

13. Brown R.D., Winburn J., Sullivan–González D. *The value added of honors programs in recruitment, retention, and student success: Impacts of the honors college at the University of Mississippi*. – 2019.
14. Miller A.L., Dumford A. D. *Do high-achieving students benefit from honors college participation? A look at student engagement for first-year students and seniors //Journal for the Education of the Gifted*. – 2018. – Т. 41. – №. 3. – С. 217–241.
15. Campbell K. C. *Allocation of resources: Should honors programs take priority?*. – 2005.
16. *Project Honors College realizuetsya*. <https://www.kaznpu.kz/ru/22757/news>
17. *Honors College Conference. Krasnoyarsk 2020: materialy II Mezhdunar. konf. Krasnoyarsk, 27–28 noyabrya 2020 g. / pod red. M.V. Tarasovoj.* –Krasnoyarsk: Sib. feder. un–t, 2020. –168 s.
18. *Tarasova M.V. SibFU Honors College i mezhdunarodnaya koncepciya honors obrazovaniya Honors College Conference. Krasnoyarsk 2018: materialy I Mezhdunarodnoj konferencii. Krasnoyarsk, 30 noyabrya – 01 dekabrya 2018 g. / Pod red. M.V. Tarasovoj.* – Krasnoyarsk, 2018. – S. 10–13

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## A PRELIMINARY ANALYSIS OF THE USE OF CHATGPT IN ACADEMIC RESEARCH

### *Abstract*

The use of AI technologies like ChatGPT has the potential to revolutionize academic research by offering support in writing, editing, and research processes. However, its limitations, such as the potential for bias and inaccuracies in information, as well as plagiarism and ethical concerns, must be considered. This paper presents preliminary insights into the opportunities and challenges of using ChatGPT in academic research. Structurally, it is based on three sections. The first section concerns the impact of ChatGPT on research production and the question of authorship. The second section is related to emerging ethical concerns like fairness, privacy, accountability, and transparency. The third section is dedicated to the future role of researchers and the identification of new metrics to assess the value of their research activities. The methodology used in this study involves a critical study of the perspectives expressed by researchers on LinkedIn and the information gathered during a conversation using ChatGPT. The main conclusion is that AI technologies have the potential to aid the research process and, as such, they should be constructively embraced in the academic environment. Nonetheless, new ethical norms and assessment tools are required to fully capitalize on the positive benefits while mitigating the potential risks.

**Keywords:** academia; ChatGPT; education; ethics; research; scientific publications.

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## АКАДЕМИЯЛЫҚ ЗЕРТТЕУЛЕРДЕ CHATGPT ТЕХНОЛОГИЯСЫН ҚОЛДАНУДЫ ТАЛДАУ

### *Аңдатпа*

ChatGPT секілді жасанды интеллект технологиялар – жазу, редакциялау және зерттеу процесіне қолдау көрсету арқылы академиялық зерттеулерде төңкеріс жасауға қабілетті. Дегенмен, оның ақпараттағы ықтимал біржақтылық пен дәлсіздіктер, плагиат пен этикалық ойлар сияқты шектеулері ескерілуі қажет. Бұл мақала академиялық зерттеулерде ChatGPT қолдану мүмкіндіктері мен қиындықтары туралы алдын-ала түсінік береді. Құрылымдық жағынан ол үш бөлімге негізделген.

Бірінші бөлім ChatGPT-дің зерттеу жұмыстарының жүргізілу барысы мен оның авторлық құқық мәселесін қарастырады. Екінші бөлім әділеттілік, құпиялылық, есеп беру және ашықтық сияқты туындайтын этикалық мәселелер жайлы баяндайды. Үшінші бөлім зерттеушілердің болашақ рөліне және олардың зерттеу қызметінің құндылығын бағалаудың жаңа өлшемдерін анықтауға арналған. Бұл зерттеуде қолданылатын әдістеме LinkedIn зерттеушілерінің көзқарастарын және ChatGPT көмегімен сөйлесу кезінде жиналған ақпаратты сыни тұрғыдан зерттеуді қамтиды. Негізгі қорытынды – жасанды интеллект технологиялары зерттеу процесін ілгерілету мүмкіндігіне ие, сол себепті оны академиялық ортада қабылдау керек. Дегенмен, оң артықшылықтарды толық пайдалану үшін, ықтимал тәуекелдерді азайта отырып, жаңа этикалық нормалар мен бағалау құралдарын енгізу қажет.

