Using generative artificial intelligence

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Abstract. The use of generative artificial intelligence (GenAI) in scientific publications requires strict guidelines to ensure transparency, credibility, and ethics of research.

Key words and phrases: generative artificial intelligence, GenAI, taxonomy

1. Introduction

This paper should be considered as a supplement to the description of author's ethics for the journal [1].

2. Key rules for using artificial intelligence

- Disclosure of AI use. In the methods section, specify the details of the AI use: what tools were used, at what stages of the work (text generation, data analysis, visualization), date and version of the model.
- Prohibition on indicating AI as an author. AI cannot be indicated as an author or co-author, since it does not have the ability to accept responsibility for the content of the work, declare conflicts of interest, or sign license agreements.
- Citation requirements When using AI to generate text or images, you must:
  - Cite the tool used.
  - Provide the full AI output as additional material for audit.
- Restrictions on using AI for images. It is prohibited to publish images that are fully or partially created using AI, due to the impossibility of verifying the sources of data.

3. Ethical aspects of the use of artificial intelligence

- Fact-checking. Authors are required to manually check the accuracy of information generated by AI, including citations and statistics.
- Data protection and privacy. There is a risk of data leakage when using cloud services. Authors should avoid entering confidential information and use local solutions for sensitive data.
- Responsibility for plagiarism. AI-generated text may contain fragments from training data without specifying sources.

4. Recommendations for authors

– Use AI as a tool, not as a replacement for critical thinking.
– Avoid completely delegating text generation or results interpretation to AI.
– Keep logs of interactions with AI for audit purposes.

5. Acceptable and unacceptable uses of artificial intelligence

Examples of acceptable use cases for artificial intelligence [2].

– Text Generation
  – Acceptable: Artificial intelligence can help with writer's block or definitions; its use should be based on human critical thinking and judgment.
  – Unacceptable: Using artificial intelligence to generate new text is ethically unacceptable. Academic texts should be original and attributed to human authors.
– Text Translation
  – Acceptable: Using artificial intelligence to translate text from another language into English and vice versa.
  – Unacceptable: Using artificial intelligence to translate previously published work into English without subsequent editing (ethical concerns about self-plagiarism).
– Text editing
  – Acceptable: Artificial intelligence can be used to identify and correct grammatical errors, typos, and other writing errors.
  – Unacceptable: Correcting entire paragraphs using artificial intelligence without human critical thinking and judgment.
– Image creation
  – Acceptable: Artificial intelligence can create images based on text cues. This seems acceptable only if the topic of the article is automatic image generation.
  – Unacceptable: Using artificial intelligence to create visual aids such as charts, graphs, illustrations.
– Paraphrasing
  – Acceptable: Artificial intelligence can help you rephrase sentences or paragraphs to make them clearer.
  – Unacceptable: Paraphrasing without human supervision.

6. Declaration on the use of generative artificial intelligence

– All authors are responsible for providing an accurate description of the use of generative AI.
– A declaration of the use of generative AI must be provided in the article.
– Authors are required to declare and describe in detail the specific contribution of any generative AI tools and services used in the preparation of their work.
– This disclosure must include the following:
  – tools and services: a complete list of all generative AI tools and services used;
  – tool contributions: an accurate description of the specific contribution from each generative AI tool (as per the generative AI use taxonomy).

There is no generally accepted taxonomy of generative artificial intelligence usage. We will use the taxonomy of generative artificial intelligence usage contributions based on [3]. It is also recommended to pay attention to the short taxonomy [4].

7. GenAI usage taxonomy

Drafting content AI can help you write different sections of your paper, such as introductions, literature reviews, or methodology descriptions.
Generate images AI can help you generate images for your paper.
Text translation AI can help you in translating your work or reaching a broader audience.
Generate literature review AI can help you drafting a literature review section starting from a set of relevant papers.
Paraphrase and reword AI can help you express ideas in different ways, ensuring clarity and conciseness.
Improve writing style AI can offer suggestions for sentence structure, word choice, and overall flow.
Abstract drafting AI can draft a concise abstract that captures the gist of your research.
Grammar and spelling check AI can catch errors that you might have missed.
Plagiarism detection AI can help you identify potential plagiarism issues in your own writing.
Citation management AI can help format citations and references according to specific styles.
Formatting assistance AI can ensure your paper adheres to specific formatting guidelines required by journals or institutions.
Peer review simulation AI can simulate peer review by providing feedback on the strengths and weaknesses of your paper.
Content enhancement AI can suggest additional content or research that could strengthen your arguments.

8. Example declaration of use of generative artificial intelligence

The declaration may look like this.

If no artificial intelligence tools was used:

> The authors have not employed any Generative AI tools.

If artificial intelligence tools were used:

> During the preparation of this work, the authors used ChatGPT-4 and Grammarly in order to: grammar and spelling check. Further, the authors used X-AI-IMG for figures 3 and 4 in order to: generate images. After using these tools, the authors reviewed and edited the content as needed and take full responsibility for the publication's content.

The source text uses the following LaTeX environment:

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\begin{aideclaration}
…
\end{aideclaration}
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Conflicts of Interest: The authors declare no conflict of interest.

Declaration on Generative AI: The authors have not employed any Generative AI tools.

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Использование генеративного искусственного интеллекта

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Аннотация. Использование генеративного искусственного интеллекта в научных публикациях требует соблюдения строгих правил для обеспечения прозрачности, достоверности и этичности исследований.

Ключевые слова: генеративный искусственный интеллект, таксономия