



The automaton-judge:
Some reflections on the future of AI in judicial systems

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Abstract:

Could robots replace judges in decision-making? The remarkable advancements in artificial intelligence bring this possibility closer than ever before. In this article, I will explore the underlying reasons for the success of the idea of using artificial intelligence in the justice field. The argument is that after the crisis of legal formalism, the prospect offered by artificial intelligence represents a nostalgic return to the past: that of a decision-making as a “mechanical” act, free from subjectivity and irrationality. This ideal, after being outdated as early as the last century, is becoming relevant again thanks to the spread of artificial intelligence tools. By reflecting on the potential positive and negative consequences that may arise from implementing computerized decision-making in justice, this article will aim to provide a more realistic understanding of the future of AI in judicial systems.

Keywords:

Artificial Intelligence, judicial decision making, legal certainty, American juridical realism.

Resumen:

¿Podrían los robots sustituir a los jueces en la toma de decisiones? Los notables avances de la inteligencia artificial hacen que esta posibilidad esté más cerca que nunca. En este artículo, exploraré las razones subyacentes al éxito de la idea de utilizar la inteligencia artificial en el ámbito de la justicia. El argumento es que, tras la crisis del formalismo jurídico, la perspectiva que ofrece la inteligencia artificial representa un nostálgico retorno al pasado: el de una toma de decisiones como acto “mecánico”, libre de subjetividad e irracionalidad. Este ideal, tras haber quedado desfasado ya en el siglo pasado, está

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volviendo a ser relevante gracias a la difusión de las herramientas de inteligencia artificial. Al reflexionar sobre las posibles consecuencias positivas y negativas que pueden derivarse de la aplicación de la toma de decisiones informatizada en la justicia, este artículo tratará de ofrecer una comprensión más realista del futuro de la IA en los sistemas judiciales.

Palabras clave:

Inteligencia Artificial, toma de decisiones judiciales, seguridad jurídica, realismo jurídico estadounidense.

1. FROM “PREDICTIVE” ALGORITHMS TO JUDGES-ROBOTS

In recent years, the technological revolution and the remarkable advancements in artificial intelligence (AI) have rapidly permeated the field of law, achieving unprecedented – and somehow still unbelievable – outcomes.

Sophisticated algorithms are analyzing legal cases, predicting future judicial decisions, and even forecasting criminal behaviors (Electronic Privacy Information Center – EPIC – 2019). And predictive justice systems are not used anymore only to provide support for the activities of legal professionals: there has in fact been an interesting shift on the use of artificial intelligence from the field of “prediction” of cases toward decision-making (Covelli 2019). Suffice it to say, for example, that Online Dispute Resolution tools are now widely used to settle disputes on a fully automated basis; that already in 2016 the first attempts to introduce predictive algorithms into the trial for the purpose of guiding judges’ decisions have been made (Durox 2017); and that scholars, researchers, and members of institutions are looking to artificial intelligence as a tool capable not only of assisting, but even replacing the judge (Susskind 2019). These views would seem merely science fiction, if they were not corroborated by the launch of actual “robot-judge” projects, such as the one launched by the Estonian Ministry of Justice in 2019 (Niiler 2019), or to the use of Prometea software in Argentinian courts to settle administrative disputes (Estevez *et al.* 2020).

Can then a computer truly serve as a judge?

It is not easy to see whether the idea of replacing artificial intelligence for the human one in the function of rendering justice are practically feasible: often enthusiasm for the new creates a great deal of suggestion and unrealistic expectations.

As mentioned, however, research clearly indicates a move in this direction, making it necessary to reflect on the potential positive (§4) and negative consequences (§5) that may arise from implementing computerized decision-making in justice, as well as the effects that the reliance of a computer in judicial decision-making can have on the legal systems. This will provide a more realistic understanding of the future of AI in judicial systems and the possible risks involved (§6).

Before delving into all these aspects, it is useful exploring the underlying reasons of the success of the idea of a robot-judge. The argument is that after the crisis of legal formalism,

the prospect offered by artificial intelligence represents a “nostalgic” return to the past: that of a decision-making as a “mechanical” act, free from subjective and irrational components that, while “realistically” outdated as early as the last century, is becoming relevant again exactly because of the spread of artificial intelligence tools (§2,3).

