

doi <https://doi.org/10.5020/2317-2150.2026.16987>

Between human judgment and algorithmic decision-making: the problem of noise in the context of Artificial Intelligence in the Judiciary

Entre o julgamento humano e a decisão algorítmica: o problema do ruído no contexto da Inteligência Artificial no Judiciário

Entre el juicio humano y la decisión algorítmica: el problema del ruido en el contexto de la Inteligencia Artificial en el Poder Judicial

Patrícia Adriani Hoch* <https://orcid.org/0000-0002-6906-3419>, University of Vale do Rio dos Sinos, São Leopoldo, Rio Grande do Sul, Brazil.

Débora da Silva Rosa** <https://orcid.org/0009-0000-8303-6196>, University of Santa Maria, Santa Maria, Rio Grande do Sul, Brazil.

Editorial

Article History

Received: 04/13/2026

Accepted: 05/06/2026

Thematic Axis 3: Law, Technology, and a Transforming Society

Editors-in-Chief

Katherine de Macêdo Maciel Mihaliuc
University of Fortaleza, Fortaleza, Ceará,
Brazil
katherine@unifor.br

Sidney Soares Filho

University of Fortaleza, Fortaleza, Ceará,
Brazil
sidney@unifor.br

Handling Editor

Sidney Soares Filho
University of Fortaleza, Fortaleza, Ceará,
Brazil
sidney@unifor.br

Authors

Patrícia Adriani Hoch
patricia.adriani@hotmail.com
Contributions: study conceptualization,
methodology, data curation, writing –
original draft, writing – review & editing,
supervision.

Débora da Silva Rosa
deborasrosa.adv@gmail.com
Contributions: study conceptualization,
methodology, data curation, writing –
original draft, writing – review & editing,
supervision.

How to cite:

HOCH, Patrícia Adriani; ROSA, Débora da Silva. Between human judgment and algorithmic decision-making: the problem of noise in the context of artificial intelligence in the Judiciary. *Pensar – Journal of Legal Sciences*, Fortaleza, v. 31, e16987, 2026. DOI: <https://doi.org/10.5020/2317-2150.2026.16987>.

Data Availability Statement

Pensar – Journal of Legal Sciences adopts Open Science practices and makes available, alongside this publication, the Data Availability Statement (Pensar Data Form) completed and signed by the authors. The document contains information regarding the nature of the article and the possible existence of supplementary data. It is available as a supplementary file on the journal's website.

Abstract

Artificial Intelligence (AI) has been progressively incorporated into the Brazilian judiciary, particularly within the context of the Fourth Industrial Revolution, and is currently employed by several courts to enhance the efficiency and speed of judicial services. However, the use of these technologies in judicial decision-making continues to generate significant debate, particularly regarding the presence of noise in the adjudicative process and the lack of transparency associated with algorithmic systems. Against this backdrop, this article examines, based on the book *Noise: A Flaw in Human Judgment* by Daniel Kahneman, Olivier Sibony, and Cass R. Sunstein, how the phenomenon of noise manifests itself in both human and algorithmic decision-making. It also reflects on the feasibility of employing AI in judicial decision-making within the Brazilian legal system. To this end, the study adopts a phenomenological-hermeneutic approach, considered appropriate for addressing a complex subject matter, complemented by the Law and Literature perspective and by documentary and bibliographic research methods. The findings indicate that, although AI may contribute to improving case management and reducing certain forms of decisional inconsistency, algorithmic systems do not automatically eliminate the problem of noise and may, in some cases, reproduce biases embedded in the data on which they are trained. Therefore, the use of AI in judicial decision-making should be implemented with caution, transparency, and appropriate oversight mechanisms to ensure the preservation of the fundamental principles of due process and the Democratic Rule of Law.

Keywords: Artificial Intelligence; algorithmic decision; judicial decision; noise.

Resumo

A *Inteligência Artificial (IA)* tem sido progressivamente incorporada ao Poder Judiciário brasileiro, sobretudo no contexto da chamada Quarta Revolução Industrial, sendo utilizada por diversos tribunais com o objetivo de aumentar a eficiência e a celeridade da prestação jurisdicional. Entretanto, a utilização dessas tecnologias no momento decisório ainda suscita relevantes debates, especialmente no que se refere à presença de ruídos no processo de julgamento e à ausência de transparência dos sistemas algorítmicos. Diante desse cenário, o presente artigo tem por objetivo discutir, a partir da obra *"Ruído: uma falha no julgamento humano"*, de Daniel Kahneman, Olivier Sibony e Cass R. Sunstein, de que forma o fenômeno do ruído se manifesta tanto nas decisões humanas quanto nas decisões algorítmicas (mediadas por algoritmos), refletindo sobre a viabilidade da utilização da *Inteligência Artificial (IA)* no âmbito decisório judicial brasileiro. Para tanto, utiliza-se a abordagem fenomenológico-hermenêutica, considerada adequada para o enfrentamento de uma temática complexa, complementada pela perspectiva do Direito e Literatura, bem como pelas técnicas de pesquisa documental e bibliográfica. Conclui-se que, embora a *Inteligência Artificial (IA)* possa contribuir para a otimização da gestão processual e para a redução de determinadas inconsistências decisórias, os sistemas algorítmicos não eliminam automaticamente o problema do ruído, podendo inclusive reproduzir vieses presentes nos dados utilizados em seu funcionamento. Assim, a utilização da *IA* no contexto decisório judicial deve ocorrer com cautela, transparência e mecanismos de controle, que garantam a preservação dos princípios fundamentais do processo judicial e do Estado Democrático de Direito.

Palavras-chave: *Inteligência Artificial; decisão algorítmica; decisão judicial; ruído.*

* PhD in Public Law (2022) from the University of Vale do Rio dos Sinos (UNISINOS), within the research line Hermeneutics, Constitution, and the Realization of Rights. She earned a Master's degree in Law (2017) from the Federal University of Santa Maria (UFSM), in the field of Emerging Rights in Global Society and the research line Rights in the Network Society, supported by a CAPES scholarship (2015-2016). She also holds a specialization in Tax Procedural Law (2016) from Universidade Anhanguera-Uniderp and a Bachelor of Laws degree (2014) from UFSM, where she received the Academic Laureate Award in recognition of her outstanding achievements in teaching, research, and extension activities. She is a faculty member in the Graduate Specialization Program in Civil Procedural Law at the Franciscan University (UFN) and teaches Scientific Writing and Academic Publishing courses at both UFN and UNISINOS. She previously served as an Adjunct Professor in the School of Law at UFSM (2018-2020) and as Coordinator of the Constitutional Jurisdiction and Fundamental Rights Research Center (NUJUDI). She is also a member of the Information Law Research Center (NUDI) at UFSM. Her research focuses on Fundamental Rights, Constitutional Jurisdiction, Legal Hermeneutics, Tax Law, Emerging Technologies, Network Society, and Artificial Intelligence. She is a practicing attorney registered with the Brazilian Bar Association of Rio Grande do Sul (OAB/RS No. 93.674) and serves on the Special Commission on Legal Education. She is the author of the book *Taking Intimacy Seriously on the Internet* (2019).

** Master's candidate in the Graduate Program in Law at the Federal University of Santa Maria (PPGD/UFSM), within the research line Rights in the Network Society: Actors, Factors, and Processes in Globalization. She holds a specialization in Family and Succession Law from the University of Santa Cruz do Sul (UNISC) and a Bachelor of Laws degree from the Franciscan University (UFN). She is a practicing attorney and serves as a lay judge in the Special Civil Courts of the Court of Justice of Rio Grande do Sul (TJRS), working in the judicial districts of Estrela and Rosário do Sul. She is also a researcher at the Information Law Research Center (NUDI), participating in the project Human Rights, New Technologies, and Global Access to Justice.



