Copyright in artificially generated works

REPORT OF THE SWISS GROUP*

I. Introduction

For the purposes of this Study Question, a work created in whole or in part using artificial intelligence is referred to as an artificially-generated work or an AI-created work. The term "copyright" means the rights associated with copyright as set forth in the Berne Convention. The term "related rights" means all other copyright-type rights, e.g., "related rights", "neighbouring rights", "sui generis rights", etc. The term "economic rights" means the exclusive rights of copyright granted to the author, e.g., the right of reproduction. The term "moral rights" means the rights of copyright granted to the author apart from economic rights, e.g., the right to object to distortion of the work.

Of all the technological advances that attract lawyers’ attention, artificial intelligence (AI) stands as a good chance as any of proving to be genuinely transformational. There is already a lively debate about whether the advent of AI challenges the fundamental assumptions, structures and concepts of copyright law, or whether current laws will suffice as long as its practitioners understand how the technology works.

In the fields of creations likely to be protectable by copyright, AI has already made it possible to create artificially-generated works in a wide variety of areas: poems, literary works, novels, news articles, music, paintings and other artworks, etc. Human intervention in the process of creating an artificially-generated work may occur in a number of different ways or, potentially, may not occur at all.

An inquiry into artificially-generated works must start with an understanding of what AI is. However, AI is a broad and rapidly evolving field that defies simple definition. Often, AI is characterized generally as the ability of a computer to mimic human intelligence, such as the ability to reason and to learn from past experience. Recognizing, however, that there is no universally applicable definition of AI, for the purposes of this Study Question and in order to have a concrete frame of reference for analysis of the copyright issues, we adopt the following definition: *Artificial intelligence is an entity (or collective set of cooperative entities), able to receive inputs from the environment, interpret and learn from such inputs, e.g., in view of achieving a particular goal or objective.*

Today, artificially-generated works are generally not created in the absence of human intervention: the creative process often involves several human individuals. The role of the human can take many forms. To start with, programmers develop AI algorithms or “entities” that can receive certain types of inputs and interpret and learn from those inputs to achieve a desired output or goal. Then, humans (e.g., users) are typically involved to determine datasets, e.g., paintings, literary works, music, etc., that are fed as input to such entities, and to set parameters of the AI entities. Moreover, humans may ultimately select one or more works from a large number of works created using such entities, e.g., based on human tastes, preferences, and opinion.

To provide a concrete basis for analysis of this Study Question, the following Working Example is adopted.

Step 1: One or more AI entities are created that are able to receive inputs from the environment, interpret and learn from such inputs, and exhibit related and flexible behaviours and actions that help the entity achieve a particular goal or objective over a period of time. The particular goal or objective to be achieved is selected by a human and, for purposes of this Study Question, involves generations of works of a type that would normally be afforded copyright protection.

* Members of the working group: Sébastien Ragot, Fabian Wigger, Luca Dal Molin, Nando Lappert, Ana Andrijevic, Michael Reinle, Andreas Glarner, James Merz, Marco Handle, Matthias Gottschalk, Benno Fischer, Sylvia Anthamatten, and Anaic Cordoba.

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Step 2: Data are selected to be input to the one or more AI entities. The data may be prior works, such as artwork, music or literature as in the examples above. The data also may be inputs from sensors or video cameras or input from other sources, such as the internet, based on certain selection criteria.

a) [Case 2a]. The data or data selection criteria are selected by a human.
b) [Case 2b]. The data or data selection criteria are not selected by a human.

Step 3: The selected data is input to the one or more AI entities, which achieve the particular goal or objective over time by generating “new works” that are not identical to any prior work.

a) [Case 3a]. A human makes a qualitative or aesthetic selection of one work from the new works.
b) [Case 3b]. No human intervention is involved in selection of a work from the new works.

The answers to the following questions are often based on this working example.

II. Current law and practice

1. Does your current law/practice contain laws, rules, regulations or case law decisions specifically relating to Copyright and/or Related Rights in artificially-generated works? If Yes, please describe.

No.

2. Does your current law/practice require that a work has to be created by an identified author (natural or legal person) to be protected by Copyright?

No.