2. A ROBOT *BOUCHE DE LA LOI* ?

Such has always been the distrust of the judge’s arbitrary power (and such also, perhaps, the confidence in and enthusiasm for automation) that well before the emergence of artificial intelligence and its introduction into the legal sphere, it was imagined that the decider would be transformed, metaphorically, into an “automaton”. Already Max Weber (1978) argued that one of the necessary conditions for the development of modern capitalism was the existence of a right that was “calculable”, in a machine-like way. Indeed, he believed that the entrepreneur should be placed in a position to predict not only the prices of goods, expenses, and future earnings, but also the outcomes of judicial decisions, and that this was possible in the presence of a “calculable”, i.e., rational and technicalized, law (Itzcovitch 2001). But even though it has found very fertile ground in capitalist society, the aspiration for a decision consisting of a “mechanical” application of rules can actually be considered a “legacy of all modernity”, a product of the Enlightenment aspiration for a rational, neutral, objective judgment devoid of personal, ethical, political or religious evaluations (Luciani 2019). In fact, the idea of the judge-author was born with the formal conception of law developed by Montesquieu, who envisioned the judge as a “depersonalized” *être inanimé* with the task of a mere executor of the provisions drafted by the legislative assembly. According to the model conceived by the philosopher and affirmed by the French Revolution, the decision should have consisted of a logical operation of subsuming the concrete case to the abstract case envisaged by the rule, in an “automatic” application of simple deductive syllogisms. Legal logic would then coincide with formal logic, and the judge, without deploying any discretion and any power, and distancing themselves from their own opinions, ethical convictions, and emotions, would behave automatically, just in a machine-like way.

But can a judge really decide automatically?

As Norberto Bobbio wrote, “a lot of water has passed under the bridge since the era of so-called legislative fetishism, and no one seriously believes in the judge as an automaton anymore” (Bobbio 2011). In fact, it is now universally accepted that the activity of jurisprudence is always inevitably creative (Tarello 1980) and that the mechanistic ideal of the *bouche de la loi* judge is unrealizable.

There is always, in deciding, an irrepressible share of subjectivity, both at the time of legal interpretation and at the stage of factual reconstruction. On the one hand, in fact, interpretation presupposes the attribution of meaning to norms, and this cannot disregard, at least in part, extra-legal elements: no matter how clear and precise the provisions may be, the interpreter will always have to attribute meaning to vocabulary, resolve antinomies or make up for inevitable gaps, deciding between different interpretive options (Tarello 1980). On the other hand, even the proof of a fact itself is always the “more or less probable conclusion of an inductive procedure, the acceptance of which is a practical act expressing a power of choice over alternative explanatory hypotheses” (Ferrajoli 1989/1997, p. 11).

The Idea of a perfect judicial syllogism, therefore, is a “metaphysical illusion”, and the judge is not and cannot be “a coin-operated machine“ (Ferrajoli 1989/1997, p. 10).

This is an awareness that already matured since the last years of the nineteenth century, beginning with the pragmatism of Dewey and the *sociological jurisprudence* of Holmes, Pound and Cardozo, from which later developed the main theses of American legal realism, which gave rise to what Morton White called the “revolt against formalism” (White 1956). In general, the elements that the anti-formalist theories had in common were the belief in the importance of *law in action* (consisting of the actual behaviors of the courts) over *law in books* (Pound 1910) the affirmation of the creative nature of interpretation, and the “predictive” conception of jurisprudence, according to which true law would not consist of the set of rules in force, but in the prediction of how judges, the true makers of law, would behave (Holmes 1987, p. 4). From these premises, however, very disparate positions developed. Those undoubtedly more radical were adopted by Jerome Frank, who, heavily influenced by Freud’s psychoanalytic theories (Ripoli 2002, pp. 411–412) exaggerated the importance of psychological and subjective factors in the judge’s decision, asserting its absolute irrationality and unpredictability. Alongside the “skepticism of norms” typical of many realists, he also introduced into his philosophy a radical “skepticism of facts”, according to which judicial ascertainment would be totally dependent on the subjectivity of those involved in the process: witnesses, defendants, parties, experts and judges. As with any human being, their view is in fact influenced by a great number of factors, such as character, personal preferences, sympathies and memories, preconceptions and past experiences, which irreparably vitiate their perception of external reality and reconstruction of facts. According to Jerome Frank, therefore, the decision would be totally unpredictable, procedural truth a pure fiction and legal certainty a myth (Frank 1936).

