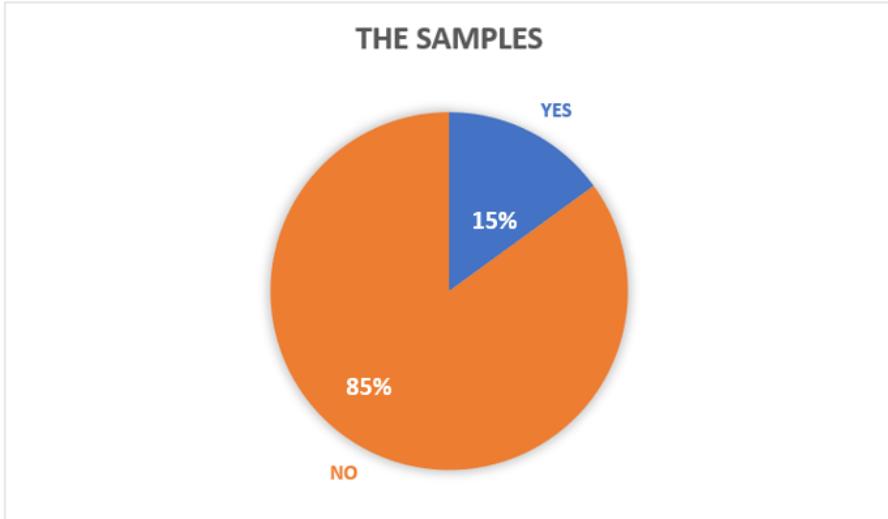
1. Metaverse technologies may create new content, but it loses the chances of its further spread because of a lack of many technologies in some countries, and the lack of awareness of many advertising and marketing specialists of the nature of these new tools and applications.
2. Metaverse is still mysterious to many media and marketing experts, and they need to show the most important features of these technologies, and what it can offer in the production of content or marketing for services and products, and what is different from what we currently gain from artificial intelligence and virtual and augmented reality.
3. The 7G Journalism is a form of mass media that relies entirely on advanced technologies of the Fourth and Fifth Industrial Revolutions.
4. The success of the Metaverse experiment depends on addressing the challenges and problems that may arise from violating communities' and individuals' privacy, in addition to ensuring the existence of Metaverse ethical guidelines and to ensure that the Meta world does not conflict with the laws of countries or the culture of local communities.
5. There is a need to bridge the technological gap between developing and developed countries to ensure the spread and success of that experience.

Study Graphs

Graphs	Subject
1	Study samples' uses of Metaverse technologies or virtual and augmented reality tools and solutions in marketing and advertising.
2	Reasons for the study sample's reluctance to use Metaverse or virtual reality technologies in marketing or advertising.
3	Challenges are facing Metaverse technologies in marketing.
4	Advantages that Metaverse can provide in marketing and advertising.
5	Reasons behind the reluctance of some marketing experts to just learn any of the technologies of Metaverse or virtual and augmented reality in the marketing and advertising.

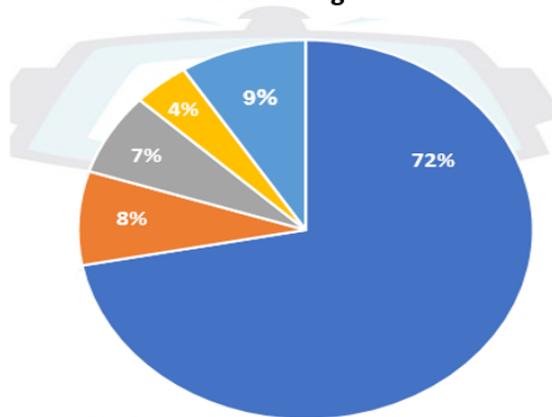
Graph No. 1

Have you tried to use Metaverses in a marketing experience or reaching to any of your target audience?



Graph No. 2

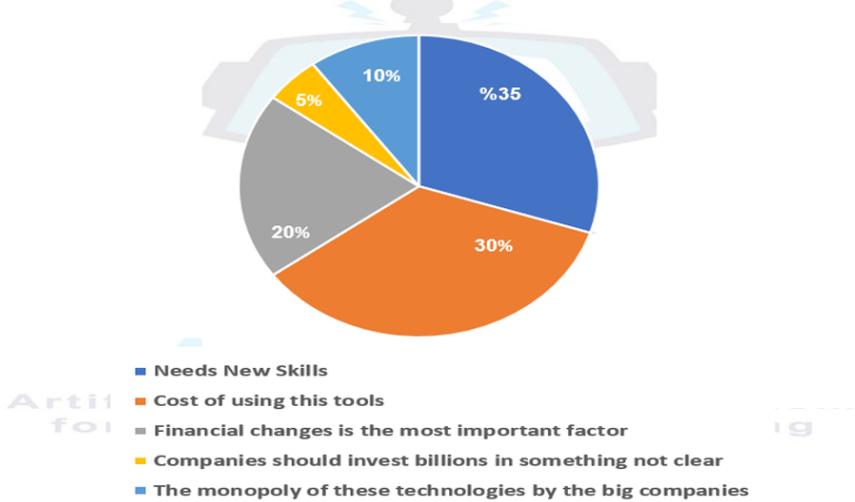
85% of the study samples did not experience Metaverse in creating any content, for the following reasons:



- The tools have not yet been adopted yet
- Metaverse is not important in reaching or influencing the target audience
- It cannot be relied upon on a large or daily basis in marketing content
- these technologies can only be used in games or promoting museums and tourist
- Our audiences are not using these technologies yet

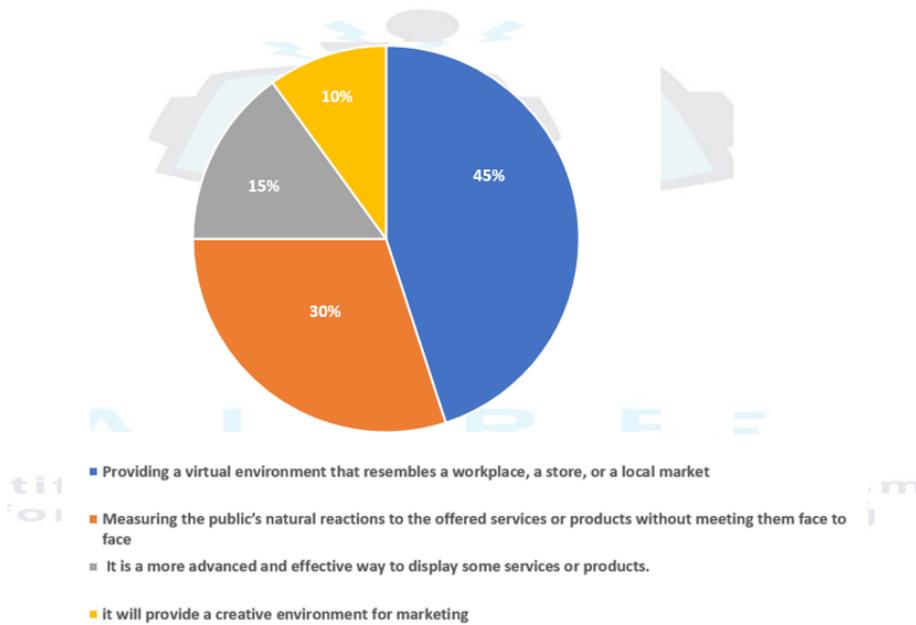
Graph No. 3

What kind of challenges do you think it will face marketers to use Metaverses in reaching out to their targeting audience or to promote a new product or service?



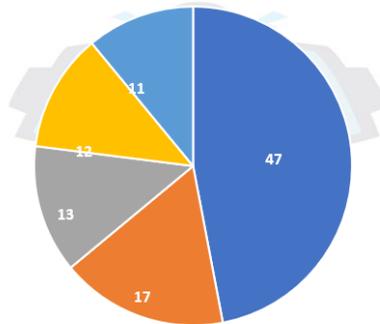
Graph No. 4

The most important advantages that Metaverse can provide to marketers:



Graph No. 5

Main reasons for the reluctance of some marketing experts to go into Metaverse experiment :



- Metaverse is an imaginary world that has nothing to do with reality
- Metaverse still needs years to go until it can be used by the public
- Metaverse experience requires certain skills, and training in technologies and tools
- Metaverse has no value now, as direct marketing are more effective
- Metaverse is only one of the social media tools

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The Author

Mohamed Abdulzاهر, PhD

PhD in Intelligence-Integrated communications and Artificial Intelligence Journalism, Author, and Pioneer of AI Journalism. Abdulzاهر work spans over 80 papers and reports (English and Arabic) in media studies, Artificial Intelligence Journalism and Intelligence-Integrated Public Relations (IIPR), and 12 books on media and AI in both Arabic and English languages.

Abdulzاهر has created many new concepts in media and AI such as:

Artificial Intelligence Journalism, 7G Journalism, Robotization of Marketing, Blockchained-News, Covidization of Media Industry, Intelligence-Integrated Public Relations, Abdulzاهر Artificial intelligence Journalism Model of Communication, Artificial Intelligence Journalism and Professional Code of Ethics, Dynamic Human Skills (DHS).

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Arab Journalists' and Influencers' Awareness of AI Journalism Technologies in Managing Social Media Content

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Abstract:

Since the advent of social media, journalism has changed and media organizations work to provide good content on different social media platforms that meets the needs of the audience after leaving traditional media and becoming smart users. With this huge amount of data and information, along with the beginning of the fourth industrial revolution era with its advanced technologies, various social networking sites have used artificial intelligence in a number of directions, especially techniques related to text, image, and video analysis. to remove inappropriate and misleading content, especially during the Covid-19 crisis.