Resumen

La Inteligencia Artificial (IA) ha sido incorporada progresivamente al Poder Judicial brasileño, especialmente en el contexto de la denominada Cuarta Revolución Industrial, siendo utilizada por diversos tribunales con el objetivo de aumentar la eficiencia y la celeridad de la prestación jurisdiccional. Sin embargo, el uso de estas tecnologías en el proceso de toma de decisiones continúa generando importantes debates, particularmente en lo que respecta a la presencia de ruido en el proceso de juzgamiento y a la falta de transparencia de los sistemas algorítmicos. En este contexto, el presente artículo tiene como objetivo discutir, a partir de la obra *Ruido: una falla en el juicio humano*, de Daniel Kahneman, Olivier Sibony y Cass R. Sunstein, de qué manera el fenómeno del ruido se manifiesta tanto en las decisiones humanas como en las decisiones algorítmicas (mediadas por algoritmos), reflexionando sobre la viabilidad del uso de la Inteligencia Artificial (IA) en el ámbito de la toma de decisiones judiciales en Brasil. Para ello, se adopta un enfoque fenomenológico-hermenéutico, considerado adecuado para abordar una temática compleja, complementado por la perspectiva de Derecho y Literatura, así como por técnicas de investigación documental y bibliográfica. Se concluye que, aunque la Inteligencia Artificial (IA) puede contribuir a la optimización de la gestión procesal y a la reducción de determinadas inconsistencias decisorias, los sistemas algorítmicos no eliminan automáticamente el problema del ruido e incluso pueden reproducir sesgos presentes en los datos utilizados para su funcionamiento. Por lo tanto, el uso de la IA en el contexto de la toma de decisiones judiciales debe realizarse con cautela, transparencia y mecanismos de control que garanticen la preservación de los principios fundamentales del proceso judicial y del Estado Democrático de Derecho.

Palabras clave: Inteligencia Artificial; decisión algorítmica; decisión judicial; ruido.

1 Introduction

The incorporation of digital technologies into public institutions represents one of the most significant transformations of contemporary society, particularly within the context of the so-called Fourth Industrial Revolution. Characterized by the integration of digital technologies, advanced computational systems, and large-scale data analytics, this new stage of technological development has profoundly reshaped social, economic, and institutional structures. Within this context, Artificial Intelligence (AI) has emerged as one of the most influential technologies and has been progressively adopted across various sectors, including the judiciary.

In Brazil, courts have increasingly implemented AI-based tools as a strategy to address longstanding structural challenges within the justice system, such as high levels of litigation, an extensive caseload, and judicial delays. Several Brazilian courts already employ algorithmic systems to assist with case screening, precedent identification, classification of repetitive claims, and procedural information management. These initiatives reflect a broader trend toward institutional modernization driven by digital technologies aimed at enhancing the efficiency and timeliness of judicial services.

Despite the potential benefits associated with using AI in the justice system, the application of these technologies to judicial decision-making has generated substantial debate within contemporary legal scholarship. Among the primary concerns are the opacity of algorithmic systems, the possibility of reproducing biases embedded in datasets, and the implications of these technologies for fundamental judicial principles, including transparency, impartiality, and reasoned decision-making.

Against this backdrop, the discussion surrounding the phenomenon of noise in judicial decisions has gained particular relevance. In *Noise: A Flaw in Human Judgment*, Daniel Kahneman, Olivier Sibony, and Cass R. Sunstein demonstrate that different individuals may reach significantly different conclusions when faced with similar cases, a phenomenon referred to as “decision noise.” This undesirable variability in judgment can generate inconsistencies, unequal treatment, and legal uncertainty. At the same time, contemporary debates on AI raise important questions regarding whether algorithmic systems can reduce such variability or, conversely, create new forms of noise and bias in the decision-making process.

In light of these considerations, this study addresses the following research question: to what extent can the use of AI in judicial decision-making contribute to reducing decision noise, or alternatively, introduce new forms of inconsistency arising from algorithmic systems?

Accordingly, this article aims to examine how the phenomenon of noise manifests itself in both human decisions and decisions mediated by algorithmic systems, while reflecting on the feasibility of employing AI in judicial decision-making within the Brazilian legal system. In doing so, it seeks to identify the limitations and challenges associated with integrating these technologies into judicial decision-making processes.

To achieve this objective, the study adopts a phenomenological-hermeneutic approach, which is particularly suitable for examining complex phenomena involving legal interpretation and contemporary technological

transformations. This methodological framework is complemented by the Law and Literature¹ perspective, given the central role of *Noise: A Flaw in Human Judgment* in the present analysis, drawing particularly on the theoretical contributions of Martha Nussbaum. The phenomenological-hermeneutic approach is not understood as a technical research method but rather as an interpretive framework aimed at understanding legal phenomena through language and the historicity of human experience².

The operationalization of this approach was carried out through an interpretive analysis of the theoretical contributions presented by Kahneman, Sibony, and Sunstein, articulated with contemporary legal scholarship on AI and judicial decision-making. The analysis sought to identify the different manifestations of noise in human decision-making and in decisions mediated by algorithms, thereby establishing a critical dialogue between theories of human judgment and current debates on decision automation within the judiciary. The bibliographic review focused on books and academic articles addressing AI, algorithmic bias, and technological governance in the legal field.

No generative AI tools were used in the drafting, analysis, or preparation of this manuscript, in accordance with the scientific integrity and open science guidelines adopted by the journal.

The article is organized into two main sections. First, it contextualizes the use of AI within the Brazilian judiciary, considering the broader framework of the Fourth Industrial Revolution. It then examines the phenomenon of noise in judicial and algorithmic decision-making based on the theoretical contributions of Kahneman, Sibony, and Sunstein, as well as other relevant scholars, reflecting on the limitations, risks, and challenges associated with the use of algorithmic systems in judicial decision-making.

The principal contribution of this study lies in connecting the theory of decision noise developed by Kahneman, Sibony, and Sunstein with contemporary debates on AI and judicial decision-making. In doing so, it demonstrates that the incorporation of algorithmic systems into the judiciary does not automatically eliminate decisional inconsistencies and may, in some circumstances, introduce new forms of bias and distortion into the adjudicative process.

2 The Use of Artificial Intelligence in Brazil Within the Context of the Fourth Industrial Revolution

Driven by technological advances, AI has become increasingly integrated into virtually all sectors of society. The digital revolution gave rise to the Fourth Industrial Revolution, also known as the Internet Revolution, in which AI, through the use of algorithms, and the vast amount of data generated daily have become defining features of contemporary society (Hoch, 2024, p. 277).

The term “Fourth Industrial Revolution” was coined by Klaus Schwab (2016), founder and executive chairman of the World Economic Forum, and is also referred to as Industry 4.0. Unlike previous industrial revolutions, it is distinguished by its unprecedented speed, breadth, and systemic impact. It is characterized by the convergence of digital, physical, and biological technologies, with particular emphasis on AI and algorithmic systems.

According to Schwab (2016, p. 5)³, “[...] the changes are so profound that, from the perspective of human history, there has never been a time of greater promise or potential peril.” The Fourth Industrial Revolution therefore represents the digital transformation driven by disruptive technologies, among which AI occupies a central role (Piccoli, 2018, p. 76).

Schwab and Davis (2019, p. 35-36) identify three principal reasons for considering this transformation a distinct industrial revolution: i) velocity, as technological change occurs at an exponential rather than linear pace; ii) breadth and depth, since it builds upon the digital revolution and combines multiple technologies that affect economies, businesses, societies, and individuals; and iii) systemic impact, as it transforms entire systems both within and across countries, industries, and institutions.

