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ANALYSIS OF THE USE OF ARTIFICIAL INTELLIGENCE IN THE JUDICIAL SYSTEM IN THE CONTEXT OF RULE OF LAW

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ABSTRACT

The use of artificial intelligence (AI) in the judicial system is becoming more appealing due to benefits automated litigation could offer. These benefits, however, pose a multitude of problems regarding the importance of upholding the rule of law principle, which also concerns fundamental human rights as the former is enshrined in the latter. This study aims to ascertain the significance of the rule of law and fundamental rights for the progression of effective AI usage within the judicial system. Specifically, it investigates the extent to which elements of the rule of law such as transparency and equality, and rights such as freedom from discrimination and right to a fair trial, challenge innovation towards adoption of AI in the judicial system. The paper analyses the impact automated legal processes could have on human rights and the rule of law, with a view to answering the primary research question: How does the importance of maintaining the rule of law and fundamental human rights impede the development and progression of artificial intelligence in the judicial system?

A thematic analysis of literature and case law was conducted to explore the hypothesis that the recognition of human rights and the concept of the rule of law serve as predominant impediments to the advancement of AI within the judicial system. This paper offers the contention that despite positive steps towards introducing artificially intelligent judges, as technology currently stands, removing humans completely from decision-making processes is inconceivable for the foreseeable future.

Keywords: Artificial Intelligence, Rule of Law, Human Rights, Judicial System

INTRODUCTION

The use of artificial intelligence within the judicial system is an increasingly appealing substitute for traditional methods of case adjudication and contract revision, *inter alia.* Using artificial intelligence (AI) for such matters secures an array of advantages for judges, litigators and general development for the legal system; for instance, due diligence reviews are often very time consuming tasks for which AI can offer significant relief. Additionally, AI offers research development benefits and the possibility of predicting outcomes and resolutions of cases. Benefits such as the system's ability to effectively retrieve information are not only especially time-efficient but the systematisation of AI is also theoretically logical and coherent[1].

The use of AI as a predictive analysis tool may be used in the judicial system to carry out risk assessment on an offender who may be eligible for parole. The AI can form conclusions based on statistical data and provide a determination over an individual's likelihood of recidivism.[2] An example of such a system, which will be addressed in this paper, is the United States' 'Correctional Offender Management Profiling for Alternative Sanctions' software (COMPAS).

In theory, the use of algorithms to calculate risk by assessing variables is an extremely logical solution; however, in practice it faces an array of barriers. Despite the apparent benefits, the use of AI in the judicial system poses a significant amount of problems in light of the rule of law and fundamental rights, which seemingly hinders its development and effective use within the judicial system as it stands at present.

Using AI brings into question the observance of the rule of law principle, which strives to uphold the equal and uniform application of the law to all individuals subject to it. A technology-based system assigning a judgement based on automated data processing is of stark contrast to a quintessential judicial proceeding in which parties are seated before a judge, who retains the ability to hear the parties' respective cases. Further, as the rule of law and fundamental human rights are interrelated, wherein both strive to ensure at least minimum protection against arbitrary authority, this method of adjudication brings into question the fundamental right to a fair trial[3], a right granted by multiple legal instruments, in line with the rule of law. Judges typically make

[1] Buchanan, B.G. et al. (1970). Some Speculation About Artificial Intelligence and Legal Reasoning. *Stanford Law Review,* 23(1), 40-62.
[2] Zalnieriute, M. et al.(2019). The Rule of Law and Automation of Government Decision-Making. *The Modern Law Review,* 82(3), 11.
[3] See Wisconsin v. Loomis, *infra* note 117.

decisions on recidivism risk on a case-by-case basis, grounded on documents and formal court procedure. In order for an AI system to be able to evaluate and cross-examine personal characteristics and circumstantial factors, a substantial amount of an individual's information is utilised. This raises a number of questions regarding privacy and the legitimate possibility of discrimination, bringing to light a number of human rights considerations as well as threatening the relevance of the rule of law. This thesis, however, is more concerned with rights relating to justice and protection from arbitrary practices, rather than data security matters.

