

AI IN DOCTORAL RESEARCH

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Abstract

This paper examines the impact that the use of artificial intelligence has on doctoral research activities and, in particular, on the drafting of doctoral theses. In light of the accelerated adoption of this technology and its integration into widely used devices and software programs, it is emphasized that the use of artificial intelligence is becoming inevitable. The paper focuses on the modalities of use of this technology, namely: (i) the search for and identification of sources, (ii) the formal correction, augmentation, and paraphrasing of texts drafted by the doctoral candidate, (iii) the organization and structuring of ideas, and (iv) the actual drafting of texts, in relation to the Framework Code of University Ethics and Deontology adopted by Government Decision No. 305/2024. The conclusion of this essay is that the use of artificial intelligence is compatible with academic norms where it remains a tool supporting the doctoral candidate, rather than substituting intellectual effort through the generation or paraphrasing of content.

Keywords: *artificial intelligence; large language models; doctoral research; academic ethics and deontology; originality; copyright.*

1. Introduction

This paper examines the impact of artificial intelligence, in particular Large Language Models, on doctoral research activities and on the drafting of doctoral theses. It focuses on the extent to which the use of such technologies is compatible with the requirements of academic ethics and with the legal concept of originality, as understood in copyright law and academic practice.

The relevance of the topic derives from the rapid and widespread adoption of artificial intelligence-based tools within the academic environment. These technologies are no longer peripheral, but have become embedded in common research practices, from information retrieval to text generation. As a result, doctoral candidates are increasingly exposed to tools that may facilitate their work, but also risk undermining the fundamental requirement that academic output reflect genuine intellectual effort and original contribution. In this context, clarifying the permissible limits of artificial intelligence use is essential both for maintaining academic integrity and for ensuring the validity of doctoral research.

The paper addresses this matter through a structured analysis of the main modalities in which artificial intelligence-based programs are used in doctoral research, namely: (i) searching for sources, (ii) augmenting and paraphrasing texts, (iii) organizing ideas, and (iv) drafting texts. Each of these uses is examined in light of the Framework Code of University Ethics and Deontology adopted by Government Decision No. 305/2024, as well as through the lens of the legal criteria of originality developed in doctrine and in the case-law of the Court of Justice of the European Union.

In relation to the existing specialized literature, the paper builds upon classical understandings of originality as an expression of the author's personality and integrates them with recent doctrinal debates on artificial intelligence and authorship. While prior literature has addressed the technological and legal implications of artificial intelligence, this paper contributes by offering a normative analysis specifically tailored to doctoral research, identifying concrete thresholds between permissible use and ethical breach in the academic context.

2. The Emergence of Artificial Intelligence

The use of artificial intelligence in the academic environment has become a standard as of 30 November 2022, with the launch and rapid expansion of the artificial intelligence-based program ChatGPT. As a preliminary clarification, it should be specified that, within the present paper, references to "artificial intelligence" or to "programs that use artificial intelligence" predominantly concern the category of large language models (LLMs),

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namely those software applications capable of processing significant volumes of text-based information and generating outputs in the same format, in natural language, in a manner closely resembling human expression.

If the year 2022 introduced a new way of carrying out research activities, including the drafting of doctoral theses, the statistics for 2025 demonstrate that the use of artificial intelligence-based programs has become inevitable. The program ChatGPT, developed by OpenAI, reportedly has approximately 800 million weekly users, according to data provided by the company¹. The clarification that these 800 million users represent only those who interact with the program on a regular basis leads to two conclusions.

First, the number of users of such programs is significantly higher than the figure mentioned above. It is evident that the total number of users of ChatGPT is greater, as there are individuals who use this program only sporadically. Second, these figures reflect only the data provided by OpenAI. When considering that some users have turned to other such programs, such as the 650 million users of the Gemini application developed by Google, it can be inferred that a significant segment of the world's educated population consists of individuals who have incorporated the use of artificial intelligence programs into their daily lives.