According to Schwab and Davis (2019, p. 35-36), “[...] we are at the beginning of a revolution that is fundamentally changing the way we live, work, and relate to one another,” and “[...] in its scale, scope, and complexity, the Fourth Industrial Revolution is unlike anything humankind has previously experienced” (Schwab; Davis, 2019).

¹ Existem diversas perspectivas sob as quais é possível o estudo do Direito e Literatura. Martha Nussbaum (2015) acredita que a Literatura pode humanizar os juristas, sendo a aproximação entre Direito e Literatura elementar para a compreensão do estado da arte da democracia. Na mesma senda, para Shecaira (2018, p. 358), “[...] talvez a literatura não faça dos leitores pessoas melhores, mas ela ainda pode fazer dos leitores pessoas mais atentas à complexidade de questões morais que tendem a ser subestimadas”.

² Nesse sentido, é a teoria de Lenio Streck (2012).

³ All direct quotations from the original sources have been translated into English for the purposes of this article.

The expression “Artificial Intelligence” was coined by John McCarthy in 1956. According to Viana and Sekhon (2020, p. 677-678), AI refers to the ability of an algorithm to perform cognitive tasks traditionally associated with human intelligence. In this context, the Brazilian National Council of Justice (CNJ) (2019, p. 8) views AI as a mechanism capable of promoting stability, uniformity, predictability, coherence, and integrity in judicial precedents. The underlying premise is straightforward: whereas a human judge may require hours to examine a case and draft a decision, an algorithm could potentially perform the same task within seconds (Viana; Sekhon, 2020, p. 672).

Dantas and Braz (2022, p. 63) define AI as the capacity of machines to emulate human reasoning. From this perspective, the key concept is the algorithm, understood as an operational framework that stores and processes decision-making possibilities after collecting and interpreting data.

Based on these definitions, AI has increasingly been employed to support decision-making across diverse sectors, including public institutions. Within this context, the judiciary has adopted algorithm-based technologies to optimize procedures, expand data-processing capabilities, and enhance the efficiency of judicial services.

The Brazilian judiciary’s adoption of AI reflects the country’s efforts to adapt to the paradigms of the Fourth Industrial Revolution. This movement has been driven by longstanding challenges within the justice system, including judicial delays and the growing phenomenon of excessive litigation (Theodoro Júnior; Nunes; Bahia, 2016, p. 262).

Statistics published by the CNJ (Brasil, 2026) indicate that, as of February 28, 2026, there were 75,525,447 pending cases before Brazilian courts, illustrating the substantial workload faced by the judiciary. Furthermore, the most recent *Justice in Numbers* Report, released in 2025, noted that “the Judiciary ended 2024 with 80.6 million pending cases awaiting a definitive resolution” (Brasil, 2025, p. 246).

As a result, the Brazilian justice system has frequently been characterized as slow, inefficient, and unpredictable (Wolkart; Becker, 2020, p. 7). To address these challenges and improve efficiency, the judiciary has adopted various measures aimed at reducing case-processing times, including electronic case management systems (Brasil, 2006) and AI-driven technologies.

However, the growing incorporation of algorithmic systems into institutional decision-making has also generated significant debate in contemporary scholarship regarding the risks associated with automated decision-making. In this context, several authors have emphasized that algorithms are not neutral or purely technical instruments but rather sociotechnical structures capable of reproducing the values, choices, and biases embedded in the data and models that underpin them.

In this regard, O’Neil (2020) warns that many big data-driven models function as genuine “weapons of math destruction,” characterized by their opacity and their capacity to generate substantial social consequences. According to the author, such models frequently incorporate human prejudices, errors, and biases, which are subsequently reproduced automatically by algorithmic systems, potentially resulting in unfair or discriminatory outcomes across different social contexts.

Similarly, Silveira (2019) argues that algorithms are components of broader sociotechnical structures composed of databases, mathematical models, and software systems that operationalize automated decisions, playing an increasingly important role in mediating social and institutional relationships. Consequently, algorithmic systems should not be understood merely as technical tools; rather, they possess the capacity to influence behaviors, choices, and decision-making processes across multiple spheres of social life.

Likewise, Empoli (2019) observes that in contemporary data-driven societies algorithms have assumed a central role in organizing informational and political dynamics, with the potential to shape collective behavior and influence social and institutional processes. This reality demonstrates that digital technologies not only enhance information-processing capabilities but also introduce new challenges related to transparency, accountability, and democratic oversight of decisions mediated by automated systems.

Within this broader context of increasing digitalization of social and institutional relations, the Brazilian justice system has progressively implemented digital technologies in its operations with the aim of modernizing procedural management and improving the efficiency of judicial services. One of the earliest milestones in this technological transformation was the adoption of electronic case management systems.

In Brazil, electronic judicial proceedings were formally established through Law No. 11,419 of December 19, 2006, which regulates the digitalization of judicial proceedings and constitutes the principal legal framework governing the use of electronic means in case processing, judicial communications, and the submission of procedural documents in civil, criminal, and labor proceedings at all levels of jurisdiction. The use of electronic proceedings

intensified considerably during the COVID-19 pandemic, accompanying broader societal transformations. It has been estimated that Brazil experienced a technological leap equivalent to 10 years of progress within only 5 months of the pandemic period (Brasil, 2020).

For decades, efforts have been made to address the problem of judicial delay. In this regard, the Fourth Industrial Revolution has introduced new possibilities for reducing procedural inefficiencies, as demonstrated by both the literature and the initiatives already implemented within the Brazilian judiciary through the use of AI technologies.

According to Cueva (2021, p. 82), “the objective must be to improve judicial services through greater speed, cost reduction, transparency, accessibility, and information security.” From this perspective, technology has significant potential to contribute to enabling the judiciary to meet societal expectations by delivering high-quality adjudication while reducing case congestion (Cueva, 2021, p. 82).

In line with these developments, in 2025 the National Council of Justice (CNJ) published the results of a survey conducted among Brazilian courts during 2024. The *AI 2024 Survey* included 92 of the country’s 95 courts and judicial councils, representing a participation rate of 96.8%. The study found that 58 institutions (63%) had developed AI projects in 2024, whereas 34 institutions (37%) had not. Furthermore, 62 institutions reported having AI projects in 2023, compared with 53 institutions in 2022 (Brasil, 2025, p. 15).

Examples of these initiatives include Victor, implemented by the Federal Supreme Court (STF); Project Socrates, developed by the Superior Court of Justice (STJ); and Elis, adopted by the Pernambuco State Court of Justice (TJPE), among numerous others identified in the mapping conducted by Hoch (2022).

Table 1 – AI tools used by the Brazilian judiciary

AI Tool	Court	Purpose
Victor	Federal Supreme Court (STF)	To assess the admissibility of appeals; analyze extraordinary appeals in order to identify connections with general repercussion issues; increase procedural speed; convert images into text within digital proceedings; locate documents (procedural filings and judicial decisions) in the Court’s database; separate and classify procedural documents frequently used by the STF; and identify the most recurrent general repercussion issues before the Court.
Project Socrates	Superior Court of Justice (STJ)	To provide relevant information to reporting justices, facilitating the identification of repetitive litigation and groups of cases involving similar judgments.
Elis	Pernambuco State Court of Justice (TJPE)	To reduce manual and repetitive tasks in tax enforcement proceedings, thereby increasing procedural efficiency and reducing costs and case congestion. The system classifies cases filed through the Electronic Judicial Process System (PJe) regarding registration inconsistencies, jurisdictional issues, and potential statutes of limitations. It also inserts draft rulings into the system and may sign judicial orders when authorized by the judge.
Radar	Minas Gerais State Court of Justice (TJMG)	To improve judicial services by identifying and expediting repetitive cases; detect recurring cases within court databases; group them for collective adjudication based on a leading decision; and enable searches using keywords, filing dates, adjudicative bodies, judges, parties, attorneys, and other criteria required by the court.
Ágil	Minas Gerais State Court of Justice (TJMG)	To monitor the filing of lawsuits throughout the state and identify repetitive litigation.
Poti	Rio Grande do Norte State Court of Justice (TJRN)	To automatically search for and freeze funds in bank accounts; update the amount claimed in tax enforcement proceedings; and transfer blocked funds to official accounts designated in the case.
Jerimum	Rio Grande do Norte State Court of Justice (TJRN)	To classify and label judicial proceedings.

