Legal questions about artificial intelligence

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Abstract:
Artificial intelligence (AI) is proposing ever more improvements in applications as it upends traditional paradigms. The legal field cannot sidestep this revolution. At present, there is no legal or regulatory framework devoted to AI, neither at the national, EU nor international levels. Several initiatives in France, in Europe and abroad are trying to determine whether existing laws apply to AI or whether an adapted set of laws should be adopted. One of the first legal issues that will crop up when AI systems are rolled out is the question of liability whenever an autonomous system causes a tort. Current legal systems also have limitations in dealing with inventions using AI, since the latter might elude laws on patents and copyrights, which are closely linked to the idea of an "author" as a physical person.

Artificial intelligence (AI) with its offer of ever more operational applications has surged into the business world. It is said to be the coming technological revolution. This "smart" trend forces firms to maximize the creation of value and optimize the management of the risks stemming from this new technology.[1]

Tentative definition

The acceptation of the phrase "artificial intelligence" has evolved, as many an engineer and scientist have tried to hammer out a definition. The phase appeared in 1950 in an article where Alan Turing proposed his now famous "Turing test" for establishing a standard for qualifying a machine as "conscious".[2] Marvin Lee Minsky, made the first definition of the phrase during the Dartmouth workshop in 1956, as "*the construction of computer programs that engage in tasks that are, for now, more satisfactorily accomplished by human beings because they require high-level mental processes such as perceptual learning, the organization of memory and critical thinking*".[3] This workshop also issued a first definition of an intelligent machine, which can be characterized as capable of: *1)* reproducing the behavior of a human being; and *2)* simulating the operation of a human being.

More than sixty years later, the International Organization for Standardization (ISO) defined artificial intelligence as the "*capability of a functional unit to perform functions that are generally associated with human intelligence such as reasoning and learning*".[4] AI now has to be understood as a system with autonomy in decision-making. A distinction should be made between the AI of advanced analytics, which processes consolidated, curated data, and the AI that processes unconsolidated, uncurated data autonomously from the user. This second sort of AI

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[1] This article, including quotations from French sources, has been translated from French by Noal Mellott (Omaha Beach, France). The translation into English has, with the editor's approval, completed bibliographical references.

[2] TURING A. (1950) "Computing machinery and intelligence", *Mind*, 49, pp.433-460. Available at: https://www.csee.umbc.edu/courses/471/papers/turing.pdf.

[3] "*Probably a truly intelligent machine will carry out activities which may best be described as self-improvement*" in the announcement for this workshop: McCARTHY J., MINSKY M., ROCHESTER N. & SHANNON C. (1955) "A proposal for the Dartmouth summer research project on artificial intelligence", republished in 2016 in *AI Magazine*, 27(4), pp. 12-14. Available via: https://www.aaai.org/ojs/index.php/aimagazine/article/download/1904/1802.

[4] Standard ISO/IEC 2382:2015 available via: https://www.iso.org/obp/ui/#iso:std:iso-iec:2382:ed-1:v1:en.

deserves special attention given its capacity for analyzing the environment, learning and developing a subjectivity.

Applying current legal systems to artificial intelligence

There is not yet any body of law or regulatory framework specific to AI, neither national nor European nor international. However several initiatives in France, Europe and elsewhere are trying to determine whether existing laws are applicable to AI or whether a specific legal framework should be adopted. To cite a few initiatives in France:

● The French Institute for Research in Computer Science and Automation (INRIA) has published a report on artificial intelligence to provide an overall view of looming problems: "*Research in AI has made it possible to make major progress during the last decade in various sectors. The best known advances are in automatic learning, thanks in particular to the development of deep learning architecture, multilayered, convoluted neural networks, that learn from big volumes of data [using a] computational intensive architecture*".[5]

● The parliamentary Office for Assessing Scientific and Technological Choices released a report in March 2017 on a "*controlled, useful and demystified artificial intelligence*" that focuses on the ethical, legal, economic, social and scientific issues related to AI.[6]

● The government launched on 20 January 2017, the program "France IA". Its work group devoted to legal problems drew the following conclusion: "*Current legal systems and procedures coupled with contractual flexibility allow for coping with technological trends by providing, apart from special cases, a satisfying level of legal security.*"[7]

In a motion, adopted on 16 February 2017, with recommendations for the European Commission on civil law in relation to robotics and artificial intelligence, members of the European Parliament contended that legislation is urgent to establish ethical standards and clarify legal rules: "*ultimately, the autonomy of robots raises the question of their nature in the light of the existing legal categories or whether a new category should be created, with its own specific features and implications.*"[8]

In the United States, the report from the National Science and Technology Council on "*preparing for the future of artificial intelligence*" has recommended minimal regulations that should ,whenever possible, be related to existing regulatory regimes (as in the automobile industry or aviation for the case of autonomous vehicles).[9]

These initiatives — this list is not exhaustive — are warranted owing to the legal problems spawned by this technology, in particular with respect to liability and intellectual property rights. The more autonomous a "smart" machine, the less existing legal arraignments will be adapted.