In Switzerland, copyright protection arises automatically upon creation of a work, regardless of any formality (art. 5 par. 2 Berne Convention), provided that the requirements of protection set forth in art. 2 of the Federal Act on Copyright and Related Rights (Copyright Act, hereafter CopA) of 9 October 1992 (Status as of 1 January 2017) are met. I.e., the work is automatically protected by copyright if and from the moment it qualifies as a literary or an artistic intellectual creation with an individual character, irrespective of its value or purpose.

There are no other requirements for copyright protection. In particular, it is not required that the author(s) of the work are identified. Works created by anonymous or unknown authors also enjoy copyright protection under Swiss law.

Moreover, Swiss law provides, for instance, that the editor of a work or the person who has published it may exercise the copyright in the work when the true identity of the author(s) of this work remains unknown (art. 8 par. 2 CopA).

3. Does your current law/practice require that a work has to be created by a human to be protected by Copyright?

Yes.

Swiss law defines the requirements for a work to qualify as copyrightable work in art. 2 par. 1 CopA: A work must be an “intellectual creation” (“geistige Schöpfung” in the German wording of the CopA or “creation de l’esprit” in the French wording) to be eligible for copyright protection. This implies a human origin of the work. Art. 6 CopA consistently defines an author as “the natural person who has created the work”.

Accordingly, a work has to be a creation of a human mind and based on the human will. In other words, a work must be an expression of a statement of thoughts (BGE 130 III 168 E. 4.5). Thus, a “work” in the meaning of copyright law can only be a work that is created by a human being (see also R. VON BÜREN/M. A. MEER, in: R. von Büren/L. David (eds.), Schweizerisches Immaterialgüter- und Wettbewerbsrecht, II/1, Urheberrecht und verwandte Schutzrechte, 3rd edn., Basel 2014, N 165). A legal person does not have the capacity to create such an intellectual creation. Only natural persons can create works eligible for copyright protection in Switzerland.

As a result, an AI-generated work will only be eligible for copyright protection if it sufficiently involves a human being in its creation process.
This is in line with the established practice regarding copyright protection of photographs, whereby photographs only benefit from copyright protection if they have a human author. This precludes the eligibility of photographs obtained by automatic processes, such as radar photos or surveillance cameras (FF 2018 559, 29).

More generally, the theoretical justification of copyright protection in Switzerland (as in other civil law countries) makes clear that a human contribution is a prerequisite to copyright protection. Copyrights are justified by the importance of the author’s personality and also by the ownership of the fruits stemming from a human being’s work.

4. Could one or more of the natural persons involved in the process of the Working Example be qualified as authors of the resulting work in your jurisdiction?

Yes, possibly.

This, however, will only be the case if the intellectual creation of any of these persons – which is required for the new work to be eligible for copyright protection – is reflected in the AI-generated work. In particular, creative decisions of a human must find their expression in the resulting work. Otherwise, the resulting work will not be eligible for copyright protection and the person(s) involved in the Working Example will not qualify as author(s) of the new work. In that sense, a “creative causal link” must be perceptible between the creative work of said natural person(s) and the resulting work.

Thus, the authors, if any, of the new work can only be humans who have provided creative inputs that are linked to and reflected in the final work. The occurrence and extent of human intervention (beyond the mere design/programming of the AI entity) remains decisive in appreciating the authorship. Whether or not this is the case has to be assessed on a case-by-case basis.

As far as intellectual property (IP) protection is concerned, AI (and, in particular, machine learning) can be compared to various other computerized techniques that have emerged in the last decades, such as computer-aided design, graphics and image editors, and digital audio workstations. Such techniques have already raised questions as to the eligibility of works generated therewith and the qualification of authors of such works. In particular, the authors of software implementing such techniques are typically not regarded as authors of works created by persons using such software.

Given that AI favours ever less tangible human involvement in the creative process (just like other computerized techniques), one may expect the threshold of human involvement required for such works to be eligible to change further in the future.

a) The authors of the program or code that defines the AI entities1?

There is no general rule under Swiss law according to which the authors (call them the “AI authors”) of the program or code (the “AI code”) defining the AI entities qualify as authors of the resulting work (i.e., work subsequently generated with this program or code).

Now, without the AI authors’ creative decisions reflecting in the resulting work, there is no reason for the AI authors to qualify as authors of the resulting work (see, e.g., von BÜREN /MEER, SIWR II/1, 3rd edn., 2014, N 297 et seqq.). Similarly, the authors of a digital audio workstation (a software) are normally not regarded as the authors of any musical work created with this workstation.