Artificial intelligence techniques have also been widely used in marketing, digital customer service, as well as content creation, analytics, and distribution applications.

Through this study, we wanted to know the level of awareness among Arab journalists about artificial intelligence techniques used on different and most widely used social media platforms in Arab world. The aim of the survey is to provide practical recommendations for media organizations to improve

their performance on social media and to help journalists to develop their skills to benefit from the use of artificial intelligence technologies on social networks in their work.

Keywords: AI Technologies, Social Media, AI in social media, Journalists, AI Journalism, Arab Media, Journalism

Introduction:

Social media is defined as web-based and mobile-based Internet applications that allow the creation, access and exchange of user-generated content that is ubiquitously accessible. [1]

Social media development started with a simple platform. GeoCities was one of the first social networking services launched in November 1994, followed by Classmates.com in December 1995 and SixDegrees.com in May 1997[2].

SixDegrees is the first online business social media platform created by real people using their real names.[3] The blogging platforms began in 1998, with messaging platforms such as Yahoo Messenger and MSN Messenger. 2004 marked the golden age of social media with the launch of

Facebook, today's most popular social networking service. In 2006, launched Twitter, one of the most popular social networking sites in the world. In 2010, Instagram launched a photo / video sharing and social media service. In 2011, Snapchat, a photo / video sharing and social media service, was launched. And in 2017, TikTok, launched as a short video sharing and social media service.[4] It is presumed that the popularity of social media is increasing because smartphones are becoming more popular on a daily basis. As of October 2021, up to 4.55 billion social media users are using smartphones around the world.[5]

The impact of social media on journalism is more than just social networking and the internet has contributed to the fastest delivery of news from different sources. Engagement just makes it easier for producers and audiences to reach out and develop a relationship with the published news source.[6]

Roles of journalists that previously included; Collecting information, providing feedback for feedback and promoting their work has had a significant change. The impact of social media on journalism is diverse and has many

advantages and disadvantages.[7]

Social networks allow people to create and share interesting ideas with their followers or fans. Every major news organization is involved in the world of social media, considering its extraordinary news-gathering capabilities, its potential as an audience acquisition tool, and as a way to deliver news.[8]

Especially in the days of pandemics, protests, economic downturns, consumers continue to move away from traditional media sources for their news and are turning to messaging services and more social media for finding news." These changes make news available 24/7; instantly; available on all platforms; including mobile phones. Users can also control what they see in their feed by deleting stories or sources they don't want to see.[9]

Aim and research questions:

This survey is trying to answer the following questions:

1. Have Arab journalists interacted with AI technologies?
2. Which AI technologies did

they use?

3. Did they know about AI technologies used on Facebook?
4. Did they know AI tec. that twitter, Instagram snapchat, Tiktok are using?
5. How did AI technologies used on social media affect their experience?
6. What are their fears of using AI technologies in social media?

Methodology:

This survey is based on online interviews with 56 Arab journalists from 9 Arab countries (Egypt, UAE, Jordan, Palestine, Bahrain , Saudi Arabia, Tunisia, Yemen and Morocco). All interviews take place in January 2022.

Terminology:

Starting with definitions of some of the key techniques related to this research:

- Artificial Intelligence (AI) the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent

beings[10].

- Social Media Newsroom (SMN) Social media newsrooms are intended to encourage dialogue and information sharing. Content is accessible to more than just journalists, but to all those with whom the company engages such as bloggers, their prospects, customers, business partners and investors[11].
- Awareness knowledge that something exists, or understanding of a situation or subject at the present time based on information or experience[12].
- AI Social Media Awareness AI Social media awareness refers to the knowledge and practical use of artificial intelligence technologies in social media channels for creating, sharing and analyzing content.
- AI Journalism is where the media will seek to use technologies of AI and 4IR in creating, publishing, and sharing the content[13].

AI Journalism communicator skills:[14]

AI Journalism Media Communicators must have extensive knowledge and experience of :

- Creative writing skills that are compatible with the new skilled and intelligent audience, who has many options and tools, such as robots or artificial intelligence technologies.
- Continuous talent developments of Media Communicators in selecting the right tools and adapting in a way that suits the target audience and delivering the required content.
- Media big players should provide various training courses on the fourth industrial revolution technologies and how it can be used in design the future of artificial intelligence journalism.
- upgrading new tools for artificial intelligence journalism, and applying them within Media companies and universities.
- Fake news: An academically discredited and yet widely used term that encompasses the whole spectrum of meanings related to untruths, from misinformation to disinformation from half-truths to plain lies. Its usage is mostly

related to false information spread on social media.[15]

AI Technologies:[16]

1. Speech Recognition is used to convert and transform human speech into a useful and comprehensive format for computer applications to process.
2. Machine Learning Platforms Machine Learning objective is to develop new techniques enabling computers to learn and hence become more intelligent. With the help of algorithms, APIs (application programming interface), development, training tools, big data and applications, machine learning platforms are becoming more popular. They are widely used for the purpose of categorization and prediction.
3. Virtual Agents A virtual agent refers to a computer agent or a program that is capable of interacting effectively with humans. Trending on charts top 15 hot artificial intelligence technologies, currently, it is used in customer service through

- Chat bots as well as a smart home manager.
4. Deep Learning Platforms is a form of machine Learning that duplicates the neural circuits of the human brain to process data and create patterns for decision making. In this unique technology, algorithms use artificial neural networks.
 5. Robotic Process Automation refers to the functioning of corporate processes due to the mimicking human tasks and automating them. In this particular sphere, it is important to bear in mind that AI is not meant to replace humans, but to support and complement their skills and talent.
 6. Text Analytics and Natural Language Processing (NLP) Natural Language Processing focuses on the interactions between human languages and computers. It uses text analytics to analyze the structure of sentences as well as their interpretation and intention through machine learning.
 7. Emotion Recognition This kind of AI technology enables emotions expressed by humans to be read and interpreted using advanced image processing or audio data processing. Law enforcers often use thus technology during interrogation.
 8. Image Recognition Image recognition refers to the process of identifying and detecting a feature in a video or an image.
 9. Deep fake: This is the negative form of a broader concept of 'synthetic media'. Audio and video altered through machine learning and deep learning techniques for maximum, real-time realism in fakery. The term originally comes from a Reddit user that, in 2017, used such techniques to realistically and dynamically add faces of celebrities to pornographic content.[17]

Theoretical Frame Work:

Social Media History:

1. First Era – 1980s: Arrival of Social Media

The arrival of social media applications coincides with the Internet's first use by private individuals established in 1980 by Tom Truscott and Jim Ellis from Duke University, was the most popular discussion system at that time.

2. Second Era – 1990s: Fading of Social Media

During the second era of social media, user-generated content heavily lost in importance due to the fact that more and more companies started to make use of the Internet for their purposes While the term “weblog” was introduced by Jorn Barger not before the end of 1997.

3. Third Era – 2000s: Rising of Social Media

With the dot-com bubble bursting in 2001, social media came back into the game. “It will take all of five or 10 minutes.” On February

4, 2004, Marc Zuckerberg launched Facebook, Founded on February 14, 2005, YouTube's first video entitled “Me at the zoo” showed co-founder Jawed Karim at the San Diego Zoo and was uploaded on April 23 of the same year. And Twitter, launched on July 15, 2006.

4. Fourth Era–2010: Mobilizing of Social Media

The fourth era of social media is characterized by the arrival of so-called mobile social media such as Foursquare,i.e., that allowed users to access social media via a mobile device.[18]

5. Fifth Era–2013: Automation of social media

It started with the launching of Facebook AI lab called “FAIR” in 2013 which started expertise using machine learning and Natural Language Processing .

The Fifth Era ..Automation of social media

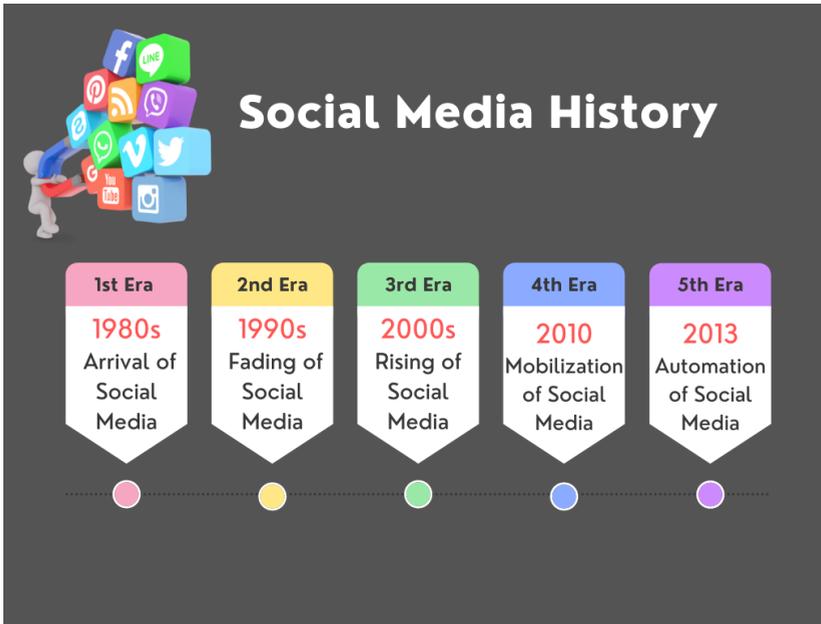


Figure (1)
Social media history

News organizations are using machine learning, natural language processing, and other artificial intelligence technologies to automate tasks to save time, money and improve efficiency. AI now powers a growing number of tools journalists use to collect, create and distribute content.