The most accredited studies in cognitive psychology seem to confirm the theses of the American jurist. In fact, research has shown that heuristics, or “thoughts shortcuts” naturally operated by the human mind, which are essential for quickly learning and “organizing” the world around us, can easily result in cognitive distortions and errors (Tversky and Kahneman 1974, Gilovich *et al.* 2002). According to the “two minds” theory, thought would be processed by two different “brains,” or systems: “system 1”, which is characterized by automatic and intuitive mental processes, and “system 2”, which operates instead through “slow,” conscious cognitive mechanisms subject to rational control (Kahneman 2012). The former, the oldest and most primitive, functions automatically and effortlessly; the latter, on the other hand, more evolutionarily recent, processes more complex operations that require attention and consciousness. The two “minds” are closely interconnected, but it seems that when faced with a problem, it is system 1 that activates first, formulating a quick and intuitive answer, and only later does system 2, which subjects the solution proposed by system 1 to the scrutiny of rationality to validate, correct, or discard it.

This theory, which asserts, in essence, that every human choice is made unconsciously and later clothed with a rational basis, would indeed seem to support the realist thesis that the judge’s decision is primarily sensational and intuitive (Forza *et al.* 2017, p. 144). In addition, it is well known that system 1 does not always produce correct insights, and system 2 is often unable to recognize errors made by it. System 1 insights are in fact extremely “subjective” as they depend directly on past experiences, emotions, moods, and anxiety situations and stress, and great weight is placed on decision-making by the generalizations, stereotypes, and biases that result from heuristic reasoning mechanisms. Then there are

important unconscious psychological mechanisms that lean toward confirmation of first impressions, such as anchoring, or tunnel vision *bias*.

It can therefore be sustained that legal realist theories and new researchers on cognitive psychology converge in conceiving human decision-making, including judge's decision-making, as subjective and irrational, and in conclusion not calculable or predictable.

Why then not welcome the introduction of artificial intelligence tools into judicial systems? If the judge's decision, like every human decision, is a product of irrational processes, and even may depend, as even seems to have been demonstrated (Danziger *et al.* 2011), on "what they had for breakfast" (as Jerome Frank would have said: cfr. Ripoli 2002, p. 302) wouldn't it seem more sensible to entrust it to a machine, uninfluenced by emotional, psychological, or chemical factors? That there can be no resignation to the total relativism of the judicial function, moreover, would seem to be a conclusion implicit even in some of the considerations of Jerome Frank himself, who would have tried to formulate some remedies aimed at mitigating the absolute irrationality of the decision, such as, for example, the formation of a judiciary aware of its own unconscious mechanisms, and thus able (in theory) to curb them (Ripoli 2002). But instead of entrusting justice to the judges' self-restraint, trusting, paradoxically, in their intuitions and equitable assessment, thus giving up for good on the "myth" of legal certainty, why not instead aspire to eliminate the subjective and irrational component of the decision altogether? A predictable and – as far as possible – objective decision-making, cannot be dispensed with at all: as Norberto Bobbio wrote, precisely in criticism of Jerome Frank's theses, certainty of law is "an intrinsic element of law, and to get certainty out of the way is not to free humanity from a harmful illusion, but to literally deprive it of the aid and remedy of law" (Bobbio 1951, p. 151).

The desire to create a robot-judge would seem to be precisely the result of the great distrust of human decision-making, of whose discretion, after all, even those who hoped for a totally depersonalized judge *bouche de la loi*, were wary. If, however, one has finally resigned oneself to the fact that the ideal of the judge-automation is unrealizable, the ancient ambition for a "mechanical application" of law has not disappeared. That is precisely why, one would say, in light of the great advances in robotics and artificial intelligence one has moved from the aspiration for a judge-robot, impossible to realize, to that of a robot-judge.

3. A ROBOT *BOUCHE DU PRECEDENT*?

In light of the great innovations that are sweeping the judiciary, could it be said that a robot-judge could finally realize the ideal of a non-interpretative, automatic application of law? In other words, that a computer could become, instead of a judge, *bouche de la loi*?

In fact, this does not seem entirely accurate. It is important to remember that today's *machine learning* systems operate through totally different mechanisms than the logical-formal ones that should inform judicial decision-making according to the formalistic model.

