Guidelines for (Generative) Artificial Intelligence in Research at UAntwerp

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English version for reference purposes only

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1. Introduction

The use and development of (generative) Artificial Intelligence (AI) open new perspectives and possibilities for research, which we at UAntwerp seek to embrace and integrate. AI tools can, for example, be used for brainstorming, as writing assistants for language editing, translating, and summarizing texts, etc. As creative assistants, AI tools for generating images can be used for creating visualizations like diagrams. Generative AI tools can also support authors in writing, validating, or debugging code, analyzing data, or as pre-reviewing assistants to assess their manuscript before submission.[1]

However, it is essential that all UAntwerp researchers at our institution (including doctoral researchers) receive adequate support to properly and creatively use tools based on (generative) Artificial Intelligence. Additionally, it is important to approach (generative) AI with research integrity and always be transparent about its potential use in research. Researchers should also keep in mind significant ethical considerations and limitations of (generative) Artificial Intelligence.

Finally, a thorough understanding of what generative AI systems can and can't do is essential. Think of literature reviews in which AI invents sources, or factual mistakes when a genAI system is used as a search engine while its training data may be outdated or incomplete. Only with a solid grasp of these systems' possibilities and limits can they be integrated responsibly into the research process.

2. Basic Principles and Legal Framework

The University of Antwerp supports the responsible use of (generative) Artificial Intelligence in research, provided that researchers consider several basic principles and legal provisions.

In the Ethics guidelines for trustworthy AI issued by the European Commission, the following basic principles are outlined:

1. AI and its use must always be lawful, ensuring compliance with all applicable laws and regulations (see Section 3: Legal Framework).
2. AI must be ethical, ensuring adherence to ethical principles and values. Trustworthy AI is based on four ethical principles: human autonomy, prevention of harm, fairness, and accountability.
3. AI must be robust, both from a technical and social perspective, as AI systems can cause unintended harm, even with good intentions.

Additionally, in December 2023, the European AI Act was approved, which applies a risk-based approach to the development of AI models.[2] The Act identifies four categories of AI systems as "**unacceptable risk**"[3]:

[1] The possibilities for the use of AI-tools are taken from: Can IJDS Authors, Reviewers, and Editors Use (and Misuse) Generative AI? | INFORMS Journal on Data Science en Arhiliuc, C. (1 March 2024). ChatGPT for research [PowerPoint slides]. Faculty of Social Sciences, University of Antwerp. Consulted on 29 March 2024. ChatGPT for research - use cases (figshare.com).

[2] Important note specifically for research as mentioned in Recital 25 | EU Artificial Intelligence Act: "*This Regulation should support innovation, respect freedom of science, and should not undermine research and development activity. It is therefore necessary to exclude from its scope AI systems and models specifically developed and put into service for the sole purpose of scientific research and development. Moreover, it is necessary to ensure that the Regulation does not otherwise affect scientific research and development activity on AI systems or models prior to being placed on the market or put into service.*"

[3] A compliance checker was developed to help organizations navigate the legal obligations of the AI Act.

- Cognitive manipulation of individuals or vulnerable groups.
- Social scoring, where people are categorized based on behavior, socio-economic status, or personality traits.
- Biometric identification and categorization of individuals.
- Real-time or remote biometric identification (e.g., facial recognition).

Recently, an update was released to the Living Guidelines on the Responsible Use of Generative AI in Research. These guidelines also outline several key responsibilities and points of attention for researchers when they use generative AI.

Moreover, as a researcher, it is essential to bear in mind that **the more responsibility is placed on the AI system, the more human oversight is required afterward.**[4] **Ultimately, the responsibility for the correctness and robustness of the information still lies with you as a researcher.**

3. Ethical Challenges and Limitations of Artificial Intelligence

If, as a researcher, you wish to use AI tools in your research, in writing or reviewing publications, or in reviewing project applications, you should be aware of several important ethical considerations and the limitations of the current systems. Just as developments in the field of Artificial Intelligence are rapidly evolving, so too are its current limitations. These guidelines will be updated as needed in response to these changes.

