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THE IMPACT OF GENERATIVE AI TECHNOLOGIES ON COMPLIANCE WITH STANDARDS OF ACADEMIC ETHICS

Abstract. This publication analyzes the determinants of the use of AI systems in research activities and analyzes the potential risks associated with adherence to the principles of academic integrity. A comparative analysis of leading generative AI platforms for text output was performed. It is concluded that the use of AI tools to perform technical and support operations in particular, structuring material, formatting data, or linguistic editing of author's ideas does not pose a threat to ethical standards and qualifies as an acceptable support practice. It is proven that in modern conditions of digitalization, artificial intelligence algorithms act as a determinant of optimizing content markup strategies. It is substantiated that the implementation of generative AI systems in the processes of preparing text materials provides a number of strategic advantages, among which it is worth highlighting: optimization of resource costs: minimizing time and financial investments by automating the creation of primary text arrays and reducing dependence on external copywriting; scaling the content base: intensification of production and diversification of information product formats to meet the needs of the target audience; improving quality indicators: the use of progressive natural language processing algorithms helps to improve stylistic correctness and ensure the required level of uniqueness of content; maximizing engagement indicators: increasing the conversion rate due to a high degree of personalization and compliance with consumer information needs. It was established that the existing tools of generative artificial intelligence are characterized by significant heterogeneity. It was determined that the functional capabilities of individual services are differentiated depending on the specifics of the content, the parameters of the target audience and the economic feasibility of their implementation. A relevant selection of the most representative software solutions that have demonstrated high efficiency in recent years was made. A comparative analysis of technical characteristics, cost models, as well as an assessment of the adaptability of the specified tools to the specifics of different languages was carried out. It is proven that the dynamics of the development of the market of software solutions based on artificial intelligence is characterized by a high intensity of the emergence of new tools and continuous modernization of existing services. The processes of improving functional capabilities are accompanied by the expansion of the linguistic spectrum of systems, which gives grounds for predicting further implementation and in-depth support of the Ukrainian language within a larger number of intelligent platforms.

Keywords: artificial intelligence; software; services; scientific activity; academic integrity.

Introduction

The integration of artificial intelligence (AI) into modern social processes has acquired a comprehensive character, covering both everyday aspects and complex areas of professional activity. AI technologies are of particular importance in the scientific research field, where their potential becomes the subject of discussions regarding new opportunities and ethical challenges. This work analyzes the prospects of introducing AI tools into scientific practice, and also highlights the key problematic aspects that arise in the process of their application by researchers. Although AI systems show progress in linguistics, they are often unable to convey the specifics of scientific terminology and contextual nuances. Low translation quality is a common reason for rejection of manuscripts by reviewers of international publications (Scopus, Web of Science). The preparation of materials of this level requires the involvement of professional translators who possess a specialized thesaurus.

Analysis of recent research and publications. For a thorough analysis, it is necessary to examine software selection guidelines that take into account academic integrity requirements. This aspect has not received sufficient attention in recent publications, so artificial intelligence in scientific activities and academic integrity policy is currently the focus of contemporary research. Hryshko V., Kyrychuk B. investigate the problems of academic integrity and artificial intelligence: overcoming challenges in the educational and scientific activities of Ukraine and foreign countries [1]. Tymokhin V., Yurchenko V., Nalyvayko O. conduct a discussion in the educational space on the possibility of combining academic integrity and the charms of artificial intelligence, based on ethical issues [2]. Todorova I. identifies the components of students' academic integrity and the conditions for its formation[3]. Umanets O., Shestakova S., Sukhomlynova O., Zadorina O. study individual positional components of the issue of academic integrity: the practice of compliance in foreign countries [4, 5]. Tyshchenko D., Franchuk T., Stepashkina K., Desiatko A., Karpunin, I. analyze the problems of developing an electronic document management system and Features of accounting digitalization processes [6, 7]. Belfo F., Trigo A. analyze accounting information systems: traditions and future directions [8]. Kapiton A., Sukhorebry O., Nenich D. investigate the use of multimodal artificial intelligence in economics, education, science and transport [9]. The analysis of the necessity of using information technologies in science and their optimization for academic integrity objectives has been thoroughly examined in studies [10–15]. These works present scientific ideas and recommendations for selecting software developments aimed at achieving specific results.