Clara	Rio Grande do Norte State Court of Justice (TJRN)	To read documents, suggest procedural tasks, and recommend decisions, such as terminating enforcement proceedings when a tax debt has already been paid. In such cases, the system inserts a standardized decision into the platform, subject to confirmation by a court official.
Sinapses	Rondônia State Court of Justice (TJRO)	To classify procedural movements; optimize repetitive tasks; increase productivity; improve the technical quality of judicial decisions; reduce case-processing times; and enhance legal certainty and support in drafting judicial acts.
PoC (Proof of Concept)	Rio de Janeiro State Court of Justice (TJRJ)	To test enforcement measures involving BacenJud and RenaJud systems (online attachment of bank funds and restriction of motor vehicles), as well as Infojud consultations with the Federal Revenue Service database to identify assets subject to seizure. The system assists decision-making by selecting cases suitable for such enforcement measures according to predefined criteria.
Hércules	Alagoas State Court of Justice (TJAL)	To group similar cases and enable the automated generation of procedural acts.
Bem-te-vi	Superior Labor Court (TST)	To analyze the timeliness of appeals and collect statistical data, including the number of related cases, processing times, and other procedural indicators.

Source: Adapted from Hoch (2022, p. 67-68).

There is therefore little doubt that AI has become a reality within the Brazilian judiciary and is increasingly being adopted by courts to perform a wide range of functions. Siqueira, Moraes, and Santos (2022, p. 3) note that “more than half of Brazilian courts have some form of artificial intelligence project either in operation or under development,” with these initiatives typically being managed by “teams of court personnel” (Siqueira; Moraes; Santos, 2022, p. 3). According to the authors:

AI has been employed within the justice system to enhance the functionality of Electronic Judicial Process Systems (Projudi, PJe, e-SAJ, E-US, e-JUR, Virtual JEF, PJD, and JURISE-proc), improve the efficiency of case and personnel management, and assist judges in judicial decision-making (Siqueira; Moraes; Santos, 2022, p. 3).

Despite these advances, Brazil still lacks comprehensive legislation specifically regulating the use of AI within the judiciary, beyond the resolutions issued by the CNJ. As Hoch and Engelmann (2023, p. 12) observe:

While no specific legislation currently governs this field, the CNJ has undertaken substantial efforts to promote the digital transformation of the judiciary, particularly through initiatives aimed at increasing procedural efficiency, accelerating case digitalization, expanding electronic proceedings to facilitate digital access to justice, and implementing the Justice 4.0 program. The CNJ has also sought to integrate and connect court systems and standardize operations through the Digital Platform of the Judiciary, established in 2021 pursuant to Resolution No. 335 of 2020. This context reflects the judiciary's growing concern with technological issues and the benefits they may offer to judicial proceedings, legal professionals, and society as a whole.

The authors further argue that, drawing upon recent European regulatory developments⁴, legislative proposals currently under consideration in the Brazilian National Congress may advance more rapidly in order to address the existing regulatory gap concerning AI governance. Such initiatives recognize that AI should function as a tool to assist judges rather than replace them (Hoch; Engelmann, 2023, p. 12). In this regard, they emphasize that “it is a fact that artificial intelligence has increasingly been applied to decision-making processes, creating the need to define the limits and possibilities of such use, particularly within the judiciary” (Hoch; Engelmann, 2023, p. 12).

Accordingly, the central challenge now lies in determining how these technologies should be employed within the Brazilian context, particularly in relation to judicial decision-making, as discussed in the following sections.

⁴ O Regulamento Europeu sobre Inteligência Artificial (IA), qual seja, o Regulamento (UE) 2024/1689 do Parlamento Europeu e do Conselho, que cria regras harmonizadas em matéria de IA e que altera os Regulamentos (CE) n.º 300/2008, (UE) n.º 167/2013, (UE) n.º 168/2013, (UE) n.º 2018/858, (UE) n.º 2018/1139 e (UE) n.º 2019/2144 e as Diretivas n.º 2014/90/UE, (UE) n.º 2016/797 e (UE) n.º 2020/1828, foi promulgado em 13 de junho de 2024 (União Europeia, 2024).

3 Noise In Judicial and Algorithmic Decisions: the Limits of Artificial Intelligence In Judicial Decision-making

The concept of noise was developed by Daniel Kahneman, Olivier Sibony, and Cass R. Sunstein in *Noise: A Flaw in Human Judgment*. According to the authors, noise consists of unwanted variability in judgments, occurring when different individuals assess the same case and reach different conclusions despite being presented with similar information. It is therefore a phenomenon that exposes inconsistencies in the decision-making process (Kahneman; Sibony; Sunstein, 2021).

In the context of the growing use of algorithmic systems in institutional settings, it becomes necessary to reflect on a problem present in both human and automated decisions: decision noise. In practice, AI offers numerous advantages for adjudication and for society. In the legal field, intelligent machines may perform several activities, including legal research, out-of-court dispute resolution, the development of procedural strategies, document review, and the drafting of legal petitions, among others (Borge, 2017, p. 132-140).

However, beyond the advantages associated with the use of AI, the literature has also emphasized risks for society, particularly subjectivity and lack of transparency. These issues are a matter of concern because they are often associated with discriminatory algorithmic decisions, as illustrated by the Correctional Offender Management Profiling for Alternative Sanctions (COMPAS) algorithm, used in the United States (Hoch, 2024, p. 278).

As Bragança and Bragança (2019, p. 69) observe, “the data on which AI will base its analyses are defined by an individual.” It is therefore possible that, in this process, the machine may be directed to reproduce discriminatory patterns held by that individual, even unconsciously (Bragança; Bragança, 2019, p. 69).

There is little doubt that “systems are built upon the preferences of programmers or product purchasers and reflect the opinions and priorities of these subjects” (Bragança; Bragança, 2019, p. 69). This indicates the existence of programmer subjectivity. As Dantas and Braz (2022, p. 65-66) explain:

Although intelligent systems are useful for accelerating procedural progress and optimizing the work time of court personnel by replacing human effort in repetitive activities performed by AI, their operation is not free from flaws. There is a risk of unpredictable behavior caused by configuration or programming defects, which may occur continuously and routinely, as well as incidents associated with biases that must be considered. The reliability of the model or function created depends heavily on the quality of the data used, as well as on the chosen technique and the evolution of the algorithm, since the system adapts and learns as information accumulates.

In this context, contemporary literature has emphasized that algorithmic systems are not neutral or purely technical instruments. Rather, they are sociotechnical structures capable of reproducing values, assumptions, and biases present in the data used for their programming and training. Thus, although AI is often presented as a tool capable of increasing the efficiency and uniformity of institutional decisions, it must be recognized that such systems may also introduce new forms of decisional distortion.

O’Neil (2020) warns that mathematical models used on a large scale may operate as genuine “weapons of math destruction,” characterized by opacity, scale, and the potential to produce significant social harm. According to the author, many big data-based algorithms incorporate human choices and reproduce inequalities embedded in the data that feed them, which may result in unfair or discriminatory decisions when applied to sensitive social contexts.

