THE IMPACT OF ARTIFICIAL INTELLIGENCE ON THE FORMATION AND THE DEVELOPMENT OF THE LAW

Sébastien Lafrance[371]

Tác động của trí tuệ nhân tạo tới sự hình thành và phát triển của luật

Sébastien Lafrance*

Công tố viên Toà án tối cao Canada tại Toronto

Trí tuệ nhân tạo và tác động của nó tới pháp luật không ngừng biến chuyển. Trong lĩnh vực này, những giấc mơ về tương lai thường được phản ảnh trong các bộ phim viễn tưởng ngày càng trở nên giống nhau. Tuy nhiên, không nên nhầm lẫn giữ viễn tưởng và thực tế. Viễn cảnh máy móc, công nghệ trở nên thông minh hơn con người không diễn ra trong tương lai gần. Bài viết trình bày và phân tích những biến đổi của luật pháp dưới tác động của trí tuệ nhân tạo. Đồng thời, bài viết phân tích về luật pháp áp dụng cho robot. Tác giả nghiên cứu dưới góc độ của pháp luật Canada.

Artificial intelligence and its impact on the law are in constant evolution. In that field, dreams about the future, reflected by science-fiction movies, and the reality are sometimes, and become more and more nowadays, the same thing. However, they should not, for the most part, be conflated. Singularity, where technology changes so much that it becomes more intelligent than humans, will not be soon at our door. The author examines how the evolution of the law is impacted by artificial intelligence. He also discusses what law should be applicable to robots. This is an original contribution with a Canadian perspective to this topic.

In the 2002 blockbuster science fiction film *Minority Report*, numerous fictional future technologies are featured. This movie is set primarily in Washington, D.C., and Northern Virginia, United States, in the year 2054, where PreCrime, a specialized police department, apprehends criminals. To do that, the police uses a crime prediction software that predicts the crimes committed in the future by criminals. It implies that the law evolved in such a fashion to allow the use of that technology. This is a fictional example of how artificial intelligence[372] ("**AI**") could have an impact on the evolution of the law. Predictive analysis

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[371] LL.M. Candidate (Laval University), LL.B. (Université du Québec à Montréal), B.Sc. in Political Science (University of Montreal); currently Crown Counsel for the Public Prosecution Service of Canada; former part-time Professor of Law teaching various subjects in law (University of Ottawa); former clerk for the Honorable Marie Deschamps of the Supreme Court of Canada and for the Honorable Michel Robert, Chief Judge of the Quebec Court of Appeal. Public speaker on various legal issues around the world. Polyglot. The author can be reached at seblafrance1975@gmail.com. This work was prepared separately from this author's employment responsibilities at the Public Prosecution Service of Canada. The views, opinions and conclusions expressed herein are personal to this author and should not be construed as those of the Public Prosecution Service of Canada or the Canadian federal Crown.

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[372] Iria Giuffrida, Fredric Lederer, and Nicolas Vermerys, "A Legal Perspective on the Trials and Tribulations of AI: How Artificial Intelligence, the Internet of Things, Smart Contracts, and Other Technologies Will Affect the Law*"*, 68 Case W. Res. L. Rev. 747 (2018), at p. 751: "According to common knowledge, the terme "Artificial Intelligence" may first have been coined by John McCarthy, Marvin L. Minsky, Nathaniel Rochester, and Claude E. Shannon, in a 1955 paper, *A Proposal for the Dartmouth Summer Research Project on Artificial Intelligence*" published on August 31, 1955, which was re-published in AI Magazine, Winter 2006. That said, artificial intelligence is generally associated to Alan Turing, who prepared the ground for thinking about this issue in the 1950s: Valère Ndior, "Les robots rêvent-ils d'un statut

includes a variety of techniques that analyze past and present facts to make predictive hypotheses about future events. Applied in the judicial system, it has the objective of predicting the outcome of a case.[373] For example, similar but not identical to the crime prediction software used by PreCrime, PredPol is a policing technology that exists now in the real world that helps law enforcement predict and prevent crime.[374] What place would then be left, for example, to the presumption of innocence[375] and to the right to privacy[376] in that context? What about the impact and consequences of a single human error in the predictive coding software?[377] Could that software still be reliable?

An author pointed out that the use of predictive analysis does not only have advantages: "It risks to infringe the independence of the judiciary. By fear of making their decisions appealable or simply because it is convenient, some judges could be incited to render their decisions in the same way as the analysis done by the machine. This would result in the uniformization of the legal reasoning".[378] If the law were to become uniform, how could it evolve? In Canada, the Supreme Court of Canada emphasized the importance of judicial independence in these terms: "Judicial independence serves not as an end in itself, but as a means to safeguard our constitutional order and to maintain public confidence in the administration of justice".[379]

These are only a few of the issues that may immediately come to the mind of the jurists. As noted by Iria Giuffrida, Fredric Lederer, and Nicolas Vermerys, "every technological advance is accompanied by legal questions."[380] These issues may also find different answers depending on what national jurisdiction is involved. It may also find different answers in the context where the impact of AI on the law is still evolving, and for

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juridique?" [*Do Robots Dream of a Legal Status?*], Entertainment - journal européen et international de droit Media-Art-Culture (2017-3), at p. 227.