Main part

Scientometric tools play a decisive role in the analysis of the productivity of researchers, which

directly correlates with the performance indicators of scientific institutions. In addition, scientists with a high rating gain authority, which allows them to join editorial boards and expert committees, directly influencing the formation of scientific policy [1, 2].

The integration of artificial intelligence (AI) opens wide horizons for researchers to optimize the processes of preparation and writing of scientific papers. However, despite the significant technological potential, the use of AI is accompanied by a number of significant risks that require careful analysis. One of the most pressing issues is compliance with ethical standards and protection of intellectual property. Since AI models are based on the processing of already existing data sets, the problem of legality of using the generated content arises. Uncontrolled use of AI when writing articles reduces the scientific value of the work and can be classified as a specific form of plagiarism. Technologies should serve as an auxiliary tool, not a substitute for the intellectual work of a scientist. A responsible attitude to authorship is critically important for the preservation of scientific ethics. The process of verifying manuscripts before publication faces the imperfection of AI detection algorithms. There are cases where original author texts are mistakenly identified as machine generated Despite the ability of AI to process colossal volumes of information, the quality of such analysis often remains superficial. The use of outdated training samples leads to the retransmission of outdated data. To ensure scientific credibility, the researcher must independently work with primary sources: professional publications, verified statistics and specialized databases, which requires critical thinking that is inaccessible to algorithms. AI is a powerful catalyst for scientific efficiency, but it cannot replace the fundamental components of research — critical analysis and deep authorial interpretation. The use of intelligent systems in science should be based on the principles of transparency, confidentiality and personal responsibility of the scientist for each presented result. High scientometric indicators significantly increase the competitiveness of researchers within grant programs and other funding mechanisms. Since foundations and private investors, when allocating resources, focus primarily on publication activity and the level of citations, scientists with a significant scientific output have significantly higher chances of receiving financial support. This verification of the author's influence guarantees investors the viability of innovative projects and contributes to the continuous professional development of the scientific team. The dynamics of the market development of software solutions based on artificial intelligence is characterized by a high intensity of the emergence of new tools and continuous modernization of existing services. The processes of improving functional capabilities are accompanied by the expansion of the linguistic spectrum of systems, which gives grounds for predicting further implementation and in-depth support of the Ukrainian language within a larger number of intelligent platforms. The list of violations of scientific ethics includes self-plagiarism, i.e. duplicating one's own previously published results without a corresponding reference. No less serious offenses are fabrication (inventing data) and falsification (intentionally distorting sources or results to support a hypothesis).

Formation of a culture of academic integrity and ethical research skills in graduate students is a critically important task of modern education. The implementation of the academic integrity policy allows you to objectively analyze the scientific level of the article, check it for compliance with the journal's requirements, and provide a comprehensive assessment of the research results [3]. Adherence to the principles of academic integrity is a prerequisite for scientific research activity, which guarantees the validity of scientific results. The process of publishing research results is based on the principles of intellectual honesty (inadmissibility of plagiarism and distortions), strict observance of copyright, transparency through Open Access mechanisms, as well as principles of objective review and inclusiveness (equal rights of authors). The innovative potential and limitations of the application of AI in the academic environment are briefly presented in Fig. 1.