On the contrary, if AI systems are used to facilitate judicial processes, they can be of significant value to judges and decision-makers. Automation affords the possibility of uniting courtroom practice and legal professionals under the same system, which could ultimately achieve greater stability for the legal system *in toto*[4]; however, establishing such a system is not straightforward. The possible benefits come at an influential cost and present a multitude of problems; thus, the developments regarding the use of such automation have only been made to a certain extent as there are still unanswered legal and ethical questions, which must be addressed before relying on automated decisions. Consequently, is the arrival to the question: How does the importance of maintaining the rule of law and fundamental human rights impede the development and progression of artificial intelligence in the judicial system?. Notwithstanding the positive innovation that AI has seen as regards its introduction into legal practices, the fundamental importance of ensuring the respect of human rights and the concept of the rule of law comprise predominant obstacles for the advancement of AI within the judicial system. The thesis is centred around answering the question with the aim of ascertaining the significance of fundamental human rights and the rule of law in terms of the progression of effective AI usage in the legal sector, paying particular attention to its use within the judicial system.

In order to arrive at a conclusion which satisfies the research question, the thesis utilises qualitative information derived from secondary sources. As the work is analytical and descriptive, it relies heavily on the review and discussion of literature, legislation and case law on the subject matter. The thesis is based on thematic content and textual cross-analysis to identify common themes and discrepancies prevalent within the field. Relevant case law is addressed, complementary to the reviewed literature, to further demonstrate the topicality of the

[4] Buchanan et al. (1970). Some Speculation About Artificial Intelligence and Legal Reasoning. *Stanford Law Review,* 23(1), 61.

subject and its prominence in the judicial system. The literature and studies were selected to produce a comprehensive review of the current uses of AI within the judicial system to analyse the threats to fundamental rights, with reference to Europe and the United States (US). The purpose of this paper is not to compare Europe and the USA's systems to one another, but rather to pool examples of use of automation in the judicial system from two AI-innovative regions. The origin of AI as well as literature dating back to its earliest development stages is discussed in order to convey the significance of AI and the intrinsic value it offers the legal discipline. The primary focus of this research, however, concerns the risks associated with the use of AI in the judicial system in the context of the rule of law. The purpose of this work is not to dissect the array of possible threats to all areas of law but to critically analyse the significant impact automated legal processes could have on the legitimacy of the rule of law and human rights.

Before the primary research question can be answered, several other questions must be considered in each successive chapter. The first chapter focuses on the history, reasons for which AI was introduced to the legal sector, the main benefits, and an introduction to the complications, responding to the question, what was the reason for introducing artificial intelligence into the judicial system and what are the subsequent benefits?. The second chapter reviews the rule of law, answering the question, what are the implications of using artificial intelligence as regards the legitimacy of the rule of law?. This chapter addresses issues of legal certainty, analysing the relationship between AI and the rule of law, and underlining the threat AI poses to the principle's legitimacy. The third chapter examines the question, to what extent can artificial intelligence, as it currently stands, be used within the judicial system without significantly infringing fundamental human rights?. This chapter considers Europe and the USA's innovation towards the use of AI within their judicial systems and evaluates their observation of corresponding rights, addressing anti-discrimination obligations and fair trial rights. Finally, the conclusion of the thesis will follow these chapters and provide a final synthesis, consequently answering the primary research question.

1. ARTIFICIAL INTELLIGENCE WITHIN THE LEGAL SECTOR

Artificial intelligence, although still a largely unexplored field, is not a modern phenomenon as such. Despite its ongoing accession into multiple fields for a number of decades, it is still considered a novel instrument largely due to the constant, fast-paced development of technology, which causes its growth to face numerous setbacks. As regards its use in the judicial system, it is not only technological considerations that obstruct its development, but also its arguable conformity with the law. The question therefore arises - what was the reason for introducing artificial intelligence into the judicial system and what are the subsequent benefits? Despite its impediments, the use of artificial intelligence and its potential benefits offer attractive opportunities for lawyers and judges alike, therefore supporting its adoption into legal systems. Seemingly, the various hindrances that the development of AI has faced throughout its existence have not precluded its introduction into the field of law. There are a number of advantages associated with using AI for day-to-day legal tasks as well as in the justice system, which will be explored in the following sub-chapters, which detail the development of AI and its gradual evolution, paying particular attention to its introduction into the judicial system.