Moreover, it must be taken into account that, in certain contexts, the use of artificial intelligence-based programs no longer constitutes a deliberate act. One such example is the AI Overviews feature integrated into the Google Search engine. This feature takes the conventional querying of databases indexed by Google, which previously operated based on keywords entered by the user, and processes it in a manner similar to artificial intelligence programs such as ChatGPT or Gemini. Thus, prior to displaying the web pages containing the information sought by the user, Google now provides a direct response to the user's query, namely a synthesized summary of the information that the program has deemed relevant. The company indicates that this feature has approximately 2 billion monthly users.² Given that research activity in the modern era of digital information is virtually impossible to conduct without the use of a search engine such as Google Search, it follows that, whether deliberately or not, artificial intelligence is present in doctoral research activities.

Admittedly, the aforementioned data may be subject to exaggeration by the companies that own and operate such artificial intelligence-based programs; however, they cannot be disregarded. It is indisputable that the phenomenon of artificial intelligence usage must be assessed in terms of hundreds of millions or even billions of users, with the thresholds of thousands, hundreds of thousands, or even millions having been rapidly surpassed shortly after the emergence of this technology.

At the same time, it must be taken into account that human beings and technology are experiencing a progressive interconnection also through the use of already established technologies that begin to integrate, in an almost imperceptible manner, programs based on artificial intelligence. Through this integration of artificial intelligence technology into technologies already widely used, by expanding their processing, analysis and interaction capabilities, the adoption of artificial intelligence-based programs becomes natural.

One example is the virtual assistant Siri, developed by Apple. Although, at the time of drafting this paper, other virtual assistants such as Gemini present a higher level of technological development, Siri is particularly useful in illustrating the transition between so-called pre-artificial intelligence and post-artificial intelligence technologies as understood in society. Of course, the concept of artificial intelligence was not born in 2022. The term "artificial intelligence" is considered to have originated through John McCarthy within the "Dartmouth Summer Research Project" of Dartmouth College in Hanover, New Hampshire, the term being mentioned in "A Proposal for the Dartmouth Summer Research Project on Artificial Intelligence" drafted by John McCarthy, Marvin L. Minsky, Nathaniel Rochester, Claude E. Shannon on 31 August 1955.³ However, given that the purpose of this paper is to analyze the behavior of individuals in the academic environment in relation to Large Language

¹ OpenAI, *1 million business customers: the fastest-growing business platform in history*, informational material published on the OpenAI platform, available at: <https://openai.com/index/1-million-businesses-putting-ai-to-work/> (accessed on 01.01.2026).

² Google, *A new era of intelligence with Gemini 3*, communication published on the Google blog, available at: <https://blog.google/products/gemini/gemini-3/#note-from-ceo> (accessed on 02.01.2026).

³ From the very outset of the preamble, the authors state that their intention is to conduct a study on artificial intelligence: "We propose that a 2 month, 10 man study of artificial intelligence be carried out during the summer of 1956 at Dartmouth College in Hanover, New Hampshire. The study is to proceed on the basis of the conjecture that every aspect of learning or any other feature of intelligence can in principle be so precisely described that a machine can be made to simulate it. An attempt will be made to find how to make machines use language, form abstractions and concepts, solve kinds of problems now reserved for humans, and improve themselves. We think that a significant advance can be made in one or more of these problems if a carefully selected group of scientists work on it together for a summer." (emphasis added).

J. McCarthy, M. L. Minsky, N. Rochester, C. E. Shannon, *A Proposal for the Dartmouth Summer Research Project on Artificial Intelligence*, 1956, available at: <https://www-formal.stanford.edu/jmc/history/dartmouth/dartmouth.html> (accessed on 03.01.2026).

Model-type technical solutions, the year 2022 is a reference point with regard to the large-scale adoption of artificial intelligence-based technology.

