

APPROVED

Resolution No. 178-06 of the Senate of
the Lithuanian University of Health
Sciences of 18 April 2024

GUIDELINES OF THE LITHUANIAN UNIVERSITY OF HEALTH SCIENCES, FOR THE USE OF ARTIFICIAL INTELLIGENCE IN STUDIES, RESEARCH, INNOVATION AND CLINICAL PRACTICE

Introduction

In the process of rapid development of artificial intelligence (hereinafter – AI) technologies, the Lithuanian University of Health Sciences (hereinafter – LSMU, University) establishes and undertakes to ensure the ethical, legal and socially responsible development and use of AI technologies for studies (teaching and learning), study administration process, research and innovation, and clinical practice.

Pioneers of the idea of artificial intelligence (Alan Turing, John McCarthy, etc.) defined artificial intelligence as the ability of a machine to imitate the intellectual activities of a human being. Today, artificial intelligence is defined as the ability of a machine to simulate human thinking and behaviour (*Encyclopaedia Britannica* (2023), *Merriam-Webster Dictionary* (2023)). The term artificial intelligence covers a wide range of techniques and technologies, such as machine learning, deep neural networks, which are applied to natural language processing, data mining, computer vision, robotics and other systems capable of learning, adapting, and making optimised decisions.

Artificial intelligence should primarily be a human-centred technology, meet the needs of society and create wealth, so at the university AI technologies must be implemented in order to ensure the most important values of Europe, Lithuania and the University. The guidelines apply to university students, listeners, academic and non-academic staff, human and animal health and animal care professionals.

Use of AI in the study process

Artificial intelligence opens up a wide range of application possibilities by optimising study administration processes, creating interactive individualised educational solutions that improve teaching and learning experience. Natural language processing technologies, machine learning and incentive learning algorithms, computer vision technologies can help create a more playful, engaging, simulation-based, personalised study process, automated assessment of achievements and feedback in real time. Also, these technologies help monitor the student learning process, predict student achievement, identify students with difficulties early in the learning process, provide personalised academic support. In order to take advantage of the opportunities offered by AI in studies, it is important to:

- (1) implement and adapt research infrastructure conducive to the use of AI and to mobilise qualified human resources;
- (2) ensure that the benefits of AI technologies contribute to equal opportunities for all members of the University community;
- (3) introduce lecturers to innovative AI tools based on teaching and student achievement assessment methods;
- (4) aim to train students from the very beginning of their studies in the methods of applying AI tools (e.g., query engineering, data analysis and visualisation).

The potential of increasing public access to generic artificial intelligence (GenAI) (e.g., *ChatGPT*, *Google Bard*, *MagicSchoolai*, *Stable diffusion*, *Adobe Firefly* etc.) – AI technologies are used to create new content (text, images, music and other media forms). This technology can be integrated into the teaching/learning process, but only

by ensuring that GenAI and other AI technologies are aimed at improving, but not replacing, student learning.

Using GenAI the administrative staff, lecturers and students are responsible for using GenAI to generate and/or publish generated content, its accuracy and/or fact-matching in reality and must manage the following and other unforeseen risks:

Human Rights and Privacy: No AI technology and its uses shall jeopardise a person's right to privacy and other human rights.

Data protection: GenAI can learn from user data, so the university's institutional, staff and student personal data, documents and other confidential information can only be processed using secure trusted GenAI systems approved by the University's Information Technologies Centre. Confidential data, i.e., data that is not and cannot be made public (all personal data, internal university documents, students' works, assignments provided by lecturers, etc.), is prohibited to be placed in GenAI systems, which use the uploaded data for further system training. The authorised use of GenAI systems at the University is approved and published by the Information Technologies Centre. If you have any questions about the reliability of the GenAI system, it is recommended to consult the Information Technologies Centre.

Data protection: GenAI can learn from user data, so the university's institutional, staff and students' personal data, documents and other confidential information can only be processed using secure, reliable GenAI systems approved by the University's Information Technologies Centre. Confidential data, i.e., data that is not and cannot be made public (all personal data, internal university documents, students' works, assignments provided by lecturers, etc.), is prohibited to be placed in GenAI systems, which use the uploaded data for further system training. If you have any questions about the reliability of the GenAI system, it is recommended to consult the Information Technologies Centre.