**Түйін сөздер:** академиялық орта; ChatGPT; білім; этика; зерттеу; ғылыми басылымдар.

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## ПРЕДВАРИТЕЛЬНЫЙ АНАЛИЗ ИСПОЛЬЗОВАНИЯ ИЗМЕНЕНИЙ В АКАДЕМИЧЕСКИХ ИССЛЕДОВАНИЯХ

### Аннотация

Использование технологий искусственного интеллекта, таких как ChatGPT, может произвести революцию в академических исследованиях, предлагая поддержку в процессах написания, редактирования и исследований. Однако необходимо учитывать его ограничения, такие как возможность предвзятости и неточностей в информации, а также плагиат и этические проблемы. В этой статье представлены предварительные сведения о возможностях и проблемах использования ChatGPT в академических исследованиях. Конструктивно он основан на трех разделах. Первый раздел посвящен влиянию ChatGPT на производство исследований и вопросу авторства. Второй раздел связан с возникающими этическими проблемами, такими как справедливость, конфиденциальность, подотчетность и прозрачность. Третий раздел посвящен будущей роли исследователей и определению новых показателей для оценки ценности их исследовательской деятельности. Методология, используемая в этом исследовании, включает критическое изучение точек зрения, выраженных исследователями в LinkedIn, и информации, собранной во время разговора с использованием ChatGPT. Основной вывод заключается в том, что технологии ИИ могут помочь в исследовательском процессе, и поэтому их следует конструктивно использовать в академической среде. Тем не менее, необходимы новые этические нормы и инструменты оценки, чтобы в полной мере использовать положительные преимущества при одновременном снижении потенциальных рисков.

**Ключевые слова:** научные круги; ChatGPT; образование; этика; исследовать; научные публикации.

**Introduction.** ChatGPT is a freely accessible language model chatbot able to generate human-like text by operating on the base of 175 billion parameters and a training corpus size of 570GB of text data. It has the capacity to provide immediate information about (almost) any topic under scrutiny and to automatically format a text (e.g. completion of texts, translations, paraphrasing, summarizations, and so on) according to the inputs sent by the user. Indeed, it seems a helpful aid in the writing, editing, and research processes.

This tool currently has, however, some noteworthy limitations. First, the information provided by ChatGPT are not always accurate, and to certain types of question, the AI can be deceived by the user (for instance, a screenshot of a user convincing ChatGPT that 5 plus 2 equals 8 because his wife says so became an object of hilarity online). [1] Second, ChatGPT was trained on human texts collected till 2021. As a result, it has no info about facts and events that occurred in successive years (although it is possible to fix this problem by manually updating the system following some tricks released on the net). Third, in some cases, ChatGPT can offer biased and/or offensive answers as a consequence of prejudicial information contained in the texts used for its training process [2]. Fourth, there is a risk of plagiarism because the answers given by ChatGPT do not make a reference to the original sources, but paraphrase information it gained during its

training process. Thus, despite its enormous capacity for knowledge exchange, a human filter is still required to assess the accuracy and reliability of the information given by ChatGPT.

Despite such limits, ChatGPT seems a promising support technology in creating an outline for a paper, translating texts, paraphrasing existing texts for better outcomes, generating brief summaries, offering ideas for experimental design, operating a variety of customized tasks, and preparing research abstracts. [3] Concerning this last point, there is a preprint study revealing the complexity to detect abstracts generated by ChatGPT from those generated by human scientists. [4] The reader must also be aware that the same abstract of this article has been written with the support of ChatGPT.

Therefore, ChatGPT has already been used to assist scientists in writing research papers. [5; 6] Moreover, it has also been indicated as a co-author in four scientific publications. [7; 8; 9; 10] Journals such as Nature and Science have promptly reacted to such novelties by claiming that AI systems like ChatGPT cannot be considered authors. [11; 12; 13] The main reason is that they cannot take responsibility for the validity and integrity of the published content, and neither they can express their consent to be co-authors in respect of the ethical and scientific standards required by the editor of a journal. However, there is much less agreement regarding how these tools can (or should) be employed in the research process, as well as regarding the ethical and practical consequences they will have in academia.

