

SUBJECTS' RELEVANCE WITHIN AN AI-INCLUDED CREATIVE PROCESS

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Keywords: *AI-included Creative Process, Artificial Intelligence, Authorship*

Abstract: *Speaking of the works created by or using artificial intelligence (AI) either in form of specialized software (as the portrait of Edmond Belamy) or an interactive platform (as the DeepArt's or Humtap's outcomes), there is an indisputable role of humans. Within such an AI-included creative process, we can find a lot of subjects interacting with an AI, either as (i) the author of an AI per se, (ii) the authors of all the datasets used for creating a basic framework, which serves as an environment for creating the works, or (iii) the users of an AI providing input data for it to create the works. All these subjects have potential IP rights to the resulting works, even if there is no strict answer to who is the real author of the work. Therefore, the paper analyses the question of how relevant their contribution to the creative process and to the work per se is, and what could be their potential authorship claim.*

1. Artificial Intelligence as a part of the Creative Process

Artificial intelligence (AI) is currently a widely discussed topic, including an area of copyright law. It attracts attention especially thanks to its part in the process of creating the «works».¹ Relating to that, the new kind of art is often discussed.² To define an AI is the challenge on its own; among the expert public, it is possible to find several useful models and understanding of this phenomenon.³ This paper operates with an AI in its software understanding based mostly on the research of KOMUVES and SCHAFER⁴.

Concerning the expression and form of mentioned «works», these outcomes of an AI are more or less comparable to the traditional copyrighted works. The paper, therefore, focuses especially on the outcomes of art nature, where the resemblance with the traditional works is obvious. However, in the situation of AI outcomes, the very important question arises. For granting the copyright protection to the resulting outcomes of an AI and for calling them «works», it is needed to locate the authorship, while there is a variety of possible subjects with the relevant arguments for claiming the potential authorship and executing the rights. The entitlement of all these subjects surely depends on their contribution to the creative process and to the resulting outcome *per se*.

¹ The creativity of an AI is thoroughly described by BODEN (BODEN, Creativity and Artificial Intelligence, Artificial Intelligence, 1998, vol. 103, no. 1, p. 347–356; BODEN, Computer Models of Creativity, AI Magazine, 2009, vol. 30, no. 3, p. 23–34; BODEN, Précis of the Creative Mind: Myths and Mechanisms, Journal of Behavioral and Brain Science, 1994, vol. 17, no. 3, p. 519–531.

² ELGAMMAL, With AI Art, Process Is More Important Than the Product, <https://www.smithsonianmag.com/innovation/with-ai-art-process-is-more-important-than-product-180970559> (all websites last accessed on 7 January 2019), 2018.

³ For the thorough description and general overview see RUSSEL/NORVIG, Artificial Intelligence: A Modern Approach, Pearson, 2009, 1152 p.

⁴ SCHAFER et al., A Fourth Law of Robotics?, Copyright and the Law and Ethics of Machine Co-production, Artificial Intelligence and Law, 2015, no. 23, p. 217–240; KOMUVES et al., Monkeying Around with Copyright – Animals, AIs and Authorship in Law, ResearchGate, https://www.researchgate.net/profile/Burkhard_Schafer/publication/296443723, 2018.

1.1. The Specifics of an AI-included Creative Process

For the evaluation of the potential authorship, it is needed to realize that the creative process operating with an AI is heterogeneous in its entirety and the definite answers may vary case by case. However, we are able to make a basic bipartition of an AI-included creative process based on the similarity and analogy of the individual phases of such process as well as the subjects included in the creative process.

Speaking of the popular «works» created by or with a help of an AI as the portrait of Edmond Belamy⁵ or the case of *Next Rembrandt*⁶, group of these outcomes would constitute a group called as the outcomes of an AI as the *specialized software*. With the help of the algorithms and the pre-defined framework, the resulting outcomes are created. Regarding the creative process in this case, within this group, the AI is purposefully used and targeted for the creating the individual outcome, while it is continuously modified and conducted for the needs of the outcome. Thereby the creative process is gradually directed by the authors of an AI.