Apple has not, to date, succeeded in autonomously developing a virtual assistant capable of providing, natively, responses generated through advanced language models. Consequently, in order to provide responses processed through an advanced artificial intelligence program, the virtual assistant Siri is required to rely on an external service, namely the program ChatGPT. The performance of this operation is conditional upon the expression of the user's explicit consent, the user being informed and requested to grant approval for accessing this third-party program. Thus, the user is, in practical terms, faced with a functional and conceptual threshold between the traditional capabilities of the virtual assistant Siri and the new technologies based on advanced artificial intelligence, technologies which, at a subsequent stage, are likely to be integrated directly into the native functionalities of the virtual assistant, as is already the case with the virtual assistant Gemini.

From the use of the virtual assistant Siri with ChatGPT integration, as compared to other virtual assistants that have native intelligent functions, as well as from the use of other computer programs such as Microsoft Word, which have the capacity to generate text without difficulty, it can be observed that the standard in the information technology industry is for programs to have the capacity to "think" independently.

In this context, taking into account all the elements set out above, it becomes evident that avoiding the use of artificial intelligence technology is virtually impossible, and that doctoral research activity is, or, if not, will soon become closely linked to the use of artificial intelligence-based programs.

3. Methods of Using Artificial Intelligence-Based Programs

The technology underlying Large Language Model-type programs, which have come to dominate the information technology environment, was not created to be used in a particular manner. On the contrary, the creation of a so-called intelligence that should be capable of competing with or even surpassing humans should serve a versatile role. It must analyze, retain, create, and perform functions that are typically human.

The Chief Executive Officer of OpenAI, the parent company of ChatGPT, Sam Altman, one of the architects of artificial intelligence as it is understood today, stated in an interview given to The a16z Show, published on 08 October 2025, that the early launch of ChatGPT was intended to allow the public to test this new technology. He also notes that society must "co-evolve" together with this technology. Thus, it may be concluded that even the initiators of this technology did not fully anticipate how it would be used, unlike other technologies that have revolutionized information technology, such as the Google Search engine.

Internet search engines, such as the one created by Google, have had, since their conception, a clearly defined purpose, namely to identify relevant information based on keywords entered by the user and, at the same time, from the perspective of those who create information, search engines have had the role of finding users to access the produced information.

With regard to the process of doctoral research, given that a technology such as search engines had a determined purpose, the use of search engines has involved foreseeable and relatively easily identifiable risks, such as: the repeated use of the same information to which any user has easy access (such as information found on the Wikipedia website), the difficulty of verifying the quality of information found on the internet, as well as the risk of using sources without proper citation. In this respect, effective measures could be taken to mitigate risks within the academic environment, a relevant example being anti-plagiarism verification programs that access extensive databases in order to prevent doctoral candidates from taking information from the internet without using appropriate citation methods.

Returning to the issue of the multiple ways in which artificial intelligence-based programs such as ChatGPT may be used, as well as to the fact that these methods of use are in continuous evolution, the influence of this technology on doctoral research and on the drafting of the doctoral thesis or any other works during doctoral studies is difficult to determine. Artificial intelligence-based programs have the capacity to perform tasks ranging from simple internet searches or basic rephrasing to the creation of other computer programs. The possibilities appear to be of an unimaginable scope, considering that humanity has never before been confronted with a genuine artificial partner for study or drafting.

Within this paper, we will focus only on several of the ways in which this technology may be used, namely: (i) searching databases accessible to artificial intelligence-based programs; (ii) augmenting texts drafted entirely

by the doctoral candidate and paraphrasing texts; (iii) organizing and augmenting ideas; and, most importantly, (iv) drafting texts.

3.1. The Use of Artificial Intelligence-Based Programs for Internet Searching

With regard to the use of artificial intelligence-based programs similarly to familiar search engines such as Google Search, this represents one of the most widespread ways in which users make use of such programs. Adobe has shown that, according to a survey conducted by it⁴, 77% of ChatGPT users in the United States of America treat ChatGPT as a classical search engine.