It is in this sense that the analysis of *Noise: A Flaw in Human Judgment*, by Daniel Kahneman, Olivier Sibony, and Cass R. Sunstein, becomes particularly relevant. The work addresses the noise present in individual and collective decisions across different fields, ranging from medicine to law. It explains why two judges in the same court may impose different sentences on individuals who committed offenses of similar gravity. Noise is therefore defined as unwanted variability in judgments (Kahneman; Sibony; Sunstein, 2021, p. 349).

Conceptually, the authors distinguish between two types of noise: level noise, defined as “variability in the average level of judgments made by different judges,” and pattern noise, understood as “variability in judges’ responses to particular cases” (Kahneman; Sibony; Sunstein, 2021, p. 79).

To understand the factors that influence this variability in judgments, the authors also address the role of cognitive biases in human decision-making. In discussing biases in human judgments, Kahneman, Sibony, and Sunstein (2021, p. 170) identify three types:

[...] substitution biases, which lead individuals to assign incorrect weight to evidence; conclusion biases, which lead individuals to ignore evidence or consider it in a distorted manner; and excessive coherence, which amplifies the effect of initial impressions and reduces the impact of contradictory information.

In this regard, cognitive biases are important elements for understanding the origin of inconsistencies in human judgment, as they influence how evidence is interpreted and assessed in the decision-making process. Accordingly, “when there are large individual differences in biases (different prejudgments) or when the effect of biases depends on context (different triggers), there will be noise” (Kahneman; Sibony; Sunstein, 2021, p. 171-172).

Both bias and noise are sources of judgment error. In this context, the authors state that “even the most enthusiastic proponents of AI agree that algorithms are not, and will not soon become, a universal substitute for human judgment” (Kahneman; Sibony; Sunstein, 2021, p. 325).

Kahneman, Sibony, and Sunstein (2021, p. 325) also examine bias and noise in algorithms, emphasizing that:

Whenever there is bias in training data, there is a significant possibility of creating, intentionally or not, an algorithm that encodes discrimination. It follows that, even if an algorithm does not expressly consider race or gender, it may prove to be as biased as human beings. In fact, in this respect, algorithms may be even worse: because they eliminate noise, they may be more reliably biased than human judges.

Based on these considerations, the key question raised in the work is whether “it is possible to create algorithms that outperform real-world human judges according to a combination of meaningful criteria: accuracy and noise reduction, non-discrimination, and impartiality” (Kahneman; Sibony; Sunstein, 2021, p. 326). From this perspective, it may be admitted that algorithms can be more transparent than humans or even perform better than human beings in certain contexts (Kahneman; Sibony; Sunstein, 2021, p. 326). Nevertheless, they are not perfect and remain subject to error.

The authors themselves conclude that, although algorithms are capable of eliminating noise, they are unlikely to replace human judgment at the final stage of important decisions (Kahneman, Sibony; Sunstein, 2021, p. 326). They therefore identify several legitimate concerns regarding algorithms:

An algorithm may make foolish errors that humans would never make and may therefore lose credibility, even if it prevents many errors made by human beings. It may be biased if written and trained with inadequate data. Its impersonality inspires distrust (Kahneman; Sibony; Sunstein, 2021, p. 362).

From this perspective, it is important to emphasize that there are difficult cases in which the mere subsumption of facts under legal norms is insufficient to resolve the concrete dispute submitted to judicial assessment. This point is supported by Cruz and Souza (2025, p. 10), who state that:

On the one hand, the use of disruptive AI-based technology is already a reality in the Brazilian judiciary, with virtualized access to justice, automation aimed at procedural speed, the creation of unified national case law databases, and their consequent use to assist judicial decision-making. On the other hand, there are additional aspects that must be considered, since the realization of justice often depends on human intervention capable of considering the socioeconomic circumstances of litigants, going beyond mere subsumption and the mechanical application of the law.

These issues concerning algorithms require careful attention. The initial programming that enables the use of data input and output for AI algorithms is known as machine learning (Nunes & Pedron, 2020, p. 135). This feature is particularly relevant because it allows standardized information to be extracted from massive volumes of data and enables systems to learn from such information (Freitas; Freitas, 2020, p. 31). Thus, it can be stated that algorithms “evolve” and change as AI processes information (Freitas; Freitas, 2020, p. 31).

In an ideal world, all identical cases would receive the same judicial decision. However, decisions made by human beings are likely to contain noise, given that noise is a component of human error (Kahneman; Sibony; Sunstein, 2021, p. 10-13). For example, studies have shown that judges were more likely to grant sentence reductions at the beginning of the day or after a food break than immediately before such a break, indicating that “hungry judges are harsher” (Kahneman; Sibony; Sunstein, 2021, p. 22).

Thus, “system noise, that is, unwanted variability in judgments that should ideally be identical, generates widespread injustice, high economic costs, and errors of many kinds” (Kahneman; Sibony; Sunstein, 2021, p.

26). Based on these considerations, and specifically regarding noise in judicial sentencing, the authors note that experiments reveal substantial disparities among judges in recommended sentences for identical cases. They argue that such variability cannot be fair, since a defendant's sentence should not depend on the judge assigned to the case (Kahneman; Sibony; Sunstein, 2021, p. 27).

In this sense, the authors emphasize that criminal sentences should not depend on the judge's mood during a hearing, nor on the weather (Kahneman, Sibony, & Sunstein, 2021, p. 27). In individual decisions, noise consists of unwanted variability in judgments concerning the same problem. This was also evident in the responses of countries around the world to the COVID-19 crisis, in which decisions varied according to several factors (Kahneman, Sibony, & Sunstein, 2021, p. 40-41). According to the authors:

[...] Even though the virus affected the entire world almost simultaneously and in similar ways, responses differed widely. This variation provides clear evidence of noise in decision-making across different countries. But what if the epidemic had affected only one country? In that case, we would not observe any variability. Yet our inability to observe variability does not make the decision any less noisy (Kahneman; Sibony; Sunstein, 2021, p. 41).

Errors may therefore occur in both individual and recurring decisions. In this regard, "judgment can be described as a measurement in which the instrument is the human mind," and errors may arise. According to the authors, "the person making judgments is never perfect" (Kahneman; Sibony; Sunstein, 2021, p. 45). From this perspective, the human mind is understood as imperfect (Kahneman; Sibony; Sunstein, 2021, p. 47).

The authors further explain that "a matter of judgment involves some uncertainty regarding the answer and allows for the possibility that reasonable and competent people may disagree." Therefore, the concept does not encompass questions on which reasonable people would agree, such as the chemical formula of sodium chloride, NaCl (Kahneman; Sibony; Sunstein, 2021, p. 47).

Thus, there is a form of variability that interferes with human judgment and is often perceived, in practice, as a kind of "lottery." This may be summarized as follows: if a case is assigned to judge X, the outcome will be A; if it is assigned to judge Y, the outcome will be B. Judges differ from one another, and this can be observed in judicial decisions. In this regard, the popular Brazilian saying "each head, its own sentence" is particularly fitting. The notion of a sentencing lottery is also addressed in the work under analysis (Kahneman; Sibony; Sunstein, 2021, p. 74-75).

The authors note that "some judges have a reputation for severity, that is, they are harsher than the average judge, whereas others are regarded as compassionate, that is, more lenient than the average judge" (Kahneman; Sibony; Sunstein, 2021, p. 75). Accordingly, in criminal proceedings, identical cases may result in different sentences depending on who adjudicates them. Even variability in the performance of basketball players, who may or may not make a shot, may be understood, by way of example, as a form of noise.

However, this variability is not exclusive to judges in legal proceedings. In addition to athletes, physicians may provide different diagnoses for the same case, and wine experts may taste the same wine twice in a competition and assign it different scores (Kahneman; Sibony; Sunstein, 2021, p. 82).