Using these advanced algorithms to process vast amounts of data from press releases, blog posts, reviews, social media posts, images, videos and a variety of unstructured content, news organizations can quickly track breaking news

and create an accurate summary of changing content situations. Also it uses machine learning-based natural language processing to help analyze paper documents, such as expenditures and receipts for news operations, and to help plan news operations. This includes tools for automating the transcription process, tagging images and videos, and creating stories.

Some of these tools are already being used by journalists to identify misleading actors, map the spread of false narratives, and improve journalism literacy. This often

involves using the power of AI to analyze social media posts on a large scale, understand what they are saying, and then extract insights from that information. When this data is applied properly, AI tools for social media can help track global brand equity, identify new consumer trends, find new target audiences, monitor brand reputation and identify new promising areas for social media promotion. Major social networks such as Facebook, Snapchat and LinkedIn use advanced artificial intelligence and machine learning for their platforms to keep their audiences engaged and improve their experience.

Social networks such as Facebook, Instagram, Twitter, YouTube, and TikTok rely heavily on artificial intelligence algorithms to classify and recommend content. In addition to showing items that match our opinion, social media platforms like Facebook, Twitter, YouTube, and Instagram place popular content at the top of our screens and show us how many people have liked and shared something. This means that the content that Facebook, Twitter, and other platforms automatically appear on our social feeds is often based on likes, retweets, and comments from those who choose

to intervene. Twitter and Facebook allow reporters to rate topics as they develop, and the virality of social media means these comments can reach readers far beyond their industry or geography.

For smaller publishers that need to have limited staff or resources, this means fewer people are required to post on social media. By automating early publishing, publishers can spend their time curating existing content for republishing and/or develop other aspects of their social media strategy such as engaging with their community.

While social media can be useful for reporting in different ways, it can be helpful to look at the data we can collect from social media platforms for two purposes. We are also developing systems capable of detecting trends in various media modes, tracking the origin, distribution and signs of malicious intent in video, audio and text formats.

Most of the applications that use AI in the news industry rely on grants from big tech companies such as Google and Facebook to develop them.[19] This brings serious challenges to the development of technological innovations in news

media since these organizations decide who receives their money, when they receive it, and where it goes.

According to markets and markets, the AI for the social media market is projected to grow more than \$2.1 billion by 2023.[20]

The AI Market in Social Media is valued at USD 815.33 million in 2020 and is expected to reach USD 3,714.89 million by 2026, recording a CAGR of 28.77%, during the forecast period of 2021-2026. Social media has become one of the primary sources of customer intelligence data. With the growth in social media users, the demand for AI solutions to understand customer preferences is projected to increase over the forecast period.[21]

AI is fundamentally part of how today's social media function. For instance, the most popular social networks like Facebook, LinkedIn, Instagram, Snapchat, etc., leverage machine learning models to offer job recommendations, suggest people you might like to connect, track your real-time engagements, overlay filters that move with your face in real-time, identify visuals, and more. The integration of intelligent automation technologies into social architecture reduces

manual efforts and increases engagement to optimize social outcomes.

According to Gartner's report[22], 37% of companies are leveraging AI for content creation and management. AI can optimize social content by creating data specific content pieces to create personalized marketing campaigns for improved on-page engagements. AI has become an integral part of every digital strategy and is already used in a variety of applications. Survey results show that 52 percent of telco organizations deploy chatbots and 38 percent of healthcare providers rely on computer-assisted diagnostics. Other operational use cases for AI are fraud protection and consumer fragmentation.

AI Technologies applications on social media

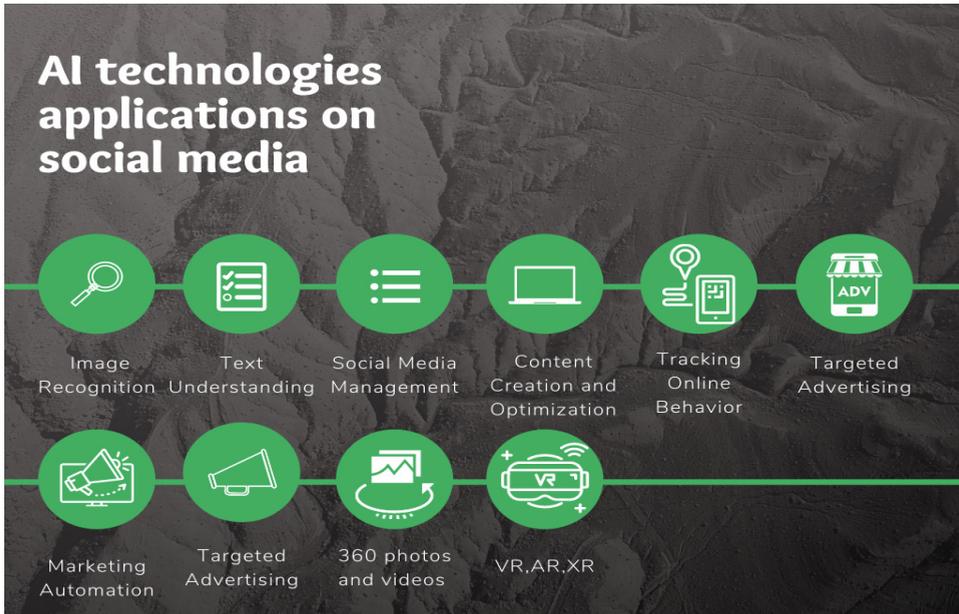


Figure (2)

AI tec. applications on social media

1. Image recognition

Social media platforms are saturated with images. Advanced artificial intelligence technologies can instantly scan a large number of photos, then review and organize them as needed. Facebook uses machine learning to extract specific data from images, such as product looks, brand logos, and more.

2. Face recognition

Similar to image recognition in many ways, face recognition is a phenomenon unique enough to

be discussed on its own. In 2010, Facebook became the first social platform to implement facial recognition.

3. Text comprehension

Machine learning algorithms not only analyze your appearance, but also how you communicate, interact with different content, react to different topics, and more. All thanks to another catchy buzzword called natural language processing (NLP). Google Translate,

Grammarly, Microsoft Word, Alexa and all NLP-based technologies and tools to decode human language and respond accordingly. Text decoding algorithms are widely used on most social media platforms. Facebook has successfully used a deep learning tool called Deeptext to filter out huge text data found on both Facebook and Instagram.

The two main uses of DeepText are enhancing content that people like and removing spam or inappropriate content. Facebook also claims its algorithms help prevent suicide, hate speech, and fake content.

4. Social media management

Perhaps the most immediate and imminent impact of artificial intelligence is on social media management. Today, most companies have a presence on some social networks. This does two things: expands the business' reach to audiences and complicates the social media management process.

AI has proven to be a reliable assistant in social media content planning and distribution. There are many smart tools that analyze post engagement, collect valuable data from customer feedback, and

make strategic recommendations about posts. AI can also help create messages. Some tools contract larger texts, such as blog articles.

AI can also help create messages. Some tools contract larger texts, such as blog posts, into short 12-sentence reports, suitable for posting on social media. Abbreviated versions are tailored to each social media platform, subject to platform rules and character limits. AI systems to automate the management of social networks such as HubSpot, Cortex, Social Bakers and Lately.

5. Create and optimize content

Content creation requires two key skills: creativity and strong research capabilities. While AI may lack the former, it certainly has the latter. The impressive ability of computer intelligence to do in-depth studies in a very short time has made people wonder if AI is a skilled content writer. Besides written content, we have visual type Render Forest [23]uses AI to translate text into logos or videos. AI-based tools have also proven to be very useful for content optimization. By analyzing the top search results on a particular topic, the AI will make recommendations

on how to improve your content for search engines.[24] Clearscope is a great example of AI-powered content optimization software.

6. Tracking Online Behavior

Recognizing and following patterns is an AI superpower. It can collect and provide you with invaluable data on users' browsing habits, average time on site, bounce rate, clicks, views, and more. It will be much easier to determine why your visitors are leaving, which parts of your website or social media accounts are active, and which need tweaking. It is essential to be aware of user behavior from different segments of your target audience, especially if your audience is large or diverse. You can then tailor your marketing message to each customer group and increase your chances of capturing their attention and building a stronger connection[25].

7. Targeted Advertising

One of the most frequent uses of Artificial Intelligence is advertising. By accessing metadata containing all the necessary information about customer demographics and interests, you can then modify your

marketing campaigns and deliver them to the right audience.

Various artificial intelligence and deep learning tools can help track the performance of advertising campaigns and keep up with niche industry trends. Researching and analyzing competitors is also infinitely easier and more efficient with AI. As mentioned earlier, modern tools can also write optimized social ads for better CTR and higher conversions.

8. Robotic Marketing

Sales and marketing teams and departments have adopted AI and have reaped the rewards in return. Methods of incorporating AI through automated customer segmentation, customer data integration, and campaign management are widely used. Responding to all customer inquiries immediately is a challenge for many companies. But with automating certain aspects of customer service, customers get a quicker response and you gain customer trust.

9. 360 photos and videos

One of the primary media acknowledged to put up a 360-degree video is: MSNBC.

com. In 2005, this American information channel launched its first round video, which changed into approximately Hurricane Katrina.