Bias: The quality of the results provided by GenAI depends on the quality of the data used for AI training, so that the results can be biased and/or discriminate against certain social groups and/or their behaviour. GenAI users must ensure and are responsible for ensuring that the published content of GenAI is ethical and does not violate the LSMU Code of Ethics.

Reliability of information: GenAI may use unreliable, outdated, non-scientific or non-existent sources of information to provide the results, therefore GenAI users must make sure that the information they publish is correct and assume full responsibility for the reliability and accuracy of the facts they publish.

Quality of content: The quality of content generated by GenAI depends to a large extent on the quality of requests, therefore, it is important to increase literacy in the field of AI use by integrating topics of reliable artificial intelligence (e.g., query engineering, ethics) into study programmes.

Copyright: The results of GenAI tools can be created in violation of the copyrights of others, so it is important to use only reliable tools that do not violate copyright. It is forbidden to use GenAI for processing works of other authors (e.g., to paraphrase the ideas of another author, to process the image of another author, etc.) in order to present them as their own.

Authorship: GenAI cannot be attributed to authorship because AI tools are not moral entities, so GenAI generated content cannot be used (e.g., quoted, paraphrased) as human-made works are used. GenAI tools may be used without separate instruction to collect, analyse and summarise information, edit or translate content created by the author in other languages, but it is forbidden to publish original content generated by GenAI or parts thereof as their own without indicating that the work or parts thereof were created using GenAI.

Recommendations for the use of AI in studies:

- In order to ensure that AI technologies and/or their results do not endanger individuals, communities and society, protect the university's academic reputation, it is necessary to develop or use only ethical and transparent AI tools that comply with the requirements of European Union and national legislation.

- The integration of AI technologies into the study administration processes is encouraged, but the AI technologies used to administer studies must comply with the General Data Protection Regulation of the European Union, respect human rights and democratic values. Participants of the study process must be familiarised with and agree that their personal data is used to improve the study administration processes and provide personalised services.
- Lecturers are recommended to integrate AI technologies into their studies by assessing whether their application would enrich the study experience and improve the student's achievements. The use of GenAI in a particular study subject (module) is decided by the lecturer, if necessary – agreed with the study programme committee.
- Lecturers are recommended to describe the rules of use of GenAI in the strategy of evaluation of achievements of the subject description. In the subject (module) *Moodle* account, in writing and during the first session, the tutor must familiarise students verbally with the possibilities, limitations of using GenAI and inform them about the consequences of improper use of GenAI (e.g., uncredited work, requirement to defend the prepared work orally, analysis of the evidence for academic dishonesty).
- Lecturers, submitting tasks to students, must evaluate and manage the risks of using GenAI for the performance of tasks. GenAI detection software are of low reliability, therefore, it is recommended to provide tasks and evaluate student achievements according to such criteria, so that generative artificial intelligence alone would not be sufficient to successfully perform the task (for example, divide and evaluate tasks in parts, evaluate achievements orally, evaluate not knowledge, but critical thinking, the ability to use information to solve specific problems, etc.).
- Lecturers using GenAI to formulate tasks must inform students if the content of the task has been generated by GenAI and explain the purpose of preparing such a task.
- Lecturers using GenAI to provide feedback must ensure that the feedback generated reflects the essence of the work presented and does not violate human rights and democratic values. At the end of the feedback, it is necessary to inform if GenAI has been used to create the feedback, to provide the method and scope of use (for example, to summarise feedback provided by several lecturers), together with an indication to the person whom the student could contact in case of questions.
- Students are required to follow the assignment conditions and the procedure for using GenAI provided in the achievement assessment strategy when performing the task. The use of GenAI in unauthorised ways is seen as academic dishonesty. In case of suspicion of dishonest use of GenAI, the student must provide evidence of the authorship/self-reliance of the work (e.g., sources used, describe the underlying presumptions of the concept and additional proof).
- If GenAI has been used in the preparation of independent work (project), the terms of use of GenAI must be described in the Annex or part of the methodology, the purpose of the use of GenAI (e.g., ideas, text elements, summaries, arguments, generalisations, evidence, etc.), which GenAI software and the software version were used.
- If part of the text was generated using GenAI, the part of the generated text must be indicated in quotation marks, together with the name of the GenAI software, the date of creation of the text and in quotation marks – the query used.¹ For non-text GenAI outputs (e.g., images, music, diagrams), indicate the GenAI software used, its version and the date of creation and, if specified in the subject study requirements, submit the query used. GenAI is not listed as a separate source in the literature list.
- All AI users assume personal responsibility for the ethical and socially responsible use of AI and the risk management associated with it.

