THE INTEGRATION OF ARTIFICIAL INTELLIGENCE INTO PROFESSIONAL CO-AUTHORSHIP PROCESSES: OPPORTUNITIES, RISKS, AND TRANSFORMATIONS

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Abstract

This scholarly report is devoted to a comprehensive analysis of the integration of artificial intelligence (AI) technologies into professional, research, and creative processes, examining AI as an active participant and a "digital co-author." The report examines in detail the principal challenges and ethical-legal risks arising from the widespread use of AI tools. In particular, it addresses the dangers of the generation of false data and the spread of disinformation, as well as the uncertainties surrounding copyright, the ownership of intellectual property, and the distribution of responsibility. Special attention is drawn to the weakening of an author's independent analytical thinking, the loss of a critical approach, and the possible crisis of creative thought when the human factor becomes excessively reliant on algorithmic solutions.

At the same time, the report summarizes the enormous opportunities afforded by AI — the acceleration of information processing, the increase in work productivity, and new formats of cross-system collaboration. Ultimately, the report analyzes the profound transformations taking place in the traditional models of professional ethics, authorial identity, and creative work, and proposes balanced and responsible strategies for human–AI co-authorship.

Keywords: *Artificial intelligence, professional co-authorship, disinformation, copyright, intellectual property, independent thinking, creative crisis, digital transformations, professional ethics.*

Introduction

In the second decade of the 21st century, the development of information technologies has entered a qualitatively new stage, characterized by the rapid advancement of artificial intelligence (AI) technologies, in particular generative models and large-scale language systems (LLMs). Whereas AI was previously regarded predominantly as a passive tool automating technical, repetitive, or mechanical tasks, today it is gradually penetrating the most complex domains of human activity — research, analysis, and creativity. This transformation provides grounds for speaking of a qualitative shift of AI from a simple supporting instrument toward a "digital co-author" [1].

The phenomenon of "digital co-authorship" presupposes a symbiotic interaction between humans and algorithmic systems, in which AI participates in generating ideas, creating texts and code, mass-processing data, and supporting decision-making. On the one hand, this integration opens up unprecedented opportunities: the research process is substantially accelerated, work productivity increases, and new, more flexible formats of cross-system collaboration emerge.

On the other hand, the large-scale introduction of AI into professional processes brings with it serious ethical, legal, and psycho-pedagogical challenges that require substantive scholarly analysis. Of particular concern are:

- **Ethical-legal uncertainties:** the danger of the generation of false or unreliable data (so-called "hallucinations"), the spread of disinformation, and the unclear boundaries of copyright and intellectual property ownership.
- **Erosion of the human factor:** the weakening of an author's independent analytical thinking, the loss of a critical approach, and the possible crisis of creative thought resulting from excessive reliance on algorithmic solutions [2].

The relevance of the research is conditioned by the fact that the pace of development of AI technologies considerably exceeds the pace of their legal regulation, the formation of ethical norms, and the adaptability of the professional community. There arises a need to revisit the traditional models of professional ethics and authorial identity.

The development of artificial intelligence (AI) technologies, in particular generative models and large-scale language systems (LLMs), has opened a qualitatively new stage in the organization of professional, research, and creative work.

One of the principal challenges in the contemporary research and professional environment is information overload. AI systems offer unprecedented opportunities for the rapid processing, classification, and synthesis of large volumes of unstructured data (big unstructured data) [3].

In this context, the "digital co-author" performs the following key functions:

- **Automated literature review and synthesis:** AI models are capable of analyzing thousands of scholarly articles within seconds, extracting core theses, identifying research gaps, and formulating summaries.
- **Idea generation (brainstorming):** at the creative and research stage, AI acts as an interactive interlocutor, proposing new perspectives on a problem, hypotheses, and alternative approaches.
- **Linguistic and stylistic optimization:** the grammatical, stylistic, and structural editing of texts, as well as multilingual translation, considerably facilitate international academic communication.

For example, the international scholarly community widely uses the AI platforms Elicit and Consensus, which, through LLMs, analyze millions of articles from PubMed or Semantic Scholar within seconds, extract key findings, and answer scholarly queries.

In the Armenian academic sphere (at YSU, ASUE, or NPUA), researchers are gradually moving toward the use of ChatGPT, Claude, Elicit, and SciSpace tools when preparing literature reviews for international peer-reviewed (Scopus/Web of Science) journals, which considerably shortens the "cold start" phase.

The integration of AI tools substantially shortens the time span from "idea to final result." Human–AI collaboration makes it possible to delegate repetitive, routine, and time-consuming tasks to the machine, allowing human resources to be concentrated on higher-level analytical, critical, and strategic thinking.