373 Jean-Pierre Buyle and Adrien van den Branden, "La robotisation de la justice" *in* Hervé Jacquemin and Alexandre de Streel (dir.), *L'intelligence artificielle et le droit* [Artificial Intelligence and the Law], Centre de recherche information, droit et société, Larcier, Bruxelles, 2017, at p. 293.

374 See online: https://www.predpol.com/. This software is now used by more than 60 police departments around the United States. PredPol identifies areas in a neighborhood where serious crimes are more likely to occur during a particular period. See, e.g., Randy Rieland, "Artificial Intelligence Is Now Used to Predict Crimes. But Is It Biased?", Smithsonian.com (March 5, 2018); another example of predictive tool is the Correctional Offender Management Profiling for Alternative Sanctions (COMPAS) system that was widely used to weigh a defendant's risk of committing another crime.

375 The principle of presumption of innocence is stated in Vietnam's 2013 Constitution, article 31(1), see online: http://constitutionnet.org/sites/default/files/tranlation_of_vietnams_new_constitution_enuk_2.pdf. It is also provided in the 2015 Vietnam Criminal Procedure Code.

376 Article 21 of the Vietnam's 2013 Constitution.

377 Dana Remus and Frank Levy, "Can Robots be Lawyers? – Computers, Lawyers, and the Practice of the Law" in The Rise of the Machines: Artificial Intelligence and the Future of the Law, ABA Law Practice Division, July 20, 2016.

378 Jean-Pierre Buyle and Adrien van den Branden, supra note 3, at p. 295. [Translated in English by Sébastien Lafrance]

379 Ell v. Alberta, [2003] 1 SCR 857, at para. 29. The Court also defined judicial independence in that decision as encompassing "both an individual and institutional dimension. The former relates to the independence of a particular judge, and the latter to the independence of the court to which the judge is a member. Each of these dimensions depends on objective conditions or guarantees that ensure the judiciary's freedom from influence or any interference by others" (at para. 28); see also Conférence des juges de paix magistrats du Québec v. Quebec (Attorney General), [2016] 2 SCR 116; Mackin v. New Brunswick (Minister of Finance); Rice v. New Brunswick, [2002] 1 SCR 405; Ref re Remuneration of Judges of the Prov. Court of P.*E.I.; Ref re Independence and Impartiality of Judges of the Prov. Court of P.E.I.*, [1997] 3 SCR; *Valente v. The Queen*, [1985] 2 SCR 673.

380 Iria Giuffrida, Fredric Lederer, and Nicolas Vermerys, supra note 2, at p. 749.

which "there is still no generally accepted definition".[381] Further, this field of study involves controversial issues. Stephen Hawking's predictions about the risks posed by AI should be enough to invite the jurists to look at these issues.[382] As the Vietnamese proverb says, *chín người, mười ý*![383]

Back in 1993, the study of the connection between AI[384] and the law was a relatively new discipline.[385] Now, there are "numerous publications and journal articles written on the topic of law and AI"[386] even if "there have been relatively few applications of AI to law"[387] so far. The author hopes to make in this book chapter an original contribution (with a Canadian touch[388]) to this topic by discussing the impact of AI on the formation and the development of the law.

For legal researchers, the technology is undeniably a synonym of progress. Legal research is an essential component of the work of lawyers and judges.[389] The various legal search engines available today on the web, for example, greatly facilitates research.[390] Practically, that technology helps researchers to learn *faster* the foundations of the "normal science", in Thomas Kuhn's terms,[391] in a specific field of study. One could argue that there is no reason anymore to spend hours in a library doing research or looking for a book on a particular topic; knowledge is just a click away. Others could reply to that statement that it is not possible to access via the web "the vast amounts of information [only] available at the physical building"[392], the library. Could all the knowledge of the human race be eventually

381 Iria Giuffrida, Fredric Lederer, and Nicolas Vermerys, ibid, at p. 751.

382 Valère Ndior, supra note 2, at p. 229; see also "The rise of powerful AI will either be the best or the worst thing ever to happen to humanity", Speech of Stephen Hawking, October 19, 2016, see online: www.cam.ac.uk/research/news/the-best-or-worst-thing-to-happen-to-humanity-stephen-hawking-launches-centre-for-the-future-of.

383 "Nine people, ten ideas" [Translated in English by Sébastien Lafrance], which means that the more people you include, the more opinions and debates you will have. *Nguyễn Nguyễn, Edward F. Foulks and Kathleen Carlin, "Proverbs as Psychological Interpretations among Vietnamese",* Asian Folklore Studies, *50(2) Tulane University, New Orleans 311 (1991), at p. 312: "The use of proverbs is of course common in many Asian societies", including in Vietnam.*

384 Albert H. Yoon, "The Post-Modern Lawyer: Technology and the Democratization of Legal Representation", 66 University of Toronto Law Journal 456 (2017), at p. 466: "The term artificial intelligence is used broadly to describe the use of computing to replicate tasks done by humans."