If the formalistic ideal could be realized in *software*, the appropriate tool would probably be an expert system, that is, an instrument functioning on a logical basis capable, in theory, of making decisions by tracing concrete cases back to abstract ones through the application

of syllogisms, and not a machine learning predictive justice system (Russell and Norvig 2010, Sartor 2012).

In fact, machine learning predictive justice tools do not operate by deductively applying predetermined rules, but rather by processing huge amounts of data consisting of judicial decisions rendered in the past, identifying the connections that link certain elements contained in the judgments and the operative part, and finally proposing the same solutions for new cases that have the same characteristics. These software, therefore, would not decide by applying the law, but rather old judicial decisions.

This would create a scenario opposite to that configured by Montesquieu: the automaton-judge would not be a “mouth of the law” but a “mouth of jurisprudential precedent”.

Clearly, even when Weber spoke of a “calculable” right, he was not envisioning such a situation. Rather, he distinguished between continental, or rational-formal law, which has achieved the highest degree of logical-methodological rationality, and English law, which is “empirical” in nature, developing concepts “oriented by concrete facts, familiar to everyday experience”, but which does not know “general concepts elaborated by abstraction of the concept, by logical interpretation of meaning, by generalization and subsumption, and then applied syllogistically as norms” (Weber 1922 as quoted in Itzcovitch 2001, p. 374. English translation is mine).

According to the sociologist, English capitalism would have developed not because of but “in spite of” the structure of its law, which can be likened to a rational-substantial system (Marra 2005, p. 65).

It is true that in the *Rechtssoziologie* he seemed to reevaluate the substantial rationality of English *common law*, which through its flexibility would contribute to the emergence of the main institutions characteristic of modern capitalism, for example, debt securities and business corporations (Marra 1995, 2005, pp. 60–61). However, the concept of a “computable” right always corresponds to a rational-formal model, composed of general and abstract norms and applied with the tools of legal logic, and not to the substantial model based on precedent (Rossi 2017).

It should be added that, however, what would result from the use of *machine learning software* is certainly not the realization of a rational-formal law, but neither, of course, is it the realization of a rational-substantial system similar to the English one, except for the simple fact that jurisprudential precedents would be used to arrive at a decision. Indeed, as will be seen, their use would give rise to a system “based on precedent”, but characterized, on the contrary, by rigidity and an inability to evolve (*infra*, §5).

4. THE GREAT ADVANTAGES OF AN AUTOMATED JUSTICE

The fact that the model applied by predictive justice tools does not correspond with the formal model does not, in itself, mean that the introduction of such tools for decision-making purposes is impossible or inappropriate.

After all, it is now universally accepted that not even a human judge is capable of deciding in the manner outlined by the mechanistic ideal, and it cannot be ruled out a priori that a just decision can be made by mechanisms other than the logical ones provided by the rational-formal model. Therefore, it is useful to take a deeper look at the possible benefits that the implementation of a predictive justice robot-judge could bring and the goals that proponents of such projects aim for, reflecting on the aspects that could make the decision implemented by a machine learning system “better” than a human one.

First of all, it is impossible not to note that, despite the inalienable principle of legal certainty stipulating that every person must be placed in a position to assess and foresee the legal consequences of his or her conduct, today we are witnessing the “crisis of the *fattispecie*” (Irti 2014, 2016) and the increasing “creativity” of the judge called upon to apply the law. One could then look to artificial intelligence as the tool that can ensure greater predictability of judicial decisions, thus making law more certain and, in a sense, “computable”. Since predictive justice *software* operate by processing a large amount of case law precedent, a decision made on the basis of the result provided by such tools would in fact automatically conform to decisions made in the past in similar cases: consequently, illogical jurisprudential *révirements* would be avoided, and stability and interpretive homogeneity would be ensured. This could be relevant not only for the sake of greater predictability of the decision, but also from the perspective of respecting the principle of equality. Some speak in this regard of a “horizontal,” or “factual,” principle of fairness, according to which similar factual circumstances should receive the same treatment before the court (Catala 1998).

Another important reason for the introduction of AI tools in the process is the goal of solving the delicate problem of clogging up the judicial machine: thanks to their great speed of computation and powerful processing capacity, machine learning systems can in fact make a positive contribution in areas where the workload is heavy, which certainly includes the justice system (Carcattera 2019). Many countries face challenges with clogged court systems, and the accumulation of pending trials has severe consequences for the administration of justice, particularly in relation to their excessive duration.