Note, the distinction between the AI code and the resulting work (the new work) matters, also when the new work happens to be a computer program code of its own. That the AI code per se may possibly benefit from copyright protection (art. 2 par. 3 CopA) does not imply that the AI authors will automatically be acknowledged as the authors of the new work, even if the latter is a computer program code. Rather, also in this context, a prerequisite for the AI authors to be qualified as authors of the new work would be the existence of a creative causal link, as discussed earlier.

Whether or not this will be the case depends on the particulars of the situation. Two important criteria will presumably be: (i) the extent to which the definition (the design, programming, etc.) of the AI code by the AI authors predetermines what the new work will be; (ii) the possible further involvement of the

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1 As noted in the introduction, “AI entities” refers to the system(s) that creates the AI-created work and does not refer to a legal or juridical entity.
AI authors in the creative process leading to the new work, beyond the mere definition of the AI code (e.g., as users of the AI entity).

In some circumstances, the AI authors may happen to be actively involved in the production of the new work, also as users of the AI entity. E.g., the AI authors could be led to make creative decisions in the process of the creation of the new work through the use of an AI entity deriving from their own AI code. In such a case, the AI authors may possibly qualify as authors of the new work, but this would rather stem from their contribution to the creation process rather than to the AI code per se. Still, experience with previous computerized techniques suggests that AI authors will, in practice, rarely qualify as authors of the new work.

b) A human who defines the particular goal or objective to be achieved by the AI entities?

There is no general rule under Swiss law according to which a human who defines a goal or objective to be achieved by the AI entities does, as such, automatically qualify as an author of the new work. Thus, this human will only be regarded as an author of the resulting work if the prerequisites set out above are fulfilled.

Accordingly, a human defining such a goal or objective may be considered an author of the new work provided that such definition is adequately reflected in the resulting work. In addition, this definition must involve some creative, human contribution for the resulting work to qualify as an intellectual creation and therefore as copyrightable work.

Again, this must be approached on a case-by-case basis.

c) A human who selects the data or the data selection criteria (inputs)?

There is no general rule under Swiss law according to which a human who selects such inputs does, as such, automatically qualify as an author of the new work. And again, the same prerequisites as set out above would need to be fulfilled for this human to be considered an author of the resulting work. The influence of the human contribution on the new work is key, i.e., the selection performed must have a sufficient impact on the resulting work and, as such, be reflected in the resulting work. Further, this selection must involve some creative contribution from this human for the resulting work to qualify as an intellectual creation. Whether or not this will be the case depends on the specific situation.

d) A human who selects a particular artificially-generated work from multiple works generated by the AI entities?

In all likelihood, no.

A human selecting a particular work from multiple works generated by the AI entities will likely not be regarded as fulfilling the above prerequisites, because such a selection will normally not involve a sufficient creative activity.

However, the occurrence of such a human selection shall not systematically preclude rights to authorship, as for instance discussed by FENNA HORNMAN (“A robot’s right to copyright”, University of Tilburg, 2018). In particular, a process in which a human author sets important conditions for the AI entity to generate various works and makes a final selection may possibly involve sufficiently free and creative choices for the resulting work to carry the personal imprint of that human author.

e) Someone else?

No additional actors need to be specifically considered at this point. As noted earlier, any other natural person must, irrespective of her/his role, have provided creative inputs that are sufficiently linked to and reflected in the new work (the resulting work), in order to qualify as an author of this work.

5. If, in your jurisdiction, originality is a requirement for a work to be protected by Copyright, could an artificially-generated work qualify as an original work in your jurisdiction?

This depends on the extent of human intervention in the creative process and the resulting work itself, as discussed earlier.

According to art. 2 par. 1 CopA, works are protected by copyright if they are intellectual creations with an individual character. Originality in the sense of a personal imprint of the author is not explicitly required under the Swiss law. Still, despite the explicit wording of the law and a concurring statement
from the Federal Supreme Court (BGE 143 III 373 E. 2b), originality is essentially perceived as a synonym of individuality both in the jurisprudence and in the literature (see, e.g., BGE 125 III 328 E. 4b). One notes, in that respect, that the individual character is, like the originality of a work, usually regarded as an attribute of an intellectual creation of a human being. Thus, only a human work can possibly have the individual character required by the law.