There is substantial literature on the cooperation between humans and machines. Several researchers who have critically examined the ethical and philosophical questions associated with a dynamic interaction between individuals and AI technologies. [14; 15; 16] But, on the whole, there is still an open discussion over the benefits and challenges associated with the development of AI technologies and their use in the research field. Most of the researchers seem to agree that transparency, justice and fairness, non-maleficence, responsibility, and privacy are some of those fundamental ethical aspects related to human-machine interaction that require further discussion. [17] In this regard, a key goal is designing and creating AI systems that might foster the development of human-AI collaboration. [18; 19] This seems also a central matter in the debate about how to integrate ChatGPT into the academic research process.

A number of scientific articles related to the use of chatbots in education have already been published in scientific journals. [20; 21] However, none of them specifically refers to the use of ChatGPT in the academic research process. The lack of publications on the subject up to this point is mainly due to the fact that this technology has only recently begun to gain popularity and, arguably, acceptance. Nevertheless, authors like Adams and Chuah have already raised some critical reflections on the use of AI in research writing. [22] Likewise, the practical and ethical implications associated with the use of this technology in academia have already been discussed on diverse social media pages as well as in three articles in Nature and one in Science. [6; 11; 12; 13]

The advent of ChatGPT is, indeed, raising diverse questions about the use of such a language model in support of academic research. Is the use of ChatGPT ethically acceptable? To which extent can ChatGPT offer limits and risks in academic research? Should the ethical principles surrounding scientific publications be re-adapted considering the capacity of this and similar tools to revolutionize the whole industry? How the cooperation between human and AI technologies should be regulated? What is the future of academic researchers? These are some of the questions that are going to be briefly examined in this preliminary study.

Critically addressing the use of ChatGPT and similar tools in academic research is important to anticipate how they might change the way academic research is conducted and what are the related implications for those operating in this field. Specifically, three dimensions need to be considered: 1. The impact on research production and the question of authorship. 2. The ethical concerns related to aspects like fairness, privacy, accountability, and transparency. 3. The future role of researchers and the identification of new parameters for assessing the value of the research outcome.

**Material and Method.** This study offers some preliminary considerations regarding the use of ChatGPT and similar AI tools in academic research on the basis of the critical reflections raised by diverse scientists on LinkedIn posts and the information gathered during a conversation using ChatGPT. The goal is to provide a first comprehensive study of the matter and to identify a series of key issues that will require further assessments in future publications.

The debate on this topic is still in its early stages. Therefore, although information has been collected using a variety of resources, which include scientific journals and websites, the most updated and critical ones are the opinions expressed on a social media platform like LinkedIn. To maximize the research outcome, a variety of keywords were included in the research, such as: ‘ChatGPT and research’, ‘ChatGPT and academia’, ‘ChatGPT and ethics’, ‘ChatGPT as author’, ‘AI tools and research writing’, ‘AI and human

researchers', and derivatives of these terms. The author has then read and arranged the collected material according to the core issue they tried to examine (qualitative/quantitative impact; authorship; ethical concerns; future role of researchers; or new methods for assessing the scientific research outcome).

In the interaction with ChatGPT, I raised the following questions:

- Do you believe that ChatGPT should be used in academic research?
- Can you explain better what are the capabilities and limits (of ChatGPT)?
- What about the ethical concerns about the use of ChatGPT in academic research?
- On the base of such information, do you believe that ChatGPT should be used in academic research?

Please, answer with a clear yes or no and provide arguments to sustain your statement.

- What about transparency? Could you explain such a point better?
- Should ChatGPT be indicated as an author or as a tool?
- Would be really appropriate to have an AI listed among the authors?
- Should the ethical guidelines of academic research be changed considering the rise of AI technologies like ChatGPT? If so, what kind of changes would you suggest?

• Considering such important changes, is the number of published articles a reliable metric to assess a researcher's success?

- What is the future of academic research after the advent of tools like ChatGPT?
- So, how should cooperation between human and AI technologies be regulated in academic research?