Thus, the growth in productivity is conditioned not by the replacement of human labor but by its optimization, whereby AI increases the effectiveness of human creative and research capacities (human augmentation) [4].

The introduction of AI technologies is forming models of hybrid collaboration, in which the human and the algorithm function as a unified intellectual ecosystem. This interaction is based on a "feedback loop": the human provides targeted instructions (prompting), AI generates solution variants, and the human analyzes, directs, and finalizes the result.

This new format makes it possible to:

1. **Expand the boundaries of interdisciplinary research:** AI helps researchers quickly orient themselves in related fields by linking data from different scholarly domains.
2. **Provide personalized research support:** AI adapts to an author's working style, preferences, and professional vocabulary, becoming a personalized "digital assistant" [4].

It may be observed that AI, as a "digital co-author," offers enormous opportunities for increasing the efficiency, speed, and scalability of work. However, the effective realization of these opportunities

depends directly on the extent to which the author is aware of the ethical, legal, and substantive risks that accompany this process.

The rapid integration of artificial intelligence (AI) technologies into research and creative processes, alongside enormous opportunities, gives rise to a complex set of ethical and legal problems. When AI moves beyond the role of a simple technical assistant and assumes the functions of a "digital co-author," traditional legal systems and academic ethical norms encounter serious challenges that require substantive revision.

One of the primary ethical and substantive risks associated with the use of AI language models (LLMs) is the phenomenon of "AI hallucinations," conditioned by their probabilistic nature. AI systems generate text based on the probability of word sequences rather than the factual accuracy or truthfulness of the information [5].

This circumstance creates a number of dangerous consequences:

- **The creation of false scholarly data and references:** AI can generate content that is substantively convincing but consists of nonexistent literature references, statistical data, arguments, or citations.
- **The scaling of disinformation:** the inclusion of unverified AI-generated data in scholarly or professional texts can lead to the dissemination of false theses, undermining the reliability of academic research.
- **The transfer of responsibility:** when a researcher or professional blindly trusts the data provided by AI without fact-checking, a weakening of professional responsibility occurs.

The concept of "digital co-authorship" comes into conflict with the fundamental principles of traditional copyright law. Under most existing legal systems, only a natural person (a human being) may be the subject of copyright. In this context, two principal legal contradictions arise:

1. **The legality of the original data (training data):** the training of AI models uses vast quantities of text, images, and code, which are frequently protected by copyright. This gives rise to legal disputes as to whether AI's use of such data constitutes "fair use" or the unlawful appropriation of another's intellectual property.
2. **Ownership of the final output:** if a creative work or scholarly text is generated by AI (or with its substantial participation), who is its rightsholder? Legislative uncertainty concerns whether AI-generated output is subject to copyright protection or automatically enters the public domain [5].

The use of AI tools in scholarly and professional work raises new standards of transparency and academic integrity. The central question is where the boundary lies between permissible

“algorithmic assistance” (for example, language editing, formatting) and impermissible “ghostwriting.”

The international academic community (for example, COPE — the Committee on Publication Ethics, Nature, Elsevier) has already adopted a clear position:

- AI cannot be listed as a co-author of an article, since it cannot bear legal responsibility for the content of the work.
- Authors are obliged to transparently disclose the fact of using AI tools, their scope, and the type of models applied (for example, in the Methods or Acknowledgements section).

It should be noted that Armenian scholarly periodicals (the YSU Bulletins, the NAS RA Reports) are gradually adopting the principles of COPE (the Committee on Publication Ethics), requiring dissertations and scholarly articles to disclose the use of AI tools so that these are not regarded as “plagiarism” or “ghostwriting.”

It is important to note that the integration of artificial intelligence (AI) technologies into professional and research processes extends beyond mere technical optimization or ethical-legal regulation. It exerts a profound influence on human cognitive capacities themselves, on creative identity, and on traditional models of thought. When AI assumes the role of a “digital co-author,” the human factor undergoes complex transformations that contain noticeable crisis tendencies.

The human cognitive system forms and develops through the resolution of complex problems, the independent synthesis of data, and the exertion of analytical effort. The constant and excessive use of AI tools can lead to “cognitive offloading” and the atrophy of analytical thinking [6].

This process manifests itself in the following key ways:

- **Algorithmic dependence:** researchers or professionals gradually become inclined to accept the ready-made answers or solutions offered by AI as the final truth, without subjecting them to in-depth critical analysis.
- **Weakening of problem-formulation:** the core of scholarly research is asking the right question. When AI begins to generate research hypotheses and questions, the human mind loses the capacity to see a problem anew and to notice unusual connections.
- **Reduction of intellectual effort:** obtaining “ready-made texts” or “ready-made analyses” diminishes the human drive for in-depth reading, engaging with the text, and arguing one’s own judgments.