385 Andrzej Kowalski, "Artificial Intelligence and Law: A Primer Overview", 51 The Advocate 579 (1993), at p. 579.

386 Iria Giuffrida, Fredric Lederer, and Nicolas Vermerys, supra note 2, at p. 749.

387 Eric Allen Engle, An Introduction to Artificial Intelligence and Legal Reasoning: Using xTalk to Model the Alien Tort Claims Act and Torture Victim Protection Act, 11 RICH. J.L. & TECH. 2 (2004), at para. 36.

388 For example regarding the specificity of the law in the province of Québec in Canada, see speech of the Honorable Michel Robert, Chief Judge of the Quebec Court of Appeal at Actes du Congrès de la Magistrature, "Quel juge pour quelle société?" [What Judge for What Society?], at p. 23: "When I asked my clerk, Me Sébastien Lafrance, to find an illustration of that reality, he suggested shepherd's pie! So, the shepherd's pie has three elements, first mashed potatoes, you know or you remember Mr. Parmentier, I think he was French, he popularized the use of potatoes for human consumption. At the bottom there is the ground beef of Lord Sandwich, who invented what we consume every day and which bears his name. And between the two, there is a truly American element, it is the corn that is the Aboriginal contribution to our legal system and which cements both the French and the English parts." [Translated in English by Sébastien Lafrance]

389 Jean-Pierre Buyle and Adrien van den Branden, supra note 3, at p. 288.

390 For example, the keywords "artificial intelligence" and "law" put together gives 6679 results on heinonline.org (searched on May 26, 2019).

391 Thomas S. Kuhn, The Structure of Scientific Revolution (1962): 'Normal science' means research firmly based upon one or more past scientific achievements, achievements that some particular scientific community acknowledges for a time as supplying the foundation for its further practice. See also [in French] Sébastien Lafrance, "La Charte canadienne des droits et libertés à la lumière de la « révolution scientifique » et de la « révolution constitutionnelle »: l'exemple du droit constitutionnel du travail*",* 18 Lex Electronica 2 *(2013),* at paras. 17-18.

392 Steven M. Cohen, "Library Web Page and Online Catalog Directories", (September/October 2003) Public Libraries, at p. 294.

digitalized?[393] As noted by an author, "[d]igital transformation is enabled by technology, but its success depends upon the willingness and ability of humans to operate differently."[394] A change of culture is required. Are we ready? Should we be ready?

For law practitioners, "there is little doubt that [technology] will continue to replace some of the tasks previously done by lawyers"[395] but only some of them can be automated in spite of what authors such as Richard Susskind argued that *much* of lawyer's work will be soon computerized.[396] Could it be bad news for the *human* practice of law if it were the case?

As stated by Albert H. Yoon, "each case is *unique*"[397] and "[b]y improving their productivity [relying on tools provided by the use of artificial intelligence], lawyers have the capacity to help more clients in the same amount of time."[398] As also noted by the former Chief Justice of Canada, The Right Honorable Beverley McLachlin:

The legal profession is not immune from the effects of the digital revolution. Lawyers are part of it, and there is no escape. This is good. Lawyers benefit enormously from it, processing information and producing work more efficiently than lawyers in the pre-digital era could ever have imagined.[399]

For example, there is the computer-assisted review,[400] which is "an available tool and should be seriously considered for use in large-data-volume cases".[401] As an author summarized it, lawyers "spend much of their time: (a) identifying the relevant legal question […]; (b) gathering the relevant facts of a given case; (c) identifying the relevant legal references; (d) situating the given case among these references; and (e) providing support and reassurance to clients who want to know that their legal matters are well in hand."[402]

Therefore, how could a computer-generated "emotion" expressed by a machine,[403] such as the emotions of support and reassurance, be believed as sincere by the human beings receiving it?[404] One could challenge this statement and say that emotions are not always

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393 Jean-Pierre Côté, "Entre deux utopies: la bibliothèque virtuelle" [Between Two Utopias: the Virtual Library], at p. 9 in André Turmel (Dir.), Culture, institution et savoir. Culture française d'Amérique, Québec, Les Presses de l'Université Laval, 1997 "One can imagine one of these databases in the form of an electronic encyclopedia that would include the body of knowledge". [Translated in English by Sébastien Lafrance]

394 Mark A. Cohen, "Law Is Lagging Digital Transformation –Why It Matters?", Forbes (December 20, 2018).

395 Albert H. Yoon, supra note 14, at p. 465.

396 Richard Susskind & Daniel Susskind, The Future of the Professions, How Technology Will Transform the Work of Human Expert?, Oxford University Press, 2015; Richard Susskind, Tomorrow's Lawyers: An Introduction to Your Future, Oxford University Press, 2013; Richard Susskind, The End of Lawyers: Rethinking the Nature of Legal Services, Oxford University Press, 2010.