The need for speed is certainly not to be underestimated, and finding a solution to the problem of overburdened courts and excessively long judicial time is urgent. The principle of reasonable trial, which is among the principles of due process, is also enshrined in the Charter of Rights of the European Union, Article 47, and the European Convention on Human Rights and Fundamental Freedoms, which states in Article 6: “everyone is entitled to a fair and public hearing within a reasonable time”, making the principle of reasonable duration a directly actionable subjective right.

Finding a solution to the problem of overburdened courts and excessive delays is an urgent matter, and machine learning systems, with their computational speed and powerful processing capabilities, appear to offer a promising contribution. However, even though it is plausible that automated decision processing could allow for a faster resolution of judgments and the disposal of backlogs in a short time, solving the serious problem of excessive duration of proceedings, it must be clear that that of reasonable duration is not the only criterion to be taken into account in matters of justice, and that other aspects also need to be considered, including compliance with other principles of due process (Ferrié 2018). While slow justice may be “unfair,” a fast justice is not automatically “fair”: even if it

would consist of a very fast method, one could certainly not flip a coin to decide who should emerge as the winner of a case. This obviousness to emphasize how “the greater speed of robotic decision-making could matter only on the condition that robotic and human performance were equivalent in quality and satisfied that principle of effective judicial protection” (Luciani 2019, p. 67).

5. AN UNREALISTIC SCENARIO

If we put aside the heavy load of suggestion that the idea of a “robot-judge” inevitably carries with it and look more concretely at the operation of the tool at hand, we can see that entrusting a *machine learning* system with the task of deciding is not sensible.

It is true that the automated production of judgments would make it possible to reduce trial times, solving the serious problem of clogging up the court system, and to remove decisions from the discretionary assessments of judges, making them less variable and uneven and thus more consistent and predictable; however, it is common ground that on that basis alone it is not possible to entrust judicial decision-making to tools that are fundamentally unsuitable for that purpose.

The main problem is not the fact, while relevant, that entrusting the decision to an instrument that elaborates a large number of decisions on the merits would entail a shift to a system based on jurisprudential precedent, although this would certainly result in a disruption of the normative system in *civil law* systems where the Constitution normally establishes the subjection of the judge only to the law. In fact, the most critical factor would not be so much the use of precedent as the way it is processed by predictive justice systems. If correctives were not applied, the precedent would “supersede” every other regulatory source: even if new laws were enacted, the *software* could not take them into account, as it would still continue to process the old judgments in its *database*. So, if we conformed to the result provided by the machine, always based on the same decisions, it would result in the total rigidity of the system and the crystallization of law (Gaboriau 2018, p. 209). This would also occur primarily because an artificial intelligence system would not be able to process an evolutionary interpretation of precedents.

Even when a “human” judge is called upon to decide on the basis of precedent, as is normally the case in *common law* systems, he or she must, among other things, examine the concrete situation, assess the relevant elements of the case, and identify the conforming precedent among the various decisions of higher courts, abstracting the *rationale*. However, these are operations that presuppose “strong” intelligence (Searle 1980), with which today’s AI systems, unable to think and attribute meaning to facts and words, are not equipped. Thus, they are unable to understand the particularities of the concrete situation and the reasons why the judges decided in one way rather than another.

To truly realize “horizontal equity” – for two or more situations to be considered similar, and therefore decided in the same way, or vice versa – it is necessary a conscious assessment of the characteristics of the case under consideration and the elements that unite or distinguish it from another that occurred in the past. However, machine learning tools are born to make statistical predictions and not decisions, and they operate through a purely quantitative approach.

Some software is surely very sophisticated, capable of learning from large volumes of data efficiently and achieving even more accurate results than humans (as emerged, for example, from the historic competition between a group of one hundred experienced lawyers and the predictive algorithm *Case Cruncher Alpha*: Cellan-Jones 2017), but it still works by detecting connections between lexical recurrences in the text of sentences, without understanding their meaning.

An example that can make this clear is the system developed in 2016 by the *University College of London (UCL)*, which was able to correctly predict the decisions of the European Court of Human Rights in 79 percent of cases (Aletras *et al.* 2016), through the technique of *natural language processing*, through which it identified the connections between the device (violation or non-infringement) and certain recurring terms. By recognizing that the phrases “conditions of detention,” “state obligations,” and “enforcement of decisions” appeared most frequently in violation decisions, while “lack of evidence,” “property rights,” and “previous violation of Articles 2 and 11” were most often used in non-infringement decisions, the *software was able to* make accurate predictions about cases yet to be heard by the Court.