The issues arising from the use of traditional search engines, namely the appropriation of works drafted by other individuals and disseminated through the internet, have largely been eliminated through the introduction of anti-plagiarism software programs capable of determining whether a given text has been taken as such from a source, whether it has been translated or even whether ideas have been appropriated through paraphrasing. However, computer programs such as ChatGPT, when used in a manner similar to traditional search engines, do not merely provide access to sources available on the internet, but rather generate a response that only subtly references the sources from which it has so-called drawn inspiration.

By way of illustration, the same query was performed both on the Google Search engine and by using the internet search function of ChatGPT, namely “The definition of copyright in Romania”. Naturally, Google provided, as a result, a list of web pages available on the internet that offer a definition of copyright in accordance with Romanian legislation, pages that may be accessed for reading. By contrast, ChatGPT provided a complex, yet unified response, based on no fewer than 36 sources, including articles authored by recognized legal professionals. An excerpt of the response is as follows:

“In Romania, copyright is primarily regulated by Law No. 8/1996 on copyright and related rights (as amended) and is harmonized with European Union legislation.

Copyright is a set of prerogatives recognized and guaranteed to the author over a literary, artistic or scientific work, as well as over other intellectual creations, by the mere fact of its creation. These prerogatives include both moral rights, linked to the author’s person, and economic rights, linked to the economic exploitation of the work.”

The result displayed in the interface of ChatGPT indicates, for the first of the analyzed paragraphs, the existence of two sources, namely the Wikipedia website and the legi-internet.ro platform. As regards the second paragraph, the interface mentions a single source, namely legi-internet.ro. However, a comparative analysis of the generated content and the materials indicated as sources reveals that the first paragraph constitutes neither a faithful reproduction nor a direct paraphrase of a fragment from the article published on Wikipedia.

Furthermore, it must be emphasized that the second paragraph does not represent a reproduction of the content of Law No. 8/1996 on copyright and related rights, such that the indicated source becomes ineffective for the purpose of identifying a potential author of the ideas contained in the second paragraph. Therefore, the indication of sources by the interface of ChatGPT, in such a situation, cannot be assimilated to a bibliographic reference, but rather constitutes an indicative reference to sources that were taken into consideration by the program in the process of generating the response.

In the absence of any indication as to the actual source of the sequence of words provided by ChatGPT as a response to the query, the doctoral candidate engaged in research might mistakenly consider that they are free to take the text and use it in their own work. Such a hypothesis cannot be accepted, first and foremost because it is based on the premise that the respective sequence of words is equivalent to an alleged discovery or a fact derived directly from a normative framework. Moreover, such an approach contravenes the Framework Code of 4 April 2024 on academic ethics and deontology⁵, more precisely Article 19⁶.

⁴ Adobe conducted a brief survey, based on a sample of 800 individual users and 200 professionals in advertising or small business administrators. It is noteworthy that this technology is adopted, to the detriment of traditional search engines, by approximately 80% of Generation X users, indicating that, as newer generations develop and gain access to the academic environment, the use of artificial intelligence-based programs will increase.

Adobe, *How ChatGPT is changing the way we search*, article published on the Adobe blog, available at: <https://www.adobe.com/express/learn/blog/chatgpt-as-a-search-engine> (accessed on 05.01.2026).

⁵ Government Decision No. 305 of 4 April 2024 approving the Framework Code of University Ethics and Deontology, Government of Romania.

⁶ Article 19

Firstly, the doctoral candidate may not reproduce the text generated by an artificial intelligence-based program where such program indicates a source used, a source which contains the information rendered by the program. This conclusion follows without difficulty from the fact that, in essence, the text generated by an artificial intelligence-based program such as ChatGPT in such a scenario would represent a mere paraphrasing of the information taken from the indicated source. Therefore, both in the case where the paraphrasing is carried out through a computer program and in the case where the paraphrasing is carried out directly by the doctoral candidate, it is imperative to indicate the source of the text.

Thus, the direct appropriation and use of the results provided by the artificial intelligence-based program is in clear contradiction with the norms of academic ethics and deontology, as the copyright of other persons is not respected, pursuant to Article 19 letter (a) of the Framework Code of 4 April 2024 on academic ethics and deontology.