As a final note, the author wants to specify that the abstract of this paper was purposefully written with the assistance of ChatGPT in order to show the reader how this tool can contribute to the drafting of academic articles.

**Results and Discussion.** Several people working in academia expressed their concerns on LinkedIn over the use of ChatGPT in scientific research. The main fear is that the number of publications will skyrocket in the next years to the detriment of quality. However, an equal number of people believe that this is a misleading judgment. First, the overproduction of research papers is a challenge that academia is already facing for several years. [23] The use of AI language models like ChatGPT might, possibly, accentuate such a situation. But at the origin of such a problem, there are other factors (e.g. academic ranking influenced by the number of publications, growing number of journals ready to accept questionable papers, etc.) unrelated to the use of AI tools. Second, it is the responsibility of the researchers to be accountable for what they write and there is a well-established peer-review system aimed to check the accuracy and quality of the submitted papers. Such duties will not change through the use of AI tools in support of the research process. Third, academia is assumed to be a space of innovation and development. Is banning the use of AI tools really consistent with the fundamental pillars of academic research?

On the whole, there is a strong disagreement about what has to be done next. For example, in a recent online poll proposed on LinkedIn about the use of ChatGPT in schools and universities, 21% of voters claimed that it should be completely banned, 34% supported its use with strict guidelines, 21% accepted using it with minimal guidelines, and 24% stated that it should be embraced with no limitations. [24] Similar results are observable when the debate is related to the use of ChatGPT in academic research. [25] Overall, 35% of interviewees affirmed that ChatGPT can be used in academia and research, but acknowledgment is needed, 46% of respondents answered that it depends on the use case, 18% stated that we should not be using it, and the remaining 2% expressed another opinion with a comment. Most of those who support the employment of ChatGPT with no or few flexible guidelines tend to believe that a self-regulatory approach will automatically come into force with time. After all, as stated by one user: 'we are not kids at school. Just let us work in the most productive way.' [26]

Even more, those people who share the idea to establish some common guidelines over proper and ethical use of ChatGPT then tend to disagree on the content of such guiding principles and how to determine them. For example, Magdalena Skipper, editor-in-chief of Springer Nature, claims that prohibiting these tools will not be feasible, but we [active members of the academic world] need transparency about how such tools are going to be used in the research process. [27] But practically what does it mean? Looking at the diverse comments on such a matter posted on LinkedIn, there is scarce agreement about that. In general, notwithstanding the four cases mentioned above, the current trend seems to point toward a rejection of ChatGPT as an author due to a lack of consciousness and accountability, but an acceptance of this technology in support of certain functions – not specifically defined yet – of the research process. Once this happens, its use should occur in accordance with clear and transparent guidelines – which, however, still

have to be defined – and the researchers should clearly state its use in the acknowledgments or methods sections. Up to now, these are also the recommendations given by Nature. [11] Differently, Science has embraced a stricter policy, which rejects text, figures, or graphs generated by ChatGPT or any other similar AI tools. [12]

I questioned ChatGPT about its suitability for academic research, and the response was that it could be used if the researchers were aware of the platform's limitations and ethical issues and used it in conjunction with other techniques and tools to produce the best results. When I questioned further about the issue of transparency, ChatGPT responded that a transparent use of AI technologies could be achieved by outlining the research methods used, being open about the data used, disclosing any limitations, and taking responsibility for the outcomes. To a large extent, this is a reflection of ethical standards already adopted in the research process. As a result, even though the introduction of ChatGPT and other similar tools highlights the need to discuss new guidelines for academic research, it is possible that the changes that are required will be more limited than anticipated.

Further inquiring on the ethical matter, ChatGPT identified four main issues related to its use in academic research:

- Fairness: the model might exaggerate pre-existing biases and stereotypes;
- Privacy: there is a risk of privacy violation associated with the large amount of personal data used to train this model;
- Accountability: even though ChatGPT is capable of producing texts that are indistinguishable from those written by humans, it is not accountable for the information it provides and how they are going to be used;
- Transparency: it is difficult for users to understand and follow how AI systems like ChatGPT make decisions and generate text.