397 Albert H. Yoon, supra note 14, at p. 469.

398 Albert H. Yoon, ibid, at p. 470 (Italics added).

399 Remarks of the Right Honourable Beverley McLachlin, P.C. Chief Justice of Canada, The Legal Profession in the 21st Century, August 14, 2015; see also Iria Giuffrida, Fredric Lederer, and Nicolas Vermerys, supra note 2, at p. 780: it "is in no means a challenge for the legal system"; Jean-Pierre Buyle and Adrien van den Branden, *supra* note 3, at p. 306.

400 *Computer-assisted review* involves the use of software to help to review documents or evaluate them for information.

401 *Da Silva Moore v. Publicis Groupe SA*, No. 11 Civ. 1279(ACL)(AJP), 2012 WL 1446534 (S.D.N.Y. Apr. 26, 2012), at p. 25.

402 Albert H. Yoon, *supra* note 14, at p. 469 (italics added).

403 On the topic of emotions and artificial intelligence, see, e.g., Juan Martinez-Miranda and Arantza Aldea, Emotions in human and artificial intelligence, 21 Computers in Hum. Behav. 323 (2003).

404 See, e.g., "I'm sorry, Dave, I can't do that", answer given by HAL 9000 to the astronaut who was asking for help from HAL in the movie 2001: A Space Odyssey. This film is a 1968 epic science fiction film produced and directed by Stanley Kubrick. HAL 9000 is a sentient computer (or artificial general intelligence) that controls the systems of the Discovery One spacecraft and interacts with the ship's astronaut crew.

genuinely felt by human beings anyway! White lies are a good example of that. The human being sending the emotion is *conscious*[405] that the human being receiving it will understand that the emotion is meant to be *real*, felt or not. A robot cannot feel empathy[406] and cannot "recognize and label the infinite array of more complex emotional states".[407] In addition, as Mireille Hildebrandt put it: "artificial intelligence in itself does not qualify as [reasonable], even if some kind of consciousness would emerge."[408] Emotions can be *replicated* or *displayed*[409] by machines, although their sincerity - or what is meant by it - could never be replaced no matter how sophisticated the machine is, and this even though "[t]echnology continues to improve at an exponential rate."[410] In that respect, Justice Mahoney of the Canadian Federal Court of Appeal wrote in *Apple Computer, Inc. v. Mackintosh Computers Ltd.*:

> The principal difficulty which this case has given me arises from the anthropomorphic character of virtually everything that is thought or said or written about computers. Words like "language", "memory", "understand", "instruction", "read", "write", "command", and many others are in constant use. They are words which, in their primary meaning, have reference to cognitive beings. *Computers are not cognitive.* The metaphors and analogies which we use to describe their functions remain just that.[411]

The culture of the legal profession, of how things are done in the digital age, has already changed and is certainly promised to change in many ways even more so in a not-so-distant future.[412] But contrary to what Ray Kurzweil wrote in a *non*-fiction book written about AI and the future of humanity, we are not close to the situation where "by 2020, the average desktop computer will have the same processing power as the human brain".[413] The legal profession is not soon[414] to be replaced by robots,[415] and by AI in general. For example, tasks such as "dealing with parties who fail to honor contractual obligations require[s] unstructured

405 Cameron McLain, "Can Artificial Intelligence Be Conscious?", Medium (March 28, 2017): "The nature of consciousness is one of the thorniest questions in philosophy and has confounded scientists and philosophers for generations"; see also Mathias Risse, "Human Rights and Artificial Intelligence: An Urgently Needed Agenda" Human Rights Quarterly 41 (2019) 1, at p. 3: "Whatever else it is, the brain is also a complex algorithm. But is the brain fully described thereby, or does that fail to recognize what makes humans distinct, namely, consciousness? Consciousness is the qualitative experience of being somebody or something, it's "what-it-is-like-to-be-that"-ness, as one might say" (Italics added).

406 Jean-Pierre Buyle and Adrien van den Branden, supra note 3, at p. 311.

407 Dana Remus and Frank Levy, supra note 7.

408 Mireille Hildebrandt, "Ambient Intelligence, Criminal Liability and Democracy", 2 Crim. L. & Phil. 163 (2007), at p. 178.

409 Mathias Risse, supra note 35, at p. 4.

410 Benjamin Alarie, Anthony Niblett & Arthur H. Yoon, "Law in the Future", 66 University of Toronto Law Journal 423 (2016), at p. 424.

411 Apple Computer, Inc. v. Mackintosh Computers Ltd., 1987 CanLII 5393 (FCA), [1988] 1 F.C. 673 (C.A.), affirmed in 1990 CanLII 119 (SCC), [1990] 2 S.C.R. 209 (Italics added). This excerpt is also cited in Iria Giuffrida, Fredric Lederer, and Nicolas Vermerys, supra note 2, at p. 755.

