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DEEFAKE PROBLEM IN DIGITAL COMMUNICATION: RESEARCH APPROACHES IN RUSSIA

The aim of this article is to examine current research approaches deployed by scholars in Russia to study deepfakes in digital communication. The article uses the method of meta-analysis based on the database of the electronic resource eLIBRARY.RU – the leading electronic library of scientific periodicals in Russian. It provides an open access to a large amount of scientific information. eLIBRARY.RU maintains the Russian Scientific Citation Index with the most reliable information in terms of finding publications on the topic of deepfakes. The search was carried out using the key word “deepfake”. As a result of the search 560 publications in Russian have been found. The sample contains 159 publications, which have been cited at least once. The authors compose a classification of cited materials by topic. It has been found that deepfakes have been studied in Russia largely within legal studies (53 % of all cited publications). Publications in political science, media and communications make up 9% and 10% respectively. The lowest number of publications is in the field of information technology and sociology. According to the results of the study, it can be stated that research problem of deepfakes is relatively new for the field of communication research in Russia. At the same time, a rapid increase of research interest to the subject has been found. On the basis of the results obtained, it is concluded that studies of deepfake in digital communication in Russia lack empirical data.

Keywords: deepfake, digital communication, trust in media, mass media, Russia, fake news.

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Цифрлық коммуникациядағы жасанды интеллект көмегімен жасалған бейнені синтездеу мәселесі: Ресейдегі зерттеу тәсілдері

Мақаланың мақсаты – орыстілді ғылыми басылымдар арасында цифрлық коммуникацияда жасанды интеллект көмегіне жүгіну жөніндегі ғылыми пікірталастардың қазіргі тенденцияларын анықтау. Негізгі зерттеу әдісі арнайы әдебиеттерді мета-талдау болды. Талдау Ресейдің eLIBRARY.RU электронды кітапханасының мәліметтер базасы негізінде жүргізілді. eLIBRARY.RU – ғылыми ақпараттың үлкен көлеміне ашық қолжетімділікті қамтамасыз ететін әлемдегі орыс тіліндегі ғылыми мерзімді басылымдардың жетекші электронды кітапханасы. Ресейлік ғылыми дәйексөздер индексімен (РИНЦ) интеграция таңдалған тақырып бойынша жарияланымдарды іздеу тұрғысынан ең сенімді ақпаратты қамтамасыз ететін дерекқорды қарастыруға мүмкіндік береді. Тиісті басылымдарды іздеу «deepfake» кілт сөзі арқылы жүргізілді. Іздестіру нәтижесінде орыс тіліндегі 560 басылым табылды. Жасанды интеллект туралы алғашқы зерттеулер 2018 жылы жарияланды. 560 жарияланымның 159-ында кем дегенде бір сілтемесі бар екені анықталды. Мәтіндерге аннотацияларға, жарияланымдар мен басылымдардың атауларына сүйене отырып, тақырып бойынша сілтеме жасалған материалдарды жіктеу жүргізілді. Басылымдардың ең көп үлесі заң саласында және 53 пайызды құрайды. Саясаттану, БАҚ және коммуникация салаларындағы жарияланымдар сәйкесінше 9% және 10% құрайды. Ең аз басылымдар ақпараттық технологиялар мен әлеуметтану саласында байқалады. Зерттеу нәтижелеріне сүйене отырып, жасанды интеллект көмегін қолдануды зерттеу мәселесі коммуникациялар саласы үшін де, білімнің басқа салаларында да салыстырмалы түрде жаңа бағыт екенін айтуға болады. Қазіргі уақытта басылымдар саны да салыстырмалы түрде аз. Сонымен қатар, тақырыпқа деген қызығушылықтың жылдам артуы байқалады. Жасанды интеллект көмегін қолдануға мүмкіндік беретін технологияның өзі жақында пайда болғаны анық. Алайда оны қолданудың мысалдары жеткілікті. Алынған нәтижелер негізінде цифрлық коммуникациялардағы жасанды интеллект

көмегі мәселесі бойынша зерттеу жүргізудің келешегі туралы қорытынды жасалады және зерттеудің ықтимал бағыттары ұсынылады.

Түйін сөздер: жасанды интеллект, цифрлық коммуникация, БАҚ-қа сенім, БАҚ, Ресей, фейк жаңалықтар.

