



Democratic legitimacy of AI in judicial decision-making

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Abstract

Concerns have been expressed regarding the impact of automation procedures and penetration of new technologies into the judicial field on fundamental rights, democratic values and the notion of legitimacy in general. There are particular risks posed to the legitimate judicial decision-making and the rights of the parties of court proceedings. This paper examines the complex relationship between the artificial intelligence (AI) and the democratic legitimacy of judicial decision-making. While AI systems have been introduced in various areas of public administration to support law application and public policy, their role in the judiciary raises distinct questions about the legitimacy of algorithmic influence on adjudication. Normally, traditional judicial legitimacy is grounded in principles of impartiality, transparency and reasoned justification, which AI systems challenge by potentially disrupting these core democratic tenets. There lies a possibility that biased algorithms will be deployed in justice. The judges and their impartial and independent thinking and reasoning will be crowded out and the judiciary will be gradually replaced by machines reaching a decision based on statistics rather than an individualized assessment. This, not that far-fetched scenario, seems menacing for the whole democratic structure and idea. This paper reviews theoretical perspectives on democratic legitimacy, focusing on the contrasting views of judicial authority as either an undemocratic imposition on political rights or as a consensual safeguard for fundamental rights within a democratic context. Unlike previous studies that examine the raised topics in isolation, this paper provides a comprehensive framework that evaluates the diverse degrees of AI automation and how they affect impartiality, publicity and reasoning. It goes further by exploring its possible threats to those aspects of democratic legitimacy and suggesting some possible solutions to counterbalance them. Despite the doubts over the compatibility between AI and democratic ideals, this paper contributes an innovative hybrid model for judicial decision-making that integrates human oversight with AI assistance, seeking to reconcile the benefits of AI with the need to uphold democratic principles within the judicial review process. This approach aims to fill a critical gap in the current literature by directly confronting challenges and opportunities presented by AI in judicial contexts, with a view to sustaining democratic values in a future where the role of AI in the judiciary is likely to expand.

Keywords Democratic legitimacy · Judicial decision-making · Automated judicial decision-making · Impartiality · Publicity · Reasoning

1 Introduction

The use of algorithms by public authorities in the application of law and the pursuit of public policy has risen worldwide, with many existing paradigms verifying the assistance that artificial intelligence (AI) can provide to public

administration, officials and citizens. Undoubtedly, such a use has encountered objections which can potentially and have already, at some point, been waived by simply placing into effect an adequate regulatory or deontological framework. The prospect of AI algorithmic advice being used for judicial purposes sparked far more controversy. Justice, as one of the three branches of power, has always been considered the core of the rule of law and democracy due to the free appointment of impartial judiciary, their reasoning and publicity of their decisions.

Since time immemorial, delivery of justice has been a duty attributed strictly and entirely to humans, rather than machines. However, the massive wave of innovation in

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robotics highlighted the need for this sector to exit the narrow industrial context and to enter unstructured environments (European Parliament 2016), such as the judicial one. In some cases, this plan has been already executed, thanks to the appearance and the dominance of predictive, machine learning-based algorithms which have entered, in a few jurisdictions, even the courtrooms, while in other instances, it remains under discussion.

In the existing literature, the democratic legitimacy of judicial review has been frequently visited by scholars either contenting that judicial decision-making is legitimate or arguing that it is generally anti-democratic. These different approaches could be explained by the different interpretations of democracy that are embraced. If democracy is seen as a system based on political institutions, where political equality plays a central role, the judiciary would be considered to be set up on a non-representative basis. In this conception of democracy, which prioritizes equal political rights, judicial review would violate democratic principles by overriding individuals' rights and replacing their judgments with those of unelected officials (Waldron 2006). On the contrary, if democracy is grounded on the social contract tradition, citizens are perceived to collectively establish political institutions and exercise original political jurisdiction. This second view goes beyond mere procedural equality, highlighting the fundamental rights and the sovereignty of citizens in building a democratic government. Judicial review is one among several procedural mechanisms that '*free and equal sovereign persons*' might consensually establish. Under fair conditions, people would likely agree to judicial review as a safeguard for their equal basic rights, seeing it as '*a shared precommitment to maintain the conditions of their sovereignty*', thus legitimizing the judiciary as a democratic institution (Freeman 1990).