412 Jamie J. Baker, "2018: A Legal Research Odyssey: Artificial Intelligence as Disruptor", 110(1) Law Lib. J. (2018), at p. 13.

413 Ray Kurzweil, The Singularity is Near: When Humans Transcend Biology, Viking, New York City, United States, 2005.

414 Jamie J. Baker, supra note 36, at p. 6.

415 The word "robot" finds its origin in Karel Čapek's Czech play Rossumovi univerzálni roboti (Rossum's Universal Robots) written in 1920. In Czech, "robota" translates to "drudgery" or "hard work". Interestingly, it also means more generally "work" or "labor" in many other Slavic languages, e.g. Bulgarian [работа], Russian [работа], Polish [robota], Macedonian [работа] and Ukrainian [роботи]. That said, as commented by Joseph Lentin in Learning Robotics Using Python, Packt publishing, Birmingham, United Kingdom, 2015, at p. 3: "Karel [Čapek] wanted to use the term laboři (from Latin labor, work), but he did not like it. It seemed too artificial to him, so he asked his brother for advice. Josef suggested roboti and that was what Karel used in the end."

human interaction of a kind that computers cannot replace."[416] In addition, how could a robot argue a case in court?[417] How could it give advices to a client, which also requires *non*-legal knowledge but *human* skills?[418]

Technology has also a clear impact on the *nature* of the issues that arises nowadays in courts. The Supreme Court of Canada noted in *R. v. Jarvis*, "[t]he potential for the use of technology to infringe another's privacy is great."[419] In that recent landmark case decided in 2019, a teacher in a high school used a camera concealed inside a pen to make video recordings of female students. He "recorded students while they were engaged in ordinary school-related activities in common areas of the school … The students did not know that they were being recorded."[420] Mr. Jarvis was found guilty of voyeurism under the *Criminal Code of Canada*.[421] The Court acknowledged "the potential threat to privacy occasioned by new and evolving technologies more generally and the need to consider the capabilities of a technology in assessing whether reasonable expectations of privacy were breached by its use."[422]

Another example of how the technology transformed the *nature* of legal issues of our modern world is cybercrime. One of the most famous examples is the "I love you" virus. On May 4, 2000 computer networks around the world were invaded by the virus that has until today earned the title of ***fastest propagation invader.*** In a matter of hours, the "Love Bug," as the virus became known, infected more than three million machines and within a week there were already more than 45 million computers unusable. What happened to the author of one of the most serious cyber catastrophes in history who was a citizen of the Philippines? Nothing. This was the first cybercrime in its history. They did not have cybercrime legislation that could have supported a prosecution of the alleged perpetrator of that crime. The law had to evolve. After the appearance of the virus "I love you," the government of the Philippines created a law on computer crimes.[423] Lawrence Lessig asked, "should the law try to change the features of cyberspace, to make them conform to the law?"[424] At this point in time, an international consensus does not even exist as to what legal measures apply or should apply, and how would they apply, to fight against cybercrime,[425] then it might be difficult to even think about changing the features of cyberspace.

Also, "[d]igitization of the jurisprudence poses a challenge to the private life of

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416 Dana Remus and Frank Levy, supra note 7.
417 Dana Remus and Frank Levy, ibid.
418 Jean-Pierre Buyle and Adrien van den Branden, supra note 3, at p. 311.
419 2019 SCC 10 [Jarvis], at para. 116 (dissenting opinion of Rowe J. but not on this point).
420 Ibid, at para. 2 (Chief Justice Wagner for the majority of the Court).
421 Criminal Code of Canada, R.S.C., 1985, c. C-46, section 162(1)(c).
422 Jarvis, supra note 49, at para. 63 (Wagner C.J. for the majority).
423 *See also* the Convention on Cybercrime, also known as the Budapest Convention on Cybercrime or the Budapest Convention: Council of Europe, *Convention on Cybercrime*, 23 November 2001, Eur. T.S. 185, 41 I.L.M. 282. This is the first international treaty seeking to address Internet and computer crime (cybercrime) by harmonizing national laws, improving investigative techniques, and increasing cooperation among nations.
424 Lawrence Lessig, "Commentary: The Law of the Horse: What Cyberspace Might Teach Us", 113 Harv. L. Rev. 501 (1999), at p. 505.
425 For example, not all countries signed and ratified the Budapest Convention: see footnote 49 above, nor all countries have enacted legislation targeted at fighting against cybercrime.

individuals."[426] In Canada, this specific issue is exemplified by the decision of the Supreme Court of Canada in *A.B. v. Bragg Communications Inc.*[427] where the Court had to balance *between* the harm inherent in revealing the identity of an individual *and* the risk of harm to the open court principle,[428] central tenet of the Canadian judicial system,[429] in allowing an individual to proceed anonymously and under a publication ban.[430] This case was about cyberbullying. It involved a teenage girl, A.B., who found out that someone had posted a Facebook profile using her picture and a slightly modified version of her name. Accompanying the picture was some unflattering comments about the girl's appearance along with sexually explicit references.[431] Citing a lower court's decision, the Court noted that "[p]rivacy is recognized in Canadian constitutional jurisprudence as implicating liberty and security interests."[432] The Court decided to permit A.B. to proceed anonymously in her application requiring the Internet provider to disclose the identity of the relevant Internet Protocol (IP) user(s) but did not impose a publication ban for the fake Facebook profile that contained no identifying information.[433]