There is therefore little doubt that human judgment is affected by noise, which, in legal practice, may cause identical cases to receive entirely different decisions. Based on these considerations, different manifestations of noise can be identified in decision-making contexts, both in human decisions and in decisions mediated by algorithmic systems, as summarized in the following table.

Table 2 – Noise: origins, characteristics, and impacts on the judiciary.

Type of noise	Origin	Characteristics	Impact on the Judiciary
Human noise	Subjectivity of the adjudicator	Variations in mood, context, individual perceptions, and personal experiences	Different decisions in similar cases
Algorithmic noise	System data and programming	Biases embedded in training data and programming criteria	Risk of discriminatory or biased decisions
Institutional noise	Structure of the decision-making system	Lack of standardization and different criteria for interpreting or applying legal norms	Legal uncertainty and decisional inequality

Source: Prepared by the authors based on Kahneman, Sibony, and Sunstein (2021), O'Neil (2020), and Silveira (2019).

In this sense, the comparative analysis shows that replacing or supporting human judgment with algorithmic systems does not, by itself, eliminate problems related to decisional error. On the contrary, it may introduce new forms of bias and inconsistency. The authors emphasize that “no one should doubt that it is possible, and even easy, to create an algorithm that is free of noise but somehow also racist, sexist, or biased,” citing the example of the previously mentioned discriminatory COMPAS algorithm (Kahneman; Sibony; Sunstein, 2021, p. 324).

Accordingly, Silveira (2019) explains that algorithms should be understood as sociotechnical structures composed of databases, mathematical models, and software systems that operationalize automated decisions. These systems therefore come to influence the mediation of social and institutional relations and may directly affect decision-making processes and the organization of the public sphere itself.

This means that “algorithms eliminate unwanted variability in judgment, but they may also embed unacceptable bias” (Kahneman; Sibony; Sunstein, 2021, p. 325). In this regard, “the key question is whether we can create algorithms that perform better than real-world human judges according to a combination of criteria that matters: accuracy and noise reduction; non-discrimination and impartiality” (Kahneman; Sibony; Sunstein, 2021, p. 326).

In this context, neither the human judge nor AI is completely free from noise, which significantly affects judicial decisions. Moreover, as Empoli (2019) observes, in contemporary data-driven societies, algorithms have assumed a central role in organizing informational and social dynamics, with the capacity to shape collective behavior and influence decision-making processes on a large scale.

This scenario shows that algorithmic technologies not only expand information-processing capacity but also introduce new challenges related to transparency, accountability, and democratic oversight of decisions mediated by automated systems.

Nevertheless, human judges are required to provide reasons for their decisions on the basis of Article 93, item X, of the Brazilian Federal Constitution and Article 489 of the 2015 Code of Civil Procedure, allowing the parties to understand how the judge reached a given decision. This raises the issue of the lack of transparency that characterizes the algorithmic black box, particularly when algorithms are used in decision-making contexts, as Hoch (2022, p. 282) explains:

Thus, the literature has argued that artificial intelligence is not intended to replace the work of judges but rather to support it, which is consistent with the regulatory proposals currently being developed within the Brazilian and European legislative spheres. In this regard, the greatest risk identified by research participants concerning the use of artificial intelligence tools in the judiciary was algorithmic subjectivity, insofar as it is not possible to describe the step-by-step process through which algorithms reach a particular decision. This is the algorithmic “black box,” to which a lack of transparency is attributed.

Along the same lines, Greco (2020, p. 33-34) states that “algorithms may be opaque black boxes, producing results without being able to explain how and why they occur, thereby generating demands for algorithmic transparency.” In light of these considerations, both human judgment and algorithmic systems are subject to different forms of decisional error, whether through noise arising from the inherent variability of human judgment or through biases and limitations embedded in data and programming criteria.

In this context, the use of AI in the judiciary should not be understood as an automatic solution for eliminating decisional inconsistencies. Rather, it should be regarded as a tool capable of supporting human decision-making, provided that it is used with caution, transparency, and appropriate oversight mechanisms. Reflection on noise is therefore essential for understanding the limits and challenges involved in incorporating AI systems into judicial decision-making.

In view of these two problems, namely machine subjectivity and the lack of transparency, Greco (2020, p. 41) emphasizes that, “under constitutional law and positive law as a whole, the judge would be only the human being, not the robot judge.” For this reason, Nunes and Marques (2018, p. 11) stress the need for solutions:

In this context, it is essential to recognize that, just as it only became possible to develop solutions for the cognitive biases of human judges once legal scholarship and decision-makers acknowledged that we are not naturally impartial, it is also necessary to recognize and expand studies on algorithmic biases so that mechanisms can be designed to address them. The development of machine learning programs and algorithmic transparency are examples of tools that may contribute to this objective, preventing the perpetuation of social inequalities, errors, and other problems of our society through the illusion of complete mathematical impartiality.

Aware of algorithmic biases, Boeing and Rosa (2020) examine the implementation of machine learning tools in the administration of justice. The authors identify three recurring approaches to the use of machine learning in the judiciary: the classifier robot, which assists humans in basic tasks such as locating and classifying cases; the opinion-drafting robot, which condenses relevant information from a case into a single document that may be used in concrete decisions; and, finally, the judging robot, which would represent a further step, “since its outputs are considered binding and the human component is completely removed from the decision-making process, becoming merely a reviewing instance” (Boeing; Rosa, 2020, p. 109).

In this scenario, the authors explain that “collaborative work between machines and humans is the most successful, technologically feasible, and, above all, democratic approach” (Boeing; Rosa, 2020, p. 109-110). In this respect, it should be emphasized that the use of technologies in the judiciary raises questions concerning responsibility for decisions made by automated systems. As Schmidt et al. (2025, p. 1425) state, “in cases in which automation is responsible for a decision, doubts arise as to who should be held accountable if an error or harm occurs to the parties involved.” However, “the debate on the legal responsibility of automated systems is still in its early stages, and current legislation does not provide a clear answer to this question” (Schmidt et al., 2025, p. 1425).

Regarding the risks associated with algorithmic decision-making and possible means of prevention, Rossetti (2025, p. 19) explains that:

Decision-making algorithms that replace or support judicial decisions entail risks such as difficulties in delegating decisions, the rigidification of case law, anchoring in the alleged scientific nature of algorithmic decisions, and difficulty in explaining the reasons for decisions and thereby ensuring the principle of adversarial proceedings. To prevent these risks, constitutional fundamental rights must be respected in the use of AI algorithms in the judiciary in order to ensure legal certainty in judicial decision-making, whether algorithms are used to support judicial decisions or to render fully automated judicial decisions.

Similarly, Siqueira, Morais, and Santos (2022, p. 3) highlight the elements that must be observed in algorithmic judicial decision-making:

The application of AI tools to judicial decision-making must be guided by constitutional filtering, encompassing the principles of due process of law, access to justice, adversarial proceedings, and the duty to provide reasons for judicial decisions. Artificial intelligence tools must be compatible with fundamental rights and must also include mechanisms for correction, supervision, and control, so that users may trust their applicability.

There is therefore no doubt that judicial decisions supported by AI tools require oversight and, above all, respect for fundamental rights, especially the duty to provide reasons for judicial decisions. In this regard, Alencar, Novelli, and Pereira (2025, p. 303) argue that “the incorporation of AI into the judiciary is not free from challenges; ethical issues and the need for appropriate regulation are essential to ensure that the technology is used responsibly and in a balanced manner.” They further emphasize that “it is crucial that the use of AI be understood as a complement to human activity, not as its substitute.” According to the authors:

[...] by adopting AI as a tool to support judicial decision-making, there is concrete potential to transform the experience of litigants, making it faster and less bureaucratic. This transformation, however, must be accompanied by a profound reflection on the role of technology in modern society, ensuring that innovation produces real and tangible benefits, especially for the most vulnerable individuals, who often face barriers in access to justice (Alencar; Novelli; Pereira, 2025, p. 320).