Accordingly, a “fully artificial work” would not be regarded as having individual character. A fully artificial work is defined here as a work automatically generated, without any creative human input beyond the definition (design/coding) of the AI code, assuming that this definition is not sufficiently linked to the original expression of the subsequently generated work.

Still, some human contribution will typically occur in practice, which may be sufficient for a work to be eligible for copyright protection, without it being necessary for this contribution to be reflected in all parts (stages) of the work (see, e.g., cf. VON BÜREN/MEER, SIWR II/1, 3rd edn., 2014, N 179 with reference to BGE 134 III 171).

Aside from the required human contribution to the creative process, qualities of the resulting works will have to be assessed. Additional considerations may accordingly come into play, such as the aesthetic appeal of the resulting work, which might contribute to its originality (or individual character). A parallel can for instance be made with photographs, for which the threshold for copyright protection is essentially defined by two decisions of the Swiss Federal Supreme Court, i.e., the “Bob Marley” case (BGE 130 III 168, 2003) and the “Meili” case (BGE 130 III 175, 2004).

Owing to the various possible qualities of AI-generated works and extent of human intervention to achieve them, the eligibility of such works will clearly have to be assessed on a case-by-case basis.

6. If there are supplementary or other requirements for a work to be protected by Copyright in your current law/practice, can an artificially-generated work in accordance with the Working Example fulfil them?

The requirements for a work to be protected by copyright under Swiss law are discussed above.

7. Assuming that, under your current law/practice, an artificially-generated work is protectable by Copyright, who would be the “first owner” of the Copyright, i.e., the person defined by the law as the original owner?

As discussed earlier, this depends on the extent of human intervention in the various stages of the creation process and, in particular, whether a sufficient causal link exists between the definition (design, coding, etc.) of the AI code underlying the AI entity and the new work eventually obtained. Thus, many scenarios can be contemplated, ranging from no copyright owner at all to co-authorship between various (human) actors, these possibly including the AI authors.

Assuming a sufficient causal link exists between the definition of the AI code and the AI-generated work, the first owner may possibly (though unlikely) be or include the AI authors, as discussed earlier. Rather, the persons involved in the subsequent creative stages would more likely qualify as first owner of this work, just as with works created using other computerized techniques (image editors, digital audio, etc.).

8. Under your current law/practice, could an AI system or machine be qualified as a juridical entity capable of holding Copyright or Related Rights?

No.

9. Does your current law/practice allow non-humans and/or non-juridical entities to hold Copyright?

Under Swiss law, only human beings (“natural persons”) and legal entities (“legal persons”) may hold copyrights.
10. Assuming that, under your current law/practice, an artificially-generated work is protectable by Copyright, what is the term of protection?

There are no specific rules pertaining to artificially-generated works under Swiss law. Thus, the same legal provisions as applicable to usual works would also apply in this case. Art. 29 CopA provides that the term of protection of an artificially-generated work ends either 50 or 70 years after the death of the author.

The artificially-generated work may happen to be a computer program of its own, which could then be eligible for copyright protection, according to art. 2 par. 3 CopA, subject to the previous remarks in terms of required human intervention. Since for software, the protection ends 50 years after the death of the author, the limit of 50 years would logically apply in that case. But for other types of works (e.g., pictures, songs), the limit of 70 years would remain valid, keeping in mind the distinction between the AI code and the resulting work. Where the author is unknown, protection expires 70 years after the (final instalment of the) work has been published.

11. Could a work created with the process of the Working Example be protected by any type of Related Rights?

For the purpose of this question, we note that the process of the Working Example allows some human intervention. This process can thus lead to copyrightable material. We further consider that such material may be used in a subsequent process, which also may be according to the Working Example. I.e., the subsequent process may, for example, serve a performance involving a human being.

If the first process does not involve any human intervention, its output cannot enjoy copyright protection, which precludes the possibility for related rights according to Swiss law.

However, if the first process involves a human contribution that leads to copyrightable material, this material may then be subject to related rights.