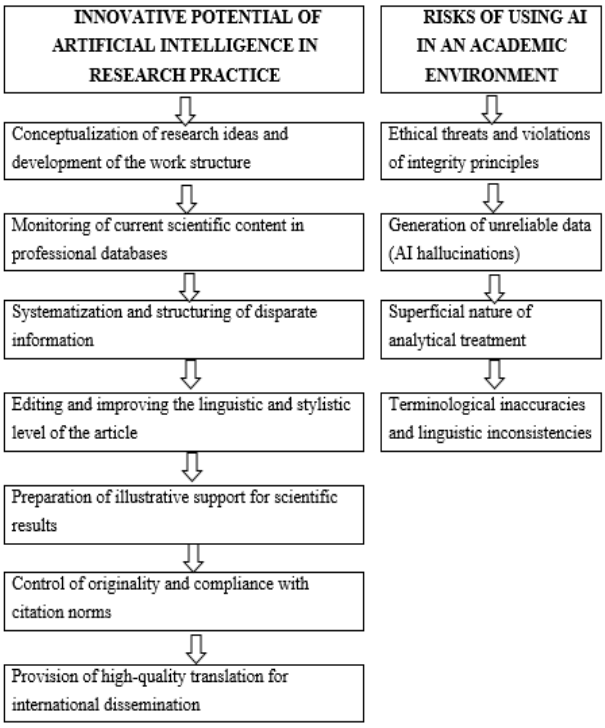

Fig. 1. The potential and limitations of AI application in the academic environment

In view of the above, when determining the expected learning outcomes for disciplines covering issues of academic integrity and scientific ethics, it is advisable to single out certain components. The communicative component is responsible for the ability to freely present and discuss research results, as well as current scientific problems in the field of professional and professional higher education in national and foreign languages. The publication component is responsible for the ability to publish the results of scientific research in domestic and international publications, as well as participate in global projects in compliance with ethical requirements. The research component is responsible for the ability to formulate and test hypotheses based on a

holistic scientific outlook, demonstrating the ability to make optimal decisions and reasoned defense of one's position based on professional ethics.

Submitting a manuscript for review is an act of transferring the results of intellectual work, the evaluation of which directly affects the professional reputation of the authors. In this process, the observance of confidentiality becomes critical: any disclosure of information about the work before its publication is interpreted as a violation of copyright. The formation of learning outcomes within scientific ethics courses should be based on the development of key skills: effective scientific communication in the international space, publication activity in world-class publications, and integration into the global research community. An important aspect is the preparation of a researcher who is able to think critically, solve complex problems and argue his own conclusions, based on a systemic worldview and the principles of academic integrity. The best AI tools for scientists, broken down by key tasks, are presented in Fig. 2.