Replacing the judicial decision with such a mechanism is unthinkable, to say the least.

Software that does not make use of natural language processing also works in a similar way: from parameters set by the user and predetermined by the programmer (for example, in a divorce application, this could be the length of the marriage, the income of the spouses, the presence of adultery, and the amount of maintenance allowance awarded), they isolate decisions presenting the selected characteristics and work out statistics regarding the likelihood of success of either party, possible court costs, or the amount of any compensation (Ronsin and Lampos 2018).

Again, it seems clear that even if the parameters were well formulated and one had the certainty that false associations were not made (although this doesn’t seem possible: Claude and Longo 2018, p. 156) one still could not decide a dispute only by uncritically conforming to the “majority” or “average” of analyzed decisions made in cases with similar, mechanically overlapping but not critically screened characteristics.

Such a statistical analysis could serve, rather, to make a prediction of the most likely future decision of the court, based on the highest recurrence of a given solution adopted in the past; but the prediction is one thing, the match is another: could we ever say that the prediction about the outcome of the match can determine the outcome itself, without the competition taking place? This is exactly the misunderstanding lying behind the idea of a machine learning judge.

What to do, then, with artificial intelligence? Should it be banned from the courtroom?

Considering the problems, but also the advantages, of the use of IA in judicial systems, some authors suggest that the use of machine learning could be valuable as a complementary tool to judicial decision-making, rather than a substitute. This would make the judge’s decision-making process more efficient and fairer, while still consenting to a human judge to have the “final word” (Tuzet 2020).

Also this scenario, however, does not seem much more reassuring.

There is in fact a concrete risk that the use of predictive justice tools may exert pressure on the decision-maker. French sociologist Antoine Garapon refers to this as the “*effet moutonnier*” (Garapon and Lassègue 2018). When the judge receives a suggested case resolution from an AI system, there is a possibility that they might uncritically conform to the result provided by the machine.

Several studies already demonstrate that in general any human operator interacting with an automated machine easily tend to “defer to the wisdom of algorithms” developing an attitude that scholars in the field define as “automation complacency” or “automation bias”. In these cases, the phenomenon that Roth has defined “false humanization” occurs, where the human operator, despite intervening in the automated process, does not exercise independent judgment separate from the machine (Roth 2016).

In essence, there is a real possibility that software, contrary to expectations, could undermine the discretionary power and, above all, the independence of judges. This aspect was already highlighted by the European Commission for the Efficiency of Justice of the Council of Europe in 2016, which drew attention to the possibility that systems designed as “decision support tools” could become a true “constraint” for judges, effectively transforming into complete decision-making tools, as well as in the European Ethical Charter (CEPEJ 2016, 2018).

6. CONCLUSION

That the “machine” can progressively expand its operational and functional space, even within the courts, is an obvious observation. The exponential growth that technology has experienced in all aspects of society (from production to education, from commerce to medicine, from finance to music and art) will certainly not stop in the field of justice.

However, when we talk about artificial intelligence and judicial decision-making, we need to be clear about what we mean. One thing is to acknowledge the usefulness of “intelligent” tools for case analysis and prediction (based on statistics) of decisions. Predictive justice, with its software, currently provides and will increasingly provide a valuable service to legal professionals by analyzing a vast amount of information, particularly court judgments. It identifies lexical connections and relationships among compared data, thus simulating the expected outcome with a high probability rate.

Does this mean that robots will be able to decide in place of judges? Does it imply that computers can achieve the aspiration – shared by many philosophers – for a justice system free from the influence of emotions, biases, and personal convictions?

It seems not. The illusion of efficiency and horizontal equity – the apparent objectivity of a solution quickly derived from formulas applied non-discretionarily – conceals a significant misconception. Basing decisions solely on artificial intelligence results would mean conforming to the “majority” or “average” of statistically analyzed decisions, without considering the reasoning behind them or the particularities of the specific case, which the

algorithm is completely blind to. Not to mention the performative effect that such a system would inevitably produce, leading to the ossification of the law into past solutions and hindering its evolution.