Lately, the intertwining between AI and democracy has gained ground both in academics and policy-making discourse. The discussions have been evolving around particular matters, involving governance (Coeckelbergh 2024), political rights, elections (Bender 2022) and engagement (Novelli and Sandri 2024), values and ethical standards (Carlsson and Rönnblom 2022) and social justice and equity (Jungherr 2023). The goal of these theoretical or, even in some instances, practical initiatives is the development of ethical AI systems that can coexist with and support democratic ideals. In spite of their value for the debate surrounding AI, justice, democracy and the prospect of AI-driven automation of judicial decision-making, all of these perspectives fail to address the democratic deficit of AI integration into procedures inherent to democracy and the rule of law, as the judicial decision-making one, in a holistic manner.

In the previous years, numerous legislative initiatives and ethical guidelines have been issued on a worldwide basis for the regulation of AI, figuring the notions of democracy

(Framework Convention on Artificial Intelligence 2024), transparency (AI Act 2024) or justice (European Ethical Charter on the Use of Artificial Intelligence 2018). In the relevant reports, soft law instruments or pieces of legislation, there is no specific mention of democratic legitimacy except for an implicit one in the Montréal Declaration of Responsible AI (Forum on the Socially Responsible Development of AI 2018). Still in this document, democratic legitimacy is viewed in connection to AI-use for public decisions in general (Beckman et al 2022), rather than specifically for judicial ones.

The above scholarly overview shows that the democratic legitimacy of judicial review, the automation of the adjudication of justice and the relation between democracy and AI have been already addressed multiple times and on a wide range. Nevertheless, a combination of all these issues has not yet been attempted. A gap could be identified in the existing literature, leaving room for a more targeted study on the threat of the automation of judicial decision-making to the basic mechanisms of democratic legitimacy of the judicial power and its review.

The present paper focuses, in particular, on democratic legitimacy and analyzes three of its critical aspects dominating judicial decisions: impartiality, publicity, and reasoning. It delves deeper by examining the ways in which the diverse taxonomic levels of AI-automation might influence those principles and, consequently, challenging, in total, the commitment of AI to them. This methodology reveals the authors' ultimate aim, which is to question the AI-driven algorithms democratic legitimacy when utilized in judicial settings and, in the long run, the democratic legitimacy of the algorithmic judicial decision-making itself.

Despite its critical stance, this paper also offers some creative suggestions by proposing a hybrid model combining human oversight with AI assistance as a potential solution to the lack of democratic legitimacy and additional safeguards to maintain democratic principles within the judicial review procedure.

2 Democratic legitimacy of judicial decision-making

Democratic legitimacy is rarely to be found in the literature regarding judicial decision-making. Still, there is no commonly accepted definition of legitimacy as such (Warning 2009). It can be understood as a multi-level concept, including beliefs on the proper source, procedures, goals, values and performance of an institution, a government or even of a whole political and social order (Beetham 2012) on their accountability. Judicial review has also been considered as a method of placing accountability on individuals, entities (criminal and civil justice) and even institutions

(administrative justice), in order to make sure they comply with democratically adopted legislative measures (Coglianese 2021). Based on those definitions, it can be argued that the democratic legitimacy of judicial decision-making is the quality attributed to judges who act in an adequate, just and democratic manner within their institutional role. The adequacy of their behavior is checked upon the people's perception of what is proper and just in democratic societies. The appointment of impartial and objective judges, the reasoning of their decisions and the publicity of the judicial processes constitute an integral part of the courts' democratic substance and legitimacy.

The principles of publicity of the proceedings and impartiality of the judiciary are vital aspects of the right to fair trial, as enshrined in Article 6 of the European Convention on Human Rights (ECHR), where they are mentioned respectively (*'fair public hearing [...] by an independent, impartial tribunal'*). Their connection with democracy (*'The right to a fair trial has pride of place in a democratic society'*) is also clearly highlighted. Judicial reasoning is essential to the legitimacy of court decisions as it offers parties and the general public an independent means to understand how the law is applied and ensures the fairness of the ruling. It also lays the foundation for judicial review by higher courts (Rodrigues 2022), serving the right to an effective remedy, appearing in Article 13 of ECHR. The important position these principles hold in the legal, judicial, democratic and human rights landscape justifies the forthcoming analysis and their choice to be examined against the application of judicial AI.

In effect, judges' role goes beyond just resolving individual cases and demands projecting the power and legitimacy of the state to the public. Therefore, judges allow participation, give parties a sense of being heard, combine diverse legal doctrines with analogies, balance the mechanical application of rules with Solomonic intuition and impersonate the legitimacy, not just of the courts, but of the governmental system within which they reside and operate (Pollock and Maitland 1896). The penetration of AI in the judicial sector, affecting first and foremost the above-mentioned elements, makes the debate around it more pertinent than ever. As a result, what is meant under the appointment of independent judiciary, the reasoning of their verdicts and the publicity of the trial and its outcome should be discussed further.