Secondly, consideration must be given to the situation in which the output of the artificial intelligence-based program is accompanied by an inconclusive source, the origin of the ideas expressed being uncertain. In such a case, the doctoral candidate is required to carry out a brief analysis of the manner in which artificial intelligence-based programs function in order to correctly determine that the text cannot be appropriated. More precisely, it must be taken into account that an artificial intelligence-based program represents nothing more than a computer program that operates by extracting information from available sources through the algorithm upon which it is based.

As will be detailed *infra*, an artificial intelligence-based program does not think, does not possess an intellect that filters and processes prior information in order to create new, reasoned, original information. An artificial intelligence-based program does not create, but rather constructs texts based on probabilities so as to be understood by the user. Thus, copying a response provided by an artificial intelligence-based program when it is used as a search engine is incompatible with the obligation of the doctoral candidate to produce and defend original works, as required by Article 19 letter (b) of the Framework Code of 4 April 2024 on academic ethics and deontology.

Within this analysis of the ways in which artificial intelligence-based programs are used for searching, the major advantages that this technology may offer and which do not entail a breach of ethical and deontological norms must not be disregarded. In particular, it must be considered that these artificial intelligence-based programs have the capacity to process unimaginable quantities of information, quantities that would be impossible to review by a person engaged in research activity. As such, these tools may be successfully used to facilitate access to relevant bibliographic sources.

For example, the query entered into the Google Search engine, “Ten Romanian law treatises on intellectual property law authored by university professors at prestigious law faculties”, will result in a list of web pages that may be relevant or may merely contain the keywords of the query performed, without being relevant to the user. However, in response to the same query, ChatGPT provided a list of ten works⁷ that fall within the category

In the exercise of their capacity as students, doctoral candidates, postdoctoral researchers or trainees, the rules of ethics and deontology require them to:

- (a) respect the copyright of other persons in the works they produce;*
- (b) produce and defend original assessment works at the level of each discipline, as well as original final works completing their studies;*
- (c) comply with the general rules of ethics and deontology of the academic community.*

⁷ The partial response provided by the ChatGPT program is as follows:

“Below are 10 ‘treatise-type’ works / comprehensive works from Romanian doctrine on intellectual property law (copyright + industrial property), written by authors with an academic profile (teaching staff) from relevant law faculties / legal academic institutions.

Ioan Macovei – *Tratat de drept al proprietății intelectuale* (Editura C.H. Beck, 2010)

The author is a university professor (UAIC Iași – Faculty of Law).

Viorel Roș, Andreea Livădaru, Ciprian Raul Romișan – *Dreptul proprietății intelectuale. Dreptul de autor și drepturile conexe și drepturile de proprietate industrială* (Editura C.H. Beck, 2025)

Viorel Roș is a university professor (Nicolae Titulescu University of Bucharest).

Viorel Roș – *Dreptul proprietății intelectuale. Vol. 1: Dreptul de autor, drepturile conexe și drepturile sui generis* (Editura C.H. Beck, 2016)

The author is a university professor (Nicolae Titulescu University of Bucharest).

Viorel Roș – *Dreptul proprietății intelectuale. Vol. 1: Mărcile și indicațiile geografice* (Editura Sylvi, 1999)

(in practice, used as a reference work in the field of trademarks/geographical indications).

Viorel Roș – *Dreptul proprietății intelectuale: Mărcile și indicațiile geografice. Vol. 2: Acte normative* (Editura Sylvi, 1999)

Viorel Roș, Dragoș Bogdan, Octavia Spineanu-Matei – *Dreptul de autor și drepturile conexe. Tratat* (All Beck, 2005)

Viorel Roș (university professor) + Dragoș Bogdan (university teaching staff in law, as indicated in the author’s bio).

Yolanda Eminescu – *Tratat de proprietate industrială. Vol. I: Creații noi* (Editura Academiei, 1982)

of “treatise” and that meet the requirement of being authored by university professors from prestigious law faculties, insofar as prestige can be quantified by a computer program. It should be noted that the result of the query carried out through the Google Search engine does not reference authors such as Yolanda Eminescu within the first 50 displayed results, although she represents a remarkable figure in the field of intellectual property law who substantially contributed to the development of intellectual property law in the twentieth century.

