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Intellectual Property and Artificial Intelligence

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Although artificial intelligence has been evolving constantly in the past few years, the law sometimes has difficulty keeping pace with such developments. Intellectual property issues are especially important: businesses investing in these technologies must be sure that they can take full advantage of the commercial benefits that such technologies provide. This newsletter provides an overview of the various forms of intellectual property that are applicable to artificial intelligence.

The initial instinct of many entrepreneurs would be to patent their artificial intelligence processes. However, although in some instances such a course of action would be an effective method of protection, obtaining a patent is not necessarily the most appropriate form of protection for artificial intelligence or software technologies generally. Since the major Supreme Court of the United States decision in *Alice Corp. v. CLS Bank International*[1], it is now acknowledged that applying abstract concepts in the IT environment will not suffice to transform such concepts into patentable items. For instance, in light of that decision, a patent that had been issued for an expert system (which is a form of artificial intelligence) was subsequently invalidated by a U.S. court.[2]

In Canada, case law has yet to deal specifically with artificial intelligence systems. However, the main principles laid down by the Federal Court of Appeal in *Schlumberger Canada Ltd. v. Canada (Commissioner of Patents)*[3] are still relevant to the topic. In that case, it was decided that a method of collecting, recording and analyzing data using a computer programmed on the basis of a mathematical formula was not patentable. However, in a more recent ruling, the same Court held that a data-processing technique may be patentable if it "[…] is not the whole invention but only one of a number of essential elements in a novel combination."[4] The unpatentability of an artificial intelligence algorithm in isolation is therefore to be expected.

In Europe, according to Article 52 of the 1973 *European Patent Convention,* computer programs are not patentable. Thus the underlying programming of an artificial intelligence system would not be patentable under this legal system.

Copyright is perhaps the most obvious form of intellectual property for artificial intelligence. Source codes have long been recognized as "works" within the meaning of the Canadian *Copyright Act* and in similar legislation in most other countries. Some jurisdictions have even enacted laws specifically

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aimed at software protection.[5]

On this issue, an earlier Supreme Court of Canada ruling in *Apple Computer, Inc. v. Mackintosh Computers Ltd*[6] is of some interest: In that case, the Court held that computer programs embedded in ROM (read only memory) chips are works protected by copyright. A similar conclusion was reached earlier by a US Court.[7] These decisions are meaningful with respect to artificial intelligence systems because they extend copyright protection not only to the codes programmed in complex languages or on advanced artificial intelligence platforms but also to the resulting object code, even on electronic media such as ROM chips. Copyright however does not protect ideas or the general principles of a particular code; it only protects the expression of those ideas or principles.

In addition to copyright, the protection afforded by trade secrets should not be underestimated. More specifically, in the field of computer science, it is rare for customers to have access to the full source code. Furthermore, in artificial intelligence, source codes are usually quite complex, and it is precisely such technological complexity that contributes to its protection.[8] This approach is particularly appealing for businesses providing software as a remote service. In these cases, users only have access to an interface, never to the source code or the compiled code. Therefore, it is almost impossible to reverse engineer such technology.

However, when an artificial intelligence system is protected only by the concept of trade secret, there is always the risk that a leak originating with one or more employees will allow competitors to learn the source code, its structure or its particularities. It would be nearly impossible to prevent a source code from circulating online after such a leak. Companies may attempt to bolster the protection of their trade secrets with confidentiality agreements, but unfortunately this is insufficient where employees act in bad faith or in the case of industrial espionage. It would therefore be wise to implement knowledge-splitting measures within a company, so that only a restricted number of employees have access to all the critical information.

Incidentally, it would be strategic for an artificial intelligence provider to make sure that its customers highlight its trademark, like the *"Intel Inside"* cooperative marketing strategy, to promote its system with potential customers.

In the case of artificial intelligence systems sold commercially, it is also important to consider intellectual property in the learning outcomes of the systems resulting from its use. This raises the issue of ownership. Does a database generated by an artificial intelligence system developed by a software supplier while being used by one of its customers belong to the supplier or to this customer? Often, the contract between the parties will govern the situation. However a business may legitimately wish to retain the intellectual property in the databases generated by its internal use of the software, specifically where it provides it with its operational data or where it "trains" the artificial intelligence system through interaction with its employees.