It is commonly accepted that judicial decisions should align with the scope of the democratic law-maker. They should, then, lie upon a firm and ad hoc reasoning that is in accordance with the intentions of the legislature and that can be accessed by the public in a relatively easy and transparent manner. The judiciary, which should also be appointed according to democratic rules, does not only have to abstain from being or appearing partial, biased or preoccupied and committing mistakes, but also should follow legally enacted

procedures and conform to principles of legitimate decision-making (Beckman et al 2022).

Among those principles, the one of publicity, which constitutes an aspect of transparency, along with the one of reasoning, due to their multifaceted nature, should be more thoroughly examined before proceeding to the evaluation of the entrance of AI into courtrooms. The principle of publicity, as far as judicial judgements are concerned, should not be confused with the requirement for the executive and the legislature to be transparent. Transparency is inextricably linked with the access to governmental information as a means to grant citizens the right to participate more actively in a decision-making process or system, ultimately, holding them accountable as well (Bennett and Koker 2017). In those circumstances, transparency means the openness of the state operation to the individuals who are capable of accessing the administrative rules and decisions (Gowder 2016) and, as such, is highly valued (Florini 2007). It is indicative of the role of the citizens as law-makers rather than law-takers. Instead, publicity in judicial proceedings encompasses public hearings, pronouncements and the publication of judicial decisions. Thus, it fosters the interests of the individuals as recipients of the law and the assessment of the courts based on these exact interests.

The notion of reasoning must also be distinguished from the obligation of public authorities to provide reasoning regarding the exercise of public power as an aspect of the rule of law (Pasquale 2017). In the public administration sphere, reasoning guarantees the legitimacy of the institutional actions and secures both their democratic existence and the fairness of the procedures. In providing reasoning, proceduralism and instrumentalism, the two sides of the coin of democratic legitimacy of public decision-making, are fully embodied (Christiano 2004). In the field of justice, procedural rules are a priori incorporated in the whole structure of the trial. As a result, in matters of reasoning, the authority of the courts is instrumental. The mission of the judiciary is the subsumption of an individual case to democratically adopted legislation through the very same act of reasoning. Reasoning serves as a safeguard against arbitrary use of power, promoting trust in the judiciary and strengthening the transparency of justice systems. This obligation aligns with the principles of proper administration of justice and supports fundamental rights, such as the right to a fair trial and the right to defense. The reasons accompanying the examination of any case should, apart from some legal standards which vary according to the jurisdiction, fulfil primarily the necessity of accessibility to the parties subjected or affected by it. Judges are called upon to employ techniques like fact evaluation, legal interpretation, induction, analogy and argumentation. Their reasoning demands not only legal knowledge, but also a broader familiarity with non-legal fields, including economic, political, philosophical and, in recent

times, even technological ones, which allows judges to handle novel, uncertain or value-laden cases, providing insight into their larger societal implications. Adjudicators are in place to influence the perceptions of justice, legal legitimacy, as well as the understanding and the expectations of the involved parties (Gardner 1980). In such way, delivering justice equals serving, realizing, and protecting democracy.

3 Automation of judicial decision-making

Under the term ‘automated judicial decision-making’, one can understand the process of analyzing a huge number of data consisting of evidence and judgements without any external intervention, simply relying on modern technologies. This analysis targets at producing a decision that would offer a solution to a particular dispute. For its deployment, an open data policy of and accessibility to judicial verdicts or any kind of useful relevant information along with the possibility of storage of the data and its further use by third parties is essential (European Ethical Charter on the Use of Artificial Intelligence 2018). Legal technology companies with expertise in case-law search engines and trend analysis are expected to play a leading role. Software produced by those entities stores the received data, classifies it and by observing some repetitive patterns inside it, tends to reach a conclusion on whether a case would succeed or fail before the court, by relying on incorporated success and failure rates of similar, in matters of substance, cases. The possibilities are formed based on statistical modeling of former judgements with the use of methods belonging to the fields of computer science, natural language processing and machine learning (Medvedeva et al 2023). They are designed to be utilized by legal service companies, insurers and lawyers to predict the outcome of a legal dispute or petition. Their use is not strictly limited to the sectors mentioned previously, as they could assist or, in more radical terms, substitute judges (Papapanagiotou and Zachou 2021).