The creative process is by its nature based on individual experience, emotional perception, intuition, and often on “errors” or unexpected associations. AI models, being statistical and probabilistic systems, operate on the basis of patterns present in existing data.

This gives rise to the following crisis tendencies in creative thought:

1. **Homogenization of content:** when numerous authors use the same AI models to generate ideas or compose texts, the resulting outputs begin to acquire a similar structure, style, and vocabulary. The individual authorial style ("the author's voice") is lost.

2. **Domination of averaged output:** AI generates the "most probable" or "statistically average" solutions. As a result, genuinely innovative, unusual, or revolutionary ideas that fall outside the framework of standard data may escape the researcher's field of vision [6].

University research (for example, at Stanford or MIT) shows that when students or researchers massively use the same ChatGPT (GPT-4) model, the essays or analyses they write acquire an identical structure and vocabulary (for example, the excessive use of words such as "delve," "tapestry," "crucial") and lose their individual voice.

Under conditions of "digital co-authorship," authorial self-awareness is also endangered. When a significant portion of a text or research result is generated by an algorithm, the author may lose an emotional and intellectual connection with their own work.

This phenomenon leads to:

- **Diffusion of creative responsibility:** the author may no longer feel solely responsible for the work, attributing shortcomings, errors, or superficiality to the AI system.

- **Decline in professional self-esteem:** the researcher may begin to doubt their own professional worth, not knowing where their personal contribution ends and the machine's work begins.

It may be observed that the transformation of the human factor requires special attention. AI should not replace human critical thinking or creative identity, but should act as a catalyst that compels the individual to develop higher-level analytical and ethical capacities.

It follows that the integration of artificial intelligence (AI) into professional, research, and creative processes has a dual nature. On the one hand, AI, as a "digital co-author," provides an unprecedented speed of information processing and an increase in work productivity; on the other hand, it gives rise to serious ethical-legal risks, unreliability of data, as well as dangers of weakened human critical thinking and creative crisis.

This duality requires a shift from extreme approaches of either accepting or rejecting AI toward the development of balanced, responsible, and ethically grounded strategies for human–AI co-authorship.

In today's academic and professional ecosystem, it becomes necessary to revisit the concept of "authorship." Authorship should not be limited merely to the "technical generation of text or code"; it must primarily be regarded as the assumption of meaning-making, critical analysis, evaluation, and ethical responsibility.

In this context, the following fundamental principles of professional ethics are proposed:

- **The principle of ultimate human oversight (human-in-the-loop):** AI may act as a consultant, assistant, or generator of ideas, but the final decision, fact-checking, and confirmation of content must remain within the competence of the human.
- **Full transparency and disclosure (radical transparency):** researchers and professionals are obliged to clearly indicate at which stages of the work, and to what extent, AI tools were used. This ensures academic honesty and trust in the final result.
- **The inalienability of individual responsibility:** the use of AI systems does not release the author from responsibility for errors, false data, or ethical violations found in the work [7].

In order for AI not to weaken human creative potential but, on the contrary, to contribute to its development, the strategic model of "Augmented Intelligence" is proposed. This model is based on a clear differentiation and mutual complementarity of human and algorithmic capacities [8].

[HUMAN] [AI / DIGITAL CO-AUTHOR]

• Formulation of the research question → • Large-scale data search

• Ethical and value-based evaluation

• Critical analysis ← • Generation of drafts / code

• Final decision and responsibility • Linguistic / stylistic editing of text

The implementation of this strategic model requires the following steps:

1. **Educational and professional training (AI literacy):** it is necessary to introduce, in universities and professional institutions, dedicated courses on AI literacy that teach not only effective "prompt engineering" but also the methodology of critically evaluating AI output and fact-checking.
2. **Development of institutional and legal regulations:** scholarly journals, research institutes, and professional associations should develop clear guidelines on the boundaries of AI use, specifying in which cases AI is permissible as a supporting tool and in which cases its use is considered academic misconduct.
3. **Mechanisms for preserving cognitive independence:** researchers and creators are advised to apply the principle of "initial independence": to formulate the initial concept, hypotheses, and the core theses of the research independently, without AI intervention, and only thereafter to use AI for expanding data, linguistic processing, or exploring alternative perspectives.

It may be observed that AI should not be regarded as a substitute for human thought or as an "automated author." AI is effective only when it serves as a means of extending human intelligence, while preserving the human being's central, critical, and responsible role in the creative and research process.

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