TECHNISCHE UNIVERSITÄT DARMSTADT

Recommendations of the University and State Library Darmstadt for Labelling and Documenting AI-generated Content

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1 Principles

For a text to reach scientific excellence, the principles of good scientific practice must be observed. This also applies explicitly to the use of AI tools. For the purposes of this recommendation, the term “AI tools” refers to digital tools based on artificial intelligence technologies that are used in the process of writing scientific texts.

1.1 Legal Compliance

Scientific integrity requires acting within the legal framework. When using AI technology, in addition to German copyright law[1], the EU Artificial Intelligence Act[2] and General Data Protection Regulation of the European Union[3], as well as any applicable examination regulations, must be observed.

1.2 Responsibility

When using AI tools in particular, the user of the tool bears full responsibility for complying with all requirements placed on them and their scientific work. Adherence to this principle obliges users to always check AI-generated content using appropriate measures to the best of their knowledge and belief and to adapt it if necessary. The tools may support the user's thought processes and intellectual achievements but may not replace them.

1.3 Differentiation between Own and Third-Party Work

The distinction between one's own work and that of a third party is a fundamental requirement of scientific integrity. It must be always ensured that authorship can be clearly attributed. This means that text passages and statements taken from other persons/sources must be documented with a verifiable source reference and cited. Since an AI system does not own the authorship of its output and AI products are generally neither reproducible nor guaranteed to be factually correct, the identification of AI-generated text passages cannot be considered as citating sources in the classical sense. However, unaltered AI-generated text passages that have been taken over can be labelled directly in the text (see section 2 “Labelling of AI-Generated Text Passages”). Text passages manipulated by AI tools can be documented indirectly in an AI Tool Table (see section 4 “Documenting of Special Application Forms of Generative AI (AI Tool Table)”).

1.4 Reliability of Factual Information

Factual information that goes beyond general knowledge and basic subject-specific knowledge of the scientific community addressed must always be checked for its truthfulness, relevance and accuracy in the interest of scientific integrity and must be substantiated with citable and trustworthy sources. AI tools that use generative methods are generally not citable sources for factual information unless they can guarantee the accuracy of the information. Since current generative AI systems generally do not meet this requirement, all factual information generated by these systems must be verified in the conventional manner and provided with citable[4] sources.

1.5 Scope of Mandatory Labelling and Documentation

Users of AI tools face the challenge of finding a balance between the most transparent and the most accessible use of AI tools as possible. It must be considered whether and to what extent the use of AI-

[1] https://www.gesetze-im-internet.de/urhg/index.html, last accessed on 28/02/2025

[2] https://eur-lex.europa.eu/legal-content/DE/TXT/HTML/?uri=OJ:L_202401689, last accessed on 28/02/2025

[3] https://eur-lex.europa.eu/legal-content/DE/TXT/HTML/?uri=CELEX:32016R0679, last accessed on 28/02/2025

[4] Citable sources must be reliable, verifiable (published) and scientifically sound. This includes, in particular, scientific publications from specialist journals, books or specialist conferences. Citable sources can be searched for using the TUfind search portal of the ULB Darmstadt (https://hds.hebis.de/ulbda/index.php) In addition, there are numerous (subject-specific) databases with citable sources, which are listed in the database information system DBIS (https://dbis.ur.de/TUDA//). Further information on DBIS can be found at https://www.ulb.tu-darmstadt.de/artikel_details_1664.de.jsp.

based tools should be documented directly or indirectly. If the AI output is used merely as inspiration and independent thinking clearly predominates through subsequent independent elaboration, the output can be used without the need of labelling it. Notwithstanding this fundamental consideration and the recommendations of this document, subject-specific, teaching-specific or examination-specific requirements may prohibit the use of certain AI tools or AI-generated content and may require special labelling and documentation obligations. In this regard, the regulations set by the departments responsible and/or lecturers/examiners are decisive. Non-labelling, i.e. concealing the origin of text passages and statements, may therefore be considered an attempt at deception within the meaning of § 38 APB[5], depending on the type of examination.