Besides this group, it is needed to recognize the outcomes of *platforms operating with an AI*, such as *Humtap*⁷, *Amper*⁸, *Shelley*⁹ or *DeepArt*¹⁰. No matter what type of art is created through these platforms, the creative process is similar and, generally speaking, based on three following steps. After the (i) creation of an AI (same as in the case of an AI as a specialized software), the (ii) «creative framework» is created with the implementation of already existing and available data or with the creation of purely new ones. Following that, the (iii) resulting outcome is created based on the user's data (photos, hums, texts) uploaded to the pre-set general creative framework and depending on the user's settings. Within this group, the role of the user is increased while the primary focus of the original AI's authors on the individual outcome is eliminated.

2. The Question of Authorship

Assuming the outcomes to meet the individual conceptual features and to be copyrightable works (especially for their qualitative resemblance with the traditional works¹¹ and for the own perils in the context of the art market¹²), the active creative process allows expressing the creativity of a specific author's personality. This personality is influencing the individual author's decisions within the standard literature and artistic limits and within the creative freedom¹³. The resulting outcome depends on the expression of the ideas influenced by the personality of an author, while such expression is not limited to the extent that the relevant subject has no chance to influence the outcome (typically in the case of some platforms only allowing to their users to set a marginal aspects or choose one of the pre-set forms of the outcome). However, even if we are able to agree on the creative ability of an AI and possibly all of the subjects included in the process, it is not easy to find the undoubted and obvious author. Moreover, what is important to realize, is one of the key roles of a copyright law consisting of granting the protection to the creations and the «effort» (of any relevant kind) put into that, which lead to the development and enrichment of the cultural and general values of the human society.¹⁴

⁵ Edmond de Belamy, from *La Famille de Belamy*, Christies.com, <https://www.christies.com/lotfinder/prints-multiples/edmond-de-belamy-from-la-famille-de-6166184-details.aspx?from=salesummary&intObjectID=6166184&sid=18abf70b-239c-41f7-bf78-99c5a4370bc7>, 2018.

⁶ *Next Rembrandt*, <https://www.nextrembrandt.com/>, 2018.

⁷ Available from: <https://www.humtap.com/>.

⁸ Available from: <https://www.ampermusic.com/>.

⁹ Available from: <http://www.shelley.ai/>.

¹⁰ Available from: <https://www.deepart.io/>.

¹¹ However, the quality itself is not relevant for gaining the copyright protection.

¹² DODSON, *How Artificial Intelligence Will Disrupt the Art Market in the Next 10 Years*, *Art Market Guru*, <https://www.artmarket.guru/le-journal/market/artificial-intelligence-art-market/>, 2018.

¹³ Recognized by the Court of Justice of the European Union (C-145/10, *Eva-Maria Painer v. Standard VerlagsGmbH*, ECLI:EU:C:2011:798).

¹⁴ HUGHES, *The Philosophy of Intellectual Property*, *Georgetown Law Journal*, 1988, vol. 77, p. 287–366.

The national legal systems in most of the European states are based on the *rule of natural persons' authorship*,¹⁵ for the inherent and exclusive character of the humans to be creative. It is debatable, whether this concept made in the previous centuries is still up-to-date and whether it is not a time for the change, because the fiction of copyright law made to be applicable for phenomena of that time is not necessarily suitable for the current ones. All of this assuming that we agree on the interests, purpose and legitimacy of such changes. On the other hand, it is worth mentioning that there is a number of legal systems not applying the rule of natural persons' authorship.¹⁶ Nevertheless, while focusing on the continental legal systems with the authorship explicitly limited to natural persons, a current solution of the question of authorship must leave the AI as an author aside. It is noteworthy that the notion of authorship on the EU level is a matter of time concerning pushing the boundaries of individual conceptual features of copyrighted works by CJEU.¹⁷ Such actions could lead to redefining the basic aspects of authorship *pro futuro*.

De lege lata, we may recognize following subjects, whose creative activity may be significantly important for the form of the resulting outcome. First of all, an AI is a copyrighted work¹⁸ and as such (i) its authors (regardless of their position in relation to the algorithm of an AI, especially within the first-mentioned group of an AI as a specialized software)¹⁹ are the first obvious group of relevant subjects. For an AI to be able to create a resulting outcome, the role of «training datasets» is vital. Regardless of the bipartition mentioned earlier, there are (ii) the authors of the works as well as makers of the databases and owners of data, who have their (passive) part in the creative process (generally called as the authors of datasets). When talking about an AI and a creative process, the question connected to that could be, whether the AI is created at the moment when the fundamental algorithm meets the conceptual features and is then applied to the datasets and continuously modified, as mentioned earlier, or whether the AI is not created until the last modification and last piece of instruction is carried out for the AI to be able to create the required and desired outcome. For this paper, such question is relevant to that extent that in the second situation the first and second group of relevant subjects would merge together. On the other hand, such understanding is undesirable and not accepted by most of the expert public. In the case of platforms, (iii) the users uploading their data and using the platforms are the third group of relevant subjects, without whom the resulting outcome couldn't be created.