1.1. Brief history of artificial intelligence

In order to examine the use of AI within the judicial system and truly understand its emergence, it is first necessary to address its history and its fluctuating timeline consisting of positive progression as well as lapses in innovation. The beginning of AI can be traced back to the first stages of technology innovation; the second world war initiated the desire to align machine function with human thought.[5] In the 1950's the technology behind AI was developed, although the idea of AI per se was not yet conceptualised by the scientists behind the innovation.[6] The significance lies in the fact that computers had the ability to execute the programmed input, thereby planting the notion that machines could potentially be engineered in such a way that

[5] *History of Artificial Intelligence.* Council of Europe Portal.
[6] The technology was developed by Alan Turing and John Von Neumann and was based on scientific and mathematical knowledge. *Ibid.*

would allow them to execute thought the same way humans do.[7] Succeeding this, was the development of The Logic Theorist, a programme intended to employ problem solving skills similar to that of a human. This technology was presented at a conference in 1956, which had been intended to unite researchers to generate solutions and encourage progress; the conference did not yield significant results but it initiated what would soon become a significant topical debate.[8] The progress following this conference was slow, however, the concept of AI was becoming more widespread, algorithms were better understood, and technology became more affordable. Expert systems were developed, which were intended to reflect human thought processes and therefore make decisions similar to those of a human expert.[9] Experts would input information on how to react to certain situations by entering the relevant data[10], and the machine would essentially learn the responses and relay the data for various purposes[11]. This system could also be used to deliver expert information to inexperienced learners[12], similar to the way a teacher would. This system highlights the true value AI could offer the legal sector; the fact that an automated machine could function as a legal assistant and could essentially teach inexperienced junior lawyers, is a prime example of the benefits that could be reaped from the use of AI. After a period of inconsistent progress, innovative advances continued in 1997 when the AI chess-playing system Deep Blue beat the world chess champion by utilising algorithmic data based on the rules of chess.[13] Similarly, almost two decades later, a series of Google's AI, specialising in "Go games", beat not only the human European and world champions[14], but also beat upgraded versions of itself.[15] This was a significant breakthrough due to the complexity of the game in comparison to chess; in chess, there is a possibility to code for every possible move but this not the case with Go, whereby the computer had to deduce strategies based on cross-referencing of available data.[16] Additionally, a more recent version has since taught itself to

[7] Rockwell, A. (2017). *The History of Artificial Intelligence.*
[8] *Ibid.*
[9] Susskind, R.E. (1986). Expert Systems In Law: A Jurisprudential Approach To Artificial Intelligence And Legal Reasoning. *The Modern Law Review,* 49(2),17; Rockwell (2017), *supra nota* 7.
[10] Rockwell, *supra nota* 7.
[11] One such example from the medical field is the diagnosis of blood diseases by a system, which uses data entered to identify diseases present in the blood. See Council of Europe Portal, *supra nota* 5.
[12] Rockwell, *supra nota* 7.
[13] *Ibid.*
[14] *Ibid.*
[15] Ouellette, J. (2018). *Move over AlphaGo: AlphaZero taught itself to play three different games*.
[16] Council of Europe Portal, *supra nota* 5.

play three different games without human intervention; however, a basis, which in this case is a set of rules, is still required.[17]

This example is illustrative of the way in which AI systems function on datasets and lays the groundwork for the two types of automation that will be explored in the following sub-chapter. It is important to note that the aforementioned software trained itself on a set of data fed into it by a human; thus, the limitation remains that there is an inability to form independent interpretations, and there is an absence of explanation of the "thought process".[18] This poses a threat to the fundamental principles guiding the rule of law, which will be explored in more detail in Chapter 2. Furthermore, due to the AI's limited autonomy, it remains vulnerable to exploitation and arbitrary use and, most importantly, becomes controversial for use in law. It is no longer simply a question of having human experts codify knowledge into an automated system - it is now a matter of whether AI can contribute its own thought to unique, unprecedented situations.

In short, AI has been gradually evolving for decades, and has developed the ability to cultivate its own knowledge but is still far from independent thought, making it a potential threat to the complexity and impartiality of the judicial system.