2 Labelling of AI-Generated Text Passages

In accordance with principle 1.3 "Differentiation between Own and Third-Party Work", an AI-generated text cannot be cited as a source in the classical sense. Nevertheless, the labelling of AI-generated text passages should be based on the existing rules for citing classical sources. Depending on the chosen citation style, it is then possible to mark direct and indirect "citations" of AI-generated text either directly in the text itself, for example in the form of a footnote, or alternatively with a reference to an entry in the list of sources. In the following four subsections, four different documentation styles for labelling AI-generated text passages are presented as examples. Determining the rules for labelling and documenting AI-generated content is the responsibility of the respective departments or lecturers/examiners (see Section 1.5 "Scope of Mandatory Labelling and Documentation").

2.1 American Psychological Association (APA)

Passages from the conversation history with an AI tool are to be labelled as the output of an algorithm in accordance with the APA Style[6]. The labelling in the text follows the following scheme:

Scheme:	([AI tool provider], [year])
Example:	(Mistral AI, 2024)

[year] refers to the year of the version used. If the associated conversation history is documented elsewhere, the reference "(Mistral AI, 2024)" can be supplemented to e.g. "(Mistral AI, 2024; see Appendix A for the entire conversation history)", by specifying the corresponding location.

The corresponding entry in the list of sources follows the template for software in the Publication Manual (American Psychological Association, 2020, Chapter 10.10). The author is given as the provider of the AI tool, while the date refers to the year of the version used. The entry in the list of sources is generated according to the following scheme:

Scheme:	[AI tool provider]. ([year]). [AI tool name] ([version]) [[type of AI tool]]. [Link to AI tool].
Example:	Mistral AI. (2024). Le Chat (Version November 2024) [Large language model]. https://chat.openai.com/chat

[5] "General Examination Regulations of the Technical University of Darmstadt (APB)", Tanja Brühl, 7th Amendment, https://www.intern.tu-darmstadt.de/media/dezernat_ii/ordnungen/apb-english.pdf, last accessed on 02/05/2025

[6] "How to cite ChatGPT", Timothy McAdoo, 07/04/2023, https://apastyle.apa.org/blog/how-to-cite-chatgpt, last accessed on 09/12/2024

2.2 Chicago Manual of Style (CMOS)

According to the CMOS[7] recommendation, it is sufficient to mention the AI tool in the text and write, for example, "The following recipe was generated by ChatGPT". A more detailed labelling can be provided in the form of a footnote according to the following scheme:

Scheme:	Text generated by [AI tool name], [AI tool provider], [date on which the AI text was], [link to AI tool or conversation history].
Example:	Text generated by ChatGPT, OpenAI, 06/03/2024, https://openai.com/index/chatgpt/.

A link does not necessarily have to be specified. Prompts can also be included in the footnote according to the following scheme:

Scheme:	[AI tool name], response to "[prompt]", [AI tool provider], [date on which the AI text was generated], [link to AI tool or conversation history].
Example:	ChatGPT, reaction to "Create me a recipe for green sauce", OpenAI, 06/03/2024

2.3 Modern Language Association (MLA)

Text passages from the AI reaction to the prompt "Create me a recipe for green sauce" can be directly labelled in the text according to the following scheme[8]:

Scheme:	("[First words of the prompt]")
Example:	("[Create me a recipe]")

The corresponding entry in the source list section is generated according to the following scheme:

Scheme:	"[Prompt]" prompt. [AI tool name], [version], [AI tool provider], [date], [link to AI tool or conversation history].
Example:	"Create me a recipe for green sauce" prompt. ChatGPT, 4o, OpenAI, 06/03/2024, https://openai.com/index/chatgpt/.