Besides determining the authorship of a resulting outcome, it could be concluded by someone that this outcome is not creative at all thanks to the absence of human creativity and as such it has no author, therefore the conclusion would lead to the *public domain* regime.²⁰ That would lead to the non-existence of any absolute legal protection afforded by copyright. Nevertheless, let's leave this line of argumentation aside.

3. The Arguments for Potential Authorship Claims

3.1. An AI as the Author

As stated above, it is possible to argue that an AI is creative and even more, it is creative enough to be a potential author. The limitation of this statement lies within the legal systems and the rule of the natural persons' authorship as well as the justification of and intellectual property law.²¹ Generally speaking, until the moment

¹⁵ E.g. sec. 5 the Czech Copyright Act; sec. 13 Slovak Copyright Act; sec. 7 German Copyright Act; sec. 10 Austrian Copyright Act; sec. 9 British Copyright Act.

¹⁶ This is the case especially of the United States copyright law.

¹⁷ In the last of these decisions, the CJEU held that the concept of «work» needs the autonomous and uniform interpretation throughout the European Union (C-310/17, *Levola Hengelo*, ECLI:EU:C:2018:899).

¹⁸ On the EU level, the AI as a software is protected by the directive 2009/24/EC of the European Parliament and of the Council of 23 April 2009 on the legal protection of computer programs, which is harmonizing this protection throughout the national legal systems of the Member States.

¹⁹ The software development is a complex process requiring a variety of different specialists (coders, code architects, code engineers, testers, etc.), which may vary depending on an individual software.

²⁰ BOYLE, *The Public Domain: Enclosing the Commons of the Minds*, Yale University Press, 2008, 315 p.

²¹ FISHER, *Theories of Intellectual Property*, Harvard Law School, <http://www.law.harvard.edu/faculty/ffisher/iptheory.html>.

when an AI will want and pursue its rights, it has no sense (concerning the role a function of law, not only a copyright law) to make special norms for an AI. Even if it is suitable and comfortable to conclude that AI is an author, which would make the question of authorship much easier, it is not a farsighted solution. It is true that AI's authorship could be used just as a lead of attribution to the person to whom it belongs (whether an owner, or the executor), but there is a lot of questions and problems related just to the ability of an AI to be an author. For an AI to be the bearer of the rights and duties, it would be needed to grant it the legal personality as a passive status of a subject of law.²² Moreover, the current form of a copyright law would be needed to adapt for to be suitable for an AI or the aspects related to that, because currently it is connected to the needs only of humans and therefore the individual copyright institutes are derived from the moments of a human lives (e.g. the duration of rights or the integrity of the work).

Currently, there is no convincing argument to move an AI to the position of the subject, neither the economic, the business argument, nor the argument of purpose (considering the weak AI). Moreover, the answer of AI as an author is excluded in the states with the above-mentioned rule and when accepting the recommendations of authorities warning the society against the «expansion» of the subject base.²³ The next problem lies with the vague concept of creativity itself. Even if we are able to operate with this concept, it is based only on the human-oriented theory and judicial decisions not operating with an AI to any extent. Following that, it is a question of how the limits derived this way would be applicable to an AI and evaluation of its creative ability, especially in the case of computer creativity, which is different from the human creativity in so many aspects.²⁴