1.2. Introduction of artificial intelligence to the legal field

Despite the concerns that accompany the use of artificial intelligence in the legal sector, there are an array of benefits offered by AI, making it an appealing addition to the legal system and which lead to its initial introduction into the field. In order to contextualise the advantages and disadvantages resulting from the use of automation in the legal setting, it is necessary to understand at least the basic technical function of the system. Literature dating back to the 70's and 80's began detailing conceptions of knowledge-based systems, running functions that are today known as AI systems and are implemented in automated decision making.[19]

[17] Ouelette, *supra nota* 15.
[18] Susskind, *supra nota* 9, 176.
[19] See Buchanan et al. *supra nota* 4; Susskind, *Ibid*.

1.2.1. Types of automation

There are two types of automated decision making systems composed of a number of technologies; however, to stay within the scope of this paper, it is necessary only to address the essential elements of the system technologies. The first type of automation is in the form of an expert system, which runs on human written pre-programmed rules.[20] Law expert systems contain programs written with legal experts' assistance, whereby the rules are coded and subsequently used in the automation of decision-making, relying on the available input data.[21] These systems typically contain a set of questions for the user, in order for the system to process on a step-by-step basis, utilising the input data to determine whether its pre-programmed criteria correlate with the user's input and accordingly determine the user's eligibility for a certain request.[22] The system will then produce an outcome; for instance, advice or dispute resolution, and the user can then decide how to utilise the output.[23] It is important to note that expert systems cannot operate beyond the criterion programmed and are thus limited in their reasoning capabilities.[24] Moreover, if the programmed rules become outdated, this essentially renders the system redundant, as it cannot be relied upon to make accurate predictive decisions until it is updated, presumably by a human.[25]

The second type of automation is "machine learning" algorithms, whereby the system learns based on a set of "training data".[26] The "learning" process requires the system to have data that is already labeled for the purpose of indicating correlation between the data and the user input in order to derive the rules. The system then creates an algorithm, based on patterns and relationships inherent in the historic data, to formulate predictions.[27] The complexity of the system's approach varies as it may learn straightforward rules, such as that the applicability of a circumstance is dependent on the existence of certain factors and the absence of others; or it may learn a rule involving a sequence of untenable steps.[28]

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[20] Zalnieriute et al., *supra nota* 2, 3.
[21] *Ibid*.,7; Susskind, *supra nota* 9, 176.
[22] For reference, see Zalnieriute et al.'s illustrative comparison to systems used to determine an applicant's eligibility for welfare benefits. *Ibid*, 7.
[23] Reiling A.D. (2020). Courts and Artificial Intelligence. *International Journal For Court Administration,* 11 (2), 4.
[24] *Ibid.*, 9.
[25] *Ibid.*
[26] Hacker, P. (2018). Teaching Fairness to Artificial Intelligence: Existing and Novel Strategies Agaisnt Algorithmic Discrimination Under EU Law. *Common Market Law Review,* 5.
[27] Zalnieriute, *supra nota* 2, 3,8.
[28] *Ibid*., 9.

Both types of automation have the potential to offer the legal sector an array of benefits, offering support and relief in complex matters; however, both automated systems have their own set of drawbacks, hindering their successful accession to the judicial system. These advantages and disadvantages will be discussed in the following subsections.

1.2.2. Benefits associated with artificial intelligence in law

The benefits associated with AI's use in law have been subject to debate since their early development stages. Buchanan et al. discuss in their article some of the earliest expectations of using AI in the legal sector[29], which today may seem somewhat radical, due to the ambitious nature of them, and the impediments faced by AI usage in legal matters. The idea that developing such programs could invoke thought in lawyers, regarding the way they problem solve, is compelling; inputting data into a computer system requires consideration for problem-solving techniques, thus has the potential to make lawyers more aware of their own reasoning and promote a better understanding of their decisions.[30] This idea is not unreasonable, however, it has yet to manifest as one of the issues in AI systems today includes the lack of transparency in automated decisions because neither the system, and sometimes nor the lawyer, can sufficiently justify the output.[31] On the contrary, using AI has the potential to improve transparency, by facilitating public access to systems, whereby institutional adherence to the law can be monitored, and rights and administrative decisions can be accessible to citizens.[32] Similarly, another benefit offered by AI is its potential to improve access to justice, which is a major issue in certain regions, such as the US.[33] Further, it could promote equality before the law by removing arbitrariness and treating all individuals in similar circumstances uniformly, by removing partiality from judgements.[34] Optimising these benefits, however, require a series of complex, controversial adjustments which will be discussed in Chapter 2.