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Проблема дипфейков в цифровой коммуникации: исследовательские подходы в России

Цель статьи заключается в выявлении актуальных тенденций научной дискуссии по вопросам использования дипфейков в цифровой коммуникации среди русскоязычных научных публикаций. Основным методом исследования стал мета-анализ специальной литературы. Анализ проводился на основе базы данных электронной российской библиотеки eLIBRARY.RU – ведущей мировой электронной библиотеки научной периодики на русском языке, дающей открытый доступ к большому количеству научной информации. Интеграция с российским индексом научного цитирования (РИНЦ) позволяет считать базу лидером по предоставлению наиболее достоверной информации для поиска публикаций по выбранной тематике.

Поиск релевантных публикаций производился по ключевому слову «дипфейк». В результате было обнаружено 560 публикаций на русском языке. Первые работы по исследованию дипфейков были опубликованы в 2018 году. Установлено, что из 560 публикаций у 159 есть хотя бы одно цитирование. На основе аннотаций к текстам, названий публикаций и изданий была проведена классификация цитируемых материалов по темам. Наибольшая доля публикаций составляет 53% и находится в юридической плоскости. Публикации в области политических наук, медиа и коммуникаций составляют 9% и 10% соответственно. Наименьшее количество публикаций наблюдается в области информационных технологий и социологии.

По результатам исследования можно констатировать, что проблематика исследования дипфейков сравнительно новая и для области коммуникативных исследований, и для остальных областей знания также. Количество публикаций на данный момент сравнительно невелико. При этом заметно стремительное возрастание интереса к тематике. Очевидно, что сама по себе технология, позволяющая создавать дипфейки, возникла не так давно. Но уже есть достаточно примеров её применения. На основе полученных результатов делается вывод о перспективности проведенных исследований по проблеме дипфейков в цифровой коммуникации и предлагаются возможные направления исследований.

Ключевые слова: дипфейк, цифровая коммуникация, доверие к СМИ, средства массовой информации, Россия, фейковые новости.

Introduction

Breakthrough information technologies not only expand the capabilities of humanity, but also pose new challenges to society. Today, there is a problem of misinformation which is getting worse due to the development of deepfake technology. World Economic Forum reported that the spread of false information, according to respondents, is one of the most significant risks in the next two years (Global Risks Report, 2024). Among the types of false information, so-called “synthetic content” or “deepfake” has been distinguished. This includes information generated with artificial intelligence technologies. Common non-systematic observations show that AI-formatted videos and images tend to appear first on social media before get covered in reviews of traditional media.

The number of deepfakes are increasingly appearing in the information space. The press conference of Russian President Vladimir Putin in 2023 could be an example. Russian President Vladimir Putin’s «Direct Line» was held on 14 December 2023. «Direct Line» is a live broadcast during which the President answers questions from citizens and journalists. The event was combined with a big press conference on the results of the year. The event lasted more than 4 hours. During this time, the head of state answered 67 questions from Russian citizens and representatives of domestic and foreign media. During the «Direct Line» a question was received via video link from a person who introduced himself as a student of St. Petersburg State University. The programme host emphasised that the person did not introduce himself, i.e. did not give his real name. On the video during the video call a digital avatar, look-

ing exactly like Russian President Vladimir Putin, was sitting and asking questions. A St. Petersburg State University student who generated his image as Putin using artificial intelligence asked whether it is true that the president has many doppelgangers. He also asked about dangers of artificial intelligence (AI) and neural networks. Answering the question about the attitude to artificial intelligence, Vladimir Putin said that it is impossible to prevent the development of AI. According to the President, this means that everything should be done to make Russia one of the leaders in this direction. The head of state said that no one knows what the development of AI will lead to. At the same time, he noted that AI leaders are unlikely to start agreeing on restrictions before threats appear. As a comparison, the president cited the nuclear bomb technology as an example, noting that they started to agree on control only when the threat of damage from its uncontrolled use became unacceptable (RT News – December 14 2023 (17:00 MSK), 2023).

The aim of this article is to conduct a meta-analysis of Russian-language scientific publications in order to identify current trends in the scientific debate on the issue of deepfakes research.

Literature review

Today communication has undergone a revolutionary transformation and was enriched by digital technologies. With the advent of advanced technology, individuals can transmit information across the globe instantaneously. However, this convenience comes with its own set of challenges, one of which is the rise of deepfake technology. Deepfakes, or digitally manipulated videos and audios, have emerged as a significant threat to digital communication. The technology of using artificial intelligence to generate “synthetic” content is relatively new, so it is difficult to say with certainty how intense and strategic an impact it has on social and political processes. Researchers identify several possible areas that should be paid attention to when addressing the topic of deepfakes: a decrease in the level of trust in society in general and in the media and journalism in particular, the spread of misinformation and manipulative information, psychological and emotional impact, legislative and economic challenges, the need for technical and political solutions (Al-Khazraji, Saleh, Khalid, Mishkhal, 2023).