3.2. The Authors of an AI as the Authors

The authors of an AI are the initiators of all the creative process. On the other hand, this position doesn't have to correspond with the initiation of the final form of the outcome. According to GINSBURG AND BUDIARDJO, it is important to differentiate the conception and execution.²⁵ The later said is not important for the authorship claims when dealing with the creativity, but the earlier one is. Such conception represents the connection of an author as an originator with some outcome and is dependent on focusing on the final form of the expression of some idea. There is no doubt that in the case of an AI as specialized software, the focus will be enormous due to the character of the creative process, but not so in the case of platforms. Even if the authors of an AI are the initiators, based on the above-provided description of an AI-included creative process, we can argue that in the case of these subjects there is a significant lack of focus on the resulting outcome.²⁶ The creative activity of an author of an AI in the case of platforms cannot be sufficient where the act of creating an outcome depends on the users' data uploaded to the finished platform. Moreover, these arguments are supported by the standards of the software applications allowing the realization of a third party's creative activity within the defined environment (e.g. *Microsoft Office applications*, *Adobe Creative Suite*). Authors of such applications don't claim the authorship for the outputs of such applications, because due to the focus of a creative activity the right and only author is such third party (in the similar position as the user of the platforms).

On the other hand, it cannot be concluded that the creative activity of this group of subjects is not important. Even without the definite focus, it influences the result to a large extent. Generally speaking, for evaluating the

²² SOLAIMAN, Legal Personality of Robots, Corporations, Idols and Chimpanzees: A Quest for Legitimacy, *Artificial Intelligence and Law*, 2017, vol. 25, no. 2, p. 155–179; it must be mentioned that the current position of the European Union is against such personality granted to the AI in any form (Report with recommendations to the Commission on Civil Law Rules on Robotics (2015/2103(INL)) from 27 January 2017).

²³ Report with recommendations to the Commission on Civil Law Rules on Robotics (2015/2103(INL)) from 27 January 2017.

²⁴ BESOLD/SCHORLEMMER/SMALL (ed.), *Computational Creativity Research: Towards Creative Machines*, Springer, 2015, 406 p.

²⁵ GINSBURG/BUDIARDJO, Authors and Machines, *Berkeley Technology Law Journal*, 2019, vol. 34, no. 2, SSRN, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3233885, 2018; GINSBURG, The Concept of Authorship in Comparative Copyright Law, *DePaul Law Review*, 2003, p. 1063, 1072.

²⁶ GINSBURG/BUDIARDJO, Authors and Machines, *Berkeley Technology Law Journal*, 2019, vol. 34, no. 2, SSRN, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3233885, 2018, p. 76 et seq.

creative activity the primary initiation to «create» in a precise moment is important. Otherwise, the works based on an accidental or chaotic creative process would be unjustifiably excluded from the copyright protection. Following this argument, the creative activity of the authors of an AI could be found to be sufficient enough for them to be considered as the authors.

3.3. The Authors of the Datasets

Whether in the case of an AI as specialized software, or an AI as a platform, this group of subjects represents the crucial qualitative prerequisite for the resulting outcome. Contrary to the first group of subjects where the initiation and the focus play the key-role, this group of people helps to define the «creative framework». Datasets are used for «training» an AI. No matter what the way of such training is (in a form of deep learning, analogical, probabilistic, stochastic and other mathematical processes), the datasets determine the form and character of the resulting outcome. This way created framework is then used for other following steps of modulating the code or for implementation of user's data.

Using the datasets is important especially considering the legal title of such use. The same goes for the characteristics of the use of the work *per se* (and whether it is even a use of the work), for the access to the datasets and for the claims arising of such used in an illegal way. Moreover, even despite the disparity of the subjects within this group, such disparity is not important for the evaluation of authorship claim. Considering the datasets, there are authors of the datasets on the one hand, but on the other hand, there are makers of the database or other originators in a general way. But their position towards the datasets cannot logically influence the position of these people towards the resulting outcome, and they must be treated equally.

Even if these subjects are crucial for the resulting outcome (someone may argue with the fundamental role of datasets for the functional definition of an AI itself), their potential authorship claim has to be completely rejected. It is not just an area of an AI where the creative process would rely on this «creative framework». The same goes for the traditional creating where, analogically, in one's mind the general ideal idea is made up and later used. It is axiomatic that everyone creates based on the external influences and perceptions influencing the choices. And as it is not possible to deduce the authorship of the subjects who only inspire us to do and create something (with the argument of lack of focus and the distant relations), it would not be appropriate to deduce such claim in the case of the dataset related subjects. The one's ideas are always based on the cultural fund and his/her awareness and knowledge. Even if we are discussing the algorithmized processing of datasets, nature is the same as simple inspiration. The opposite approach, if their creative activity and their role would be taken into consideration for the authorship claim, it would lead to unjustifiably excessive ownership of ideas as well as the inappropriate allocation of authorship.