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[5] Page 10 in: Institut National de Recherche en Informatique et en Automatique (no date) "Intelligence artificielle. Les défis actuels et l'action d'INRIA", *Livre blanc*, 1 (Le Chesnay: INRIA), 82p. Available via: https://inria.fr/content/search/(keyword)/livre%20blanc.

[6] DE GANAY C. & GILLOT D. (15 March 2017) *Intelligence artificielle maîtrisée, utile et démystifiée*, report N° 4594 for the Office Parliamentaire d'Évaluation des Choix Scientifiques et Technologiques. Available via: http://www2.assemblee-nationale.fr/15/les-delegations-comite-et-office-parlementaire/office-parlementaire-d-evaluation-des-choix-scientifiques-et-technologiques/(block)/RapOffice/(instance_leg)/15/(init)/0-14.

[7] Page 272 in (no date) *Rapport de synthèse: France intelligence artificielle*, 350p. Available via: https://www.economie.gouv.fr/files/files/PDF/2017/Conclusions_Groupes_Travail_France_IA.pdf

[8] Introduction §AC of the motion for a European Parliament resolution with recommendations to the Commission on Civil Law Rules on Robotics (2015/2103(INL)). Available at: http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+REPORT+A8-2017-0005+0+DOC+XML+V0//EN.

[9] Executive Office of the President, National Science and Technology Council (October 2016) "Preparing for the Future of Artificial Intelligence", 58p. Available via: https://obamawhitehouse.archives.gov/sites/default/files/whitehouse_files/microsites/ostp/NSTC/preparing_for_the_future_of_ai.pdf.

Liability

One of the first legal issues related to the rollout of artificial intelligence is liability when an autonomous system commits a tort.

Only a legal person or entity as defined under the law can be held liable for the damage caused to another party and for the payment of compensation. An AI system as such cannot be held liable for its actions (or inaction) that harm a third party. The classical concept of responsibility under civil, criminal or contractual law could be invoked, but these bodies of law are not adapted to AI. The concept of responsibility under the penal code entails being a legal person or entity. Under the civil code, liability has as prerequisite an action committed by a legal person; and liability for the actions of things applies to things in one's keeping — a condition that forgoes the concept of autonomy. Under contractual law, the liability of principals for their agents' actions requires a relation of subordination that does not apply to AI, since its actions are fully autonomous from the user.

Furthermore, the aforementioned bodies of law create an asymmetry between the liability of the manufacturer of hardware (a smart device or robot as a physical object that incorporates software linked to an AI platform) and the liability of the developer of the platform. After all, the owner of the hardware is seldom the owner of the software. Since hardware and software form a complex whole, it is easy to hold the manufacturer of the physical object liable for any damages. But it would then be harder to establish the liability of the AI platform's "editor". When a user has a part in the decision-making process (by using tools made available by the editor), he could become responsible for the learning system…

A telling example involves *chatbots*, these "conversational agents" that interact with people. In 2016, Microsoft launched Tay, a chatterbot for interacting in full autonomy with cybernauts. A few hours after its release on Twitter, Tay formulated racist, sexist, anti-Semitic remarks and conspiracy theories that would, under French law, qualify as racial slander and incitement to racial hatred and discrimination. Who was responsible for the inhuman error made by Tay, this algorithm concentrating AI: the developer, the user, the owner or the chatbot?