3.1 Source Attribution

AI-generated texts often lack proper source attribution, or the AI tool fabricates citations. As a result, it may not always be possible to correctly attribute the content to the original author, increasing the risk of plagiarism and violations of intellectual property rights. Because it is not always possible to trace the information back to the original source, verifying the accuracy of the data can also be difficult. As a researcher, it is therefore crucial that you check the accuracy of the information provided and avoid using it if in doubt.

3.2 Outdated and incorrect information

The information generated by AI systems like Copilot or ChatGPT is not always up-to-date, meaning that recent global events or specific developments in a research field may not be included. Therefore, as a researcher, it remains your responsibility to verify the information and review the current state of research through academic literature and other relevant sources.

Additionally, the model may generate information when there is a lack of data, potentially fabricating names, objects, or facts, a phenomenon known as "hallucinations."[5]

3.3 Reproducibility

The response generated by AI tools based on a prompt can vary each time the same question is asked.

[4] https://research.kuleuven.be/en/integrity-ethics/integrity/practices/genAI#1
[5] https://blog.uantwerpen.be/bladspiegel/het-verschil-tussen-menselijk-schrijven-en-ai-lege-doos-vs-intentie/

Even when attempting to regenerate a previous answer, the output may differ from the earlier version. This makes it challenging to reference AI-generated content accurately or to prove that AI was used to generate the information.

3.4 Bias

Although there is growing attention from AI developers to address bias, they currently cannot guarantee that the generated content is entirely free from bias or harmful information. This is partly because it is not always clear which sources the AI system relied on. As a researcher, it is crucial to be vigilant and not incorporate this bias into your own research.

3.5 Intellectual Property Rights

As mentioned earlier, the lack of proper source attribution increases the risk of violating intellectual property (IP) rights attached to the source data used by generative AI tools. Researchers should also be cautious about the input of data into AI systems. If IP-sensitive information is included when creating prompts, it could later be reused as a source in AI-generated responses. This is particularly true when using free online versions, which may store input data for further development of the application. By doing so, you may inadvertently disclose sensitive information with commercialization potential or data that is subject to third-party intellectual property rights, such as when reviewing a project application.

Conversely, there is also the risk that the idea of your paper, even if it does not directly have commercialization potential, could be passed on to third parties and potentially presented to other users.

For this reason, using free versions in a professional context is strongly discouraged, except perhaps to test a tool with generic information.

3.6 Privacy

AI-generated content can also potentially include privacy-sensitive information, just as it may contain IP-sensitive data. AI system developers are not always transparent about the origin of the training data used or the storage methods. It can therefore be difficult to determine whether the data was processed in compliance with the European General Data Protection Regulation (GDPR). As a researcher, you should therefore be mindful of what personal information you include in your prompts and the attachments you upload to avoid potential privacy violations. Here too, the use of free versions in a professional context is strongly discouraged, except perhaps to test a tool with generic information.

3.7 Authorship

The University of Antwerp has institutional guidelines for authors of scientific publications, specifying that every author listed on a publication must take responsibility for the content and integrity of the publication. Despite AI tools generating content, they cannot assume responsibility and therefore cannot be listed as authors on scientific publications. However, the use of AI tools in preparing a publication must still be acknowledged (see below).

3.8 Environmental Impact

The use of artificial intelligence also has ecological and societal implications. Large AI models demand substantial computing power, which comes with high energy consumption. So, as you conduct your research, always weigh the use of AI applications against their environmental impact and choose energy-efficient alternatives or local infrastructures whenever possible.

3.9 Equity

Access to powerful AI tools, data infrastructures, and expertise is unevenly distributed worldwide. The strength of an AI application can even vary depending on the language used, as well as the cost (especially when priced per token). This risk of reinforcing existing inequalities plays out both within and between research institutions, disciplines, and regions. Responsible AI use therefore also means that, as a researcher, you think consciously about inclusion, accessibility, and avoiding structural exclusion.