Clearly, automation may occur to different extents (Perry and Smith 2014), with various layers of human involvement, each of which should be addressed separately (Hermstrüwer, and Langenbach 2022). The taxonomy suggested by Dovilé Barysé and Roe Sarel (2023) is in this respect followed. The authors in their survey divided the decision-making process into four stages, namely information acquisition, information analysis, decision selection and decision implementation (Parasuraman et al 2000) and described the level of automation at each stage, ranging from low, intermediate, high and, finally, full automation (Proud et al 2003). The selected taxonomy is also inspired by the six-level scale driving automation scheme established by the Society of Automotive Engineers (SAE International) (Sever and

Contissa 2024) but has been adjusted to the particularities of the judicial settings.

According to the adopted classification, at the low automation level, information is collected, filtered and analyzed by automated means. The deriving results are interpreted and ranked primarily by humans who reach and approve the execution of a decision. In the judicial process, this would mean that the facts, evidence and relevant legislation of each case would be fed to the above-described algorithm, which will process them and offer an insight. Afterwards, the judge will be responsible for interpreting and evaluating the algorithmically delivered opinion and will reach a verdict, either taking it into consideration or ignoring it completely. Examples of such an automation level encompass the legal holding extraction tool based on the Italian-LEGAL-BERT, which automatically extracts legal holdings from cases or the ITA-CaseHold, a benchmark dataset for legal summarization in Italy (Licari et al 2023). Both can be used supplementary by judges to facilitate them during the precedent research needed for the examination of each case.

At the intermediate level, automation involves highlighting the most relevant information and interpreting data with human oversight. The decisions and the rationale behind them are displayed to the human, who, can either agree or disagree before execution. For adjudication, this would mean that the AI-based algorithm will reach a reasoned decision. The rationale behind it along with the computational procedure to reach it will be accessible to the judge, who will have the choice to follow it or to defy it. An intermediate-level automated solution was introduced in the United States (US), when Wisconsin’s circuit court employed a fourth-generation risk assessment tool, namely Correctional Offender Management Profiling for Alternative Sanctions (COMPAS) to determine the length of a sentence. The validation of this method by the US Supreme Court in the *State v. Loomis* case (2016) allowed this practice to become widespread in the state of Wisconsin (Beriaín 2018), while it was introduced in many other countries as well (Singh et al 2014). COMPAS scores function as a supplementary tool to assess risk and potential for reoffending, not replacing entirely the judicial discretion.

The high automation stage is associated with a prioritization of the available information. Data are integrated into a result without human intervention and some decision options are given to the decision-maker without further explanation of how they were derived. Unless it is set otherwise, the execution is also autonomous, thus allowing for an override ability. In judicial terms, the judge will be presented with some scenarios without having any previous knowledge on how and why they were formed and has to choose between them. The example of ‘Case Law Analytics’ (2023), a French startup that uses AI to quantify legal risk, is relevant. It models the judicial decision process and provides

the decisions that would be reached based on a given file, from which the judge would be called upon to choose.

At the extreme case of full automation, the decision is reached after autonomous gathering, filtering, analysis and interpretation of the input and is executed without being shown to any human or allowing any kind of interaction or influence from external factors (Ortolani 2019). In the context of justice, this would mean that the algorithm will deliver a decision without any intervention by the judge, solely by collecting the information it considers relevant from the case file in accordance with the similar precedents and interpreting it in an opaque manner. In the European sphere, the Estonian Ministry of Justice has expressed its support for the optimization and full automatization of the order for payment procedure for over four years, (Eesti Kohetueksperitiisi Instituut 2023). On the other side of the globe, China has taken a step forward by integrating AI components (non-human judges, self-registration and resolution of cases) into the online dispute resolution system in its so-called ‘internet courts’ (Shin et al 2021).

There are challenges posed to democratic legitimacy of judicial decision-making regardless of the extent of automation or the involvement of human judges in it. Rather than focusing separately on those levels of automation, consideration should be given on the common issues that arise, specifically addressing the darker side of introducing AI into justice.

4 Challenges of the automated judicial decision-making to democratic legitimacy

4.1 Impartiality

Judges, traditionally, were seen as impartial and independent enforcers of law since the basic social logic viewing the members of the court as triadic conflict resolvers relies on the element of independence (Shapiro 1981). At its most basic and generally least significant level, impartiality would mean that the judge has not been bribed or otherwise influenced by one of the parties. The concept of independence underlines the institutional separation of courts from the rest of the political system (Eckhoff 1965). Impartiality has always been seen as a key factor to guarantee the independence, the satisfaction of litigants, their cooperation and trust in judicial systems (Burke 2020). The persistence in the rules combined with the social perception of the judiciary as impartial and independent granted judges apart from societal trust, an important degree of moral authority throughout the years (Otis and Reiter 2006).