According to the aforementioned motion with recommendations for the European Commission, "*the existing rules on liability cover cases where the cause of the robot's act or omission can be traced back to a specific human agent such as the manufacturer, the operator, the owner or the user and where that agent could have foreseen and avoided the robot's harmful behavior; whereas, in addition, manufacturers, operators, owners or users could be held strictly liable for acts or omissions of a robot*".[10] Given current trends toward the autonomy of robots, "*in the scenario where a robot can make autonomous decisions, the traditional rules will not suffice to give rise to legal liability for damage caused by a robot, since they would not make it possible to identify the party responsible for providing compensation and to require that party to make good the damage it has caused*".[11]

To make up for the shortcomings in current arrangements with regard to the liability of autonomous systems, the manufacturers (of machines that, in the broad sense, rely on AI) and the "editors" (of the AI platforms and software) have turned to contracts to set the conditions of liability.

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[10] Introduction §AD see note 8.
[11] Introduction §AF see note 8.

Intellectual property rights

Given the autonomy of AI systems, the inventions thus made without any direct intervention by physical persons might no longer fall under laws on intellectual property rights.

Article L 112-1 of the French Code on Intellectual Property safeguards the "author's rights". This protection extends to all "intellectual works", regardless of the genre, form of expression, merit or purpose. The only specific condition for being qualified as an intellectual work is that the work be original. In other words, it has to bear the marks of the author's personality. This qualification grants "moral rights" to the author, such as the right to respect.

The courts have already settled the question of protecting the works made by people assisted by computers. Such works fall under the aforementioned article, since the computer is deemed to be a tool that does not exclude human creativity, which bears the mark of the author's personality. The Paris Court of Appeal has ruled that a computer-assisted intellectual work "*can be protected by the author's rights on condition that the originality intended by the designer is present*",[12] *i.e.*, the mark of the author's personality. Likewise, the type of artificial intelligence related to advanced analytics can be considered to be a tool of realization instead of a participant in the creative process, and the physical persons who authors an AI-assisted intellectual work will enjoy intellectual property rights.

On the contrary, this does not hold if the work has been made autonomously by a form of AI that has the capacity to analyze the environment, learn and exercise a subjectivity so as to make choices. Two recent examples illustrate this problem: the painter/robot e-David and a screen writer/robot, Benjamin. E-David is a robotic arm that, thanks to an algorithm and camera, can make a painting of a model. The robot, since it does this separately from human programming, makes paintings that are its "own". Benjamin's AI can, after analyzing dozens of films and TV series, write a screen play using given elements (such as the title, a line of dialog, the starting action, etc.). At this point, the positive law on authors' rights encounters limits: only a physical person can be an "author".[13] This limit inheres in the definition of originality. This condition, indispensable for a work to benefit from protection as an intellectual property right, is intrinsically related to the author's personality. The legal paradigm of intellectual property rights is not adapted to creations made thanks to this second sort of artificial intelligence.

For these reasons, the aforementioned motion demanded "*the elaboration of criteria for 'own intellectual creation' for copyrightable works produced by computers or robots*".[14] This recommendation was, however, not retained in the final report adopted by the European Parliament on 16 February 2017.

So, the problem stands. In 2012, already, the European Robotics Coordination Action (euRobotics funded under the EU's seventh framework program) made a proposal for a book on the legal aspects of robotics.[15] Its intent was to point out how current copyright law is not adapted to robotic technology owing to requirements with regard to the author's personality, his/her subjective choices and the protection of creations. The creation of a "robot personality", a proposal by euRobotics, is food for thought. After all, robots could be assigned a specific legal personality that would provide the grounds for laying down rules for specific rights and their transmission.

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[12] Cour d'appel de Paris, 3 May 2006, RG 05/03736.
[13] Cass. 1e civ., 15 janv. 2015, n°13-23.566
[14] Explanatory statement §Intellectual property rights, data protection and data ownership: see note 8.
[15] Cf. https://www.association-droit-robot.fr/eurobotics-livre-vert-robots/.

Robots as a specific legal entity?

Proposals in response to questions about the laws or regulations to be applied to artificial intelligence seem to tend toward the idea of granting a legal personality to robots, "*the status of electronic persons responsible for making good any damage they may cause, and possibly applying electronic personality to cases where robots make autonomous decisions or otherwise interact with third parties independently*".[16] This status would be similar to that of a legal entity ("artificial person").[17]

By establishing a special legal personality for intelligent systems endowed with decision-making autonomy, it will be possible to set up a system of objective liability without fault, which grants users the possibility of suing the AI itself. This approach would also make it possible to save the concept of the value of a creation or invention made by an autonomous intelligence.

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[16] Explanatory statement §Liability 59f: see note 8.
[17] BENSOUSSAN A. & BENSOUSSAN J. (2015) *Droit des robots* (Paris: Larcier).