In order to ensure the implementation of these guidelines in the study process, the University provides that:

¹ [How to cite ChatGPT \(apa.org\)](https://apa.org)

- The University Study Centre, the Information Technologies Centre and the Equal Opportunities Coordinator ensure that the AI technologies used to administer the studies and approved by the University are transparent and ensure equal opportunities for all applicants, students, as well as resident doctors, doctoral students and lecturers, would not violate human rights and democratic values.
- The innovative Education Department and the Information Technologies Centre of the University's Study Centre organise continuous training of the University's staff and students, information events (for example, using info days) dedicated to the latest achievements of AI and GenAI technologies and their integration into the teaching/learning process, opportunities and risks, provide methodological support to faculties and Study Programme Committees.
- The University's Information Technologies Centre establishes a list of reliable AI systems, provides methodological assistance and advises lecturers and students on the risk assessment of the choice and use of AI tools.
- Faculties, together with Study Programme Committees, ensure that students have sufficient competencies to use AI technologies qualitatively and responsibly, as well as, on the basis of these guidelines, establish rules for using GenAI for the preparation of final and other written works.
- Inappropriate citation or use of GenAI is seen as an academic dishonesty. In the event of suspicion of improper citation of GenAI, the commission formed for the assessment of academic dishonesty does not rely solely on AI detection software because of its low level of reliability but uses an expert assessment to determine whether the student has provided the content generated by GenAI as their own without indicating the source.

The use of AI in research and innovation

The development and application of artificial intelligence (AI) algorithms in scientific research due to the ability to analyse huge amounts of data is of paramount importance in the search for new treatment methods, development of new medicines, development of personalised and precision medicine, optimisation of the healthcare system, automation of part of the research activities (e.g., image analysis, data processing, literature search, proofreading/editing).² AI is one of the most recent but least researched innovations of humanity, whose ethical and legal regulation is very dynamic. In the development and deployment of AI systems, researchers must comply with European Union and national legislation, exclude prohibited practices related to AI, and the AI systems they develop must be legal, ethical and durable from a technical and social point of view, providing benefits for humans and society.³ The legitimacy, ethics and credibility of the AI cannot be seen as a whole but as a set of complementary principles.⁴

Therefore, the Lithuanian University of Health Sciences encourages the development and application of ethically and socially responsible and human-oriented artificial intelligence in scientific research. Researchers developing, implementing or using AI systems must ensure transparency, fairness, clarity, accountability (the four principles of AI explainability) and follow a human-centric approach:

Reliability. The AI systems must be technically safe and reliable. Researchers must critically assess the accuracy, reliability and compatibility of AI technologies developed, deployed or used with the research area.

² for more on the benefits and threats of using AI in research, *see*. Van Noorden R, Perkel JM. AI and science: what 1,600 researchers think. *Nature*. 2023 Sep 1;621(7980):672-5.