In contrast, adherent to automation and the systems adapted to it is the possibility of false exclusions, even of discrimination (Zarsky 2013). It is generally accepted that

AI tends to reach a categorization relying on statistical similarity between the subject at hand and the subjects of a particular category. This brings to life the high risk of biases and partial practices (Jordan and Bowman 2022). Unfortunately, in the current judicial system, judges may be susceptible to various cognitive biases as well (Winter 2020). Those biases are systemic and rarely limited to one person, stemming from human nature, cultural, educational and socioeconomic background that judges may share.

Automated processes are feared to perpetuate the same biases that infect humans (Pasquale 2015). They might, also, develop their own prejudices, even without the knowledge of the programmers. AI software appears under many circumstances to have ‘*emergent properties*’, in other words behavioral patterns that the designers are unaware of (Calo 2015). Indeed, the involvement of the complex and advanced algorithmic element makes it even harder for the designers to identify and control it successfully. Due to their black box nature, there is little reassurance that automated means do not reproduce invidious discriminations (Prince and Schwartz 2020). At the same time, the algorithmic perception of non-existent or false events as facts, namely AI hallucination, might lead to the generation of incorrect outputs which will be difficult to distinguish from the correct ones. Hallucination and opaqueness are challenging AI impartiality.

Training algorithms either on datasets of human decisions or on data based on samples might lead to a ‘bias in, bias out’ phenomenon (Mayson 2019). This phenomenon can occur from the beginning of the training in the form of a partial choice of a specific set of information instead of another. This biased AI learning process (Citron and Pasquale 2014) that continues to lie throughout the entire judicial procedure enables the spread of biases from the initial judicial stage to subsequent ones (Bago and De Neys 2020).

Since perceived fairness and legal compliance are closely associated (Tyler 2006), it becomes clear that if people regard automated systems as less fair, they might be less inclined to follow their judgements and to comply with them, which poses a threat to the rule of law, obedience to law and democracy.

Except for classification, profiling carried out by algorithms might cause discriminatory practices. The behavioral past of a person, which forms their profile, can affect a judicial judgement, but also the person’s future as a whole. While human decisions are based on values and thoughts, a machine is not fully able to comprehend and include them in its way of producing a result (Sourdin and Cornes 2018). Instead, the inclusion of the use of biometrics may lead to misclassification or stigmatization, automatically placing a person under a certain group. The Dutch Data Protection Authority had already warned of a ‘digital fate’ (Kohnstamm 2019), the threat that one might not escape from the digital

profile created for them. The presumption of innocence would falter, when profiling and risk assessment methods are mobilized in the field of judicial decision-making. Even if data regarding a person are gathered normally, after they are placed under the regime of the suspect, big data and risk profiling tend to take precedence, overturning this order (Royakkers et al 2018). The role of the judge and the experts in the individualization of the sentence after the impartial examination of the offender's personality can be undermined. Those tools are expected to reproduce unfounded pre-existing inequalities and to legitimize policies that are arbitrary and inconsistent with law and democracy.

4.2 Publicity

Public hearing has for long time been reckoned as one of the safeguards of fair trial. It is an essential part of judicial decision-making, enhancing transparency, accountability and public confidence in the justice system. The judiciary should not only act fairly, but also be seen to do so (Johnston 2018).

Publicity goes hand in hand with transparency and openness, which have been determined by many experts as the opposites of machine learning and AI, with the latter being characterized as 'black box' (Latour 1993). Opacity is often attributed to those new technologies because in most of the cases, the input and what happens with it is more or less unknown to the user, who is only able to observe the outcome and not to assess it effectively (Castelvecchi 2016). To begin with, it is difficult even for the experts, people involved in its creation or with a good understanding of an algorithm to evaluate it, meaning that it is observationally opaque. If this ends up being demanding for those experts, it is far more difficult for the general public to carry out an assessment on its validity, making the algorithm also socio-logically opaque. In other words, it becomes difficult for the average citizen, lacking specific technical or scientific knowledge to grasp the algorithmic process of producing a result in order to figure out if this result is indeed correct. Both of these inabilities could be linked with its theoretical and psychological opacity described as the inherent lack of explainability and intuitiveness. Moreover, machine learning algorithms are subject to intellectual property rules and as such the desired assessment might remain a utopia, rendering the algorithms legally opaque, too (Burrell 2016).