One of the most significant problems posed by deepfakes is their ability to erode trust and authenticity in digital communication (Temir, 2020). In an era where information can be easily manipulated,

distinguishing between genuine and fabricated content becomes increasingly challenging. Deepfake technology allows malicious actors to create convincing videos of individuals saying or doing things they never did, leading to misinformation, defamation, and manipulation of public opinion. As a result, trust in digital media and communication platforms diminishes, undermining the foundation of democratic societies built on the exchange of accurate information. Researches, Vaccari and Chadwick, argue that deepfakes do not so much actually mislead recipients as they cause a feeling of uncertainty in the information received. But it is precisely this uncertainty that can contribute to a decrease in trust in news on social networks, as well as an increase in the level of cynicism and uncertainty among people (Vaccari & Chadwick, 2020).

Deepfakes facilitate social and political ramifications all around the world. The proliferation of deepfake technology amplifies the social and political ramifications of misinformation. False narratives spread through manipulated videos can incite social unrest, damage reputations, and even influence electoral outcomes. The potential for deepfakes to disrupt the fabric of society is profound, as they blur the line between reality and fiction, sowing seeds of doubt and discord. Moreover, the rapid dissemination of deepfakes across social media platforms exacerbates their impact, making it challenging to contain the spread of false information once it gains traction. The strategy of anonymous communication has been deliberately chosen by alternative and extremist media (Bykov, Hradziushka, Medvedeva, 2021).

Beyond the tangible consequences on society and politics, deepfakes also raise significant psychological and ethical concerns (Diakopoulos & Johnson, 2021). Individuals depicted in manipulated videos may suffer from reputational harm, emotional distress, and loss of privacy. Moreover, the ease with which deepfake technology can be employed for malicious purposes highlights the ethical dilemmas surrounding its use. As technology advances and deepfake creation becomes more accessible, safeguarding against its abuse becomes imperative to protect the well-being of individuals and preserve the integrity of digital communication.

Addressing the problem of deepfakes requires a multifaceted approach involving technological innovations, policy interventions, and public awareness campaigns. Technological solutions such as automated detection algorithms and watermarking techniques can help identify and flag deepfake content, allowing platforms to take proactive measures

to limit its spread. Additionally, robust legislation and enforcement mechanisms are needed to hold creators and distributors of malicious deepfakes accountable for their actions. Furthermore, educating the public about the existence and potential dangers of deepfakes can empower individuals to critically evaluate the information they encounter online, reducing the susceptibility to manipulation and misinformation. One of the best methods include media literacy development and digital education programs (Bykov, Gladchenko, Ibrayeva, Myssayeva, 2019).

Numerous data indicate that spending on advertising and public relations around the world is growing faster than the overall rate of economic growth, showing an annual increase of 10% in developed countries and 20% growth in developing countries (Macnamara, 2018). At the same time, in 2018, the global market size was estimated at \$600 billion (Macnamara, 2018), and the number of people employed in the US advertising and public relations industry exceeded half a million people in 2023 (Goldman, 2023). On the other hand, the need to increase spendings and to increase the number of employees in the industry is a consequence of the current situation associated with a decrease in the efficiency and effectiveness of communications, as well as the general complexity of managing through communication campaigns. The problem is that advertising and public relations have ended up in a post-communications situation where huge budgets are spent for next to nothing or with unpredictable results. Moreover, the situation of “irrevocable investments” in communications is quite typical, when efforts to develop new channels do not produce sustainable results, both due to the lack of a “critical mass of users” and due to the content of the communication itself. In this context, deepfake as a technology of mass communication contributes to the problem of miscommunication in digital society.

Method and Materials

The study implies meta-analysis approach to examine current research conducted by scholars in Russia to study deepfakes in digital communication. Meta-analysis stands as a pivotal method in scientific inquiry, offering a systematic approach to synthesizing diverse studies within a particular domain (Field & Gillett, 2010). Rooted in the analysis of existing scientific literature, meta-analysis endeavors to distill collective knowledge, unveil trends, and derive robust conclusions from a multitude of individual investigations (Borenstein, Hedges, Hig-

gins, & Rothstein, 2021). This paragraph elucidates the essence of meta-analysis as a methodological framework, delineates its procedural intricacies, highlights its strengths, and acknowledges potential limitations (Lipsey & Wilson, 2001). Through a thorough examination of the meta-analytic process, this discourse advocates for its significance in advancing scientific understanding and informing evidence-based decision-making across various disciplines (Harrison, 2011).