This commenced a level of experimentation with inside the media everywhere in the world, an technology deeply marked by way of means of collaboration among journalistic businesses and massive generation businesses, which includes Samsung and Google. In many cases, those collaborations served and nevertheless function an incentive to check 360-diploma video and the narrative opportunities of 360 video storytelling. The New York Times premiered in November 2015 it's already famous The Displaced, a work on the lives of three children fleeing war in their home countries. It should be noted that, along with this piece, the newspaper also launched its first mobile immersive content app, NYT VR. In 2015, YouTube and Facebook materialized their interest in these contents by allowing users to upload and play 360-degree videos on their respective platforms. Currently, media such as The New York Times , BBC, Russia Today ,The Guardian, Euronews, Le Monde. consider the 360-degree video report as a new aspect of the

traditional journalistic genre.[26]

VR , AR , XR on social media

The global Augmented Reality (AR) and Virtual Reality (VR) market is estimated to generate revenue of USD 28.2 billion in 2020 and is expected to reach USD 165.3 billion by 2027, or GR 50.6 over the forecast period. The growing response to this technology by consumers in developed and developing economies, the rapid adoption of AR and VR technologies in different sectors of the industry, and the combination between AR and VR to develop mixed reality that can be deployed for future applications, driving the growth of the market.[27]

Seamlessly integrated augmented reality is already a part of many social media users' online experiences. In fact, AR has become such a popular feature of social media that these tools are helping to drive the widespread mainstream adoption of AR. People are also using AR through mobile-first formats like Stories. Facebook reports that across the entire Facebook app family, including Facebook and Instagram, users are

sharing over 1 billion stories every day. Facebook's studio tool, Spark AR, enables people and brands to create their own AR effects for Facebook and Instagram, then publish those effects to the social platforms and view metrics on impressions, captures, and shares.

Facebook's Big Leap Into Virtual Reality when Facebook and other social networks started, they were to post online or catch up with friends with text, photo, or video content.

Now Facebook is offering its own virtual reality social networking platform called Horizon. Facebook has stated that Horizon's mission is "to create meaningful connections between people and foster a strong sense of community for everyone who joins Horizon." They also offer easy building tools that let users collaborate with others to bring ideas to life within the VR.[28]

Facebook Horizon is currently in invite-only public beta, but since Facebook owns Oculus, it seems likely that Horizon may eventually come pre-installed on all Oculus devices.[29]

Social media platforms using AI

Facebook:

Facebook Artificial Intelligence Researchers, also known as FAIR, created in 2013 have been working to analyze and develop AI systems with the intelligence level of a human. In 2016 FAIR built fastText, a framework for rapid text classification and learning word representations that takes into account the larger morphology of the words it classifies. In a paper published in 2017, FAIR proposed a model that assigns vectors to "subword units[30]"

FastText has proved to be a vital contribution to the study and application of AI-based language understanding, and it's now available in 157 languages. Facebook uses an artificial intelligence tool called the Deep Text to monitor the comments, posts, and other data generated on Facebook to understand how people use different languages, slangs, abbreviations, and exclamation marks, to learn the context. The company is also applying ML algorithms to build its automatic AI-based translation system to

enable users from different parts of the world to translate the posts appearing in their news feed.

Facebook has also introduced chatbots in its application. It has also introduced artificial intelligence-based systems to thwart suicides. Facebook AI is the name that the social network giant gives to its internal work on artificial intelligence. Facebook AI heavily features the company's own AI research, including research papers and open source AI tools it has developed. Facebook AI also has robust commentary on the field and information on Facebook's presence at academic and commercial AI events.

There is also a Facebook AI residency program, a year-long training program where individuals work on AI projects within Facebook in tandem with the company's own researchers. Facebook doesn't just research and develop AI. The company's platform relies on the technology to work.

Facebook's image recognition (a type of AI) auto-classifies what's happening in images without human captions or tags, allowing users to search photos using keywords even if images are unannotated.

Facebook's DeepFace AI system is responsible for image identification, and at launch in 2014 it was 97 percent accurate (beating out an 85 percent accurate system used by the FBI). Recent developments also allow the company's machine learning algorithms to automatically annotate photos with text, so that they're more accessible to blind users and more easily searchable by all.

In 2016, Facebook open-sourced a number of its image recognition tools in the hopes this would accelerate facial recognition progress even faster. Facebook already uses algorithms to determine which content appears on your News Feed.

Metaverse world :

Author Neil Stephenson is credited with introducing the term "metaverse" in his 1992 science fiction novel *Snow Crash*, in which he introduced realistic avatars found in realistic 3D buildings and other virtual reality environments. Since then, various developments have paved the way for a true metaverse, an online virtual world that includes augmented reality, virtual reality, 3D holographic avatars, video, and

other media.[31]

Whether it's virtual reality (VR), augmented reality (AR) or just a screen, the metaverse promises to provide a greater overlap between our digital and physical lives in terms of wealth, socialization, productivity, shopping and entertainment.

On October 28, 2021, Mark Zuckerberg announced the beginning of a new era which he calls the next chapter for the Internet and the next chapter for Facebook. Metaverse world.

“The defining quality of the metaverse will be a feeling of presence — like you are right there with another person or in another place you'll be able to do almost anything you can imagine get together with friends and family, work, learn, play, shop, create as well as completely new experiences that don't really fit how we think about computers or phones today” [32]

In January 2022 Meta Introduced AI Research SuperCluster (RSC), which is among the fastest AI supercomputers running today and will be the fastest in the world once fully built out in mid-2022. With AI technologies it can currently

perform tasks like translating text between languages and helping identify potentially harmful content[33].

The new RSC will help Meta's AI researchers build better AI models that can learn from trillions of examples; work across hundreds of different languages; seamlessly analyze text, images and video together; develop new augmented reality tools and more. Ultimately, the work done with RSC will pave the way toward building technologies for the next major computing platform — the metaverse, where AI-driven applications and products will play an important role.[34]

Twitter:

One of the many ways Twitter uses AI in its platform is to understand what tweets recommendations to suggest on the users' timelines. It aims to recommend the most relevant tweets to the users for an increased personalized experience. Twitter also uses artificial intelligence to fight against racist, homophobic, islamophobic, and other inappropriate remarks. In the UK and Germany, the company has started levying fines to prevent hate

speeches, fake news, and illegal content on the platform.

Twitter uses IBM Watson and natural language processing (NLP) to track and remove abusive messages. Watson is not only capable of understanding the natural language but also interferes with the tones in the messages and the meanings of different visuals, therefore, it can analyze millions of obscene and inappropriate messages in seconds.

Instagram:

Millions of people use Instagram as a means to share images, videos, and statuses with friends and families. Facebook-owned Instagram has also started implementing big data and artificial intelligence to enhance user experience, filter spam, and boost the results of target advertising. With the help of tags and trending information, the platform users can find photos of a particular activity, place, event, restaurants, food, and discovery experiences.

Recently, in a study, Instagram has used over 100 million photos available on the platform to learn more about global clothing patterns. Like any other social

media platform, Instagram uses AI to fight against hate speeches and cyber bullying. It uses Deep Text to identify these messages and posts and remove them from the platform.

Snapchat:

Snapchat pioneered the use of AR filters and lenses that add overlays like mustaches, sunglasses, rainbows, or rabbit ears to users' faces, allowing them to view those features moving with them as they snap photos or shoot videos. Now that AR technology is being harnessed to provide more immersive shopping experiences and potentially turn Snapchat into an e-commerce platform.

Snapchat is using machine learning models and augmented reality technology, to superimpose digital animation on videos, like windshield wipers on an individual's glass or droplets of water falling, and other feats like that.

Tik Tok

Tik Tok uses artificial intelligence to promote certain content to different consumers and helps content creators create videos with music, filters and other enhancements. Tik Tok is the

leading short video sharing platform with over 600 million users in more than 150 countries around the world (pictured below). Popular among teens and millennials, TikTok, known as Douyin in China, is a social media app for creating and sharing short videos. When users open TikTok for the first time, it shows 8 trending videos with different trends, music and themes. [35]

What makes TikTok different from other platforms that use recommendation algorithms like Netflix, Facebook and YouTube is that this platform completely interprets and decides what the user will watch instead of providing a list of recommendations to users like Netflix and YouTube. [36]

While ads have caught TikTok's attention, its groundbreaking artificial intelligence is what keeps users engaged. Unlike social networks like Instagram or YouTube, Tik Tok accounts without followers can get millions of views on a single video due to the viral nature of the algorithms. TikTok on Wednesday revealed some of the elusive mechanisms behind the precious algorithm that keeps hundreds of millions of users around the world on the hook for

the viral video app. TikToks AI is no longer a secret, in fact it is now on the open market. [37]

3 Key Roles AI tech. on Social Media Plays in Journalism

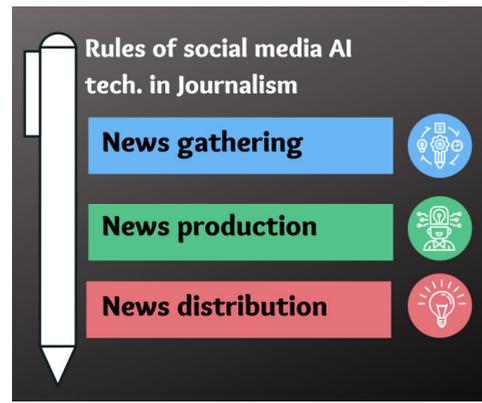


Figure (3)

Rules of social media AI tec. in Journalism

Social media currently has three key, highly valuable roles in journalism:

1. Newsgathering: sourcing of information, story idea generation, identifying trends, investigations, event or issue monitoring, extracting information or content.
2. News production: content creation, editing, packaging for different formats and

platforms, text, image and video creation, repurposing content for different audiences.

3. News distribution: personalisation, marketing, finding audiences, understanding user behavior, monetization/subscriptions.

The future of social media in the era of AI Journalism

Traditional news outlets have successfully deployed AI projects in their newsrooms, such as The New York Times (NYT), The Washington Post, and Associated Press . Furthermore, elite news organizations have to make a great deal of progress to realize what is possible with AI in their newsrooms. AI can perform many different tasks such as article generation, translation, summarization, and prediction and uses less computing power.[38]

According to Beckett report based on a survey of the state of mind and state of play in 71 news organizations from 32 different countries regarding artificial intelligence (AI) and associated technologies:[39]

Artificial intelligence (AI) as

a range of technologies including machine learning, automation and data processing is a significant part of journalism already but it is unevenly distributed.