Arguably the most reasonable benefit offered by AI, is the efficiency of case and due diligence reviews as well as the quick categorisation of data and reduction of complexity[35], brought by

[29] Buchanan et al., *supra nota* 1.
[30] *Ibid.* 41, 61.
[31] *Ibid.*, 9.
[32] Zalnieriute et al., *supra nota* 2, 5.
[33] Simshaw, D. (2018). Ethical Issues in Robo-Lawyering: The Need for Guidance on Developing and Using Artificial Intelligence in the Practice of Law. *Hastings Law Journal*, 70(1), 179.
[34] Zalnieriute et al., *supra nota* 2, 5.
[35] Buchanan et al., *supra nota* 1, 57.

electronic discovery.[36] Electronic discovery is the process whereby the computer searches a database for keywords relevant to a given case, thus retrieving cases at a faster pace than a human researcher.[37] This is further enhanced by algorithms that can predict the relevance of a document to a particular case.[38] Assisting in the retrieval of relevant information in order to build a case, aiding research, as well as quick decision-making, makes AI an appealing asset for the legal sector where lengthy documents are often the main source of information.

Another essential benefit as regards the rule of law and fundamental rights, is the importance of predictability in the legal sector. AI can enhance this as it is based on algorithms, which utilise programmed data that follows guidelines it cannot deviate from, to formulate outcomes.[39] This is comparable to a human judge, who has substantial leeway to deviate from the allocated route, based on uncontrollable factors such as personal values, scope of knowledge, or human emotion which is a relative factor that cannot be predicted.[40] Artificial intelligence has the potential to improve predictability of judicial decisions, by eliminating arbitrary practice, and securing a sufficiently transparent automation process.[41]

The potential benefits offered by AI are impressive but they each present an array of different obstacles for AI's effective use. They are hindered by the fact that there is the requirement of human oversight, essentially defeating the object of AI, which is to work independently with its own knowledge. Moreover, human involvement in AI presents an additional set of problems regarding the nature of the data input by the human programmer.

1.2.3. General concerns arising from the use of artificial intelligence in law

The risks stemming from human involvement in data provision for AI are one of the fundamental obstacles currently faced by AI's development. First, there is the issue associated with the lack of transparency in decision making processes, whereby human lawyers struggle to explain their own thought processes and problem-solving tactics. This is problematic for the development of

[36] Simshaw, *supra nota* 33, 192.
[37] *Ibid.*
[38] McGinnis, J.O. et al. (2014). The Great Disruption: How Machine Intelligence Will Transform the Role of Lawyers in the Delivery of Legal Services, 82. Fordham Law Review, 82(6), 3047 referenced in *Ibid.*
[39] Zalnieriute et al., *supra nota* 2, 5.
[40] Sourdin, T. (2018). JUDGE V ROBOT? ARTIFICIAL INTELLIGENCE AND JUDICIAL DECISION-MAKING. *University of New South Wales Law Journal,* 41(4), 1128.
[41] Zalnieriute et al., *supra nota* 2, 20.

AI, as rules must be codified into the system and must therefore be programmable.[42] This lack of ability to justify decision-making logic may lend itself to other complications associated with human-fed data such as the insidious issue of data bias.