To a large extent, these are the same ethical issues raised by researchers on LinkedIn. The dominating view is that the development of guidelines and the spread of common customs might lead to a resolution of such dilemmas. At present, a key condition for the proper use of ChatGPT as a source of data is to be aware of its limits and, therefore, address its information through critical lenses. There are, on the contrary, fewer concerns related to the use of ChatGPT as a tool for text editing even if ‘the line between writing and editing is tricky.’ [27] There are also some people that expressed deeper concern related, for example, to the capacity to keep AI systems under human control or to discern between truthful and fake news. Although really interesting from an ethical perspective, these discussions go beyond the scope of this article.

Diverse opinions have been voiced concerning the long-term impact of ChatGPT and similar AI tools on researchers. This lack of agreement among people working in academia seems to be caused by the fact that ChatGPT could be used in a variety of ways. Indeed, it might produce both positive and negative effects according to the reasons behind its use. Some people are worried that ChatGPT will diminish the importance of researchers by allowing non-experts to write inaccurate, but tempting texts. Thus, it risks undermining the quality of academic research. Differently, other researchers on LinkedIn think that integrating ChatGPT in the research process might produce beneficial outcomes by reducing the time required for the preparation of an article and improving the writing style of submitted texts. In other terms, the use of this technology might support research quality by pushing researchers to focus more on aspects like, for example, critical reviews, applied research, and creative innovation. To a certain extent, the function of the researcher might consequently change. For instance, it will be simpler to fully comprehend the body of literature that is already available, yet there will be a greater need to acquire primary data and cogently organize the varied set of data. Likewise, there might be a decline in articles proposing a comprehensive literature review and an increase in those ones aimed to address local challenges. But for now, this is only guesswork, and it needs to be examined more thoroughly elsewhere.

Most academicians on LinkedIn seem, nonetheless, to agree about the need to define new standards for judging a researcher's performance. Actually, the development of better standards for research assessment was a need already felt in academia well before the rise of ChatGPT and similar language models. In other terms, ChatGPT might have just brought to light a problem that was already affecting academia for several years. Arguably, factors like the number of publications and references will become dated methods of evaluation. On the other hand, key mechanisms for evaluating quality will be related, for example, to the influence of research on societal development, the creation of new conceptual models, and the building of innovative technologies. However, to precisely define which parameters might be added to the assessment system, more research in this area is necessary.

**Conclusion.** During a lecture at the University of Cambridge, physicist Stephen Hawking provocatively stated that artificial intelligence will be ‘either the best, or the worst thing, ever to happen to humanity’. [28] This appears also to be the dilemma that many academic researchers are currently experiencing regarding the use of ChatGPT and similar tools in the research process.

ChatGPT is causing a startling effect in the educational sector because it has introduced the capacity to write and improve texts by interacting with generative AI systems. As a result, different viewpoints have been expressed about the impact of this tool on academia. Plausibly, these discussions are only the beginning. Still, some inferences are already conceivable.

First, it seems more logical to address ChatGPT as a tool that might be used to support the academic research process rather than as an author. AI lacks consciousness and agency, thus it is not possible for the AI to be held accountable for its research outcomes. Likewise, it seems more feasible and desirable to create standards for its application in academic settings as opposed to outright banning it. After all, the current flaws of this tool will probably be fixed in the near future, giving researchers a fantastic new resource with which to advance original ideas and foster innovation. At present, journals may demand that authors specifically state whether they used ChatGPT and similar tools in their research, how they did so, and for what goals. In the next future, more detailed standards will conceivably spread within the research community. In any case, the authors are still in charge of the validity, reliability, and accuracy of the information they present in their articles as well as they are accountable for any legal and ethical issues connected to their manuscript.

Second, there are still some open ethical questions related to aspects like fairness, privacy, accountability, and transparency that need to be solved. Some of them mostly require technical improvements, others are more related to conceptual-ethical discussions, while others again are a combination of both factors. The initial impression is that the novelty of this tool is causing some hesitancy and anxiety, but nothing that cannot be controlled and overcome with time. Given the most recent developments, more research is required to examine how to develop constructive interaction and cooperation between AI and humans.