³ the artificial intelligence act adopted by the European Parliament prohibits the following practices related to AI: researchers are prohibited from developing artificial intelligence systems that would cause physical, psychological or social harm by means of subliminal manipulation, exploitation or real-time remote biometric identification, etc. High-risk artificial intelligence systems that can harm human health, safety and fundamental rights or the environment can only be developed with the permission of the responsible supervisory authorities and with the maintenance of the entire life-cycle of the technology. Other AI systems must meet certain transparency requirements that allow consumers to make informed decisions and must be implemented in accordance with ethical standards. https://www.europarl.europa.eu/doceo/document/TA-9-2024-0138_LT.pdf

⁴ High level group of experts on Artificial Intelligence. Guidelines on the Ethics of Trustworthy AI, April 8, 2019. https://www.europarl.europa.eu/meetdocs/2014_2019/plmrep/COMMITTEES/JURI/DV/2019/11-06/Ethics-guidelines-AI_LT.pdf

Transparency and explainability. In order to increase public confidence in AI systems, researchers must transparently describe the research methodology, algorithms and models of AI systems developed or used, carefully check and validate the results, conclusions and solutions obtained with AI technologies. When implementing or using generic Artificial Intelligence (GenAI), researchers must inform users that the content is created using AI, provide a summary of the copyrighted data used to teach. It is recommended to document GenAI queries.

Responsibility and accountability. AI tools cannot replace human responsibility and accountability because they are not moral subjects. Researchers are accountable for the development and deployment of AI systems and take responsibility for the results of the AI systems they use. Researchers must disclose the techniques used in AI and the data used in teaching to the responsible authorities, and in case of uncertainty, an audit must be possible.

Academic honesty and authorship. Researchers must declare the use of AI tools or AI-based content. In publishing their research results, researchers are required to disclose the use of AI technologies (such as GenAI) (which, for what purpose and to what extent they have used them) and clearly distinguish the content created by AI technologies from human thought. Generally, it is recommended to use AI tools only to improve text language, but not to generate new text.⁵ Authors of scientific publications may only be responsible natural persons.

Copyright. The use of AI may not directly (in the context of the development of new systems) or indirectly (in the case of systems already developed) infringe copyright. The extraction of copyrighted texts and data for research purposes may be carried out without prejudice to the provisions of the Law on Copyright and Related Rights of the Republic of Lithuania.

Open science. The researchers must ensure that research data used for AI systems comply with the principles and requirements of the European Union project FAIR data management in the future 2020, i.e., the data are Findable, Accessible, Interoperable, Reusable (FAIR), unless there is a risk of unlawful or malicious use of data or systems (e.g., a threat to national security, human rights).

Data protection. Researchers must ensure that data for AI systems is collected, used, archived, disclosed, deleted, they are shared in accordance with the requirements of the General Data Protection Regulation and other relevant legislation. Non-personalised data may not be placed in publicly available AI systems, unless data privacy is guaranteed, That is, when AI systems do not store and use the data, queries and responses provided for further training of the AI system. If there are any questions on how to recognise this function and/or obtain approval, it is recommended to contact the Information Technologies Centre (ITC).

Harmlessness and benevolence. No physical, psychological, social, cultural, political, economic harm can be caused to any person or human community at any stage of the life cycle of AI systems, so researchers must carefully assess the risks and reflect on the possible social impact.

Responsible innovation. Researchers must prevent the development and use of AI technologies that support and promote discrimination, hatred and harm the dignity of a person. Researchers need to make AI systems work for the well-being of humanity, including future generations, individuals, society, and the environment, and ecosystems.

Respect for diversity. Respect for diversity and inclusion, non-discrimination and the protection of vulnerable groups in society must be ensured throughout the life cycle of AI systems, promoting the active participation of all persons or groups, regardless of racial and ethnic origin, gender, age, language and other features of identity. Researchers must ensure that the data used for the training and testing of AI systems are not biased, discriminatory or reproducing undue bias.

Respect for human autonomy. AI systems should not unduly restrict people's self-determination, freedom and influence their decisions. Rather, the development and deployment of AI technologies must enhance people's autonomy, creativity, respond to their needs and values, and leave people with the opportunity to make meaningful choices.⁷

⁵ one example of such a requirement: <https://www.sciencedirect.com/journal/parkinsonism-and-related-disorders/publish/guide-for-authors>

Justice. AI systems must be designed, implemented and used correctly, ensuring a uniform distribution of benefits and costs among all stakeholders, as well as equal access to AI technologies and their benefits.