In judicial decision-making, the lack of transparency in the functioning of the algorithm designed by private companies, the confidentiality and privacy concerns, the competition between involved industries and intellectual property rights (Dressel and Farid 2018) further hinder the spread of knowledge regarding the reasoning methodology those systems follow to reach a decision. The interested parties would not have access to and the capacity of challenging

effectively the produced verdict. Even some parts of a decision-making process that could be made public, such as the input data, could be deliberately kept secret for the aforementioned reasons, preventing the parties from questioning the scientific validity of the algorithm itself (Ryan 2020). In any case, automated decision-making will involve a great deal of machine learning and other techniques that generate decision structures. Those structures will not be easily read and understood by humans even if published openly (Peters 2023).

4.3 Reasoning

As far as judicial decision-making is concerned, reasoning is a vital part of the judging (Sunstein et al 2001). The practice of giving reasons plays a key role in improving the overall quality of judicial decisions (Schauer 1995). People tend to endorse a procedure as fair if decisions are openly justified. In order to be readily accepted by the parties, their representatives and the democratic society, the explanations should be seen as sincere and adequate (Bies et al 1988) and be more specific or thorough (Shapiro et al 1994). Greater insights into judicial reasoning can foster broader acceptance of decisions and contribute to legal certainty (Leanza and Pridal 2014). By enlisting their rationale, decision-makers reassure the parties that they have '*acted on the presented viewpoints in an impartial and unbiased manner*' (Bies 1987). Moreover, they show that the parties' arguments have been duly considered, empowering litigants to make informed choices about pursuing appeals (Maes and de Ridder 1990).

AI-based systems have promised to offer accuracy and efficacy in reasoning by creating mathematical models based on training data and categorization techniques according to statistical similarity. This statistical processing of electronic data may be able to reveal the frequency of the use of certain group of words or terms, but it is not, at least for now, capable of uncovering the real reasons behind a judgement and proceed to legal analysis.

Simultaneously, progress in natural language technology has empowered automated means to convert more easily between speech and text, answer questions, summarize and spot contradictions in documents (Grace et al 2018). However, they do not grasp the substantial meaning of their input, which makes reasonable the speculation that a hearing before a machine, upon which the reasoning will rely, may not be qualitatively the same as the one before a human judge (Chen et al 2022).

Individualization and subsumption refer to the application of the law to a particular case or, more precisely, the application of a regulatory norm to a fact of a specific, individual case, thus concluding the legal qualification (Čyras and Lachmayer 2014). Judges operate with a need for nuanced observation and judgment that cannot be simplified into

programmed formats (Lipsky 2010). Instead, AI systems are limited to computational, of a quantitative nature acts, classifications and groupings, whereas judicial reasoning should be based on the relevant facts of each separate case brought before a tribunal. As a consequence, doubts have been expressed on the effectiveness of the ability of AI to individualize and subsume (Gravett 2024).

If a process like this is transferred from a simple calculation to the center of judicial work, it is probable that it produces a sense of urgency, a novel kind of normativity, which would operate additional to the law, limiting the discretion of the judges and, gradually, allowing the standardization of court decisions. The decisions will no longer be based on an individualized thinking by the judges, but on a clearly statistical calculation, sterile and devoid of the human touch. Judges would not reach their judgements according to the law. It would be much easier for them to follow the case-law trends, stemming from statistics gathered and processed by a digital tool (Završnik 2021). The rule of the majority of court decisions would be standardized. Any declination would cause more issues which might also demand the reasoning by the discerning party (Buat-Ménard and Giambiasi 2017). For the common law specifically, this will offer no added value to the precedent.

Automation of the reasoning might also cause complexity in the application of law. The doubtful character of the law, which relies on ad hoc interpretation aiming exactly at dissolving its inherent doubts, might be replaced by a fragile, imposed, and threatening for the judicial values certainty. Yet, reality cannot always be statistically represented and the outcome cannot always be correctly foreseen.

There lies the risk that the results of predictive justice software would be set as prototypes without any verification by the legal system and, in many cases, even against it. On the one hand, the flexibility shown by AI in adapting its output to changes taking place in every environment it is applied to outweighs that of humans. In the reasoning of judicial decisions this can be seen as virtue, causing the rebirth and modernization of the judicial review, which will not rely on obsolete jurisprudence but on up-to-date arguments reflecting the current societal and legal stance towards a case. On the other hand, it could also be seen as a curse, generating instability and inconsistency in the jurisprudence and legal uncertainty (Levinson 2000).

