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ARTIFICIAL INTELLIGENCE IN SCIENTIFIC RESEARCH: CHALLENGES OF ETHICAL USE AND ACADEMIC INTEGRITY

ABSTRACT. *Ethical issues and questions of academic integrity arising from the use of AI in scientific research are considered. International editorial policy regarding the use of AI is analysed. It is indicated that AI should be considered as a complex research tool and not as an author. The need to establish uniform, transparent ethical standards for the use of AI in the academic community is emphasised. A model of academic integrity is proposed — critical dialogue with AI about its own work as a researcher, rather than copying or reproducing materials created by AI.*

KEYWORDS: *artificial intelligence; academic integrity; research ethics.*

INTRODUCTION. Full compliance with academic integrity requirements by a researcher is the cornerstone of conducting high-quality research. With the development of technology and changes in social relations, the requirements for scientific research ethics are constantly expanding. The rise of Artificial Intelligence has given new impetus and relevance to the discussion of the framework of ethics and integrity in scientific research.

MATERIALS AND METHODS. For the preparation of the thesis, materials from scientific articles on the topic were studied. The following methods were used: analysis, synthesis, comparison, and generalisation. For the selection of scientific sources and editing of the thesis, ChatGPT 5 was used.

RESEARCH RESULTS. The violation of academic integrity and unethical practices are considered to be: academic plagiarism, self-plagiarism, fabrication (inventing data), falsification (changing data), deception (providing false information). It is most convenient to consider the problem of ethics in the use of AI in scientific research from the opposite perspective.

For plagiarism, the key sign of a violation is the appropriation of ‘other people’s scientific results.’ In self-plagiarism, unethical behaviour appears in the violation of requirements for citing one’s own scientific results. Legally, AI cannot currently have its own ‘scientific results.’ However, AI models are already being developed that are capable of creating new hypotheses and forming interpretations of scientific ideas that go beyond a simple instrumental approach. For example, a Co-Scientist from DeepMind and a Virtual Lab from Stanford. Thus, the issue of plagiarism will require new solutions. Fabrication of data, deception, and falsification as a conscious act are impossible for AI. AI hallucinations are not intentional fraud. As well as the uncritical perception of the generated results by a scientist.

Based on the results of studying scientific sources on editorial policies, it can be generalised that publications do not define AI as an author, but require disclosure of information about its use, most often in the section on research methods [1]. The recommendations of Nature (2023), Elsevier (2023), and COPE (2023) determine the admissibility of using AI tools under the conditions of open declaration of their role. Therefore, one cannot agree with the authors of the Draft Law of Ukraine ‘On Academic Integrity’ dated 08.01.2024, who propose not to consider a person who uses AI-generated texts in an academic work (part of an academic work) as the author of that work.

However, it is indeed necessary to establish uniform, transparent ethical standards for the use of AI within the academic community. For example, to introduce a requirement for the unconditional disclosure of the types and scope of application of AI tools when conducting research and publishing its results.

The question of whether it is appropriate to somehow separate generated text from authentic authorial text in scientific works is not an easy one. This is not only a problem of methods, but also of methodology. It is closely intertwined with the concepts of 'scientific creativity,' 'scientific novelty,' and 'independence' of scientific research. It should be noted that these concepts still lack clear definitions and criteria. This complicates their correct application to texts generated by AI. What exactly does AI do — is it only compiling from a countless number of publications with a speed and efficiency impossible for the human brain, or is it really creating something new? This is where the root of the debate about authorship lies.

Currently, the general overall goal-setting, vector, trajectory, and framework for AI functioning in scientific research are determined by a human. At present, AI is a special, extremely complicated virtual tool for scientific work. It is a wonderful tool that directly expands the capabilities of the human brain's functioning. We do not doubt who is the author of discoveries in astronomy: the scientist or the telescope that has increased the capabilities of visual analysers? Or do we have doubts: is a computer programme for design modelling a co-author? However, the creation of fundamentally different AI models based on digital twin technology may soon eliminate this monopoly of human authorship. Then, the very core of ethics and the academic culture of human-AI interaction will change. Most likely, it will be cooperation and co-creation. We should get ready for this already today, by developing ethical standards with a reserve for the future.

The appearance of AI creates not only new opportunities in science but also new challenges, particularly with regard to unethical scientific practices. Specialised experts have discovered [2] numerous facts of hidden prompts being used for ChatGPT and other AI models in scientific article manuscripts. The prompts were hidden in the text in the form of white or minimal font. These were hints for AI experts to give the articles positive reviews. One such article, which had already been included in the conference materials, was withdrawn.

The ethical use of AI systems for scientific review is one of the hot topics. Springer Nature has announced an AI tool for reviewing manuscripts [3]. According to the publisher's experts, the use of AI tools reduces the time needed to review articles by 40-60% and increases the likelihood of detecting hidden violations. Critics of the use of AI for reviewing have raised concerns about the reliability of these tools. For example, AI tools for detecting generated texts may incorrectly evaluate articles by authors who are not native speakers [4] and translate with the help of AI. There is a certain consensus: AI is a tool for preliminary review of manuscripts. The use of AI instead of a human reviewer is not approved. However, it is impossible to actually ban or regulate such a practice of 'lazy reviewing.' Currently, the use of AI in the evaluation of a manuscript by a reviewer is based solely on their moral choice. This problem also awaits a solution.

CONCLUSIONS: 1. The issue of academic integrity when using AI must be addressed not only in light of current requirements, but also in light of future trends in technology development.

2. New terminological definitions of concepts that are and are not academic integrity in the age of AI should be developed. This will form the basis for the creation of a new academic culture, in which prohibitions or restrictions will not be applied, but a rethinking of the concept of ethical use of AI will take place.

3. The ideal model of academic integrity in the preparation of scientific texts is a critical discussion with AI of a self-created manuscript, rather than copying and importing generated materials. AI greatly expands the cognitive capabilities of researchers and should be not a substitute, but a partner in scientific research.

4. In order to eliminate ethical uncertainty and blurred responsibilities, scientists must transparently and honestly disclose all aspects of AI use during conducting research and publishing their results.

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ШТУЧНИЙ ІНТЕЛЕКТ У НАУКОВИХ ДОСЛІДЖЕННЯХ: ПРОБЛЕМИ ЕТИЧНОГО ВИКОРИСТАННЯ ТА АКАДЕМІЧНОЇ ДОБРОЧЕСНОСТІ

АНОТАЦІЯ. Розглянуто етичні проблеми та питання академічної доброчесності, що виникають у зв'язку з використанням ШІ в наукових дослідженнях. Проаналізовано міжнародну редакційну політику щодо використання ШІ. Зазначено, що ШІ слід розглядати як складний дослідницький інструмент, а не як автора. Наголошується на необхідності встановлення єдиних, прозорих етичних стандартів використання ШІ в академічній спільноті. Запропоновано модель академічної доброчесності — критичний діалог зі ШІ щодо власної роботи як дослідника, а не копіювання чи відтворення матеріалів, створених ШІ.

КЛЮЧОВІ СЛОВА: штучний інтелект; академічна доброчесність; етика наукових досліджень.