1. Its future impact is uncertain but AI has the potential for wide-ranging and profound influence on how journalism is made and consumed.
2. The power and potential described in this report make it clear that all newsrooms should pay attention to AI.

According to Forbes,[40] The kind of new social media platform could dominate the industry in the future will be premised on a decentralized model; it will use blockchain and open-source technology with the intent to make the platform more democratic and grant its users full ownership of their accounts and profits .In this vision of the future of social media, users could have direct access to the decentralized platform's algorithms. With no central authority dictating the rules of engagement and monetization, social media is bound to become an even freer space in the future, allowing content creators to have full ownership of their following and the investments willingly offered by their follower

base.

In the Future, AI Journalism will set to create a new revolution in the media industry. News broadcasting is completely managed without human intervention except behind the scenes. AI Journalism will be dozens of times faster than social media and will be more accurate, more detailed in covering the events. Media will rely on collecting and analyzing information and data from sources such as Google, Microsoft, Facebook, Twitter, and other social media platforms to identify the most important trends of the local public. AI Journalism will have a Robot specialized in editorial sections (receive and analyze data, obtain public interests, formulate various media messages and store information.[41]

Findings:

The survey relied on interviews with 56 journalists from 9 Arab countries. It took place in January 2022. The findings are:

1. Most of Arab Journalists interacted with AI technologies on the internet

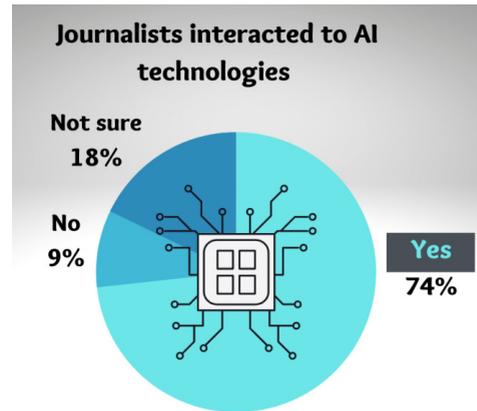


Figure (4)

Journalists interacted to AI technologies

Age of respondents was determined. The majority (16;19%) were between the ages of 30 and 34 years. Thirteen respondents were ages 40–44 years. The fewest number of respondents were between 20 and 24 years of age (see Table 1).

Age of respondents was determined. The majority (16; 19%) were between the ages of 30 and 34 years. Thirteen respondents were ages 40–44 years. The fewest number of respondents were between 20 and 24 years of age (see Table 1).

Most Arab journalists interacted with AI technologies, 74% answered yes, 9% said no and 18% said not sure. But according to other results in the survey, journalists

who answered no and were not sure were using AI technologies without knowing that these applications work with AI.

2. The most used AI Technologies by Arab journalists are Facebook recommended news and online shopping recommendations

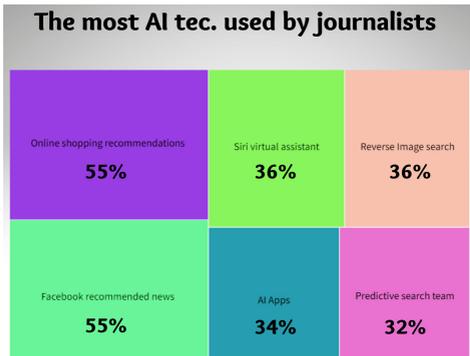


Figure (5)
The most AI tec. used by journalists

Arab journalists most used AI tec. were online shopping recommendations and Facebook recommended news with 55% to both. That means that journalists are producing and following news from Facebook as it is the most popular social media platform in the Arab countries.

3. Most Arab journalists are comfortable with social media using AI technologies

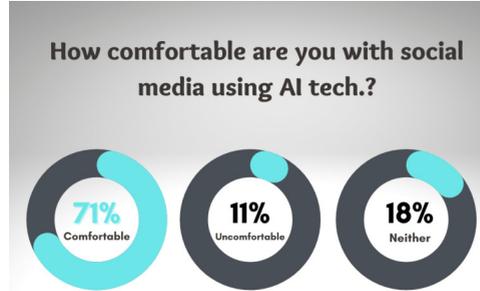


Figure (6)
Journalists feelings about using AI tec. on social media

Asking about Arab journalists' feelings about their experience using AI tec. On social media, most of them answered (comfortable 71%), (11% were not comfortable) and (18% were neither).

4. Arab journalists use facebook more than other platforms and they know about most of it's AI technologies specially those related to visual content

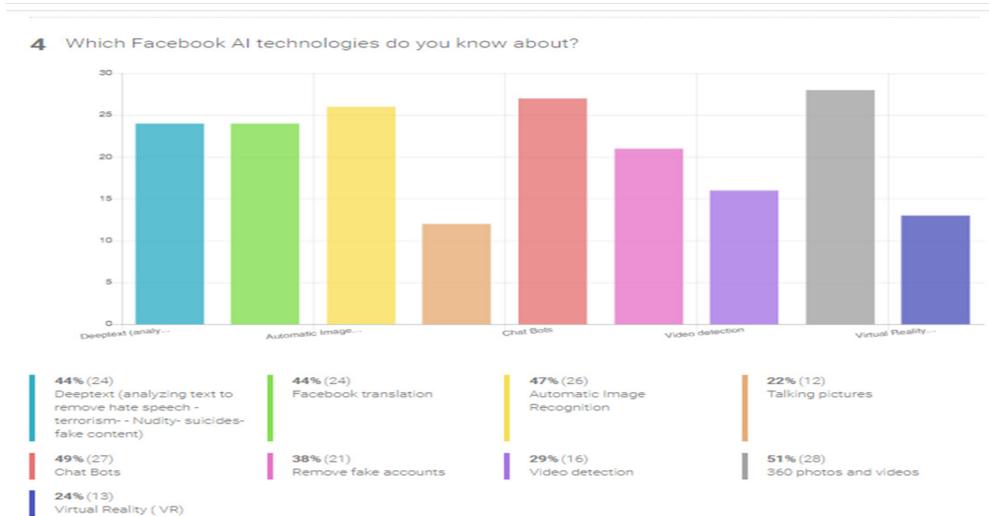


Figure (7)
Journalists knowledge of Facebook AI tec

As we mentioned before, most Arab journalists use Facebook, so they know most of AI tec. used on Facebook especially those related to visual content, as 360 photos and videos (51%), and automated image recognition (47%). They were dealing also with chat bots (49%) mostly on customer service bases not news chat bots because they are still not used in most Arabic media organizations.

They were interested with DeepText tec. and removing fake accounts, both were Facebook priorities in the time of covid-19 crisis.

5. Most journalists used facebook AI technologies recently in their work

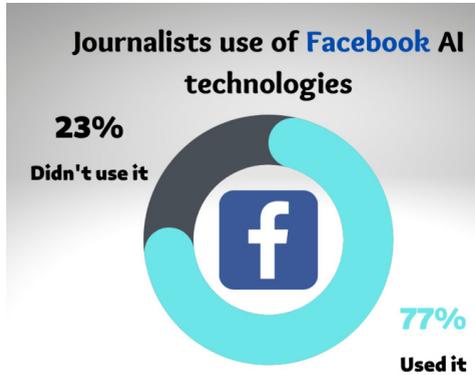


Figure (8)

Journalists using of Facebook AI tec.

Most Arab journalists used AI, Facebook tec. recently (77%) said yes, (23%) said no.

6. Hashtags analytics is the most known AI technology journalists deal with in twitter

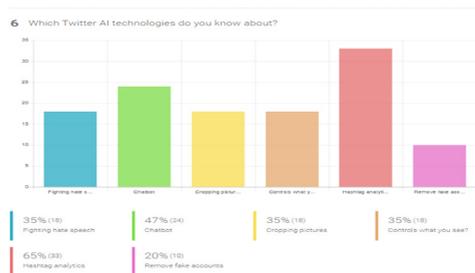


Figure (9)

Journalists knowledge of Twitter AI tec.

Twitter is not the preferred social media platform in some Arab countries, but journalists' main use of Twitter is following hashtags to create trending content.

That's why they know about hashtag analytics on Twitter (65%). It was an unexpected answer to recognize removing fake accounts as the less known AI tec. on Twitter (20%).

7. Most journalists used one of AI technologies in twitter recently (65% used it) , (35% did not).

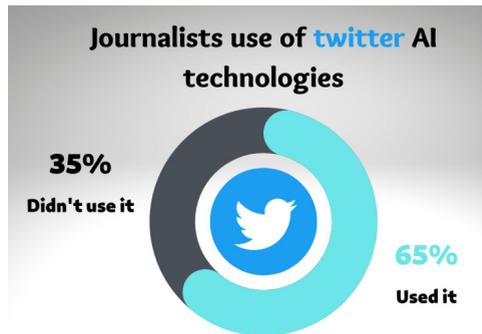


Figure (10)

Journalists use of Twitter AI tec. recently

8. Journalists don't care much about photo and video filters in Tik Tok and Snapchat

9. Trending posts is the most known AI tec. Journalists know in Instagram

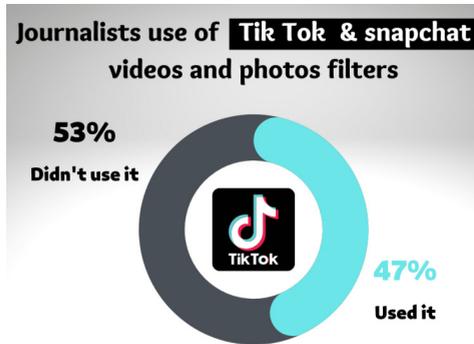


Figure (11)

Journalists use of Tik Tok and Snapcaht filters

Not all Arab journalists deal with Tik Tok and Snapchat platforms or use their AI photo filters (53%) answered no , (47%) are using it. This is due to the age of journalists answering the survey, most of them in the age between 40 to 50 years old (38%), and these two platforms attracts more younger users.