The desire to maintain the confidentiality of databases resulting from the use of artificial intelligence would suggest that they are assimilable to trade secrets. However, whether such databases are considered works in copyright law would be determined on a case-by-case basis.

The court would also have to determine if the databases are the product of the exercise of the skill and judgment of one or more authors, as required by Canadian jurisprudence order to constitute "works".[9] Although situations where employees "train" an artificial intelligence system are more readily assimilable to an exercise of skill and judgment, cases where databases are constituted autonomously by a system could escape copyright protection "No copyright can subsist in […] data. The copyright must exist in the compilations analysis thereof".[10]

In addition to the issues raised above, is the more prospective issue of the inventions created by artificial intelligence systems. So far, such systems have been used to identify research areas with

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opportunities for innovation. For example, data mining systems are already used to analyze patent texts, ascertain emerging fields of research, and even find “available” conceptual areas for potential patents.[11] Artificial intelligence systems may be used in coming years to mechanically draft patent applications including patent claims covering potentially novel inventions.[12] Can artificial intelligence have intellectual property rights, for instance, with respect to patents or copyrights? This is highly doubtful given that current legislation attributes rights to inventors and creators who must be natural persons, at least in Canada and the United States.[13] The question then arises, would the intellectual property of the invention be granted to the designers of the artificial intelligence system? Our view is that at present the law is inappropriate in this regard because historically, in the area of patents, intellectual property was granted to the inventive person, and in the area of copyright, to the person who exercised skill and judgment. We also query whether a patent would be invalidated or a work enter the public domain on the ground that a substantial portion is generated by artificial intelligence (which is not the case in this newsletter!).

Until that time, lawyers should familiarize themselves with the underlying concepts of artificial intelligence, and conversely, IT professionals should familiarize themselves with the concepts of intellectual property. For entrepreneurs who design or use artificial intelligence systems, constant consideration of intellectual property issues is essential to protect their achievements.

Lavery created the Lavery Legal Lab on Artificial Intelligence (L^3AI) to analyze and monitor recent and anticipated developments in artificial intelligence from a legal perspective. Our Lab is interested in all projects pertaining to artificial intelligence (AI) and their legal particularities, particularly the various branches and applications of artificial intelligence that will rapidly appear in all businesses and industries.

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1. 573 U.S._, 134 S. Ct. 2347 (2014).
2. *Vehicle Intelligence and Safety v. Mercedes-Benz,* 78 F. Supp.3d 884 (2015), maintenue en appel Federal Circuit. No. 2015-1411 (U.S.).
3. [1982] 1 C.F. 845 (C.A.F.).
4. *Canada (Procureur général) v. Amazon.com,* inc., [2012] 2 RCF 459, 2011 CAF 328.
5. For example, in Brazil: *Lei do Software* No. 9.609 du 19 février, 1998; en Europe : *Directive 2009/24/CE concernant la protection juridique des programmes d'ordinateur.*
6. [1990] 2 RCS 209, 1990 CanLII 119 (CSC).
7. *Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240 (3d Cir. 1983) (U.S.).
8. Keisner, A., Raffo, J., & Wunsch-Vincent, S. (2015). *Breakthrough technologies-Robotics, innovation and intellectual property* (No. 30). World Intellectual Property Organization- Economics and Statistics Division.
9. *CCH Canadian Ltd. v. Law Society of Upper Canada,* 2004 CSC 13, [2004] 1 RCS 339.
10. See, for example: : *Geophysical Service Incorporated v. Canada-Nova-Scotia Offshore Petroleum Board,* 2014 CF 450.
11. See, for example: : Lee, S., Yoon, B., & Park, Y. (2009). An approach to discovering new technology opportunities: Keyword-based patent map approach. *Technovation,* 29(6), 481-497; Abbas, A., Zhang, L., & Khan, S. U. (2014). A literature review on the state-of-theart in patent analysis. *World Patent Information,* 37, 3-13.
12. Hattenbach, B., & Glucoft, J. (2015). Patents in an Era of Infinite Monkeys and Artificial Intelligence. *Stan. Tech. L. Rev.,* 19, 32.
13. *Supra*, note 7.

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