Third, ChatGPT will plausibly enhance people’s capacity to write and publish academic articles. The expected result is that the number of annually released publications will further grow, thus continuing a trend already reported in academia. Contrasting opinions have been expressed about the quality of such publications: pessimists believe that disinformation and inaccuracy will prevail, while optimists are convinced that most academicians will wisely use this tool to improve the quality of their publications. Most likely, this question and how to assess the value and quality of research activities will be hot topics of discussion in the academic world for the coming years.

#### References:

1. Sato, M. and Roth, E. *CNET found errors in more than half of its AI-written stories. The Verge, 2023, January 25<sup>th</sup>. Available at: <https://www.theverge.com/2023/1/25/23571082/cnet-ai-written-stories-errors-corrections-red-ventures>.*
2. Tewari, N. *ChatGPT: 10 Most hilarious and weird responses that chat GPT has produced! Sociobits, 2022, December 14<sup>th</sup>. Available at: <https://www.sociobits.org/2022/12/hilarious-responses-chatgpt/11091>.*
3. George, E. *ChatGPT for Research Writing: Game Changer or Ethical Risk? 2023. Available at: <https://researcher.life/blog/article/chatgpt-for-research-writing-game-changer-or-ethical-risk/>.*
4. Gao, C A., Howard, F.M., Markov, N.S., Dyer, E.C., Ramesh, S., Luo, Y., and Paerson, A.T. *Preprint BioRxiv, 2022. DOI: <https://doi.org/10.1101/2022.12.23.521610>.*
5. Blanco-Gonzalez, A., Cabezon, A., Seco-Gonzalez, A., Conde-Torres, D., Antelo-Riveiro, P., Pineiro, A., and Garcia-Fandino, R. *The Role of AI in Drug Discovery: Challenges, Opportunities, and Strategies. arXiv: 2212.08104v1, 2022. DOI: <https://doi.org/10.48550/arXiv.2212.08104>.*
6. Hutson, M. *Could AI help you to write your next paper? Nature – 2022 – 611. – P. 192–193. DOI: <https://doi.org/10.1038/d41586-022-03479-w>.*
7. ChatGPT, and Zhavoronkov, A. *Rapamycin in the context of Pascal’s Wager: generative pre-trained transformer perspective. Onscience – 2022 – 9. – P. 82–84.*
8. GPT, Osmanovic Thunström, A., and Steingrimsón, S. *Can GPT-3 write an academic paper on itself, with minimal human input? Preprint at hal-03701250 – 2022 – version 1. Available at: <https://hal.science/hal-03701250>.*