In the realm of scientific research, the accumulation of knowledge often transpires through incremental contributions from numerous studies conducted by disparate researchers. While individual studies offer valuable insights, they may present conflicting findings, exhibit limited sample sizes, or lack generalizability. Meta-analysis emerges as a remedy to these challenges, serving as a systematic tool to amalgamate findings from multiple studies and distill comprehensive conclusions. By synthesizing existing literature, meta-analysis endeavors to elucidate patterns, quantify effect sizes, and discern nuances that may remain obscured within isolated investigations.

At its core, meta-analysis encompasses a structured process of aggregating data from relevant studies, scrutinizing methodologies, and synthesizing outcomes to derive overarching conclusions. The methodological framework typically involves several key steps: (1) formulation of research question, (2) literature search, (3) study selection, (4) data extraction, (5) statistical analysis, (6) interpretation of results. Method of meta-analysis is to be evolve to the class of statistical generalization, although in some cases it has to be combined with qualitative analysis (Bykov, 2020).

The purpose of scientific publications meta-analysis was to identify current trends in the scientific discussion on the issue of deepfakes research among Russian scholars. Of particular interest were areas in which a problem of deepfakes is discussed. It was also useful to examine the context in which the problem is considered. Relevant publications were searched by a keyword “deepfake”. In modern Russian language the word is a new one and in writing is generally represented by a transliteration from English. Nevertheless, titles written in Russian contain variants of writing both Cyrillic and Latin. We used the keyword in Cyrillic to search the database. Texts of received articles are in Russian. Search by keyword written in English outputs results that include articles in both Russian and English. A comparison of search results for the two queries showed that articles in Russian are the same in two samples.

Since texts in Russian are relevant for the study, further analysis took into account only search results for the word «deepfake» written in Cyrillic. As a result of the search 560 publications in Russian were found. After selection of articles we made a general statistical review. We looked at the trend in the number of papers published per year and at a percentage of scientific fields in which scientists have an interest in deepfakes. We also conducted qualitative analysis on the papers ranked in the top 20 most cited on the sample.

The study uses eLIBRARY.RU as a primary source of data. eLIBRARY.RU is the leading electronic library of scientific periodicals in Russian in the world. The service provides free and open access to a large number of publications. The library contains abstracts along with full texts. An opportunity to check full texts significantly increases the possibilities for more accurate meta-analytical research. The library's database is also integrated with the Russian Scientific Citation Index, which is a national information and analytical system. Integration with the RSCI makes it possible to consider the

database as providing the most reliable information for the study.

Results

The results of the study can be presented in both quantitative and qualitative terms. First of all, let's focus on quantitative indicators. To generally characterize the trends, we conducted queries using the keyword “deepfake” in the international Google Scholar database. The request was made in two languages: Russian and English. The authors have found that over the past 10 years the Google Scholar database contains 17,544 publications in English and 446 in Russian. The dynamics of publications are presented on the graph (see Fig. 1). These data clearly show the dynamics of growing interest in the topic of deepfakes in Russia and abroad. Of course, in Russia the number of publications on this topic cannot be compared with the number of publications in English. However, it was discovered that around 2018 there was an explosive growth of interest in this problem, both in Russia and abroad.