Thus, the discussion regarding the use of AI in judicial decision-making cannot be reduced to the idea of replacing human decision-making with automated systems. Rather, it must critically consider the limits, risks, and new forms of noise that may emerge from algorithmic logic itself.

4 Conclusion

The incorporation of AI technologies into the Brazilian judiciary represents one of the most significant transformations associated with the Fourth Industrial Revolution. In a context marked by increasing litigation and structural pressures on the judicial system, algorithmic tools have been presented as mechanisms capable of

enhancing efficiency, accelerating case processing, and expanding information-processing capacity within judicial administration. However, as demonstrated throughout this study, the adoption of these technologies in judicial decision-making is not free from significant challenges and risks.

Based on the analysis of *Noise: A Flaw in Human Judgment* by Daniel Kahneman, Olivier Sibony, and Cass R. Sunstein, it was possible to understand that noise constitutes an inherent element of human judgment. It refers to unwanted variability in decisions involving similar cases, which may generate decisional inconsistencies, legal uncertainty, and unequal application of the law. Within the judicial sphere, this phenomenon becomes evident when different judges reach different conclusions in legally similar situations, revealing the influence of subjective and contextual factors on the decision-making process.

Against this backdrop, it has been argued that the use of AI systems could contribute to reducing such inconsistencies, given that algorithms are capable of analyzing large volumes of data and applying decision criteria in a more uniform manner. Nevertheless, the critical analysis undertaken in this study demonstrates that algorithmic systems are also subject to important limitations. As highlighted in the literature, algorithms are not neutral tools; rather, they reflect human choices embedded in data selection, programming criteria, and the operational architecture of computational models.

Accordingly, although algorithms may reduce certain forms of noise present in human decision-making, they may also reproduce or amplify biases contained in the data on which they are trained. Moreover, they introduce new concerns related to the opacity of automated systems. The so-called algorithmic “black box” makes it difficult to understand the criteria underlying particular decisions, potentially compromising fundamental values of the Democratic Rule of Law, including transparency, institutional accountability, and the possibility of scrutinizing judicial decisions.

Within the Brazilian legal framework, these concerns become even more significant in light of the constitutional requirement that judicial decisions be reasoned, as established in Article 93, item X, of the Federal Constitution and Article 489 of the Brazilian Code of Civil Procedure. The duty to provide reasons for judicial decisions is a fundamental element in ensuring the legitimacy of judicial activity and enabling democratic oversight of judicial action. Consequently, any AI systems employed in judicial decision-making must be designed and implemented in a manner that preserves these foundational principles of due process and adjudication.

In view of these considerations, it may be concluded that AI should not be understood as a substitute for human judgment but rather as a tool capable of supporting the decision-making process. When used responsibly, transparently, and under appropriate supervision, AI may improve case management, assist in the analysis of information, and enhance the overall efficiency of the judicial system. Nevertheless, its application in judicial decision-making requires caution, the development of robust mechanisms of algorithmic governance, and ongoing critical reflection regarding the limits and risks associated with decision automation.

The concept of noise therefore emerges as a central analytical category for understanding both the potential benefits and the limitations of AI within the judiciary. The comparative examination of noise in human decisions and biases associated with algorithmic systems demonstrates that the pursuit of more consistent, transparent, and equitable judicial outcomes does not depend exclusively on replacing human judgment with automated systems. Rather, it requires the development of institutional models capable of integrating technological innovation, legal accountability, and democratic oversight in the exercise of judicial functions.

The analysis further demonstrates that the incorporation of AI systems into the judiciary does not automatically eliminate decisional inconsistencies. Instead, it often shifts the problem toward new forms of algorithmic bias and opacity, thereby creating the need for effective institutional mechanisms of control and technological governance.

In this context, the development of algorithmic governance frameworks and regulatory instruments capable of ensuring transparency, accountability, and democratic oversight of AI systems used within the judiciary becomes particularly important. The construction of such normative and institutional safeguards constitutes a fundamental step toward ensuring that the incorporation of digital technologies into judicial activity remains fully compatible with the principles of the Democratic Rule of Law.

References

ALENCAR, Alisson; NOVELLI, José Carlos; PEREIRA, Luiz Carlos. A inteligência artificial como instrumento de apoio à decisão judicial: transformações na prestação jurisdicional. **Revista Direitos Sociais e Políticas Públicas (UNIFAFIBE)**, [s.l.], v. 13, n. 1, p. 303-324, 2025.

BOEING, Daniel Henrique Arruda; ROSA, Alexandre Moraes da. **Ensinando um robô a julgar**: pragmática, discricionariedade, heurísticas e vieses no uso de aprendizado de máquina no judiciário. Florianópolis: Emais Academia, 2020.

BORGE, Iván Mateo. La robótica y la inteligencia artificial en la prestación de servicios jurídicos. *In*: NAVARRO, Susana Navas. **Inteligencia artificial, Tecnología Derecho**. Valencia: Tirant lo Blanch, 2017.

BRAGANÇA, Fernanda; BRAGANÇA, Laurinda Fátima. Revolução 4.0 no poder judiciário: levantamento do uso de inteligência artificial nos tribunais brasileiros. **Revista da Seção Judiciária do Rio de Janeiro**, [s.l.], v. 23, n. 46, p. 65-76, 2019. DOI: <https://doi.org/10.30749/2177-8337.v23n46p65-76>.

BRASIL. Conselho Nacional de Justiça. **Estatísticas do Poder Judiciário**. Brasília, DF: CNJ, 2022. Disponível em: <https://justica-em-numeros.cnj.jus.br/painel-estatisticas/>. Acesso em: 28 mar. 2026.

BRASIL. Conselho Nacional de Justiça. **Inteligência artificial no Poder Judiciário brasileiro**. Coordenação: José Antônio Dias Toffoli; Bráulio Gabriel Gusmão. Brasília: CNJ, 2019. p. 8. Disponível em: https://www.cnj.jus.br/wp-content/uploads/2020/05/Inteligencia_artificial_no_poder_judiciario_brasileiro_2019-11-22.pdf. Acesso em: 28 mar. 2026.

BRASIL. Conselho Nacional de Justiça. **Justiça em números 2025**. Brasília: CNJ, 2025. Disponível em: <https://www.cnj.jus.br/wp-content/uploads/2025/11/justica-em-numeros-2025.pdf>. Acesso em: 28 mar. 2026.

BRASIL. Conselho Nacional de Justiça. **Pandemia leva o Judiciário a acelerar adaptação tecnológica**. Brasília: CNJ, 2020. Disponível em: <https://www.cnj.jus.br/pandemia-leva-judiciario-a-acelerar-adaptacaotecnologica/>. Acesso em: 28 mar. 2026.

BRASIL. Conselho Nacional de Justiça. **Pesquisa Inteligência Artificial no Judiciário 2024**. Brasília: CNJ, 2025. Disponível em: <https://www.cnj.jus.br/wp-content/uploads/2025/09/relatorio-ia-2024-resumo-executivo-set2025.pdf>. Acesso em: 28 mar. 2026.

BRASIL. **Lei nº 11.419, de 19 de dezembro de 2006**. Dispõe sobre a informatização do processo judicial; altera a Lei nº 5.869, de 11 de janeiro de 1973 – Código de Processo Civil; e dá outras providências. Brasília, DF: Presidência da República, 2006. Disponível em: http://www.planalto.gov.br/ccivil_03/_ato2004-2006/2006/lei/l11419.htm. Acesso em: 28 mar. 2026.