2.4 DIN ISO 690

An AI-generated text passage is labelled with a consecutive number in square brackets in accordance with the German industry standard ISO 690:

Scheme:	[[consecutive numbering]]
Example:	[23]

Detailed documentation is only provided in sources list according to the following scheme:

Scheme:	[[consecutive numbering]] [AI tool provider], [year], [AI tool name] [version] [type of AI tool], personal communication [accessed on [date on which the AI-generated text was created] [time]]. Available at: [Link to AI tool or conversation history].
Example:	[23] OpenAI, 2024, ChatGPT 4o AI language model, personal communication [accessed on 17/12/2024 approx. 9 pm]. Available at: https://chatgpt.com/.

3 Specific Application Forms of Generative AI

Possible forms of generative AI application comprise, for example, assistance with:

- Correcting spelling and grammar (not subject to labelling)
- Summarising and clarifying texts (not subject to labelling if intellectually verified)

[7] https://www.chicagomanualofstyle.org/qanda/data/faq/topics/Documentation/faq0422.html, last accessed on 19/12/2024

[8] https://style.mla.org/citing-generative-ai/, last accessed on 19/12/2024

- Rephrasing or paraphrasing texts. The use of a specific writing style or simple language may be relevant. (subject to labelling, depending on the scope)
- Translating texts (not subject to labelling if intellectually verified)
- Generating texts or writing down ideas and outlines (subject to labelling, depending on the scope)
- Structuring texts (not subject to labelling)
- Creating or optimising outlines (subject to labelling, depending on the scope)
- Collecting ideas and brainstorming (not subject to labelling)
- Identifying starting points for topics and gaining an overview of the current state of research (not subject to documenting if the information only serves as a starting point for research)
- Preparing searches, e.g. by identifying suitable search terms (not subject to documenting)
- Researching literature (not subject to documenting)
- Finding pro and con arguments[9] (subject to labelling, depending on the scope)
- Transcribing audio recordings (subject to labelling. Compliance with the German General Data Protection Regulation (GDPR) must be observed)
- Visualisation in the form of images and graphics (subject to labelling)

Notwithstanding these recommendations, the binding rules for labelling and documenting AI-generated content are determined by the respective departments or lecturers/examiners (see section 1.5 “Scope of Mandatory Labelling and Documentation”).

4 Documenting of Special Application Forms of Generative AI (AI Tool Table)

The use of AI tools can be documented indirectly in a table of AI tools, which supplements the sources list of the work. A tabular structure is recommended, which may look as follows:

Table 1: Example table for documenting the use of AI tools (based on the guideline “Leitfaden «Aus KI zitieren»” from the university of Basel)

Form of Application (e.g. formulation suggestions, text structuring, formulation of headings etc.)	**Own Contribution** (intellectual contribution, e.g. AI-generated text adapted, sources supplemented, fact check etc.)	**Affected Parts of the Work**	**AI Tool** (Name, version and provider if applicable)	**Remark** (e.g. reference to a prompt or conversation history with the AI tool)
Translation of text passages	Translation, independently verified	Entire work	DeepL Translator (DeepL SE)	
Creation of text suggestions	Extensive adaption of the phrasing	Chapter 1, p. 3, Section 2	ChatGPT 4o (OpenAI)	
Le Chat was asked about topic XY	The results were compared with own research of scientific sources	Chapter 2, p. 5-7	Le Chat (Mistral AI)	For the conversation history, see Appendix II
Reformulation of the introduction	-	Chapter 3, p. 12, first paragraph	ChatGPT (OpenAI)	
Creation of visualisations	Fig.2, p.7: heavily revised, only visualisation idea from Dream	Fig. 2, p. 7 Fig. 9, p. 15	Dream (WOMBO)	

[9] For example, with the AI tool "ArgumenText" from Summetix, which has been licenced by the ULB Darmstadt. It enables the search for natural language arguments in scientific literature. Neural networks find and summarise the pros and cons of certain topics in real time.

5 Labelling of AI-Generated Images

AI-generated images and graphics should be labelled as such directly in the caption, stating the AI tool used and its provider. If the prompts used to create the graphic are relevant to the work or its traceability and are documented elsewhere, they should be referenced in the caption.

6 Documentation of Prompts and Conversation Histories

6.1 Selecting

Prompts or, if applicable, entire conversation histories should be documented if ...