In short, to harness the benefits of artificial intelligence in the judicial system, we must be aware of the formidable limitations of these tools and the dangers that can arise from their misuse. This article has attempted to contribute in this regard.

References

- Aletras, N., *et al.*, 2016. Predicting judicial decisions of the European Court of Human Rights: a Natural Language Processing perspective. *PeerJ Computer Science* [online], 2:e93. Available at: <https://doi.org/10.7717/peerj-cs.93>
- Bobbio, N., 1951. La certezza del diritto è un mito? *Rivista internazionale di filosofia del diritto*, 28, pp. 146-152.
- Bobbio, N., 2011. *Giusnaturalismo e positivismo giuridico*. Bari/Rome: Laterza.
- Carcattera, A., 2019. Machinae autonome e decisione robotica. *In*: A. Carleo, ed., *Decisione robotica*. Bologna: Il Mulino.
- Catala, P., Le Droit à l'épreuve du numérique : Jus ex machina. *In* : F. Terré and M.A. Frison-Roche, eds., *Droit, éthique, société*. Paris : PUF, p. 126.
- Cellan-Jones, R., 2017. The robot lawyers are here – and they're winning. *BBC news* [online], 1 November. Available at: <https://www.bbc.com/news/technology-41829534>
- Claude, C.S., and Longo, G., 2018. Le déluge des corrélations fallacieuses dans le big data. *In* : B. Stiegler, ed., *La toile que nous voulons*. Limoges : FYP, p. 156.
- Covelli, R., 2019. Dall'informatizzazione della giustizia alla "decisione robotica"? Il giudice del merito. *In*: A. Carleo, ed., *Decisione robotica*. Bologna: Il Mulino.
- Danziger, S., Levav, J., and Avnaim-Pesso, L., 2011. Extraneous factors in judicial decisions. *Proceedings of the National Academy of Sciences* [online], 108(17), 6889-6892. Available at: <https://doi.org/10.1073/pnas.1018033108>
- Durox, S., 2017. Des robots testés à la place des juges dans les cours d'appel de Rennes et Douai. *Le Parisien* [online], 30 October. Available at: <http://www.leparisien.fr/faits-divers/des-robots-testes-a-la-place-des-juges-dans-les-cours-d-appel-de-rennes-et-douai-30-10-2017-7362198.php>

- Electronic Privacy Information Center (EPIC), 2019. *Algorithms in the Criminal Justice System* [online]. Available at: <https://epic.org/algorithmic-transparency/criminal-justice/>
- Estevez, E., Fillottrani, P., and Linares Lejarraga, S., 2020. *Prometea. Transformando la administración de justicia con herramientas de inteligencia artificial* [online]. Washington D.C.: Banco Interamericano de Desarrollo. Available at: <https://doi.org/10.18235/0002378>
- European Commission for the Efficiency of Justice (CEPEJ), 2016. *Guidelines on how to drive change towards cyberjustice* [online]. Strasbourg, 7 December, § 48-52. <https://rm.coe.int/16807482de>
- European Commission for the Efficiency of Justice (CEPEJ), 2018. *European Ethical Charter on the Use of Artificial Intelligence in Judicial Systems and their environment adopted by the CEPEJ during its 31st Plenary meeting* [online]. Strasbourg, 3-4 December. Available at: <https://rm.coe.int/ethical-charter-en-for-publication-4-december-2018/16808f699c>
- Ferrajoli, L., 1997. *Diritto e Ragione. Teoria del garantismo penale*. Rome/Bari: Laterza. (Originally published in 1989).
- Ferrié, S., 2018. Les algorithmes à l'épreuve du droit au procès équitable. *Procédures*, 4/2018, pp. 4-9.
- Forza, A., Menegon, G., and Rumiati, R., 2017. *Il giudice emotivo. La decisione tra ragione ed emozione*. Bologna: Il Mulino.
- Frank, J., 1936. *Law and the Modern Mind*. New York: Tudor.
- Gaboriau, S., 2018. Libertà e umanità del giudice: due valori fondamentali della giustizia. La giustizia digitale può garantire nel tempo la fedeltà a questi valori? *Questione giustizia* [online], 4/2018. Available at: https://www.questionegiustizia.it/rivista/articolo/liberta-e-umanita-del-giudice-due-valori-fondament_593.php
- Garapon, A., and Lassègue, J., 2018. *Justice digitale. Révolution graphique et rupture anthropologique*. Paris : PUF.
- Gilovich, T., Griffin, D., and Kahneman, D., 2002. *Heuristic and Biases: The Psychology of Intuitive Judgement* [online]. New York: Cambridge University Press. Available at: <https://doi.org/10.1017/CBO9780511808098>
- Holmes, O.W., 1987. The path of the law. *Harvard Law Review* [online], 10(8), pp. 1-20. Available at: <https://doi.org/10.2307/1322028>
- Irti, N., 2014. La crisi della fattispecie. *Rivista di diritto processuale*, 1/2014, p. 36.