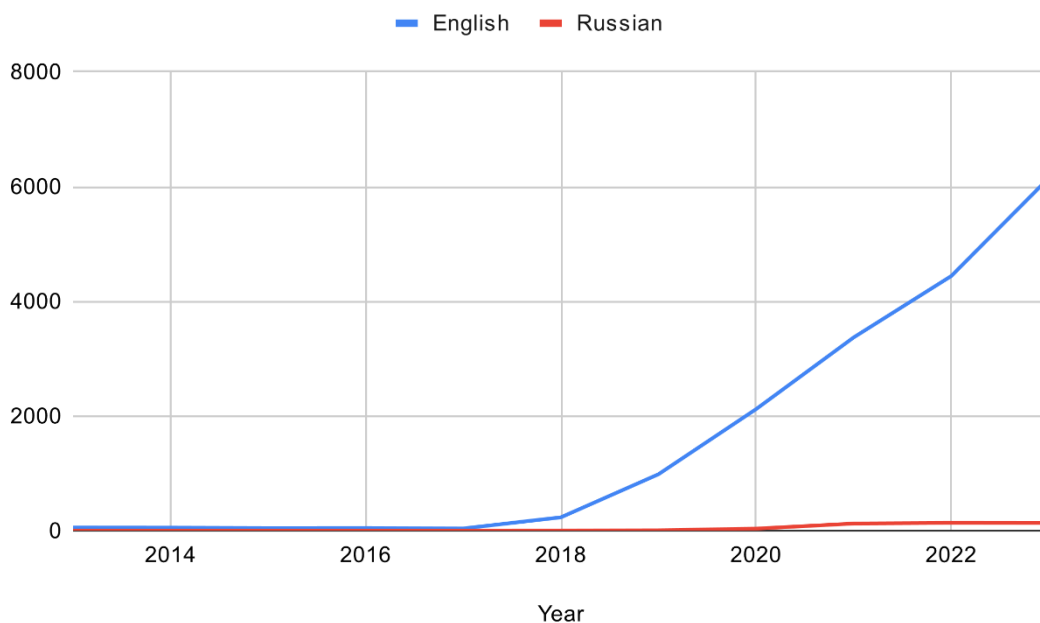


Figure 1 – Publications about “deepfake” in scientific literature per year
Note: Composed by authors from Google Scholar database

The first articles in Russian on the subject appeared in the database in 2018 (see Fig. 2). This year there were only 2 publications on the topic. In the next year, 2019, there were several times more publications, but their number is also small. There are only 7 texts. However, in the next year, 2020, there is an increase in publication activity on the

selected topic. This year, 34 papers were published related to the study of deepfakes. Growth continues in the next three years. In 2021, there is a nearly threefold increase. The number of publications is already 110 texts per year. In 2022, the number of published texts is 154, and in 2023 there are 222 publications.

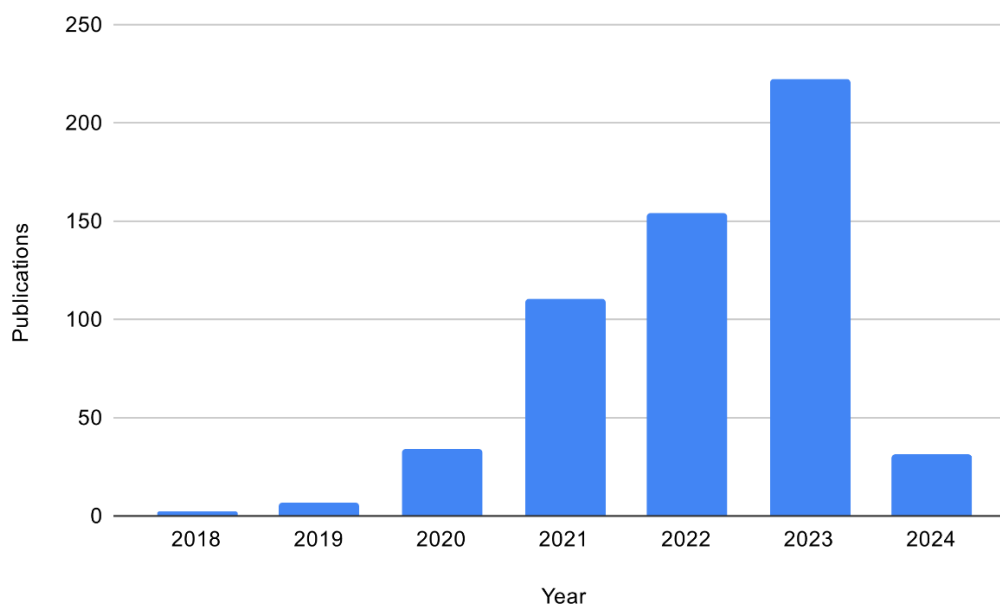


Figure 2 – Publications about “deepfake” in eLIBRARY.RU per year
Note: Composed by authors from eLIBRARY.RU database

The number of publications in 2024 is significantly lower than in previous years. It should be noted that the result of the current year is not representative due to the fact that only the first quarter, presented by publications which include written in the previous year, has ended. But already in the first quarter of 2024 about the same number of works published as was published for the whole 2020.

