

Best Practices in the Use of Artificial Intelligence in Writing Diploma Theses

Introduction

Technological progress provides tools which create new development opportunities, enriching human work practices while simultaneously posing challenges in the process of their application. Tools utilising Artificial Intelligence offer broad opportunities in the fields of science and education. The development in this area should not only focus on acquiring skills to use these tools but should also encompass their competent use with a full awareness of their advantages and disadvantages.

The aim of this document is to indicate best practices for utilising generative Artificial Intelligence in the process of writing diploma theses, allowing for the development of competencies for both students and supervisors in this area.

Generative Artificial Intelligence enables generating new content, for instance, texts, images, videos, sounds, etc. While choosing the use of content-generating systems, students and supervisors should consider the following best practices and recommendations.

1. Ethical Principles of Writing Diploma Theses

The starting point for utilising generative Artificial Intelligence is an understanding of the ethical principles underlying scientific work, including the writing of a thesis.

The thesis is a student's own work prepared under the guidance of a supervisor. However, the process does not have to exclude the use of generative Artificial Intelligence tools.

Independence while preparing the thesis means that the student is the main author as well as the person responsible for the entire content, structure, and message of the work. Specifics of independent thesis work include:

- **Originality of thought:** despite using generative Artificial Intelligence tools, the main theses, arguments, and conclusions are the effects of work of a student.
- **Understanding and critical analysis:** the student fully understands all issues, data, and arguments presented in the work and can critically assess and analyse information, regardless of its origins.
- **Active participation in the research process:** under the guidance of the supervisor, the student decides on research directions, selects methods, and evaluates their appropriateness.
- **Responsibility for errors and inaccuracies:** if errors occur in the work due to suggestions from generative Artificial Intelligence, the student is responsible for them.
- **Transparency:** the student declares the extent of the use of generative Artificial Intelligence in the work, in accordance with the rules applicable at the University.

2. Recommendations for Using Artificial Intelligence in Diploma Theses

While using generative Artificial Intelligence tools, students should:

- be aware of personal responsibility for the contents of the thesis,
- understand their technical limitations, especially in terms of potential errors ("hallucinations"), instability in the quality of responses (varying quality depending on time), bias, and possible violations of intellectual property rights (plagiarism),
- consult the supervisor about the purpose of using a specific tool and the scope of its use in the preparation of the thesis,
- subject the received output data to critical analysis (fact-checking), especially regarding the literature used, facts mentioned, and opinions presented (bias checking),
- properly inform, in the Introduction to the thesis, about the use of such tools, for example, through the following formula:

"In the process of preparing this thesis, the following generative Artificial Intelligence tools were used: [Name and version of the tool or service], in the following scope: [e.g., to formulate research goals and questions, to create the structure of the work, to explain concepts, for language and grammar correction, for summarizing the following articles/sources, etc.]. The content obtained through the use of these tools has been verified and edited by the author, who bears the responsibility for the entire work."

Supervisors are also recommended to:

- define the framework for the use of generative Artificial Intelligence tools for a particular thesis,
- promote knowledge and raise awareness among themselves and students about the possibilities and limitations of generative Artificial Intelligence tools,
- work systematically with their students in order to monitor the independence of their work.

Statement:

In the process of creating these recommendations, the support of Artificial Intelligence ChatGPT (version 4.0) from OpenAI was used to clarify and complement certain aspects of the document.