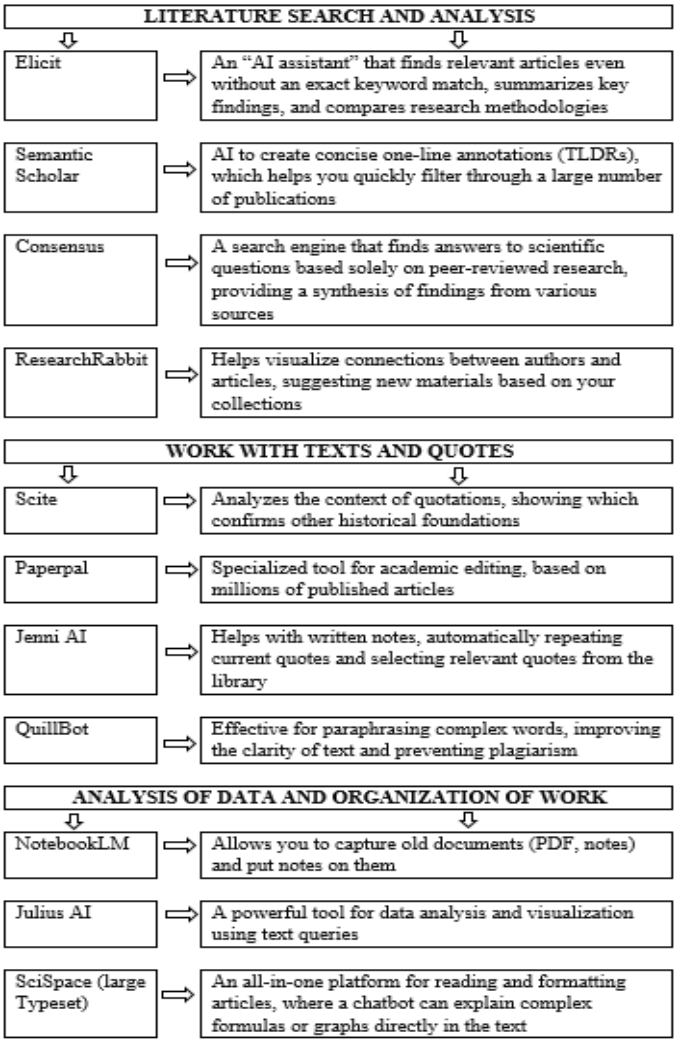

Fig. 2. The best AI tools for scientists, broken down by key tasks

Adherence to the standards of integrity requires the correct design of direct quotations with the use of quotation marks, the preservation of the original meaning of the statement and the use of an ellipsis in place of the missing parts of the sentence. At the same time, it is important to maintain a balance, minimizing the amount of direct citation in favor of the author's analysis. A separate group of violations is manipulation of authorship: co-authorship of persons who did not participate in the work, or use of paid services for writing texts. In modern realities, the covert use of generative artificial intelligence is also equated with academic fraud. In addition, submission of one manuscript to several publications at the same time and concealment of a conflict of interest are unacceptable.

Based on the analysis of functional capabilities and algorithmic base, the following instrumental solutions were identified. A comparative analysis of leading generative artificial intelligence platforms for text derivation is presented in Fig. 3. In view of the above, when designing the expected learning outcomes for disciplines focusing on academic integrity, priority should be given to the formation of the following competencies: the ability to freely present scientific achievements in national and foreign languages, publish them in leading international publications, and join global research projects. Significant scientometric achievements open up broad prospects for international recognition for researchers, in particular through invitations to participate in prestigious conferences, seminars and global research projects.

The main manifestation of the violation of academic ethics is plagiarism, which consists in borrowing someone else's ideas, results or text fragments without proper reference to the original source.

Conclusions

High positions in such ratings not only strengthen the university's reputation in the world, attracting talented personnel, but also open the way to expanding grant funding. In addition, the high scientometric status of the institution stimulates international collaboration, becoming the basis for the creation of joint research centers, exchange programs and strategic partnerships. The university's high scientometric status opens wide horizons for academic mobility, providing students and teachers with priority access to international conferences and internships. This directly correlates with the quality of the educational process: scientists with a significant research output integrate their own developments into curricula. This approach guarantees students access to the most up-to-date knowledge and advanced methodologies, which is the key to their professional growth.

Conflicts of interest

The authors declare that they have no conflicts of interest in relation to the current study, including financial, personal, authorship, or any other, that could affect the study, as well as the results reported in this paper.

