Comments to the "draft issues paper on intellectual property policy and artificial intelligence"

WIPO Conversation on Intellectual Property (IP) and Artificial Intelligence (AI)

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Comments to the questions

Question 6

AI can be used to automatically generate contents, such as numbers, text, images, sounds, or any type of data. However, contrary to a statement made in question 6 ("*it would now seem clear that inventions can be autonomously generated by AI*"), the author believes that it is not at all clear that inventions can be autonomously generated by AI, notably for two reasons.

First, contents generated by machines are not generated autonomously in practice, as computer scientists in the field may confirm. Second, contents generated by machines hardly qualify as patentable inventions, given the definition of a patentable invention.

Concerning the first reason: various human activities are needed for the machines to generate contents in practice. Such activities include, i.a., designing and programming (or somehow building) the AI system, selecting suitable training data (for supervised training pipelines) and pre-processing (e.g., cleaning) such data, and then parameterizing (or somehow reconfiguring) the AI system for it to produce satisfactory results. In addition, human activities are needed to select those interesting contents (as opposed to non-interesting or irrelevant contents) and/or clean up such contents, if not to improve the contents *a posteriori*. Eventually, humans are always involved, such that contents produced by an AI system are not autonomously generated in practice.

Concerning the second reason: In most jurisdictions, a patentable invention is regarded as a solution to a problem, which typically is a technical (or technological) problem. Thus, generating an invention requires:

(i) identifying a problem (i.e., an obstacle, hindrance, etc., to the development or functioning of some human activities); and (ii) devising a solution that solves this problem. Moreover, there are a number of additional considerations involved. For example: (iii) minimal certainty must be acquired that the solution devised indeed solves the problem, e.g., based on experiments, test, or experience. And (iv) the patent application should be sufficiently described, to enable third parties to reproduce the invention, a condition that is particularly difficult to assess, even for seasoned patent attorneys. The list goes on.

The author is not aware of any AI system capable of: (i) identifying a technical or technological problem; (ii) finding a solution to this problem; (iii) acquiring minimal certainty that the solution found indeed solves the problem (e.g., by way of experiments and/or tests); and (iv) making sure that the devised solution is sufficiently described so that others may reproduce it.

Note, the European Patent Office has recently refused patent applications designating a machine inventor (i.e., an AI system). Such decisions were largely expected, notably since the publication of this academic study on AI inventorship commissioned by the EPO. Of course, some are trying to exploit the hype about AI. However, common sense tells that, despite all its merits, AI is just another tool, like a pencil or a digital audio workstation, as discussed in, e.g., *Copyright in artificially generated works*. sic! 2019, 10.

To conclude, the WIPO may consider to change the statement "*it would now seem clear that inventions can be autonomously generated by AI*" in question 6 to, e.g., "*inventions can be generated using AI techniques, which normally require minimal human activities (e.g., to design, program, configure the underlying AI system, select suitable training datasets if needed, and/or select contents generated by the AI system)*".

Question 10(ii)

Perhaps the question should clarify what an *algorithm that changes over time* means. The author is not aware of algorithms that change over time with access to data. What typically happens with a cognitive model that is being trained is that its parameters (e.g., the weights of the ANN) progressively change over time, much like fit parameters of an analytical function are automatically adjusted when fitting a curve. The cognitive algorithm may further be retrained, based on new sets of data. However, the algorithm itself does not change.

Question 12

Similar remarks as for question 6 apply. While it is true that AI can automatically generate contents, it is not at all clear whether such contents (i) are *autonomously* generated; and (ii) qualify as *artistic works*.

Indeed, as noted earlier in reference to question 6, human activities are needed for the machines to generate contents. Such contents are thus not autonomously generated in practice. In addition, human activities are needed to select those interesting or relevant contents, clean up the output data, and often improve the results with a human touch. Thus, humans are involved in the process, see, e.g., the discussion in the paper mentioned above (*Copyright in artificially generated works*).

Plus, it belongs to humans to determine whether any generated contents qualify as *artistic works*, not to machines. Therefore, the statement "*AI applications are capable of producing literary and artistic works autonomously*" is somewhat disturbing.

This statement may for example be revised as follows: "*AI techniques can be used to produce contents that can be compared to literary or artistic works as created by humans*".

Question 13

Similarly, the preamble of question 13 may be revised as follows: "*An AI application can <u>be used to</u> produce creative works by learning from data with AI techniques such as machine learning.*"

Please consider clarifying the terminology "*copyright works*" in question 13.

Question 24

Similar remarks as for questions 6 and 12 apply ("*autonomously*").

Question 25

Please consider nuancing statements in respect of the "*limited number of countries*" with expertise and capacity in AI. Indeed, it merely takes a laptop (to run cognitive algorithms), an Internet access (to download such algorithms and training datasets), and a few days or weeks of trials and error to start obtaining interesting results using machine learning, which is a foremost component of AI.