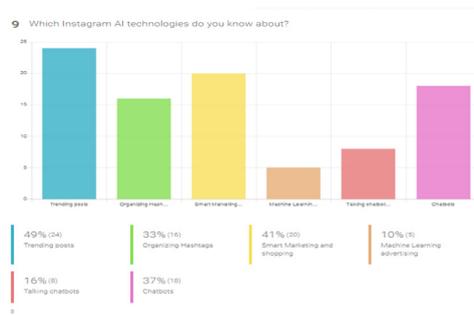


Figure (12)

Journalists knowledge of Instagram AI tec

Instagram is a famous social media platform in Arab countries because it's owned by Facebook and it presents visual content in different types. The most known AI tec. used on Instagram by Arab journalists was trending posts (49%) than comes the smart marketing and shopping (41%)and chatbots (37%).

10. Most journalists agree that AI tec. Improve their work on social media (89%) said yes and (11%) said no.

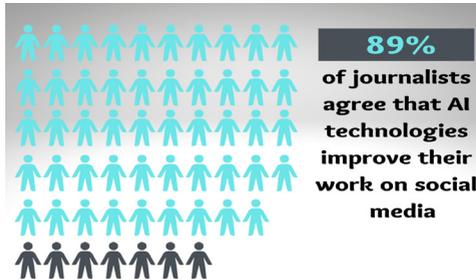


Figure (13)

AI tec. improving work for journalists

11. Using personal data and fake content are important dangers journalists are afraid of from AI tec. on social media

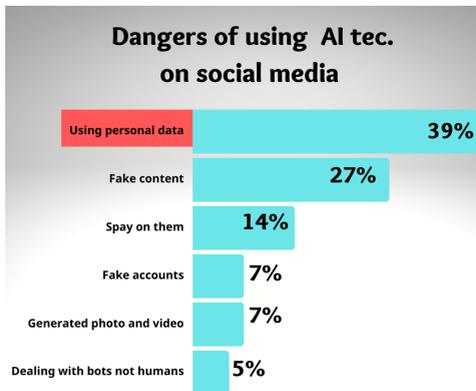


Figure (14)

Dangers of using AI tec. on social media

Arab journalists are afraid of using their personal data by AI tec.

on social media (39%).The second danger to them was fake content (27%) then spying on them (14%).

Conclusion

The study concluded that knowing AI tec. among journalists is in high depending on their daily use of social media platforms, and not because of any training through their media organizations. Some of them uses AI. Applications on social media without knowing that they are generated by AI. Journalists are interested more in AI technologies that are related to visual content (photos and videos) then marketing AI tec. like chatbots. On the contrary they must focus on fake content and text analyzing to improve their work in the time of covid-19 crisis and the challenges of deep fake content. They know most of Facebook, Instagram AI tec. but they don't know much about Twitter , Tik Tok and Snapchat. The last two platforms depend on visual content. Journalists fear of dealing with AI. tec. on social media were all about privacy and using their personal data.

The study recommended that all Arab media organizations give more interest to journalists training to

teach them more about social media platforms and how to use them and benefit from AI tec. in tracking audience, creating , publishing and marketing content? Giving fake content AI discover tools the priority of all training. Also in the age of personalized content they must use all AI analytics tools to attract their audience according to their age, place, education and interests. All these needs come after the high level knowledge of AI tec. used on social media platforms which journalists are using in their daily lives.

To all Arab journalists, it is not hard to find such training on digital media, although AI Journalism needs more Arabic literacy to spread across all Arab media organizations.

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Egyptian Journalist, Media trainer, and AI Journalism researcher, has over 23 years of experience in printed and online Media. She has a Digital Media Diploma from AUC in Cairo. Strategic planning manager at the AIJRF.

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BOOK REVIEWS

1- Globalization 4.0: The Future of Media in the Age of 7G Journalism. "Intelligence-Integrated Public Relations Model"

2- Algorithms, Automation, and News: New Directions in the Study of Computation and Journalism

3- News Media Innovation Reconsidered: Ethics and Values in a Creative Reconstruction of Journalism



Globalization 4.0:

The Future of Media in the Age of

Journalism

Intelligence-Integrated Public Relations Model

Dr. Mohamed Abdulzاهر



Globalization 4.0: The Future of Media in the Age of 7G Journalism, Intelligence-Integrated Public Relations Model”

Dr. Mohamed Abdulzاهر

Introduction

After the Artificial Intelligence Journalism era, a new type of media comes where the 7G Journalism will lead the media revolution during the rise of the 5th Industrial Revolution, which is expected to be started at the fourth decade (2040). A new era in developing, upgrading and restructuring of the media industry fully compatible with the techniques of the Fifth Industrial Revolution, whereby media institutions disappear in their traditional form and turn into millions of information centers cover everywhere around the world.

“Globalization 4.0: The Future of Media in the Age of 7G Journalism Intelligence-Integrated Public Relations Model”, is a book written by Egyptian academic and media expert Dr. Mohamed Abdulzاهر, who has coined the Artificial Intelligence Journalism

concept. This book presents thoughts on how the media industry will evolve through Artificial Intelligence Journalism and its inter-play with Fourth and Fifth Industrial Revolution, G7 Journalism, and globalisation 4.0. The book has been published in cooperation with the Badael Publishing House in Egypt and Artificial Intelligence Journalism for Research and Forecasting in UAE, is the first global forecasting portal for Artificial Intelligence (AI) Journalism.

The book’s argument

When the whilst discussions of the impact of 4IR on medicine, social sciences, media and entertainment field was well documented, there was near-zero conversation on AI’s potential impact on deep-journalism. With this in mind, the book’s main argument and *raison d’être* was to answer how the media industry will evolve through Artificial Intelligence Journalism and its inter-play with Fourth and Fifth Industrial Revolution, G7 Journalism, and globalization 4.0. The starting point was to investigate how the future of media can be shaped with the technologies of the Fourth and the Fifth Industrial

Revolutions. Simultaneously with the mega-trend of globalization and what theorists advocate in the Fifth Industrial Revolution era, where the human mind regains dominance and control once again over machines and artificial intelligence technologies, and attaches the human nature to them, the writer thought about all those ideas regarding media industry, whether concerning the Fourth Industrial Revolution and what he called “Artificial Intelligence Journalism”. Or, the shape of media and its new revolution that is coincident with the Fifth Industrial Revolution, which he has called “G7 Journalism”. In addition, it focuses on the characteristics of Globalization 4.0 era, and how it can positively impact the media industry and the fair distribution of technologies amongst nations on one hand. Finally, do not forget one of the most important topics in the book, which is related to the Artificial Intelligence Journalism and the future of public relations industry which Abdulzاهر called it “Intelligence-Integrated Public Relations Model”.

Summary of content

Published in both Arabic and

English by AIJRF, this book consists of 7 chapters under the following titles:

1. What Does Globalization 4.0 Mean?
2. Artificial Intelligence (AI) Journalism: How the Fourth Industrial Revolution Will Restore the Media Industry and Human Skills 2030
3. 7G Journalism and Post-AI Journalism: The Power of Human Microchip
4. Intelligence Integrated Public Relations Model (IIPR)
5. Robotisation of Marketing (RM)
6. Artificial intelligence (AI) Model of Communication
7. Post-Coronavirus Technological World

The book reviewed many of the new terms in media industry including: Artificial Intelligence Journalism (AI Journalism), Intelligence-Integrated Public Relations (IIPR) in the post-Digital Public Relations stage, Robotisation of Marketing (RM), Seventh Generation Journalism

(7G Journalism), The Trumpian phenomenon in managing media and public relations campaigns globally, Abdulzaher Artificial Intelligence Journalism Model of Communication, and Globalization 4.0.

In the first chapter, the author reviewed the concept of Globalization 4, and the emergence of globalization during its previous stages with the development of the industrial revolutions from the first, second and third, until the Fourth Industrial Revolution. Dr. Abdulzaher links between the great technological progress offered by the new globalization and the emergence of Artificial Intelligence Journalism, and how Globalization 4.0 can push to the era of “7G Journalism” in the thirties of the current century. **While in the second chapter**, the book shows the future of Artificial Intelligence Journalism, and how the media can be shaped until the year 2030, and also talks about the “Dynamic Skills”, and how human skills can be developed and compatible with the technologies and tools provided by the Fourth Industrial Revolution and Artificial intelligence Journalism. **In Chapter 3**, Abdulzaher has defined the seven features of the 7G Journalism

Concept, **then in chapter 4**, the author coined a new model for public relations industry, which is showing different stages of PR, from the Traditional Public Relations stage, then the Electronic PR, then the Digital PR, and finally to the smarter interactive PR, which he calls: Intelligence-Integrated Public Relations Model (IIPR). **In chapter 5**, the author described 10 features defining why Robotisation of Marketing is surpassing the Digital Marketing. After that, **in chapter 6**, the author explained “Abdulzaher Artificial Intelligence Journalism Model of Communication,” which is the first global model published by the author, as a theoretical framework on artificial intelligence journalism studies and methodological frameworks in this field. Finally, **in Chapter 7**, the author reviews the future of the world’s technology in the post-Covid-19 era, and the world’s new technologies and solutions that will be critical in Post-Coronavirus.

Strength

The book includes a set of forward-looking thoughts to forecast the future of media and technology in the post-Covid-19

period, in which the author tried to review the most prominent global trends in studying the future of the Media and Entertainment industry. He has also presented a new model to upgrade the traditional public relations industry to Integrated-Intelligence public relations, which totally relies on the Fourth Industrial Revolution technologies, and will lead to the decline of traditional public relations completely.