Of the 560 publications, 159 have at least one citation. 501 publications have no citations at the time of writing. On the basis of the annotations to the texts, titles of publications and publications, a classification of the citations was made by topic. All publications with were cited at least once were taken for further analysis. The primary classification identified the following fields of study: legal sciences, psychology, national security, political science, international relations, sociology, information technology, economics, media and

mass communications, art and culture, linguistics, teaching and pedagogy, and another fields of study. Since some topics were presented by two or three publications, it was decided to join some areas into one. Thus, the field of linguistics was assigned to “media and communications”. “International relations” and “national security” were included in “political sciences”. “Art and culture” and “teaching and pedagogy” were included in the category “another fields”. It should be noted that part of the work touches the coverage of deepfakes as part of other, broader issues. For example, there are articles on the use of artificial intelligence, work with media content, fight against cybercrime, neologisms in modern Russian language. There are also works on the general distribution of fakes. In these cases, the focus shifts significantly from deepfakes to another aspects. However, such works were also included into the sample.

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aspects. However, such works were also included into the sample.

The classification of publications on the basis of scientific fields has produced interesting results. The largest share of publications is 52,8 % and it is devoted to legal sciences (see Fig. 3). However, of the top ten most cited publications, five were in the area of jurisprudence. The main interest in this area is the regulation of artificial intelligence. This also includes publications presenting a review of cases and features of legislative systems, both in the Russian Federation and in other states. Aspects of personal security in cyberspace (so-called digital identity) are addressed. From the legislative standpoint, the topic of information wars is also considered.

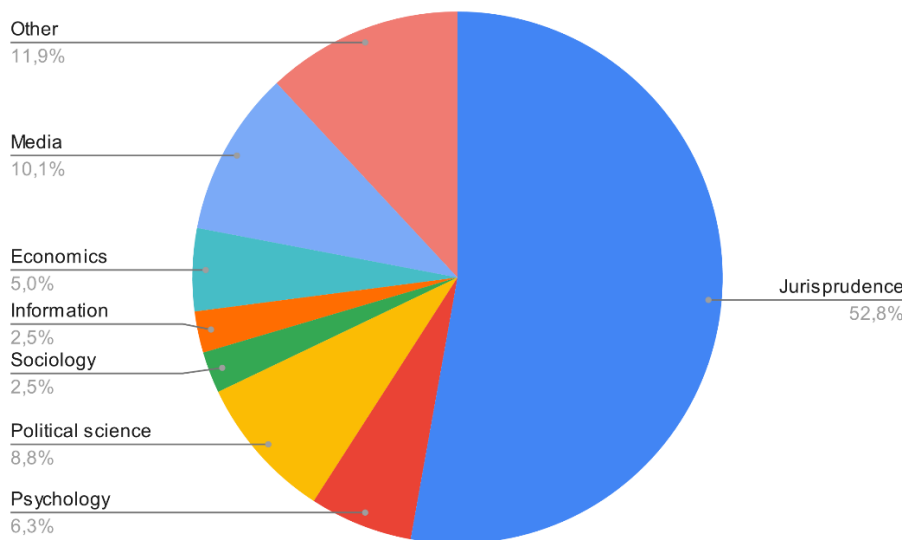


Figure 3 – Distribution of research fields in the sample (N=159)
Note: Composed by authors from eLIBRARY.RU database

The article “Deepfakes: prospects of application in politics and threats to personal and national security” is worth citing as an illustration of legal approach (Ivanov, Ignatovsky, 2020). The article provides a description of the technology and examples of its application for political purposes. It is mainly campaigning and drawing attention to the political party and figure. It is noteworthy that, as in most of the articles on deepfakes, the main topic is another broader topic. In this case the research touches upon the problem of fake news and decrease of trust to media. Deepfakes are considered as a “branch”, as one of the tools for generating fake information. In the article, the authors give some reflections on the

potential danger of using the technology and give a brief sketch of the picture in the negative use of deepfakes. Various legislative initiatives, such as in the United States and Russia, are being reviewed to limit the generation of fake content and to reduce its number in the media space. As conclusions, the authors note promising directions to combat deepfakes and indicate advantages and disadvantages of these directions. The first aspect is technical. These include, for example, possible programs to recognize artificial faces on fake videos, determine the original video data, the time and date of download, the resource that was used to download, and etc. The second aspect reflects government regulation.

It is noted that, despite the ongoing development of relevant legislation in a number of countries, there are many intricacies that conflict with modern legal norms. The third aspect includes the possibility of regulating the publication of deepfakes on social media platforms. In particular, the authors write that manual analysis is useful for the control of deepfakes in social media. But it will significantly increase the burden on companies that own media files and will require a review of the logic of «instant» content publication. There is also a need to increase the media literacy of the population.