The life cycle of the AI system. Researchers must ensure compliance with the above requirements throughout the life cycle of AI.

Improvement of competencies. Researchers must aim to integrate AI technologies into research, personal development and skills development in AI technology development and applications.

In order to ensure the implementation of these guidelines in science and innovation, the University provides that:

- New or installed AI systems must be subject to an AI risk assessment.
- All researchers who deploy or use AI for research purposes must receive an assessment of compliance with research ethics, including risk assessment for AI, from the Ethics Committee at national, regional or university level.
- The University's Research Ethics Committees assess the risks of using AI if AI systems are used in the study. If necessary, Ethics Committees have the right to consult with AI experts.
- The Information Technologies Centre of the University carries out security assessment of the AI systems being implemented.
- The innovative Education Department and the Research Centre of the University's Study Centre initiate and organise AI training for beginners and advanced researchers based on the Description of the Procedure for the Development of competences of Academic and Non-Academic employees of the Lithuanian University of Health Sciences (approved by the Senate Resolution No. 173-06 of 30 November 2023).

Use of AI in clinical practice

The use of artificial intelligence tools in healthcare offers many opportunities to improve patient care and quality of life. The integration of AI technologies into healthcare systems can contribute to more effective healthcare solutions, faster and more accurate diagnostics, facilitating clinical and administrative, managerial decision-making. The potential benefits of AI in clinical practice are significant, but it is important to ensure that AI technologies are implemented in line with the patient-centred values and ethical principles prevailing in traditional healthcare, human and patient rights and ensure the protection of personal dignity. In the field of veterinary medicine and animal care, AI technologies are not subject to such strict requirements as compared to human care, and caution is therefore needed to ensure that the use of AI does not violate the principles of professional ethics and animal welfare.

When implementing AI systems in healthcare institutions of LSMU, it is important to ensure:

Autonomy of the person: AI systems must not undermine individual autonomy: healthcare professionals must be able to control healthcare systems, and patients should be able to participate in medical decision-making. When implementing GenAI patient care (e.g., registration, complaint/feedback) systems, direct contact with the responsible employee must be ensured.

Validity and reliability: The AI introduced into medical devices is classified as a high-risk AI due to potential adverse effects on patient health and human rights. Only licensed, reliable, secure and fully technology-driven AI systems can be deployed in institutions with a clear and medically, legally and ethically sound purpose.

Transparency and explainability: Machine learning algorithms operate on the principle of black box, so it is important to ensure that AI tools, objectives, decision-making logic, algorithms bias would be understood by healthcare professionals and other users to ensure that AI solutions are safe, medically meaningful and useful.

Responsibility and accountability: AI is not morally and legally responsible for decision-

making; the ultimate responsibility lies with the human. Healthcare professionals must take responsibility and accountability for the decisions they make, report any errors, inaccuracies or damage caused by the AI. The establishment must have a system for monitoring adverse events associated with the use of AI. Patients must be informed of the risks and benefits of using AI.

Confidentiality and data security: In healthcare, AI systems collect and process highly sensitive patient health data, so only data protection AI systems can be deployed in institutions. The development and implementation of tele-medicine and the Internet of Things technologies, data collection, processing and healthcare services can go beyond the institution, and it is therefore essential to ensure that data is collected, transferred and processed in accordance with the provisions of the General Data Protection Regulation and using effective cybersecurity measures. Patients must be informed about what, for what purpose and by what means personal data is collected and processed, and about the data security risks. Patients must also be informed and be able to refuse to provide data for the training of AI systems.

Sustainability: The use of AI to improve the infrastructure of a health care institution can be beneficial in creating sustainable solutions that are patient, staff and environmentally friendly. On the other hand, when designing and implementing AI systems, it is important to ensure that individuals, communities and ecosystems are as exposed as possible, for example by prioritising energy-efficient systems.

Competence: Staff implementing and operating AI systems shall have sufficient knowledge and skills to understand the basic operating principles, advantages and disadvantages of the AI system being deployed and to be able to critically evaluate the solutions proposed by AI.