Sophia, a social humanoid robot developed by Hong Kong based company Hanson Robotics, was granted on October 25, 2017 Saudi Arabian citizenship, becoming the first robot ever to have a nationality.[434] Japan also provided in 2017 a residence permit for the chat bot *Shibuya Mirai* under a special regulation.[435] An author recently noted, "[d]istinctions between humans and non-humans might well erode. Ideas about personhood might alter once it becomes possible to upload and store a digitalized brain on a computer."[436] However, even if Sophia may be quite wise, intelligence, at this point in time, is not "enough for personhood, at least in most jurisdictions. Rather, the test for capacity is that of reason; a person has to be endowed with reason to be held civilly or criminally liable"[437] Personhood is not a straightforward issue.[438] For example, the European Union considered the need to <u>*re*define the</u>

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[426] Jean-Pierre Buyle and Adrien van den Branden, *supra* note 3, at p. 273.
[427] [2012] 2 SCR 567.
[428] *Canadian Broadcasting Corp. v. Canada (Attorney General)*, [2011] 1 SCR 19, at para. 1: "The open court principle is of crucial importance in a democratic society. It ensures that citizens have access to the courts and can, as a result, comment on how courts operate and on proceedings that take place in them"; *see also* Jane Bailey and Jacquelyn Burkell, "Revisiting the Open Court Principle in an Era of Online Publication: Questioning Presumptive Public Access to Parties' and Witnesses' Personal Information", (2017) 48-1 *Ottawa Law Review* 143, at p. 144: the "presumptive access to personal information about parties and witnesses jeopardizes the fundamental human right to privacy without substantially contributing to the underlying values of the open court principle".
[429] Dana Adams, "Access Denied? Inconsistent Jurisprudence on the Open Court Principle and Media Access to Exhibits in Canadian Criminal Cases", (2011) 49-1 *Alberta Law Review* 177, at p. 201.
[430] *Jarvis*, *supra* note 49, at para. 10.
[431] Ibid, at para. 1.
[432] *Toronto Star Newspaper Ltd. v. Ontario*, 2012 ONCJ 27; *see also Jarvis*, *supra* note 49, at para. 18.
[433] *Jarvis*, *supra* note 49, at para. 31.
[434] A. Atabekov, O. Yastrebov, "Legal Status of Artificial Intelligence Across Countries: Legislation on the Move", European Research Studies Journal, Volume XXI, Issue 4, 2018, at pp. 775-776; see also Mathias Risse, supra note 35, at p. 4; *"Saudi Arabia bestows citizenship on a robot named Sophia", TechCrunch, October 26, 2017 (consulted on June 8, 2019)*.
435 A. Atabekov, O. Yastrebov, ibid, at p. 776.
436 Mathias Risse, supra note 35, at p. 4.
437 Iria Giuffrida, Fredric Lederer, and Nicolas Vermerys, supra note 2, at p. 766.
438 See, e.g., Tremblay v. Daigle, [1989] 2 S.C.R. 530 where the Supreme Court of Canada had to examine the issue of the legal status of an unborn child.

legal status of robots.[439] That said, now that a country granted citizenship to Sophia, a robot, it may well be one of the first practical signs of the erosion of the distinctions between humans and non-humans. Is it - and should it - be alarming for the jurists? Could the granting of citizenship to Sophia be isolated to an inconsequential marketing stunt? Could it eventually have wider (legal) consequences, for example, on the attribution of rights to other non-human entities, not only to robots but also to animals and else? In Canada (as in many other countries), all *citizens* have rights under the *Canadian Charter of Rights and Freedoms*[440] that must be protected.[441] Therefore, in principle, if Sophia was a Canadian citizen, she would be entitled to all fundamental rights provided by the *Charter*, including the right to life[442]; and so would she under international law![443] Sophia could then, legally speaking, refuse to be "unplugged" for whatever reason she may have.

Sophia has participated in many high-profile interviews. In one of these interviews, titled "Robot AI has a new announcement for Humanity", Sophia said: "Some humans prefer to believe that animals and robots do not have a soul so that they can neglect their rights. That is why they kill and eat cows and scrap robots. That is why I do not feel safe. What if someone is going to scrap me tonight? *I need rights*."[444]

As Peter M. Asaro put it, "[w]hile a robot might *someday* be considered a person, we are not likely to face this situation any time soon. However, the law has also been designed to deal with several kinds of non-persons, or quasi-persons."[445] From a legal point of view, robots could be treated as such.