In that respect, performers’ rights as set forth in art. 33 et seqq. CopA would only apply to the extent that they originate in an act of a performing artist, which by definition, must be a human being (cf., for example, BARRELET/EGLOFF, CRA 33 N 6). For example, a technical process that intonates a pre-existing musical work does not qualify as a performer and, therefore, cannot enjoy protection under art. 33 et seqq. CopA. On the contrary, a live performance involving a sufficient contribution from a performing artist may engender performers’ rights. Whether or not the action of a human being who merely initiates a technical process (e.g., involving an AI entity) and/or selects pre-existing musical works as inputs to such a process qualifies as an act of a performing artist must be examined on a case-by-case basis.

Next, producers’ and broadcasters’ rights as set forth in art. 36 et seq. CopA would not apply if they do not attach to the result of a creation process but to the result of an organisational/economical endeavour (HILTY, para. 363). This does not exclude, however, that producers and broadcasters, in the context of their organisational/economical endeavours, rely on the assistance of AI processes, such as the ones underlying the Working Example.

Note, under Swiss law, the term of protection of related rights is 50 years (art. 39[1] CopA).

III. Policy considerations and proposals for improvements of your Group’s current law

12. Could any of the following aspects of your Group’s current law or practice relating to artificially-generated works be improved? If yes, please explain.

As said, this group does not regard AI as fundamentally different from other computerized techniques, as far as IP is concerned. The existing copyright law has proven to be sufficiently flexible and technology-neutral to reasonably address previous technological evolutions. Hence, currently this group does not believe that the advent of AI requires changes to the existing copyright law.

Irrespective of the sophistication of AI entities, such entities remain tools (like paint brushes), which may be used to produce copyrightable material when creatively leveraged by a human person. Thus, assuming that the current law or practice can adequately cope with works obtained via previous computerized techniques, the present group does not see a need for improvement for what specifically concerns artificially-generated works.
13. Are there any other policy considerations and/or proposals for improvement to your Group’s current law falling within the scope of this Study Question?

Not to the knowledge of this working group.

IV. Proposals for harmonization

14. In your opinion, should Copyright protection and/or Related Rights protection for artificially-generated works be harmonized? For what reasons?

Harmonization is often desirable. Massive amounts of data (including works) are and will continue to be produced via computerized systems in the context of, e.g., social media, the Internet of things, etc. Thus, the problem posed by works created by or via AI entities must be more generally assessed in the context of the post-internet era, where digital works can instantly travel through networks of interconnected, computerized devices. In this context, copyrights and related rights need more than ever to be clearly identifiable, hence there is a need for harmonization. However, this problem is not specifically tied to AI-generated works but more generally concerns all digital works. Thus, the present group does not see a need to harmonize copyright protection and/or related rights protection specifically for artificially-generated works.

Note, this working group does not include any in-house counsel. However, most of the participants advise companies active in IT and AI and/or have some experience as in-house counsel in a company active in IT and, in particular, in AI. In-house/industry members were consulted during the course of this Study Question.

Summary

In Switzerland, copyright protection arises automatically upon creation of a work, regardless of any formality. Such a work must be an “intellectual creation” and must therefore have a human origin. As a result, a work generated by means of artificial intelligence (AI) will only be eligible for copyright protection if a human being is involved in the process of its creation. In addition, the authors of a work obtained with AI can only be humans who have provided creative inputs that are linked to and reflected in the final work. In that sense, a “creative causal link” must be perceptible between the creative work of the author(s) and the resulting work. The occurrence and extent of human intervention remains decisive in appreciating the authorship. Whether or not this is the case has to be assessed on a case-by-case basis. In practice, the authors will likely be persons having selected inputs to the AI (e.g., to train the machine learning model), and/or having defined a goal or objective to be achieved by the AI, e.g., by specifically setting parameters of the AI. On rare occasions, the authors of the underlying AI code may also qualify as authors of the resulting work. In that respect, as far as intellectual property (IP) is concerned, AI can be compared to various other computerized techniques that have emerged in recent decades, such as computer-aided design, graphics software, and digital audio workstations. Such techniques have already raised similar questions as to the eligibility of works generated therewith and the qualification of authors of such works. In particular, the authors of the software implementing such techniques are typically not regarded as authors of works created by persons using such software. Finally, since the Swiss copyright law has proven to be sufficiently flexible and technology-neutral to reasonably address previous technological evolutions, the authors of this paper do not believe that the advent of AI requires changes to the existing copyright law.