Thus, it becomes evident that artificial intelligence-based programs, even at the superficial level of a simple search for general materials, become indispensable in comparison with older technology. Moreover, queries within such programs may be significantly more complex than the example provided, having the capacity to offer recommendations of niche scientific works that cannot be easily discovered otherwise.

Of course, such programs may contain errors and may be subject to the phenomenon of hallucination, which may be described, according to the definition provided in an article published by IBM⁸ as the phenomenon whereby an artificial intelligence-based program “perceives patterns or objects that are non-existent or imperceptible to human observers, creating outputs that are nonsensical or entirely inaccurate”. Even in this context, the doctoral candidate will have the ability, within a relatively short period of time, to verify whether the information indicated by the artificial intelligence-based program is accurate and to obtain valuable indications for the identification of relevant sources for their research.

In conclusion, with regard to the use of artificial intelligence in performing searches typical of established search engines, this may have undeniable benefits in the conduct of doctoral research, but it requires the involvement of the doctoral candidate in maintaining the use of such programs within a framework that does not exceed the limits of academic ethics and deontology norms.

3.2. Augmenting Texts Fully Drafted by the Doctoral Candidate and Paraphrasing.

A second method that may prove useful to the doctoral candidate in doctoral research and in drafting activity reports or the doctoral thesis is the use of artificial intelligence-based programs to augment texts fully drafted by the doctoral candidate, without prior assistance from such programs. Thus, we refer exclusively to the augmentation of those texts which, at the time of using artificial intelligence-based programs, do not contain any deficiencies with respect to compliance with academic ethics and deontology norms.

Similarly to the issues set out above, this form of using artificial intelligence may also produce diverse results. Accordingly, two aspects will be considered, namely the use of such programs to correct previously drafted texts and their use to perform substantial improvements to such texts.

Doctoral research and the drafting of works during doctoral studies involve a considerable effort in terms of the volume of text created by the doctoral candidate. An increase in the volume of drafted text may lead to an increased risk of committing both drafting errors and errors concerning the accuracy of the information included.

In order to improve the quality of the doctoral candidate’s work, artificial intelligence-based programs may prove useful in correcting such errors, as they have the capacity to verify large volumes of information in a negligible amount of time, thereby providing the doctoral candidate with the opportunity to focus their efforts on research.

With regard to the use of programs that employ artificial intelligence exclusively for correcting drafting errors, such as the omission of diacritics or of certain letters within words during the drafting of the work, I consider that a breach of academic ethics and deontology norms cannot be established. In such a scenario, the doctoral candidate does not resort to this technology in order to introduce ideas that do not belong to them, nor to alter the substance of their own creation so that it acquires the appearance of a work entirely distinct from its initial form.

A leading author in the field; she taught postgraduate courses at the Faculty of Law in Bucharest and contributed to the introduction of the discipline into the curriculum.

Yolanda Eminescu – *Tratat de proprietate industrială*. Vol. II: *Semne distinctive* (Editura Academiei, 1983)

Yolanda Eminescu – *Tratat de proprietate industrială*. Vol. III (Editura Academiei, 1982–1984, set Vol. I–III)

Teodor Bodoaşcă – *Studii de dreptul proprietății intelectuale* (second revised and expanded edition, 2024) (Editura Universul Juridic)

The author is a university professor (Dimitrie Cantemir University)."

⁸ IBM, *What Are AI Hallucinations?*, article published on the IBM platform, available at: <https://www.ibm.com/think/topics/ai-hallucinations> (accessed on 05.01.2026).

Under these conditions, the use of the technology has a strictly utilitarian character, generating value by increasing the accuracy of the text, without requiring the sacrifice of the doctoral candidate's time and energy, who may concentrate their efforts exclusively on the process of intellectual creation.