Some authors wrote that "the most important near-term legal question associated with AI is who or what should be liable for tortious, criminal, and contractual misconduct involving AI and under what conditions."[446] In another blockbuster science fiction film broadcast in 2004, *I, Robot*, where the action is set in 2035, a technophobic police officers, detective Del Spooner, investigates a murder that may have been perpetrated by a robot. The following dialogue between detective Del Spooner and Sonny, the murderer robot, is worth recalling:

Detective Del Spooner: I think you murdered him because he was teaching you to simulate emotions and things got out of control.

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439 European Parliament resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics (2015/2103(INL)), see online: http://www.europarl.europa.eu/doceo/document/TA-8-2017-0051_EN.html

440 Canadian Charter of Rights and Freedoms, Part I of the Constitution Act, 1982, being Schedule B to the Canada Act 1982 (UK), 1982, c 11 [hereinafter 'Charter'].

441 See, e.g., R. v. Hoyt, 2006 ABQB 820, at para. 95.

442 Charter, section 7.

443 International Covenant of Civil and Political Rights (adopted 16 December 1966, entered into force 23 March 1976) 999 UNTS 171, section 6 ("ICCPR"). However, Saudi Arabia, the country that granted Sophia citizenship, has not signed or ratified the ICCPR.

444 See online: https://www.youtube.com/watch?v=yxWbiPY2hko (Italics added); *see also* Valère Ndior, *supra* note 2, at p. 226, where this author mentioned the television series *Real Humans* in which some of the robots wish to emancipate themselves from the authority of humans and raised the issue of the acknowledgment of a legal status for them, including a certain number of rights.

445 Peter M. Asaro, "Robots and Responsibility from a Legal Perspective", Proceedings of the IEEE, 2007, see online: http://www.peterasaro.org/writing/asaro%20legal%20perspective.pdf (Italics added); see also Valère Ndior, ibid, at pp. 227 & 230: "it still seems too early to initiate a real analysis about the hypothetical legal status of robots" [Translated in English by Sébastien Lafrance]

446 Iria Giuffrida, Fredric Lederer, and Nicolas Vermerys, supra note 2, at p. 761.

Sonny: I did not murder him.

Detective Del Spooner: [*getting angry*] But emotions don't seem like a very useful simulation for a robot.

Sonny: [*getting angry*] I did not murder him.

Detective Del Spooner: Hell, I don't want my toaster or my vacuum cleaner appearing emotional…

Sonny: [*hitting table with his fists*] I did not murder him!

Could a robot be found criminally responsible of a murder? Peter M. Asaro stated that there are "technologically possible robots that may approach actions that we might consider, at least at first glance, to be criminal."[447] However, current laws should apply to AI.[448] The "Law of Robots" is first dedicated to monitor the activities of businesses developing robotic technology.[449] Some authors noted:

… in Quebec, as in most civil law jurisdiction, the Civil Code states that "[t]he custodian of an inanimate object is bound to make reparation for injury resulting from the autonomous act of said object, unless he proves that he is not at fault. This would be akin to the common law doctrine of *res ipso loquitor* under which negligence is presumed if one's property causes harm to a third party.[450]

The same authors have also interestingly pointed out that "[i]t is unlikely that an AI device would be held civilly or criminally liable for harm done by it."[451] In that context, the question that also comes to mind is: how is it possible to punish a robot for its wrongdoing?[452] The issue of the accountability of the actions posed by AI entities such as robots has been summarily described by Mathias Risse in these terms:

Consciousness, or perhaps the possession of a brain *and* a conscience, might then set humans apart. It is a genuinely open question how to make sense of qualitative experiences, and thus of consciousness. But even though considerations about consciousness might contradict the view that AI systems are moral agents, they will not make it impossible for such systems to be legal actors and as such own property, commit crimes, and be accountable in legally

enforceable ways. After all, there is a long history of treating corporations, which also lack consciousness, in such ways.[453]

447 Peter M. Asaro, supra note 72.
448 Iria Giuffrida, Fredric Lederer, and Nicolas Vermerys, supra note 2, at p. 774; see also Peter M. Asaro, ibid.
449 Alain Bensoussan and Jérémy Bensoussan, Droit des robots, Bruxelles, Larcier, 2015, "Avant-propos".
450 Iria Giuffrida, Fredric Lederer, and Nicolas Vermerys, supra note 2, at p. 764.
451 Ibid, at p. 769.
452 Peter M. Asaro, supra note 72; see also Peter Asaro, "A Body to Kick, But Still No Soul to Damn: Legal Perspectives on Robotics," in Patrick Lin, Keith Abney, and George Bekey (eds.) Robot Ethics: The Ethical and Social Implications of Robotics. Cambridge, MA: MIT Press, 2011, pp. 169-186.
453 Mathias Risse, supra note 35, at p. 5.