9. Kung, T. H., Cheatham, M., ChatGPT, Medenilla, A., Sillos, C., Elepaño, C., Madiraga, M., Aggabao, R., Diaz-Candido, G., Maningo J., and Tseng, V. Performance of ChatGPT on USMLE: Potential for AI-Assisted Medical Education Using Large Language Models. Preprint at medRxiv – 2022. DOI: <https://doi.org/10.1101/2022.12.19.22283643>.
10. O'Connor, S., and ChatGPT. Open artificial intelligence platforms in nursing education: Tools for academic progress or abuse? *Nurse Education in Practice* – 2023 – 66. – P. 103537. DOI: <https://www.sciencedirect.com/science/article/abs/pii/S1471595322002517>.
11. Nature editorial. Tools such as ChatGPT threaten transparent science; here are our ground rules for their use. *Nature* – 2023 – 613. – P. 612. DOI: <https://doi.org/10.1038/d41586-023-00191-1>.
12. Holden–Thorpe, H. ChatGPT is fun, but not an author. *Science* – 2023 – 379 (6630). – P. 313. DOI: <https://doi.org/10.1126/science.adg7879>.
13. Stokel–Walker, C. ChatGPT listed as author on research papers: many scientists disapprove. *Nature* – 2023 – 613. – P. 620–621. DOI: <https://doi.org/10.1038/d41586-023-00107-z>.
14. Boni M. The ethical dimension of human–artificial collaboration. *European View* – 2021 – 20 (2). – P. 182–190. DOI: <https://doi.org/10.1177/17816858211059249>.
15. Cañas, J. J. AI and Ethics When Human Beings Collaborate With AI Agents. *Frontiers in Psychology* – 2022 – 13. – P. 836650. DOI: 10.3389/fpsyg.2022.
16. Flathmann, C., Schelble, B. G., Zhang, R., and McNeese, N. J. Modeling and Guiding the Creation of Ethical Human–AI Teams. AIES '21: Proceedings of the 2021 AAAI/ACM Conference on AI, Ethics, and Society, 2021, May 19–21. DOI: <https://doi.org/10.1145/3461702.3462573>.
17. Jobin, A., Ienca, M., and Vayena, E. The global landscape of AI ethics guidelines. *Nature Machine Intelligence* – 2019 – 1 (9). – P. 389–399. DOI: <https://doi.org/10.1038/s42256-019-0088-2>.
18. Hoc, J.–M. From human–machine interaction to human–machine cooperation. *Ergonomics* – 2000 – 43 (7). – P. 833–843. DOI: <https://doi.org/10.1080/001401300409044>.
19. Wang D., Churchill E., Maes P., Fan X., Shneiderman B., Shi Y., Wang Q. From Human–Human Collaboration to Human–AI Collaboration: Designing AI Systems That Can Work Together with People. Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems (CHI EA '20), 2020. Association for Computing Machinery, New York, NY, USA: 1–6. DOI: <https://doi.org/10.1145/3334480.3381069>.
20. Pérez J.Q., Daradoumis T., and Puig J.M. M. Rediscovering the use of chatbots in education: A systematic literature review. *Computer Applications in Engineering Education* – 2020 – 28 (6). – P. 1549–1565. DOI: <https://doi.org/10.1002/cae.22326>.
21. Wang, J., Hwang, G. H., and Chang, C. Y. Directions of the 100 most cited chatbot–related human behavior research: A review of academic publications. *Computers and Education: Artificial Intelligence* – 2021 – 2. – P. 100023. DOI: <https://doi.org/10.1016/j.caeai.2021.100023>.
22. Adams, D., and Chuah, K. Artificial Intelligence–Based Tools in Research Writing. In: Churi, P. P., Joshi, S., Elhoseny, M., and Omrane, A. (Eds.). *Artificial Intelligence in Higher Education. A Practical Approach*. 2022, Boca Raton: CRC Press. – P. 169–184.
23. Ioannidis, J. A., Klavans, R., and Boyack, K. W. Thousands of scientists publish a paper every five days. *Nature* – 2018 – 561. – P. 167–169. DOI: <https://doi.org/10.1038/d41586-018-06185-8>.
24. URL: [https://www.linkedin.com/posts/stevenouri\\_artificialintelligence-chatgpt-activity-7025679378852237312-3X-9?utm\\_source=share&utm\\_medium=member\\_android](https://www.linkedin.com/posts/stevenouri_artificialintelligence-chatgpt-activity-7025679378852237312-3X-9?utm_source=share&utm_medium=member_android).
25. URL: [https://www.linkedin.com/posts/dawidhanak\\_phd-paperwriting-publishing-activity-7026095200653430784-eC\\_C?utm\\_source=share&utm\\_medium=member\\_android](https://www.linkedin.com/posts/dawidhanak_phd-paperwriting-publishing-activity-7026095200653430784-eC_C?utm_source=share&utm_medium=member_android).
26. URL: [https://www.linkedin.com/posts/andrew-akbashev\\_research-science-phd-activity-7026182317219966976-Xlwx?utm\\_source=share&utm\\_medium=member\\_android](https://www.linkedin.com/posts/andrew-akbashev_research-science-phd-activity-7026182317219966976-Xlwx?utm_source=share&utm_medium=member_android).
27. Vincent, J. ChatGPT can't be credit as an author, says world's largest academic publisher. *The Verge*, 2023, January 26<sup>th</sup>. Available at: <https://www.theverge.com/2023/1/26/23570967/chatgpt-author-scientific-papers-springer-nature-ban>.
28. Macdonald, F. “Stephen Hawking says most of our history is ‘The History of Stupidity’.” *Science Alert*, 2016, October 21<sup>st</sup>. Available at: <http://www.sciencealert.com/stephen-hawking-says-most-of-our-history-is-the-history-of-stupidity>.