4. Control and Acknowledgment of Use

When researchers use AI tools to simplify certain steps in the research process, such as coding, literature reviews, text editing, etc., it is essential to keep the following rule of thumb in mind: the more responsibility placed on the AI system, the more human oversight is required afterward.[6] The responsibility for the accuracy and robustness of the information still lies with the researcher.

In addition to verifying the information provided, researchers must acknowledge the use of AI tools in their research. As mentioned earlier, AI tools cannot be listed as authors on a publication. However, the use of AI tools must be mentioned in the methodology section of the publication, presentation or doctoral thesis.

5. Use to be avoided

In light of the above and general research integrity practices, the University of Antwerp strongly advises against the following uses of (generative) Artificial Intelligence:

- Creating the core content of publications or project applications without thorough fact-checking and additional substantive editing.
- Peer review of publications or project applications by others.[7]

It is also important to check whether the chosen journal, publisher, or research funder has specific conditions regarding the use of Artificial Intelligence and to comply with those.

6. Development of Artificial Intelligence by UAntwerp Researchers

[6] https://research.kuleuven.be/en/integrity-ethics/integrity/practices/genAI#1

[7] This closely aligns with the view of the European Commission on Horizon Europe and AI https://sciencebusiness.net/news/ai/ai-has-place-research-not-evaluation-horizon-europe-proposals-commission-says#:%7E:text=New%20guidelines%20published%20on%20Wednesday,the%20evaluation%20of%20research%20proposals

In addition to the use of (generative) AI tools in research, there are also researchers at our university who develop Artificial Intelligence applications themselves. Alongside the importance of human supervision and control, it is crucial that researchers sufficiently mitigate the risks of misuse of these applications.[8] Misuse refers to the potential unethical use of research results. In exceptional cases, this can also apply to the development of AI.[9]

The development of AI technology appears on the list of critical technologies drawn up by the European Commission. The EC recommends extra attention and a thorough risk assessment for these critical technologies.[10] In cases of heightened risk or when required by a research funder or journal, the Ethics Committee for Misuse, Human Rights & Security (MiHRS) is responsible for reviewing applications and providing advice. The MiHRS committee can assist in providing mitigating measures if risks regarding misuse, human rights, and/or knowledge security are suspected.

In 2023, UAntwerp also established the Antwerp Center on Responsible AI (ACRAI). The center's mission is to promote the development, application, and dissemination of responsible AI in a wide range of fields, including healthcare, taxation, and insurance. Researchers from our university can turn to this center for questions regarding the responsible development of AI. At TextUA, the Antwerp Text Mining Centre, researchers can receive training, consultancy, or support on topics related to AI in research.

7. AI Officer and inventory of AI applications

As of 1 October 2025, the University of Antwerp appointed an AI Officer with the specific task of further developing the university's AI policy together with internal stakeholders. The role also includes ensuring that the University of Antwerp meets the requirements of the AI Act mentioned above. This involves, among other things, awareness-raising, information campaigns, and training opportunities. An AI Inventory will also be created, which is likewise an obligation under the AI Act.

The Pintra subsite AI Info Centre brings together information to support staff. There is also a dedicated email address: infocenter.ai@uantwerpen.be.

8. Sources

Arhiliuc, C. (1 March 2024). *ChatGPT for research* [Powerpoint slides]. Faculty of Social Sciences, Universiteit Antwerpen. Consulted on 29 March 2024. ChatGPT for research - use cases (figshare.com)

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ALLEA | All European Academies

[8] With the exception of the prohibited developments as mentioned in point 2: Basic principles and legal framework.

[9] For more info on ethics by design: https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/ethics-by-design-and-ethics-of-use-approaches-for-artificial-intelligence_he_en.pdf

[10] https://ec.europa.eu/commission/presscorner/detail/en/ip_23_4735

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The Act Texts | EU Artificial Intelligence Act

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