5 Discussion

In Kim Yuliy's song called 'The Lawyer's Waltz',¹ legal systems and possibly judges are characterized as 'machines' failing to behave as humans and turning a blind eye to what is considered as fair and just. Machines could become inhumane and unjust unless adequate measures are proactively enacted before it is too late. Any appointment of automated means or intangible instruments as judges would need constitutional amendments in most jurisdictions and would violate the doctrine of role reversibility in some of them, which foresees judges to be subject to the same rules they decree and apply, because machines cannot be regarded as subject to any law (Brennan-Marquez and Henderson 2019). Indeed, their accountability and liability have not yet been officially recognized in any legal order.

Solely statistical models should be restrained to a simple calculation, assisting the judges, who can verify the result afterwards, and not entirely replace them and their reasoning. Therefore, the complete submission of judicial activity to any kind of automated processes is out of question due to its inconsistency with the principles of impartiality, publicity, reasoning and, consequently, democratic legitimacy of the judiciary and their decisions. Those imminent threats should not be overlooked. Overestimating algorithmic capacity might endanger the legal and ethical values upon which justice is delivered (Kroll et al 2016). Alternatively, some safeguards should be put into place so that the public and the experts will be able to taste the fruits of automation without sacrificing the democratic acquis.

The partial integration of AI in the judicial sector requires automated machines to earn their legitimacy as an ethical regulator and law-applier. This sounds demanding and can be accomplished only by demonstrating their ability to make impartial decisions, aligned with the democratically enacted legislation, made publicly available and supported by an explainable, understandable and accessible reasoning for those interested (Kim and Phillips 2021). This could be achieved by the introduction of the Explainable AI (XAI) mechanism, namely a technology developed to balance the complexity of AI systems with the need for interpretability, aiming to make AI decision-making comprehensible to human users. The gap of transparency and understanding could be bridged by XAI which will be utilized to make AI decisions more interpretable, using tools to visualize how AI models arrive at conclusions, which is particularly important in fields like law where trust and clarity are desired (Yamada 2023). In addition, the integration and the prioritization of democratic principles, such as publicity, accountability, and transparency (Umbrello and van de Poel 2021), at the development of AI systems will result in a value-sensitive design, amplifying their legitimacy (Friedman and Hendry 2019).

¹ Юлий Ким—Адвокатский Вальс/ Yuliy Kim—The Advocate's Waltz. URL: <http://www.bards.ru/archives/part.php?id=6179>.

Another question that arises is whether there is a possibility for impartiality to govern machine adjudication. Impartiality by design can be the first part of the answer by programming the systems to ignore certain legally irrelevant factors. Impartiality through testing is the second step by controlling the training data to detect prejudiced emergent properties and eliminate or minimize them. Taking into account the role of algorithms as ‘social actors’ (Nass et al 1994) and recent studies showing that people tend to trust human-led judicial processes more than fully automated ones (Yalcin et al 2023), it should be made clear to the public that technically biased algorithms can sometimes be easier to fix than biased people (Mullainathan 2019), can be at least as fair as human judges (Volokh 2019) or might, at some point, be able to de-bias them (Chen 2019).

The human judicial discretion might have had dismaying and socially destructive effects in some cases (Huq 2020). Human judges do not possess any distinctive procedural justice advantage as fair processes can be integrated into algorithmic adjudication as well (Chen et al 2022). In contrast, more black-and-white provisions in the pursuit of greater efficiency would simplify the law and facilitate its automatic process (Roth 2016). Then, automated systems will enjoy an undue aura of technological objectivity and infallibility, even if they end up reflecting perceptions of fairness at the expense of actual fairness. To mitigate the above-mentioned fairness gap, greater countermeasures should be enacted in AI-led proceedings.

Transparency and neutrality of those systems are desirable, but difficult to achieve. Public authorities along with the judiciary and the assistance of technical staff should pose those programs at the stage of their design, development and use under constant supervision and evaluation. These measures will allow the involved experts to determine the effectiveness and the efficiency of the algorithms so as to avoid unforeseen consequences which would turn against the citizens and, indeed, the judges themselves.

AI systems should be designed, developed, and used so that they can be effectively supervised by human operators during their use. This supervision includes providing appropriate human-machine interface tools, enabling operators to manage and monitor the AI system as needed. Depending on the context, this may involve a ‘kill-switch’ or the ability to override or reverse the system’s outputs in specific situations (Schwemer et al 2021). Individuals assigned to oversee AI systems should have the necessary skills, training and authority to fulfil their duty successfully. The judicial use of AI tools, regardless of their automation level (low or high), will need, in any case, both human in-the-loop and human on-the-loop oversight. This means that in the low automation level, judges will be required to select and guide inputs, whereas, even in the high automation one, in which the algorithms operate in a more or less-automated manner,

judges will be asked to choose between the outcomes and execute them or intervene on an earlier stage respectively (Morison and Harkens 2019).