However, in the case of augmenting the doctoral candidate's creation through the use of artificial intelligence-based programs in order to add additional ideas or to paraphrase the initial text for the purpose of modifying the drafting style, issues of academic ethics and deontology may arise, as the final result is liable to lead to a breach of the requirement that the doctoral candidate's works display originality.

In the classical conception of originality, it "is viewed as an expression of the author's personality, manifested in their work".⁹ Moreover, in the case-law of the Court of Justice of the European Union concerning the concept of originality in the context of copyright, it has also been held that, for a work to be original, it must reflect the author's personality and be the result of free and creative choices.¹⁰

Accordingly, the intervention of an external, artificial factor, foreign to the process of creation and to the human intellect of the author of a work, raises serious issues from the perspective of the originality of the work. In this respect, the paraphrasing of a poorly drafted text or carried out exclusively for the purpose of imitating a certain style cannot be considered as meeting the condition of originality. The author did not conceive the text in the form in which it is presented in the final work, and the result does not reflect an autonomous creative choice, but rather a reformulation determined by the intervention of a technological tool.

By way of example, the author may conceive the initial text as follows: "This book is as blue as the sea". The text does not present any drafting deficiency, but the author may wish to modify its style in order to enhance the value of this sentence. Thus, through the instruction "Modify the style of this sentence so that it is extremely valuable from an artistic perspective", the program ChatGPT generated a new text, of evidently increased quality, namely "This book carries within its covers the blue of the sea, deep and restless, like an ancient breath of the world". In a context such as the one exemplified, by comparing the initial text with the resulting one, an objective observer could not conclude that both texts could be attributed to the same author. Consequently, the author's personality is not transferred into the text generated by the technology, but manifests itself exclusively in its original version.

Therefore, I consider that the augmentation of texts may be carried out without breaching academic ethics and deontology norms, provided that such intervention affects the initial text only from the perspective of formal correction, without producing substantive modifications. As long as the text differs exclusively through the elimination of errors, the work will retain its character of originality, and the copyright in such work may be attributed to the doctoral candidate.

From the perspective of paraphrasing works drafted by authors other than the doctoral candidate, the issue does not require an elaborate analysis. Whether the paraphrasing for the purpose of appropriating a work is carried out by a computer program or by a person, the result is the same, namely that we are in the presence of plagiarism. What may be added to the conduct characterized by bad faith of the person who appropriates another work is that, in the case of the use of artificial intelligence-based programs, even the intellectual effort of reading and reformulating the ideas contained in that work is eliminated. Thus, I consider that such conduct presents an increased degree of gravity, as it tends to circumvent, in its entirety, the intellectual effort required for the drafting of a doctoral thesis, including the effort of researching the work of a prior author.

3.3. Organizing and Augmenting Ideas.

Potentially the most risk-averse option among all methods of using artificial intelligence-based programs, the doctoral candidate has the ability to use programs such as ChatGPT to assist them in developing the structure of their work or in improving it.

According to the Ministry of Education, in its most recent report on the state of higher education¹¹, as of the 2023/2024 academic year there were approximately 21,400 doctoral candidates enrolled in Romania across all 463 doctoral fields available. Thus, considering an average of approximately 46 doctoral candidates enrolled in each field, irrespective of the year of study, it is unlikely that a doctoral candidate is undertaking a second

⁹ V Roș, A Livădariu, C.-R. Romișan, *Dreptul proprietății intelectuale. Dreptul de autor și drepturile conexe și drepturile de proprietate industrială*, Ed. C.H. Beck, Bucharest, 2025, p. 114.

¹⁰ Court of Justice of the European Union, Case C-833/18 (SI and Brompton Bicycle Ltd v Chedech/Get2Get).

¹¹ Ministry of Education, Report on the State of Higher Education in Romania, Bucharest, November 2024.

doctoral program. Consequently, it is highly probable that they do not possess prior relevant experience in drafting a work of a complexity exceeding that of any previously written work.