CRUZ, Paula Beatriz Lima; SOUZA, Patrícia Verônica Nunes Carvalho Sobral de. A inteligência artificial no Poder Judiciário brasileiro: ameaças do robô-juiz aos direitos individuais e coletivos. **Revista de Estudos Interdisciplinares**, [s. l.], v. 7, n. 1, p. 1-20, 2025. DOI: <https://doi.org/10.56579/rei.v7i1.1354>.

CUEVA, Ricardo Villas Bôas. Inteligência Artificial no Judiciário. *In*: NUNES, Dierle; LUCON, Paulo Henrique dos Santos; WOLKART, Erick Navarro. **Inteligência Artificial e Direito Processual: Os Impactos da Virada Tecnológica no Direito processual**. Salvador: Juspodivm, 2021.

EMPOLI, Giuliano da. **Os engenheiros do caos**: como as fake news, as teorias da conspiração e os algoritmos estão sendo utilizados para disseminar ódio, medo e influenciar eleições. São Paulo: Vestígio, 2019.

DANTAS, Frederico Widson da Silva; BRAZ, Graciéla Farias. Inteligência artificial no Poder Judiciário brasileiro. **Revista Jurídica Portucalense**, v. 2, n. esp., p. 51-76, 2022.

FREITAS, Juarez; FREITAS, Thomas Bellini. **Direito e inteligência artificial**: em defesa do humano. Belo Horizonte: Fórum, 2020.

GRECO, Luís. **Poder de julgar sem responsabilidade de julgador**: a impossibilidade jurídica do juiz-robô. São Paulo: Marcial Pons, 2020.

HOCH, Patrícia Adriani. **Inteligência artificial e juiz-robô**: os algoritmos na tomada de decisões pelo poder judiciário. Cachoeirinha: Fi, 2024.

HOCH, Patrícia Adriani. **Inteligência artificial e juiz-robô**: os algoritmos na tomada de decisões pelo poder judiciário. Tese (Doutorado em Direito). Universidade do Vale do Rio dos Sinos, São Leopoldo, 2022.

HOCH, Patrícia Adriani; ENGELMANN, Wilson. Regulação da Inteligência Artificial no Judiciário Brasileiro e Europeu. **Pensar-Revista de Ciências Jurídicas**, [s.l.], v. 28, n. 4, p. 1-18, 2023. DOI: <https://doi.org/10.5020/2317-2150.2023.14263>.

KAHNEMAN, Daniel; SIBONY, Oliver; SUNSTEIN, Cass. **Ruído**: uma falha no julgamento humano. 1. ed. Rio de Janeiro: Objetiva, 2021.

NUNES, Dierle; LUD, Natanael; PEDRON, Flávio Quinaud. **Desconfiando da imparcialidade dos sujeitos processuais**: um estudo sobre os vieses cognitivos, a mitigação de seus efeitos e o debasing. 2. ed. Salvador: JusPodivm, 2020.

NUNES, Dierle José Coelho; MARQUES, Ana Luiza Pinto Coelho. Inteligência artificial e direito processual: vieses algorítmicos e os riscos de atribuição de função decisória às máquinas. **Revista de Processo**, São Paulo, v. 43, n. 285, p. 421-447, 2018.

NUSSBAUM, Martha. **Sem fins lucrativos**: porque a democracia precisa de humanidades. São Paulo: WMF Martins Fontes, 2015.

O'NEIL, Cathy. **Algoritmos de destruição em massa**: como o big data aumenta a desigualdade e ameaça à democracia. Santo André: Editora Rua do Sabão, 2020.

PICCOLI, Ademir Milton. **Judiciário Exponencial**: sete premissas para acelerar a inovação e o processo de transformação do ecossistema da justiça. São Paulo: Vidaria Livros, 2018.

ROSSETTI, Regina. Riscos do uso de algoritmos de Inteligência Artificial no processo de tomada de decisão judicial. **Revista da Faculdade de Direito da UERJ-RFD**, [s.l.], n. 44, 2025. DOI: <https://doi.org/10.12957/rfd.2025.91016>.

SILVEIRA, Sergio Amadeu da. **Democracia e os códigos invisíveis**: como os algoritmos estão modulando comportamentos e escolhas políticas. São Paulo: Edições Sesc, 2019.

SIQUEIRA, Dirceu Pereira; MORAIS, Fausto Santos de; SANTOS, Marcel Ferreira dos. Inteligência artificial e jurisdição: dever analítico de fundamentação e os limites da substituição dos humanos por algoritmos no campo da tomada de decisão judicial. **Sequência: estudos jurídicos e políticos**, Florianópolis, v. 43, n. 91, p. 1-34, 2022. DOI: <https://doi.org/10.5007/2177-7055.2022.e90662>.

SCHMIDT, Eduardo Moreira *et al.* Os impactos do uso da inteligência artificial pelo poder judiciário: análise das publicações dos últimos anos. **Revista Ibero-Americana de Humanidades, Ciências e Educação**, [s.l.], v. 11, n. 3, p. 1419-1428, 2025. DOI: <https://doi.org/10.51891/rea.v11i3.18445>.

SCHWAB, Klaus. **A Quarta Revolução Industrial**. São Paulo: Edipro, 2016.

SCHWAB, Klaus; DAVIS, Nicholas. **Aplicando a quarta revolução industrial**. São Paulo: EDIPRO, 2019.

SHECARIA, Fábio Perin. A importância da literatura para juristas (sem exageros). **ANAMORPHOSIS - Revista Internacional de Direito e Literatura**, Porto Alegre, v.4, p. 357-377, 2018. DOI: <https://doi.org/10.21119/anamps.42.357-377>.

STRECK, Lenio Luiz. Na democracia, decisão não é escolha: os perigos do solipsismo judicial – o velho realismo e outras falas. In: STRECK, Lenio Luiz; ROCHA, Leonel Severo; ENGELMANN, Wilson (org.). **Constituição, sistemas sociais e hermenêutica**: anuário do programa de Pós-Graduação em Direito da UNISINOS: mestrado e doutorado. Porto Alegre: Livraria do Advogado; São Leopoldo: UNISINOS, 2012.

THEODORO JÚNIOR, Humberto; NUNES, Dierle; BAHIA, Alexandre Melo Franco. **Novo CPC**: Fundamentos e Sistematização. Rio de Janeiro: Forense, 2016.

UNIÃO EUROPEIA. Parlamento Europeu; Conselho da União Europeia. **Regulamento (UE) 2024/1689, de 13 de junho de 2024**. Estabelece regras harmonizadas em matéria de inteligência artificial (Lei da Inteligência Artificial) e dá outras providências. Jornal Oficial da União Europeia, L, 12 jul. 2024. Disponível em: https://eur-lex.europa.eu/legal-content/PT/TXT/?uri=OJ:L_202401689. Acesso em: 17 abr. 2026.

VIANA, Antônio Aurélio de Souza; SEKHON, Patrícia. Inteligência artificial e o E-Hércules: a decisão algorítmica à luz da teoria dworkiniana do direito como integridade. In: NUNES, Dierle; LUCON, Paulo Henrique dos Santos; WOLKART, Enrique Navarro (coord.). **Inteligência artificial e Direito Processual**: os impactos da virada tecnológica no direito processual. Salvador: JusPodivm, 2020.

WOLKART, Erik Navarro; BECKER, Daniel. Tecnologia e precedentes: do portão de Kafka ao panóptico digital pelas mãos da jurimetria. In: ALVES, Isabella Fonseca (org.). **Inteligência artificial e processo**. 1. ed. 3. reimp. Belo Horizonte: D'Plácido, 2020.