Parallely, it is assumed that based on the datasets, the imaginary general result of universal nature is built and there is not only a single piece of work used for adaptation. In such case, the creative activity of an author of such piece would need to be taken into consideration in the question of authorship of the outcome.

3.4. The Users as the Authors

In the case of the platforms, the role of the users of such platforms is crucial, while they are the last piece of creating puzzle giving the resulting outcome the specific form. Their benefit can be seen especially in the focus towards the resulting outcome, as was mentioned earlier based on GINSBURG arguments. These subjects determine the form and as well as the first group of subjects they initiate the individual creative process (comparing to the users, the authors of an AI initiate the general creative process). Some part of the doctrine compares the users to the photographer using a digital camera as a tool qualitatively distinguishable from the brush or pencil.²⁷ The creative activity, which is looked for while evaluating the conceptual features of individual work, is fulfilled by these users, who are the first obvious group of subjects taken into consideration, too. Moreover,

²⁷ Ibid, p. 12 et seq.

we can argue with the limits presented by STRAVINSKY. According to him, the creative activity is based on the interconnection of single creative elements within pre-defined space and barriers limiting such space for the possible realisation of one's ideas.²⁸ *A simili* we can apply this statement into the case of an AI-included creative process, where the pre-defined «creative framework» can be found within which the creative activity of the users is realized. Moreover, we could use the line of argumentation by the user-generated content, which can be problematic in the question of liability and use of the work,²⁹ but where the author of such content is understood to be the one who has created it, the i.e. user.

On the other hand, we could argue against their authorship claim with the argument of simple mechanical insertion of data into the framework which can offer only a very limited space for creative freedom of the users.³⁰ It needs to be said that just a mechanical or a routine activity cannot be enough to meet the criterion of creative activity; on the other hand, only a minimal presence of creative activity should exclude the evaluation of the resulting outcome as a product of just a mechanical or routine activity.

4. Conclusion

An AI can play a crucial role in a creative process of today's works, either as specialized software, or as a part of the platform, and is found to be a more and more useful instrument to create valuable outcomes. Speaking of an AI-included creative process, there is a variety of subjects whose role is important especially for answering the question of the authorship of the resulting outcome. The goal of this paper was to analyse the question of these subjects' relevance for the evaluation of the individual authorship claims. The paper firstly introduced the problematics, including the specifics of a generally typified AI-included creative process. In the second part, the paper presented the question of an authorship, while it indicated three main groups of subjects, (i) the authors of an AI, (ii) the authors of the used datasets and (iii) the users of an AI providing the input data for it to create a «work». Based on that and while considering meeting the individual conceptual features, it presented the arguments for potential authorship claims in the third part.

The paper concluded that even if an AI itself could be found creative, to grant the authorship to an AI is not the appropriate solution and as such, it would be very complicated concerning its non-subjective character. What deals with the subjects within the creative process, following the evaluation, it could be concluded that (i) the group of authors of an AI and (ii) the group of users of an AI (in case of the platforms) are the relevant subjects in the matter of an outcome of an AI, possibly in the regime of joint authorship or special regime close to that. This conclusion is supported by their creative input and position related to the resulting outcome. The regime of joint authorship is justifiable concerning the creative collaboration of the subjects and their partial creative inputs. Moreover, it is not prejudiced if the creative contributions to the final outcome by the individual joint authors can be distinguished unless such contributions are capable of being used independently.³¹

²⁸ STRAVINSKY, *Poetics of Music*, Harvard University Press, 1970, p. 63–65.

²⁹ VALCKE/LENAERTS/KUCZERAWY, *Who's Author, Editor and Publisher in User-Generated Content?*, in: Lambert (ed.) *Social Networking: Law, Right and Policy*, Clarus Press, 2014, p. 83–99.

³⁰ On the EU level such outcome wouldn't meet the criterion of originality introduced by CJEU (C-5/08, *Infopaq International A/S v. Danske Dagblades Forening*, ECLI:EU:C:2009:465).

³¹ E.g. the Czech Republic (sec. 8 Czech Copyright Act) corresponding with the EU understanding (When does a joint authorship of a work arise?, IPR helpdesk, <https://iprhelpdesk.eu/node/1842>).