Availability: Artificial intelligence technologies should be designed and used in a way that respects diversity, prevents or reduces discrimination and bias. It is important to ensure that all patients with similar needs have equal access to the benefits of AI technology. It is important to reduce the digital divide between workers, to create opportunities for all workers, especially older and lower education, to constantly improve according to individual needs and to be ready to use AI tools in the workplace competently.

In providing healthcare, AI-using healthcare professionals and other employees must integrate the following bioethics principles into decision-making:

Respect for the person: It is forbidden to put AI systems above people, it is important to take into account the values and needs of specific patients. Automated AI solutions cannot completely replace interpersonal communication, the interests of the healthcare system cannot be placed above the interests of the patient, patients cannot become hostages of medical technologies – it is necessary to ensure that patient-oriented decisions are made which meet the patient's needs.

Benevolence: When making medical decisions, AI systems can only be used to make sure that it improves patient outcomes and quality of life.

Harmlessness: In order to prevent possible harm, AI systems cannot be blindly trusted, it is important to critically assess the suitability of AI tools for a particular patient and to recognise the risks of AI solutions.

Autonomy: When making medical decisions based on AI tools, it is necessary to ensure the patient's or their legal representative's right to make the final decision.

Informed consent: If medical decision-making uses AI tools, patients or their representatives must be informed and consent to the integration of AI solutions into decision-making.

Confidentiality and data protection: It is necessary to ensure the confidentiality of patients and data security through the use of information systems of the institution. When organising remote care by tele-medicine means, it is important to ensure the patient's access to confidential advice in the patient's environment.

Justice: When providing healthcare, it is important to ensure that all patients have equal access to the benefits of AI technology, regardless of the patient's sociocultural characteristics. Healthcare professionals must assess the risk of bias in AI solutions when making individualised patient decisions, especially if patients belong to too few demographic or social groups represented in the AI

system.

At LSMU Veterinary Clinics and Animal Care institutions it is important to ensure that:

- The AI systems introduced are transparent, reasonable and reliable, used only for the species for which they were created.
- AI systems shall be used only after the assurance that the health and welfare of animals treated and cared for will be ensured and reasonable and professional ethical decisions applied. It is important to ensure that AI solutions do not harm biodiversity and the well-being of ecosystems.
- Decisions based on AI tools must preserve the possibility for animal owners, veterinarians and other animal care professionals to make the final decision assessing the benefits and risks of the decision.
- Prior to making decisions based on AI tools, it is necessary to inform animal owners and obtain their consent to the integration of AI solutions into animal care. It is also necessary to inform animal owners about the additional financial costs (if any) associated with the use of AI. Animal data for AI can only be used with the consent of the owners.
- Data that can be identified by the owners and authority of animals must be protected in accordance with the General Data Protection Regulation. The non-personalised data of the animal owners, as well as data on the animal from which the owner could be identified, may not be placed in publicly available AI systems, unless data privacy is guaranteed, i.e., when AI systems do not store or use the data, queries and responses provided for further training of the AI system.
- When providing animal health services, it is important to ensure that the benefits of AI are provided to the widest possible range of animals and their owners.

In order to ensure the efficient and safe use of AI systems in the provision of healthcare services in LSMU human and animal healthcare institutions, the University provides that:

- The managers and responsible staff of the University's institutions ensure that the AI systems installed in the institution are safe, transparent and reliable.
- The staff responsible for the implementation of specific AI systems in the workplace shall organise staff training on the principles of operation of the installed system, the logic of AI solutions, the advantages and disadvantages of AI systems, be informed that the final medical decision is made by the responsible specialists.
- The University Centre for Post Graduate Studies provides regular and continuous training of employees in the field of AI in order to increase AI literacy, reduce digital exclusion; special attention is paid to developing critical thinking in the field of AI and to maintaining human interpersonal communication with the patient or in animal care – with the owner of the animal.

These guidelines may be updated in the light of technological progress and the changing legal, social and cultural context.