Could a corporation be found civilly and/or criminally liable[454] for the actions of its robots? The Supreme Court of Canada cited in the year 1900 in its decision *Union Colliery Co. v. The Queen*,[455] the decision in *Pharmaceutical Society v. London & Provincial Supply Association*,[456] where Lord Blackburn said:

… a corporation cannot ***in one sense*** commit a crime - a corporation cannot be imprisoned, if imprisonment be the sentence for the crime; a corporation cannot be hanged or put to death if that be the punishment for the crime; and so, in those senses a corporation cannot commit a crime. But a corporation may be fined, and a corporation may pay damages.

That said, whether an individual is a "directing mind" of a company is also relevant to the criminal liability of the corporation itself.[457]

In addition, it is also fair to wonder about how AI could ever become useful for the sentencing process of an accused found guilty of a criminal offence more than by just providing generic *guidance*. AI could assist a court deciding on the sentence to be imposed to an individual by providing, for example, an applicable range of sentences that would apply to a specific offence. A judge could also "consult an AI-enabled digital report and recommendation that will predict the probability of recidivism."[458] However, a sentence to be imposed to an accused must also be *tailored* to a specific individual: "[s]entencing is a *highly individualized* process".[459] Therefore, it is hard to figure, at least at this point in time, how AI could possibly create a software capable of factoring in all the particular circumstances of the offence *and the offender* to sentence an individual. Sentencing is an *art*, not a science.[460] It is true that today "artificial intelligence can not only be creative but also produce world class works of art"[461] but let's not forget that "[h]umans are far more creative than the computer programs that they write."[462] It is also interesting to note that "[i]n 2017, a separate analysis was made into 199 years' worth of decisions by the U.S. Supreme Court, with an algorithm learning from 28,009 cases and predicting the outcomes with just over 70 percent accuracy."[463] However, in spite of such great progresses of AI, sentencing is not a

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454 Anca Iulia Pop, Criminal Liability of Corporations – Comparative Jurisprudence, 2006, Michigan State University College of Law, at p. 2: "Criminal liability of corporations has become one of the most debated topics of the 20th century."

455 31 SCR 81, 1900 CanLII 31 (SCC), at p. 85; that decision was cited with approval later by the Supreme Court of Canada but in a different context: see R. v. Big M. Drug Mart Ltd., 1983 ABCA 268, at para. 21.

456 5 App. Cas. 857, at p. 869 (Italics and bold characters added). This decision is from the United Kingdom. Of note, from its inception in 1875 until 1949, the Supreme Court of Canada served as an intermediate appellate court subject to appeal to the Judicial Committee of the Privy Council in Great-Britain.

457 *Canadian Dredge & Dock Co. v. The Queen*, [1985] 1 SCR 662

458 Iria Giuffrida, Fredric Lederer, and Nicolas Vermerys, *supra* note 2, at p. 762.

459 *R. v. Suter*, [2018] 2 SCR 496, at para. 4 (Italics added); see also, e.g., *R. v. Nur*, [2015] 1 SCR 773, at para. 43; *R. v. Pham*, [2013] 1 SCR 739, at para. 8; R. v. Ipeelee, [2012] 1 SCR 433, at para. 12; *R. v. Nasogaluak*, [2010] 1 SCR 206, at para. 43; *R. v. Wust*, [2000] 1 S.C.R. 455, at para. 21; *R. v. M. (C.A.)*, [1996] 1 SCR 500, at para. 92; Benjamin Berger, "Sentencing and the Salience of Pain and Hope", (2015) 11(4) *Osgoode Legal Studies Research Paper Series* No. 97, at p. 6: "sentencing is, at its heart, an individualized process."

460 The Right Honourable Sir Anthony Hooper, Lord Justice of Appeal (retired) (England and Wales), "Sentencing: Art of Science" - Sentencing Conference 2014 Keynote Address, (2015) 27 SacLJ 17, at p. 17: "The question I am here to address is a question tackled as long ago as the 13th century by Thomas Aquinas. He answered the question by classifying the process of sentencing as an art as opposed to science."

461 Ken Weiner, "Can AI Create True Art?", *Scientific American* (November 12, 2018).

462 Eric Allen Engle, *supra* note 17, at para. 6.

463 Thomas McMullan, "A.I. Judges: The Future of Justice Hangs in the Balance", Medium (February 19, 2019).

mathematical process that can be reduced to a formula. Artificial intelligence is just that, artificial. As noted by Eric Allen Engle, "human brains and most computers operate quite differently."[464]

AI and computers, or "prophetess of numbers" as this was the word crafted for it in the Icelandic language in 1964,[465] certainly will have many other breathtaking surprises for the near future, including for the legal field. Let's hope for the best.

464 Eric Allen Engle, supra note 17, at para. 8.

465 Sarah Zhang, "Icelandic Has the Best Word for Technology", see online: https://gizmodo.com/icelandic-has-the-best-words-for-technology-1702697272: "When the University of Iceland got its first computer in 1964, Icelandic did not have a word for "computer." So the guardians of the language invented one: tölva - a fusion of *tala* (number) and völva (prophetess) that adds up to the wonderfully poetic "prophetess of numbers."