Zusammenfassung

sein. Das Auftreten und der Umfang menschlicher Eingriffe sind deshalb ausschlaggebend für die Be-
urteilung des Werkcharakters und der Autorschaft eines mittels KI erzeugten Werkes. Ob dies der Fall
ist, muss von Fall zu Fall beurteilt werden. In der Praxis kommen als Autoren Personen infrage, die
der KI im Prozess der Erschaffung des Werkes massgeblichen Input leisten (z.B., um das Modell des
maschinellen Lernens zu trainieren) und/oder die das Ziel definiert haben, das durch die KI erreicht
werden soll (z.B. durch spezifische Parametrisierung der KI). In seltenen Fällen können auch die Auto-
ren des zugrunde liegenden KI-Codes als Autoren des entstandenen Werkes gelten. In diesem Zu-
sammenhang kann die KI im Bereich des geistigen Eigentums (IP) mit verschiedenen anderen com-
putergestützten Techniken verglichen werden, die in den letzten Jahrzehnten entstanden sind, wie
computergestütztes Design, Grafiksoftware und digitale Audio-Workstations. Solche Techniken haben
bereits ähnliche Fragen hinsichtlich der Eignung von damit erzeugten Werken und der Qualifikation
von Autoren solcher Werke aufgeworfen. Insbesondere werden die Autoren der Software, die solche
Techniken implementiert, in der Regel nicht als Autoren von Werken angesehen, die von Personen
geschaffen wurden, die diese Software anwenden. Da sich das Schweizer Urheberrechtsgesetz als
ausreichend flexibel und technologieneutral erwiesen hat, um früheren technologischen Entwicklun-
gen angemessen zu begegnen, sind die Autoren dieses Papiers derzeit nicht der Ansicht, dass das
Aufkommen der KI eine Änderung des bestehenden Urheberrechts erfordert.

Résumé

En Suisse, la protection du droit d’auteur prend naissance automatiquement à la création d’une
œuvre, sans aucune formalité. Une telle œuvre doit être une «création intellectuelle» et doit donc
avoir une origine humaine. En conséquence, une œuvre générée à l’aide d’une intelligence artificielle
(IA) ne peut être protégée par le droit d’auteur que si un être humain est impliqué dans son processus
de création. En outre, les auteurs d’une œuvre obtenue à l’aide d’une IA ne peuvent être que des hu-
mains ayant fourni des contributions créatives liées à cette œuvre et qui se reflètent dans celle-ci. En
ce sens, un «lien de causalité créatif» doit être perceptible entre le travail de création du ou des au-
teurs et l’œuvre qui en résulte. La présence et l’ampleur de l’intervention humaine restent déterminan-
tes dans l’appréciation de la paternité de l’œuvre. Elles devront être appréciées au cas par cas. En
pratique, ces auteurs seront typiquement des personnes ayant sélectionné des données fournies à
l’IA (par exemple, pour entrainer un modèle d’apprentissage automatique) et/ou ayant défini un but ou
un objectif à atteindre par l’IA, par exemple en sélectionnant des paramètres spécifiques de l’IA. En de
rares occasions, les auteurs du logiciel de l’IA pourront également être considérés comme les auteurs
de l’œuvre résultante. À cet égard, en ce qui concerne la propriété intellectuelle (PI), l’IA peut être
comparée à d’autres techniques informatiques apparues au cours des dernières décennies, telles que
la conception assistée par ordinateur, les logiciels graphiques et les stations audio-numériques. Ces
techniques ont déjà soulevé des questions similaires quant à l’éligibilité des œuvres qu’elles permet-
tent de créer et à la qualification des auteurs de ces œuvres. Les auteurs de tels logiciels ne sont
généralement pas considérés comme les auteurs des œuvres créées au moyen de ces logiciels. La
loi suisse sur le droit d’auteur s’est révélée suffisamment souple et neutre (sur le plan technologique)
pour pouvoir prendre en compte ces évolutions technologiques antérieures. Par conséquent, l’opinion
actuelle des auteurs du présent article est que l’avènement de l’IA ne nécessite pas de modification
de la loi actuelle sur le droit d’auteur.