- significant contributions to the content are made:
  - The results from the AI tool flow directly into the scientific argumentation, structure, methodology, analysis, or interpretation. For example, an AI tool is used to manipulate or evaluate data and thus becomes part of the methodology.
  - The prompt leads to textual or content-related results that serve as the basis for central statements or conclusions.
- the AI tool is the subject of research:
  - The work examines the application or performance of AI models. In this case, the conversations become research data[10] and must be documented as such.
- there is a creative or non-trivial application:
  - The design of the prompt requires special expertise or creativity, which can be regarded as a significant intellectual achievement.
- reproducibility must be ensured:
  - Prompts influence the results to such an extent that other researchers must be able to reproduce or validate them.
  - The work is published in an area or framework that places special demands on reproducibility and transparency.
- the use of AI raises ethical questions:
  - The documentation should dispel concerns about manipulation, plagiarism or improper use of AI technologies.
- the respective departments or lecturers/examiners require documentation (see section 1.5 “Scope of Mandatory Labelling and Documentation”).

6.2 Saving

ChatGPT from OpenAI offers the option of saving the conversation history in the conversation view within the web browser by clicking on the "Share" button and making it publicly accessible via a web link.

ChatGPT also offers the option of exporting conversation histories in a desired data format. After entering the prompt "Make the conversation history available to me as .txt", the download link of the desired file is provided in text format. Depending on the type of use, the export can be realized in different file formats:

- Text file (.txt),
- Portable Document Format file (.pdf),
- Microsoft Word file (.docx),
- Microsoft Excel file (.xlsx),

[10] You can find more about research data at https://www.tu-darmstadt.de/tudata/tudata/digitale_forschungsdaten_an_der_tu_tudata/index.en.jsp. The official guidelines for handling digital research data at TU Darmstadt can be found at https://tuprints.ulb.tu-darmstadt.de/23200/.

- Comma-Separated-Values file (.csv),
- Extensible Markup Language file (.xml) and
- JavaScript Object Notation file (.json)

It is recommended to save at least one structured and machine-readable form of the data in CSV format so that no information is lost and it is readily available.

6.3 Documenting

Individual prompts worthy of documentation can be incorporated directly or via footnote in the running text. If there are relevant prompt sequences or shorter conversations, it is advisable to provide a web link to the conversation (if available) or the documentation in the appendix of the work. If many and/or long sequences of prompts or conversations are to be documented and this cannot be done by providing a web link, these interactions should not be part of the written work, but should be saved separately and made accessible depending on the intended use. It is generally advisable to treat this data as research data and, if available, to record it in the data management plan. If no such plan exists, the data must be referred to at an appropriate point in the text of the work.
The following applies to all three variants: if the prompts and conversation histories are not self-explanatory, they must be commented on accordingly and discussed if necessary. In the case of conversation sequences, a tabular presentation that comments on the respective prompt or AI output in an additional column can be useful. This can be particularly useful or even mandatory in the context of Bachelor's or Master's theses, for example, as proof of the necessary AI competence. Depending on the application, further columns are conceivable.

Table 2: Example table for documenting the course of a conversation with an AI assistant. The "Assistant" is ChatGPT 4o from OpenAI. The conversation was held on 04/12/2024 via a web browser linked to https://openai.com/index/chatgpt/.

Role	Input or Output	Comment
User	Which Hessian university has the greatest AI expertise?	Research question of the work. Collecting initial ideas and hints
Assistant	The Technical University of Darmstadt (TU Darmstadt) is considered the leading university in Hesse in the field of artificial intelligence (AI). It plays a leading role in the Hessian Centre for Artificial Intelligence (hessian.AI), an association of 13 universities that combines excellent research, application orientation, and the promotion of young talent in the field of AI. [...]	This answer raises questions: what is meant by "AI competence" and how can it be "measured"? Is it possible to compare AI competences? How does ChatGPT arrive at this answer? Is a source available? → Research and clarification of terms are necessary. Which methodology can be chosen to answer the research question?
User	…	…