The second largest area is the “Another fields” section. The section covers 12 % of the sample. The publications of the section relate mainly to humanitarian areas of knowledge. These areas are represented by no more than three publications each. In particular, there are general reviews describing deepfake technology in general. Such reviews were not included in any of the areas identified in the classification because of a lack of explicit issues. Publications on youth education were included, as well as artificial intelligence in art, reflection about the threat to civilization, culture, philosophical questions about the development of higher education and the introduction of artificial intelligence in education. The section also included works published in the format of monograph. As an example, let us consider the work “Cognitive processes of man and artificial intelligence in the context of digital civilization” (Dzhaloshinsky, 2022). The monograph was published in 2022 and is among the ten most cited works in the sample. In his work, the author explores the difference between artificial and human intelligence. The example illustrates well some “side effects” of the topic of deepfakes. The study of this subject is more a consequence than a cause of the analysis carried out in the monograph.

The next largest cluster is represented by media and communications research. Scientists in this field are interested in disinformation and content control capabilities, as well as the use of deepfake technologies in advertising. Deepfakes is a new phenomenon in general, so a number of articles deal with technology description and reflection on how technology can influence the distribution and perception of media content. It is noteworthy that even though the section on “linguistics” is included, the media research cluster still occupies 10,1 % of the most cited works on deepfakes. The most cited media work is in third place. This tutorial, released in 202 under the title “Fake markers in media libraries”, was written by I. Sternin and A. Shesterina (Sternin, Shesterina, 2020). This work also focuses on iden-

tifying general fake information. The manual was developed on the basis of the analysis of the media environment in the process of teaching students in the additional speciality “linguocriminology”. The authors highlighted different fake information markers in different types of media. The work presents various classifications of fakes: fake as a value judgement; one ranked by degree of information distortion; one ranked according to the degree of reliability of space-time characteristics; one ranked according to the degree of reliability and reliability of the source of information. There are also types of fakes by purpose and type of representation. The manual includes a list of terms used and provides detailed guidance on how to analyse videos, images, infographics, texts, headings, interviews, and any other media source for misinformation.

The fourth largest cluster is a political science (8,8 %). In this field, researchers are most interested in the topic of information and psychological wars. Attention is also drawn to changes in the electoral process, digital diplomacy, “digital power” as “soft power” in international politics, ethical and philosophical aspects of the development of the political process in the context of the use of neuronetworks. It is noteworthy that the articles identified as written in «political sciences» are not among the ten most cited works. And only two papers in political science can be found in the top twenty cited publications. One of them is called “Digital infrastructures of civil-political activism: actual challenges, risks and limitations” (Volodenkov, Fedorchenko, 2021). The article comprehensively considers the problems of digital civil-political activism. The article presents the results of SWOT-analysis of some social media platforms, as well as describes possible risks of interaction of civil activists with these platforms. In particular, the authors note that the emergence of deepfake technology is of serious concern, as it could potentially complicate the work of activists. Technology can increase the capacity to simulate agendas. Which will lead to loss of understanding of actual social problems. There is also a danger of simulating statements by civil activists, spreading of false public information. The emergence of pseudo-activist structures with the aim of achieving the personal goals of specific beneficiaries, forming mass protests is considered as a probable scenario. The authors even note the danger of the formation of digital pseudo-activists along with the forgery of the actual agenda. Identified problems point to the potential for the formation of an alternative reality. It is not about a virtual digital space, but about alternative understanding which includes ignoring real

problems and concentrating on problems, which can have no significant impact in physical world, or even fixate on imaginary, non-existent problems.

The next cluster in size is psychology. The main interest is in the topic of information and psychological security. Also are traced interest in the topic of information and psychological war, are presented works on the possibilities of determining fake information, researches on psycholinguistic expertise, as well as deepfakes as psychotechnique. Publications in this section account for only 6 % of the total number of quoted publications. One of the papers on psychology got into ten most cited works on deepfakes. This article is entitled “Deepfake in facial perception research” (Barabanshchikov & Marinova, 2021). The article describes the results of an experiment to study the patterns of perception of the movable “impossible face” and differences of these regularities in statics and dynamics. The authors generated two models using the DeepFaceLab (DFL) application. Parts of the faces of these models were taken from different people, and some parts were rotated 180 degrees. Models were demonstrated to the subjects in statics and dynamics. The survey of subjects was conducted and a range of model perception parameters was measured. The authors of the experiment note that this technology of image synthesis significantly expands the possibilities of psychological research of interpersonal perception. In general, the study focuses more on the application of deepfake technology in scientific experiments than on determining the effect of deepfakes on human psychology and behavior. However, the research results are also relevant for sociological research. Psychology is followed by economics. This area is characterized by such directions of research as development of marketing tools, changes in the global market of cyberinsurance, problems of information security of business, risks of interaction of real and virtual spaces.