- Irti, N., 2016. *Un diritto incalcolabile*. Turin: Giappichelli.
- Itzcovich, G., 2001. Il diritto come macchina. Razionalizzazione del diritto e forma giuridica in Max Weber. *Materiali per una storia della cultura giuridica*, 2/2001, pp. 365–393.
- Kahneman, D., 2012. *Pensieri lenti e veloci*. Milan: Mondadori.
- Luciani, M., 2019. La decisione giudiziaria robotica. In: A. Carleo, ed., *Decisione robotica*. Bologna: Il Mulino.
- Marra, R., 1995. *La libertà degli ultimi uomini. Studi sul pensiero giuridico e politico di Max Weber*. Turin: Giappichelli.
- Marra, R., 2005. Max Weber: razionalità formale e razionalità materiale del diritto. *Sociologia del diritto*, 2/2005, pp. 43–73.
- Nilier, E., 2019. Can AI Be a Fair Judge in Court? Estonia Thinks So. *Wired* [online], 25 March. Available at: <https://www.wired.com/story/can-ai-be-fair-judge-court-estonia-thinks-so/>
- Pound, R., 1910. Law in books and law in action. *American law review*, 44/1910, pp. 12–36.
- Ripoli, M., 2002. Introduzione. L'estremismo di Jerome Frank. In: S. Castignone, C. Faralli and M. Ripoli, eds., *Il diritto come profezia. Il realismo americano: antologia di scritti*. Turin: Giappichelli.
- Ronsin, X., and Lampos, V., 2018. In-Depth Study on the Use of Artificial Intelligence in Justice Systems, namely Applications of AI to the Processing of Judicial Decisions and Data. In: CEPEJ, ed., *European Ethical Charter on the Use of AI in Justice Systems* [online], Appendix, 13–62. Available at: <https://rm.coe.int/ethical-charter-en-for-publication-4-december-2018/16808f699c>
- Rossi, P., 2017. Razionalismo occidentale e calcolabilità giuridica. In: A. Carleo, ed., *Calcolabilità giuridica*. Bologna: Il Mulino.
- Roth, A., 2016. Trial by Machine. *Georgetown Law Journal* [online], 104/2016, pp. 2–48. Available at: <https://ssrn.com/abstract=2743800>
- Russell, S.J., and Norvig, P., 2010. *Artificial intelligence a modern approach*. London: Prentice Hall.
- Sartor, G., 2012. *L'informatica giuridica e le tecnologie dell'informazione. Corso di informatica giuridica*. Turin: Giappichelli.

- Searle, J.R., 1980. Minds, Brains and Programs. *The behavioral and Brain science* [online], 3(3), pp. 417–457. Available at: <https://doi.org/10.1017/S0140525X00005756>
- Susskind, R., 2019. *Online Courts and the Future of Justice* [online]. Oxford University Press. Available at: <https://doi.org/10.1093/oso/9780198838364.001.0001>
- Tarello, G., 1980. L'interpretazione della legge. *In*: A. Cicu and F. Messineo, eds., *Trattato di diritto civile e commerciale*. Milan: Giuffrè.
- Tuzet, G., 2020. L'algoritmo come pastore del giudice? Diritto, tecnologie, prova scientifica. *MediaLaws* [online], 1/2020. Available at: <http://www.medialaws.eu/rivista/lalgoritmo-come-pastore-del-giudice-diritto-tecnologie-prova-scientifica/>
- Tversky, A. and Kahneman, D., 1974. Judgement under uncertainty: Heuristic and biases. *Science* [online], vol. 185, pp. 1124–1131. Available at: <https://doi.org/10.1126/science.185.4157.1124>
- Weber, M., 1978. *Economy and Law*. Berkeley: University of California Press.
- White, M., 1956. *La rivolta contro il formalismo*. Bologna: Il Mulino.