



RECOMMENDATIONS REGARDING THE USE OF GENERATIVE ARTIFICIAL INTELLIGENCE

for research and researchers

The democratization of AI technologies does not change the basic principles of research work, not only in the area of the research itself, but also with respect to preparation and administration. Research should continue to be transparent in its methods and ethical in its execution and should strive to maximize reproducibility. When conducting research, researchers should act in accordance with the [FAIR](#) principles as much as possible.

TRANSPARENCY

Artificial intelligence is a tool for conducting research, not the author of the research. Although AI-generated results may yield new discoveries or unexpected connections that human researchers have missed, AI's role is primarily heuristic. It cannot be the author of research interpretation. It participates in it similarly to the methods of applied statistics or data visualization. The results and interpretation of research are always the responsibility of the researcher. Since generative AI in particular is capable of producing results that are comparable to human results, researchers should specify in their research methodology in a transparent manner how and where AI has been used with a view to future research replicability. Ideally, each research result should be accompanied by a separate file with outputs, prompts, and model settings.

ETHICS

Transparency for the use of AI in research is related to ethics – especially with respect to two basic points. The first is the origin of the data used for training the models, and the second is the distortions present in the data, for example, through their selection or algorithm properties. Training data should be protected against the exposure of sensitive data in the model. The behaviour of the models should then be tested for the presence of biases – gender, racial or other, which could be implicitly hidden in the nature of the data used. As in the case of transparency, the researcher has full responsibility in the area of ethics as well.

■ REPRODUCIBILITY

Last but not least, the transparency of research methodology, including the use of AI, is related to its reproducibility. In the interest of the reproducibility of research, it is advisable to publish the datasets and source codes used for training and testing AI, as long as it is not in conflict with the protection of personal data and intellectual property.

If your own model or a trained model is used in the research process, such a model should ideally be published in the interest of reproducibility together with the code, data, and exact parameters used for its training.

In the case of using AI for qualitative research, the prompts or codes used for coding the data relating to qualitative research should be published. In the case of generally available models, complete and accurate information about parameter settings should be provided, such as hyperparameters, which may influence research results.

■ AI'S ASSISTANT ROLE

In addition to its role in direct research, artificial intelligence also has a key role in assistance tasks that contribute to the efficiency of a researcher's work. For example, AI can automate the generation of text for project design purposes, allowing researchers to focus more on the research itself than on the excessive administration surrounding it. However, AI can, for example, automate even routine tasks in data analysis, such as cleaning, transforming, and visualizing datasets.

The implications for using AI in this manner are far-reaching and can affect the dynamics of the research environment. Intensive use of AI tools can create benefits for those who use them and widen the gap between researchers and workplaces that use AI and those that do not. In this context, it is essential for support providers to consider how to respond to this change.

We encourage research institutions to support their researchers in acquiring the skills to work with AI and to provide them with adequate facilities and resources to do so. This is the only way to fully utilize the potential that AI offers for research and development.