Interestingly, the smallest number of publications (3% each) can be found on the topic of sociology, as well as on information technology. In the field of “information technologies” were assigned all publications that touch upon technical issues in work and analysis of deepfakes. These are such questions as deepfake recognition, technical capabilities to counter the spread of deepfakes, validation of information, programs and algorithms for the creation of deepfakes, reviews of technical solutions in this field. In a sample of publications in the electronic library with at least one citation, publications on information technology are presented with only four texts.

It is worth noting that the current analysis of deepfakes in Russia is a research branch of fake information in general. Apparently, there is no standardized unambiguous understanding of a specific subject of a study. Deepfake is usually seen as visual information, i.e. a video or a picture. Therefore, these subjects of study may be of more interest to researchers in the field of politics and media, since political research overlaps with the field of media studies significantly. Presumably, in case of economics research question is formulated differently. In this sphere deepfakes are considered more like a factor of influence rather than a subject of a research. Most likely, the number of publications on deepfakes in the field of economics will not show significant growth. The same dynamics are likely to emerge in sociological sciences. Deepfakes are mostly seen as people’s interaction with information environment. These studies have communicative specifics and belong to a sphere of media research. The problem of deepfakes is of the greatest interest for researchers in legislative sphere. This trend can now be seen in many areas related to the regulation of artificial intelligence. It is most likely that the number of publications will continue to increase this year. Increasing trend in publications in law, political and media studies is most likely to continue.

Conclusion

The research problems of deepfakes are relatively new for the field of communicative research, and for other fields of knowledge as well. The number of publications is also relatively small for the moment. At the same time, there is a rapid increase of research interest in the topic according to this study. The technology that allows the creation of deepfakes was created not so long ago. But there are already enough examples of its application. Civic and political activists, politicians, PR and strategic communication professionals, advertising and marketing professionals use software to replace faces and generate fully digital characters.

At the same time, the influence of artificially generated content on the consumer is not obvious at the moment. The analysis of the Russian-language segment of the publications on the topic of deepfakes showed an interesting pattern. Most of them were publications on legislative initiatives. In short, the main issue for researchers in this field is the integration of the new phenomenon into modern legislative systems. It is possible that this is the problem faced by researchers of artificial intelligence legisla-

tion in general. Generative artificial intelligence is, like deepfake technology, a relatively new phenomenon for modern social, political, economic, and social systems. It is possible to assume, that its novelty for society consists in atypical actors, becoming participants of social processes.

A small number of studies in political science, media and communications show that the field is open to research. It is not possible to distinguish as such the subject of study as well as certain methods of studying this subject. As a rule, now deepfakes are researched in as a kind of fake information. The question arises: is there any specificity in deepfakes that would define them as a separate field of research? Or will it remain auxiliary technology? In this sense, the definition of the subject will automatically open the possibility of determining the methods of technology analysis. Based on the analysis, two of the most significant notions of what a deepfake is can be distinguished. First of all, this is a video of a human being that was processed using a special program using artificial intelligence. By processing is usually meant to replace the character's face in such a way that it gives the impression of having a completely different person on the video. The second approach treats deepfake as a fully digital character generated by artificial intelligence. This character never existed in physical reality, is not anyone's avatar, but at the same time it is difficult to distinguish him from the real person shot in the video.

With regard to the approaches identified, it should be noted that the methods for analysing the response of recipients to the information received look promising in the first place. Among the topical research issues are: how to perceive the information that viewers get from a video with a deepfake character? The questions also are the next: how to perceive the information spoken by the character; how the general information from the video is treated separately; how it affects the emotional state of the recipient; the complex sensation; his beliefs, values, perceptions about the themes of the video. The second point is the recipient's reaction to interaction with a digital character. The issues of interpersonal communication with a fully artificial digital character are new to the Russian-language scientific discourse and may be promising for further research and disclosure of information perception and interaction in the virtual world and with the virtual world. The fields of economic and social sciences also look promising. The relatively small number of publications in these areas offers significant opportunities to investigate the impact of deepfakes on the overall economic situation, as well as on possible reputational risks of companies. And in the field of sociology in general, there is a lot of work to understand the role of artificial intelligence technologies in the life of society. Significant changes, which are of great interest to researchers, create new challenges and new opportunities. Which opens up new areas of the unknown to researchers.

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