This interaction could bring into life a hybrid model of judicial decision-making, a solution combining the automation promised by AI and the human judge, which is far more feasible than the prospect of complete automation. In this model, human actors will not be fully replaced by technological equivalents but coexist with them in a lawful and harmonic way. An example of this scenario is a start-up called Justice42 in the Netherlands, which has developed an online collaborative platform to assist divorcing couples (Uitelkaar). This system will operate as a network, in which both nodes (judges and AI systems) are connected by pathways representing data flow and decision points. AI nodes will normally analyze the data and provide structured, explained outputs to judges. In turn, they will decide whether or not to choose the AI output supplementary to their own judgment to form a final decision, which can be fed back into the system for iterative improvement. In essence, this hybrid judicial model combines speed, analytical power, and consistency of AI with the human judgment, empathy, and oversight to create a more robust and fair judicial process. Within it, the human adjudicator should enjoy full decision-making autonomy, while the AI tool will be restricted to collecting, analyzing information and providing decision recommendations. Human autonomy and accountability would serve as a means of protection against abuse or bias and quality control of the AI-produced outcome (Enarsson et al 2021).

A judge discerning from the algorithmically drawn conclusion should not be obliged to provide special reasoning or take on greater responsibility since judges’ rationale depends on the evaluation and the interpretation of crucial and proven facts of a case and the applied legislation. Those automated judicial decision-making mechanisms must facilitate judges’ work rather than posing obstacles, submitting them to doubts as far as the validity of their judgement or their stance towards a dispute go (Gans-Combe 2022).

It should not be overlooked that the use of AI in judicial settings might indirectly improve access to justice (Linna 2021). By automating routine tasks, AI tools reduce time and resources needed to manage and decide upon cases, increasing overall efficiency (Dabass and Dabass 2018). To make use of these economic benefits, the combination of ethics and regulatory steps is highly recommended. Those measures should not sacrifice the human element in favor of a technological deterministic view that tends to prioritize speed and effectiveness (Dymitruk 2019) but rather have the best of both worlds.

The appeal process is a strong component and valuable weapon for courts to battle the opaqueness of the automated algorithms. Accordingly, the possibility of challenging the decision before a real court should be made

available and communicated in advance to the parties. The verdicts should be subject to further judicial review, which is not purely automated and does not constitute the final step of the procedure. Hence, the right to an appeal to courts of second or further instance should be available to protect the process of judicial review (Campbell 2020). The interested parties should have access to the algorithmic structure and the right to challenge the scientific validity of the algorithm, so its potential inaccuracy ought to be highlighted in order for them to invoke it in case of appeal or for the judges to take it into account when forming their judgement.

Although research in this area is limited, judges may also have a significant influence on public trust and acceptance of AI. As respected legal authorities, judges can shape public attitudes toward AI through their rulings and public remarks. The judges' perceived trust in AI could strongly impact public trust, aligning with broader findings on expert influence. When judges make decisions on AI-related cases, speak publicly about AI or accept its integration in their work, they help shape how the public views the technology and its social impact. Since judges' trust in AI, much like that of other experts, can play a crucial role in shaping public acceptance and perception of AI, they should be more careful with its usage (Fine and Marsh 2024) and their stance in the discussions surrounding it.

Furthermore, more opportunities do exist to combat the negative aspects of automation. Bearing in mind that the outcome of court adjudication can clearly be influenced by the quality of representation, the resources available to the litigants and their representatives, digital illiteracy must be combatted with the training of the practitioners and the judicial staff (Sourdin 2015). A more technological orientation should also be incorporated into modern legal education which a lot of countries currently lack. Ultimately, the attribution of a more human-centric scope to the relevant judicial framework (Pirozzoli 2024), the provision and the application of accountability mechanisms, the launch of public consultations, ensuring that the skeptical voices are heard could be the solutions to the aforementioned challenges.

As some argue that the democratic legitimacy of the use of machine learning algorithms by public authorities depends on the extent to which they are deployed by judicial institutions (Zalnieriute et al 2019), the question under examination becomes more urgent. The regulators and the policy-makers should ensure that AI elements incorporated in judicial decision-making procedures originally run solely by humans are checked against higher law and the basic tenets of constitutional democracy (Nemitz 2018).

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