The book also reviews the previous concept that dr. Mohamed Abdulzاهر coined '7G Journalism' and the concept of Robotisation of Marketing, in addition to the future of technologies and solutions in the post-Covid-19, and the future of dynamic human skills compatible with the Fourth and Fifth industrial Revolutions.

Also, the book deals with an important phenomenon which is the Trumpian phenomenon in managing media and public relations campaigns globally, in reference to the way former U.S President Donald Trump managed social media and created a new model in managing public relations and global diplomacy.

Conclusion

This book represents an important starting point for students, researchers, and those interested in the field of media and artificial intelligence because of the pioneering and forward-looking issues it raises. The book is smooth and enjoyable in terms of reading, as it presents realistic, lived examples and a coherent ascending historical narrative, as well as many new and distinctive definitions and explanations suitable for academic and journalistic research in the field of AI media and entertainment industry.

The Author

Mohamed Abdulzاهر, PhD

PhD in Intelligence-Integrated communications and Artificial Intelligence Journalism, Author, and Pioneer of AI Journalism. Abdulzاهر work spans over 80 papers and reports (English and Arabic) in media studies, Artificial Intelligence Journalism and Intelligence-Integrated Public Relations (IIPR), and 12 books on media and AI in both Arabic and English languages.

Abdulzاهر has created many new concepts in media and AI such as:

Artificial Intelligence Journalism, 7G Journalism, Robotization of Marketing, Blockchained-News, Covidization of Media Industry, Intelligence-Integrated Public Relations, Abdulzاهر Artificial intelligence Journalism Model of Communication, Artificial Intelligence Journalism and Professional Code of Ethics, Dynamic Human Skills (DHS).



ALGORITHMS, AUTOMATION, AND NEWS

**NEW DIRECTIONS IN THE STUDY OF COMPUTATION
AND JOURNALISM**

Edited by
Neil Thurman, Seth C. Lewis and Jessica Kunert



Algorithms, Automation, and News: New Directions in the Study of Computation and Journalism

**By: Neil Thurman, Seth C.
Lewis, Jessica Kunert**

Published May 18, 2021 by Routledge

Introduction

Today, automated journalism is sometimes seen as an opportunity to free journalists from routine reporting, providing them with more time for complex tasks. It allows efficiency and cost-cutting, alleviating some financial burden that many news organizations face. However, automated journalism is also perceived as a threat to the authorship and quality of news and a threat to the livelihoods of human journalists.

“Algorithms, Automation and News” is a 2021 issued book that answers emerging AI opportunities in making news. It was supplemented with interviews, workshops, conversations at journalism conferences and many authors helped set it up. This work was funded by Routledge 2 Park

Square, Milton Park, Abingdon, Oxon OX14 4RN and by Routledge 52 Vanderbilt Avenue, New York, NY 10017.

The book’s argument:

This book examines the growing importance of algorithms and automation—including emerging forms of artificial intelligence—in the gathering, composition, and distribution of news.

Summary of Content:

In general, the chapters share some of the noble ambitions of pioneering publications on “reporting algorithms”, such as the desire to see how computers help journalists in their role as watchdogs, holding the authorities to account. However, they also go further, first by addressing the broader range of technologies that now compose computer journalism, from chat bots and recommender systems to artificial intelligence and atomized journalism. Second, they promote literature by demonstrating an increased variety of uses for these technologies, including reaching underserved audiences, selling subscriptions, and recombining and reusing content. Thirdly, they

problematize computer journalism, for example, pointing out some of the problems associated with the use of artificial intelligence in investigative journalism and attempts to preserve the values of public service. Fourth, they offer suggestions for future research and practice, including providing a basis for developing.

The book examines the growing importance of algorithms and automation in the gathering, composition, and distribution of news. It connects a long line of research on journalism and computation with scholarly and professional terrain yet to be explored.

Taken as a whole, these articles share some of the noble ambitions of the pioneering publications on reporting algorithms', such as a desire to see computing help journalists in their watchdog role by holding power to account. However, they also go further, firstly by addressing the fuller range of technologies that computational journalism now consists of: from chatbots and recommender systems, to artificial intelligence and atomised journalism. Secondly, they advance the literature by demonstrating the increased variety

of uses for these technologies, including engaging underserved audiences, selling subscriptions, and recombining and reusing content. Thirdly, they problematize computational journalism by, for example, pointing

out some of the challenges inherent in applying AI to investigative journalism and in trying to preserve public service values. Fourthly, they offer suggestions for future research and practice, including by presenting a framework for developing democratic news recommenders and another that may help us think about computational journalism in a more integrated, structured manner.

Conclusion

This book represents an important starting point for students, researchers, and those interested in artificial intelligence journalism because of the pioneering and forward-looking issues it raises. The book is smooth, diverse and enjoyable in terms of reading, as it presents realistic, lived examples from high international institutions.

About the authors

- **Neil Thurman** is Professor of Communication in the Department of Media and Communication at LMU Munich, Germany, a Volkswagen Foundation Freigeist Fellow, and an Honorary Senior Research Fellow in the Department of Journalism at City, University of London, UK.

- **Seth C. Lewis** is Professor and Shirley Papé Chair in Emerging Media in the School of Journalism and Communication at the University of Oregon, USA, Visiting Fellow with the Reuters Institute for the Study of Journalism at the University of Oxford, UK, and Chair of the Journalism Studies Division of the International Communication Association.

- **Jessica Kunert** is Senior Research Associate in the Institute for Journalism and Communication Studies at the University of Hamburg, Germany.

NEWS MEDIA INNOVATION RECONSIDERED

ETHICS AND VALUES IN A
CREATIVE RECONSTRUCTION OF JOURNALISM

EDITED BY
MARÍA LUENGO
SUSANA HERRERA

WILEY Blackwell

News Media Innovation Reconsidered: Ethics and Values in a Creative Reconstruction of Journalism

**by Maria Luengo and
Susana Herrera**

Introduction

News Media Innovation Reconsidered: Ethics and Values in a Creative Reconstruction of Journalism is a recent publication that examines the different ways in which the news media is gone up against with unused moral and ethical quandaries and challenges that require unused talk about. This book, altered by Maria Luengo, a working writer and Relate Teacher within the Office of News coverage and Communication at Carlos III College in Madrid, and Susana Herrera, News coverage Teacher at the same institution, may be a phenomenal resource that gives a new and convenient dialog about journalism's ethics and respectful standards by looking at down to earth challenges within the news industry. In addition, this book takes readers to insightful discussions about immersive news coverage in journalism, the uses of fake insights

in news generation, newsgames in news coverage, the ethics of gigantic information spills and leak of data, and unused questions emerging from information news coverage.

“News Media Innovation Reconsidered: Ethics and Values in a Creative Reconstruction of Journalism” is published in May 2021 by “Wiley-Blackwell”, and edited by Maria Luengo and Susana Herrera-Damas, and composed of 256 Pages.

The book's argument

The book serves as a guide for reviving journalism's ethical and civil ideals. The authors discuss how to energize journalistic practices and products, as well as how to harness the power of digital technological innovations like immersive journalism, news automation and personalization, newsgames, and artificial-intelligence news production.

Summary of Content

In its 13 chapters, this well-researched and well-written book adds greatly to the existing literature about ethics in journalism.

“News Media Innovation Reconsidered” introduces an innovative framework for “creative restructuring” and is new to clearly show professional ethics, including truth-seeking, transparency, fact-checking, accuracy, and other ethical considerations. Also, review the concepts, models, initiatives, and practices of journalism.

The performers represent many countries, but many are from the Spanish media and can serve as role models for an international audience. In addition, this important book explores the impact of mobile-first, virtual reality, and artificial intelligence-driven platforms on news media. It also discusses the challenges of maintaining the ethics of journalism in today’s digital world and how technology can be used to engage readers into news outside the comfort zone. In addition, it provides information to distinguish between true and fake news.

First part of the book titled “Journalism, Ethics, and Innovation in Times of Digital Turbulence” is composed of 3 chapters that give an Inquiry into the Ethics of Innovation in Digital Journalism such as virtual reality, also the ethical invention of democratically engaged journalists

and finally journalism research that argues that technology-led innovation and hypes in the long term.

Second part titled “News Ethics and Emerging Journalistic Narratives” contains also 3 chapters that deals with ethics in 360-Degree immersive journalism. Also the author present a new topic related to the ethical boundaries between journalism and games, and provides a new concept called newsgames. Finally, it gives realistic examples of guiding the adoption of news storytelling design through ethics, especially the use of stories in Google’s AMP Project.

Third part of this book is titled “Interrogating Data, Algorithms, and Automatization through Journalism Ethics”. It give importance to Data Journalism, massive leaks, and investigation, it also refutes and approves the Panama Papers to make recommendations related to what it have taught us about ethics. In addition, it deals with semi-automated journalism and how to reinforce ethics to make the most of artificial intelligence for writing news. And finally how to confront ethical challenges in incorporating artificial intelligence into newsrooms,

Final part is titled “Journalistic Innovation at the Service of the Public” discusses the People’s Right to Know in light of artificial intelligence and the world of algorithms, and how it may affect transparency. And finally, the last chapter discusses innovative tools for citizen empowerment in the fight against misinformation.

Conclusion

Written for researchers, students in journalism and communication programs, *New Media Innovation Reconsidered* offers a much-needed guide for recreating journalistic ethics in our digital age. It is an important starting point for students, researchers, media outlets, media representatives and those interested in artificial intelligence journalism ethics because of the pioneering and forward-looking issues it raises. The book is smooth, diverse and enjoyable in terms of reading. It also gives vivid examples from prominent media organizations. As well as the multiplicity of writers in each chapter of the book.