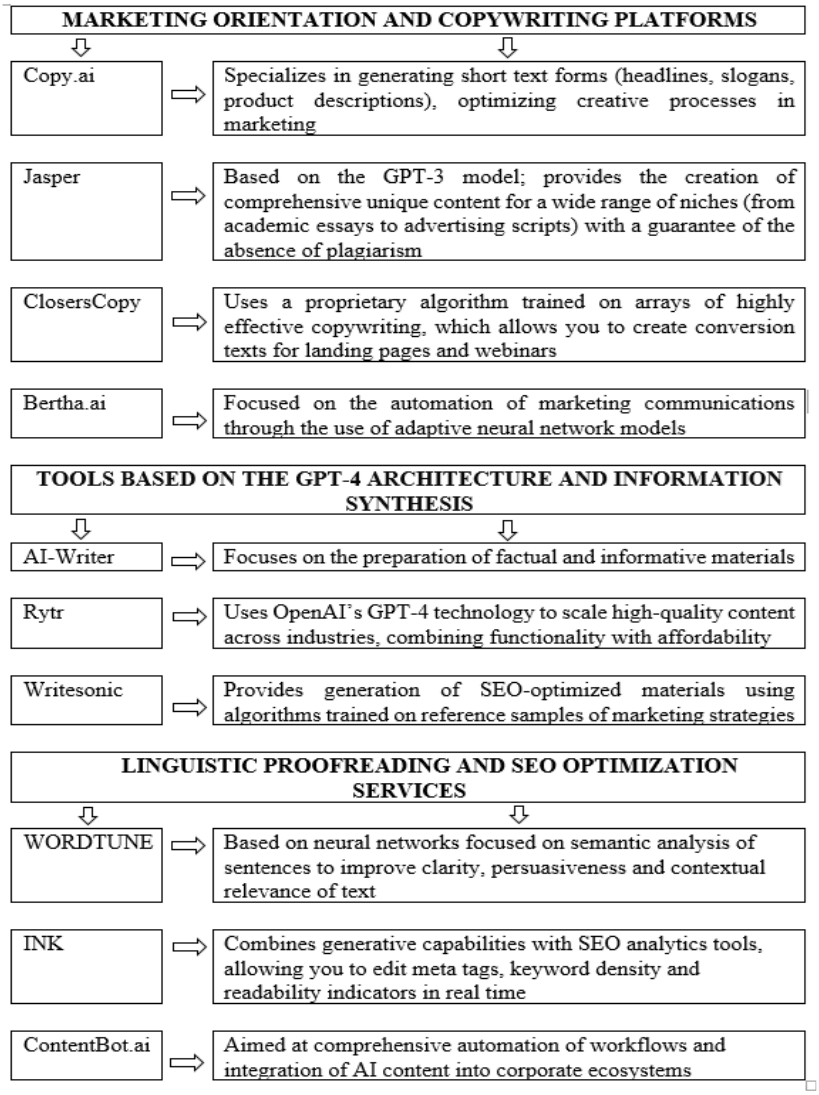

Fig. 3. Comparative analysis of leading generative artificial intelligence platforms

Use of artificial intelligence

The authors confirm that they did not use artificial intelligence technologies when creating the current work.

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Вплив генеративних технологій штучного інтелекту на дотримання стандартів академічної етики

А. М. Капітон, Т. М. Франчук, Д. О. Тищенко, О. С. Курбанова

Анотація. У статті розглянуто основні вимоги до використання штучного інтелекту (ШІ) у науковій діяльності та потенційні ризики в контексті академічної доброчесності. Виконано порівняльний аналіз провідних платформ генеративного штучного інтелекту для виведення тексту. Встановлено, що використання ШІ для технічних завдань - структурування, оформлення чи редагування власних ідей - не є порушенням етичних норм. Доведено, що у сучасних умовах цифровізації алгоритми штучного інтелекту виступають детермінантою оптимізації стратегій контент-маркерингу. Обгрунтовано, що впровадження систем генеративного ШІ в процеси підготовки текстових матеріалів забезпечує низку стратегічних переваг, серед яких варто виокремлено: оптимізацію ресурсних витрат - мінімізація часових та фінансових інвестицій шляхом автоматизації створення первинних масивів тексту та зниження залежності від зовнішнього копірайтингу; масштабування контентної бази: інтенсифікація виробництва та диверсифікація форматів інформаційного продукту для задоволення запитів цільової аудиторії; підвищення якісних показників: використання прогресивних алгоритмів обробки природної мови сприяє покращенню стилістичної коректності та забезпеченню необхідного рівня унікальності контенту; максимізацію показників залученості: зростання рівня конверсії завдяки високому ступеню персоналізації та відповідності інформаційним потребам споживачів. Встановлено, що наявний інструментарій генеративного штучного інтелекту характеризується значною гетерогенністю. Визначено, що функціональні можливості окремих сервісів диференціюються залежно від специфіки контенту, параметрів цільової аудиторії та економічної доцільності їх впровадження. Здійснено релевантну вибірку найбільш репрезентативних програмних рішень, що продемонстрували високу ефективність протягом останніх років. Проведено порівняльний аналіз технічних характеристик, вартісних моделей, а також оцінку адаптивності зазначених інструментів до специфіки різних мов. Доведено, що динаміка розвитку ринку програмних рішень на базі штучного інтелекту характеризується високою інтенсивністю появи нових інструментів та безперервною модернізацією існуючих сервісів. Процеси вдосконалення функціональних можливостей супроводжуються розширенням лінгвістичного спектра систем, що дає підстави для прогнозування подальшої імплементації та поглибленої підтримки української мови в межах більшої кількості інтелектуальних платформ.

Ключові слова: штучний інтелект, програмне забезпечення, сервіси, наукова діяльність, академічна доброчесність.