In this context, the support provided by such software tools may prove useful for the inexperienced doctoral candidate, who requires a simple stimulus for identifying a research direction, an indication for completing or structuring an already drafted plan, or a specific clarification in the process of organizing ideas, without such use, in itself, leading to the substitution of their own intellectual contribution.

Naturally, the suggestions provided by an artificial intelligence-based program are derived from or based upon what already exists, but such a factual circumstance cannot lead to the conclusion that any content within a chapter whose title is provided by the technology would constitute a copy. As long as the use of such programs is limited to organization and support, and the drafting is carried out through human effort, I consider that a breach of academic ethics and deontology norms cannot be established.

3.4. Drafting

The Framework Code of 4 April 2024 on academic ethics and deontology provides that the doctoral candidate, in this capacity, is required to produce an original work. At the same time, pursuant to Article 18 letter (f), any member of the academic community undertakes the “recognition of the profession, of the responsibility and of the trust conferred by society, as well as of the internal obligations deriving from such trust”. It follows that the doctoral candidate is required to acknowledge the responsibility they bear, not to betray the trust conferred by society through means contrary to ethics and deontology, and to produce, through their own efforts, an original work.

The originality of the work, as previously noted, consists in the manifestation of the author’s personality within the work. However, in order to fulfill the obligations outlined above, it is necessary that the act of drafting the work be effectively carried out, an act which essentially requires that the work constitute an intellectual creation. It is difficult to conceive of a context in which it could be held that a person has produced a work exclusively by inputting instructions into a computer program, since, in such a scenario, the only creative contribution of the purported author would consist in formulating the instructions addressed to the artificial intelligence-based program.

Accordingly, it may be concluded that, in order for a work to be produced in accordance with the ethical and deontological norms applicable to the academic environment, it must cumulatively satisfy two conditions necessary for the acquisition of copyright protection, namely that it constitutes a creation of the human intellect and that it displays originality. These conditions cannot be fulfilled in the case of drafting a work by providing instructions to an artificial intelligence-based program.

In legal doctrine, it has been argued that no one could acquire copyright in a work created through artificial intelligence-based programs viewed as instruments. By way of example, the hypothesis has been advanced in which a person provides instructions to another person to create a work, similarly to the manner in which a person may provide instructions to an artificial intelligence-based program to generate a response, in which case the person who provided the instructions would not acquire copyright in the work created by the other person¹².

I am of the opinion that the only circumstance in which it could be considered that the author has engaged in a sufficiently complex intellectual process and has imprinted their personality onto a text created by an artificial intelligence-based program would be the hypothesis in which, by providing the same instruction, the purported author would obtain the same result upon each query of any artificial intelligence-based program. However, this is a standard that is impossible to attain, and the effort required to meet it is far greater than the effort involved in manually drafting the respective work.

Accordingly, it is difficult to conceive of a context in which the use of artificial intelligence-based programs for drafting a doctoral paper could be in compliance with the norms of academic ethics and deontology.

4. Conclusions

Programs that employ artificial intelligence may be regarded, equally, as the first adversary of human creation or, conversely, as its next evolutionary step. Both assertions may be supported as true, the essential

¹² V. Diaconiță, *Dreptul proprietății intelectuale. Curs universitar*, Ed. Hamagiu, Bucharest, 2023, p. 321.

difference between them being determined exclusively by the concrete manner in which these technologies are used.

The reluctance manifested towards artificial intelligence-based programs often originates in the tendency to anthropomorphize them, although, in reality, they should be conceived merely as technological tools. Such programs do not possess consciousness or their own intellect, and are not capable of creation in the authentic sense, but only of reproducing letters, images or visual sequences in accordance with the statistical patterns learned during the training process.

Undoubtedly, the output generated by an artificial intelligence-based program may be aesthetically impressive, and the description that the program may produce regarding the emotions that such an image could evoke may create the appearance of a genuine artistic sensibility of the program. However, in reality, the program does not think and does not feel, but rather reproduces patterns which it has learned are commonly associated with human emotional reactions to similar images or representations.

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