About the author

- **María Luengo** is Associate Professor of Journalism, Department of Communication, Universidad Carlos III de Madrid, Spain. Her work focuses on journalism and the civil sphere. Recent book publications include *The Crisis of Journalism Reconsidered: Democratic Culture, Professional Codes, Digital Future* (co-edited with Alexander and Breese, Cambridge University Press, 2016). Her research has appeared in *European Journal of Communication, Media, Culture & Society, Journalism, and Journalism Studies*, among others.

- **Susana Herrera** is Associate Professor of Journalism, Department of Communication, Universidad Carlos III de Madrid, Spain. Her work focuses on innovation on digital media. Her research has appeared in *Journal of Broadcasting and Electronic Media, Journal of Applied Journalism & Media Studies, El profesional de la información* and *Communication & Society*, among others.



Artificial Intelligence Journalism New Concepts

1. Covidization of Media Industry
2. Media of Metaverse
3. Dynamic Human Skills (DHS)
4. Artificial Intelligence Journalism
and Professional Code of Ethics
5. Blockchained-News

1. Covidization of Media Industry

The concept was coined by Dr. Mohamed Abdulzاهر a pioneer of Artificial Intelligence Journalism, where the Covidization of Media Industry refers to; the type of changes and updates that have occurred in the media and Entertainment industry, whether in the press, radio, or television, or regarding any kind of the content creation for example in social media, smartphone applications and AI automation content. Those changes that relate to new patterns and forms in providing content, or new tools and technologies in reaching the audience, or related to new roles media and mass communications have played during the pandemic, which have become major functions in the post-Covid-19 era.

COVID-19 pandemic has affected the Media and Entertainment industry in what we can call (Post-COVID media) in terms of several levels:

- Covidization of the Media Industry is Creating New Patterns in the Media Content.
- Covidization of Media Industry is Creating New Tools and Solutions for “Media Channels” to Reach the Target Audience.
- Covidization of the Media Industry is Releasing New Roles and Responsibilities for the Media.
- Covidization of the Media Industry is Upgrading the Skills of the Media Communicators and Content Creators.

Covidization of Media

Dr. Mohammed Abdulzاهر

01	02	03	04
Creating New Patterns in the Media Content	Creating New Tools and Solutions for "Media Channels"	Releasing New Roles and Responsibilities for the Media.	Upgrading the Skills of the Media Communicators and Content Creators

2. Media of Metaverse

It refers to media industry through virtual tools and solutions only, as it is currently manufactured by some physical and non-material artificial intelligence tools, on top of which is what Facebook announced from the “Metaverse” industry. When we mention the “Media of Metaverse” as a term that refers to the creation of virtual spaces for the providing and transmission of media or promotional content or virtual events between a specific audience without being restricted to a place and through virtual or augmented reality tools and solutions², and the concept has been coined by Dr. Mohamed Abdulzاهر.

Metaverse media is creating news or promotional content based on a 3D virtual environment, includes a specific audience mixed

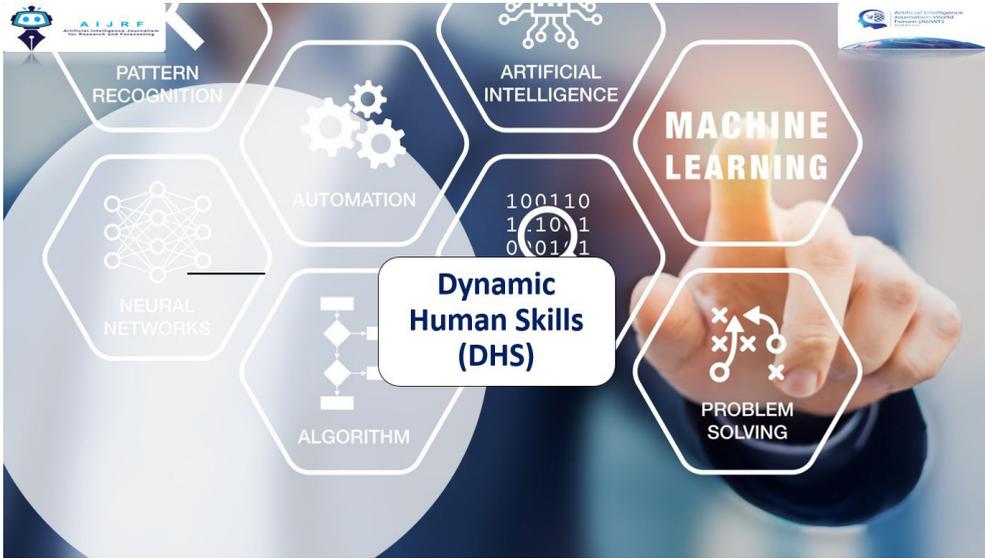
between the virtual and the real, and accepts interactive messages between the same audience or the audience and the content makers at a time specified by the recipient and in an environment made by the sender and receiver together.

It can be said that the Metaverse industry or “the Media of Metaverse” came as a natural result of the great losses that hit media and entertainment sector as a result of the Covid pandemic, which prompted many technology and media giants in the world to search for more effective and more accessible ways to the public, without a direct communication between people. This prompted Facebook to provide a huge financial package to invest in the world of Metaverse, as a more interactive alternative and the ability to publish content globally.



3. Dynamic Human Skills (DHS)

future sectors and jobs related to the Fourth Industrial Revolution,



Dynamic Human Skills (DHS), a new concept created by Dr. Mohamed Abdulzاهر, and was published his new book titled: (Globalization 4.0: The Future of Media in the Age of 7G Journalism)³.

DHS means how to move dynamically across your skills, and enhance your readiness for big shifting in skills and careers, adapting with the technological changes and job market's requirements.

DHS concept refers to the ability to work flexible in different

with new skills that are compatible with future requirements; and also the ability of workers, professionals, and companies to diversify their skills and management in their careers, according to work requirements and any crisis or changes that the world, a country, or a sector may go through.

Also, DHS means the way to manage our skills effectively to achieve the same results in different work environments or management.

The Global Model of The Dynamic Human Skills (DHS), (According to Mohamed Abdulzاهر)

refers to the rapid response to all the changes facing : individual, organizations, companies or governments, a response that enables them to mobilize all human skills and talents in an optimal way to manage crises, and adapt to those variables to gain the public benefit, those variables might include (for example):

1. The global crises: economic, political, diseases and pandemics, which directly affect global human resources and the movement of individuals, goods and products between countries.
2. The lack of natural resources or human talents within the country, or the decline of the individual's skills in a particular field, which requires individuals, for example, to learn new skills, or for countries and organizations to restructure their available human talents to face urgent changes.
3. All the new technologies, tools and solutions that emerge from the Fourth Industrial Revolution or the Fifth Industrial Revolution in the future, which need to be integrated into the labor

market and in the different production ways, and thus the speed of learning and managing them in an optimal way within entities or governments.

4. Labor market changes, or the dependence of certain sectors on innovations or new tools that exceed the capabilities of the normal individual, which requires a person to master the skills of working with these tools and innovations in a more dynamic, more effective and productive way.

4. Artificial Intelligence Journalism and Professional Code of Ethics

about the target audience, or analyzing its data in a way that may cause harm to the community



The Artificial Intelligence Journalism Professional Code of Ethics (AIJCE) means regulations and policies which are managing the professional practices of AI technologies in media, communicators, the public itself, and how these technologies can be used in accordance with human ethics, in line with human values. For instance, how we can use 3D printing in the media, without compromising human privacy, without photographing or embodying events, news, or content harmful to the public. How to rely on Robotization of Marketing without publishing private information

or cause psychological damage to people and society⁴.

AIJCE is based on 4 main pillars, namely:

1. The ethical values of the local communities in which Artificial Intelligence Journalism technologies are integrated.
2. The ethical and professional code of ethics of the media that uses such technologies and in any field that it can employ, according to the public values and ethics of the local community in which

it operates.

3. Journalists and media representatives who use these technologies on a daily basis, and how they can preserve the moral values of the local community, the professional code of ethics of the media, and their moral values on a personal level.
4. Ethical values and the professional code of ethics at the individual level of the public, and the extent of the responsibility that the individual can manage in their local community, and it helps to monitor any content or media and news materials that conflict with their community values, whether locally or internationally.

5. Blockchained-News

Blockchained-News refers to the use of blockchain technologies in creating, managing, and distributing of media content according to serial codes, allowing each news story or a report to reach the target audience according to the code or serial number that the media places in tight chains, just like the blockchain technology in financial and

accounting operations, according to Mohamed Abdulzاهر⁵.

Artificial Intelligence Journalism and Blockchained-News will help cut down losses and stem the flow of fake news. We can use blockchain technology to mark genuine news before publishing it online. So, with the Blockchain technology we ensure improvement in productivity and quality, increasing transparency among parties and reinventing products and processes. Blockchained-News will be crucial in analysing the vast amounts of data generated from advertising activities daily and minimising the losses due to ad fraud. The report predicted that fraudsters will increasingly innovate in their approaches to imitate genuine advertising activity including faked clicks, mouse movements and social network accounts.

Since the blockchain is maintained to remove the characteristic of infinite reproducibility from a digital asset, Blockchained-News can use it to mark the genuine and sourced news and info before publishing.

Also the Blockchained-News will be very effective in sharing the information and the content between sources and media to

provide the audience with the right and trusted info and news, and to provide the Open Data portals with more Blockchained-News.

EndNotes

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AIJJ

Artificial Intelligence Journalism Journal

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AIJJ a peer-reviewed, double-blind, and an “open access” academic journal focusing broadly on Artificial Intelligence Journalism, and the Fourth and the Fifth Industrial Revolutions' technologies in media.