Data bias refers to data that has been tainted with human biases, either directly or indirectly. According to Hacker, there are two causes of algorithm bias in machine learning systems: biased training data and unequal ground truth.[43] Without getting too technical, the former refers to incorrect labeling of data used for training the machine, as a result of underlying biases in the code or a sampling bias[44], and the latter refers to the uneven distribution of risk[45].[46] In short, if the data used to train the machine, and subsequently develop the algorithms, is biased, these underlying biases will be incorporated into the system, and the AI will continue to function on them.[47] Due to the fact that automated decision-making is built on data input by humans, it is not difficult for biases to be unintentionally programmed due to being concealed in historic data. Unfortunately, just as there is possibility for implicit biases to evade AI systems, there is also the sinister possibility that biases are intentionally instilled in data, as coders can manipulate the system to correlate certain variables to others, finding variable relationships where there is none. One such example is the relationship between race to risk classification in offender recidivism analysis; it may not be directly classified as a variable indicating dangerousness, but in conjunction with other variables, a positive correlation may result where data contains racial biases.[48]

Additionally, the fundamental right to a fair trial, afforded by various constitutional instruments[49], potentially faces obstruction with the use of AI in the judicial system. Firstly, machine learning is limited to the data the system has been granted, thus if it were to encounter an unprecedented case, for which there is no adequate data available, there is much less likelihood of a successful outcome. Similarly, scenarios for which the available sample size is limited, mean the system's accuracy will be compromised as the sample is too small to derive

[42] Buchanan, *supra nota* 1, 45.
[43] Hacker, *supra nota* 26, 5.
[44] For instance, due to the lack of representation of a specific societal group. See *Ibid*., 6.
[45] Uneven distribution of risk results from statistical discrimination, typically resulting from a lack of available data regarding specific traits, thus an overgeneralised assumption may replace the absence of data. For a technical overview of the statistical discrimination, see Hacker *supra nota* 26, 6-7.
[46] *Ibid.*
[47] Hacker, *supra nota* 26, 5,34 ; Sourdin, *supra nota* 40, 1128-1129.
[48] Zalnieriute et al., *supra nota* 2, 11.
[49] See United States Constitution. Amend. VI. ; Article 6 European Convention on Human Rights.

sufficient patterns.[50] Secondly, AI judgements indicate a lack of individualised justice, meaning circumstantial, moral, social, and political considerations, will not be taken into account in the judgement.[51] This undermines the humane aspect of the judicial system and leaves little room for an interactive trial, between a judge and the parties. On the contrary, this could also be considered a positive element of AI as regards the impartiality principle, maintained under the rule of law. It may be more beneficial for the case outcome that there is minimal personal interaction between the decision-maker and the parties, in order to isolate the case from emotional or personal influences. A robotic judge will not be predisposed to situational factors that may impact the judgement outcome.

Despite the concerns the introduction of AI has brought to the legal profession and the uncertainty and skepticism that followed, its introduction was initially well-received, and it quickly cultivated attention for the array of possible advantages it could offer the judicial system. Thus, circulating back to the question, what was the reason for introducing artificial intelligence into the judicial system and what are the subsequent benefits? Evidently, in spite of its ambiguity, the reason it garnered so much positive attention is because of its potential to solve problems the judicial system has faced since the beginning of time, including impartiality issues, slow case progress, transparency concerns, *inter alia.* Irrespective of its challenges, the benefits should not be undermined, as they should be the driving-force behind the innovation to make AI practical in the judicial system. Perhaps more important is the question, how does the importance of maintaining the rule of law and fundamental human rights impede the development and progression of artificial intelligence in the judicial system?. As seen in this chapter, both fundamental human rights and the rule of law are placed in jeopardy when rights affecting an individual's trial process are challenged. It is therefore vital that a "judge", that is essentially created on a set of data, has some form of liability attached to it, otherwise it is virtually at liberty to make decisions at its own will, with no accountability. The following chapter will discuss the importance of transparency, responsibility, and accountability as regards artificially intelligent decision-makers.

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[50] Surden, H. (2014). Machine Learning and Law, 89. *Washington Law Review* 87, 105 referenced in Sourdin, *supra nota* 40, 1125; See also EWCA Civ 1058, C1/2019/2670 whereby a witness statement given by Dr Anil Jain explains that AI system accuracy can be affected by the existence of biases in training datasets, which may be attributed to an imbalance in demographic information available in the training data, thereby potentially resulting in a "high false alarm rate" for a certain demographic. [193]

[51] Sourdin, *supra nota* 40, 1128; Simshaw, *supra nota* 33, 204-205.

2. THE RELATIONSHIP BETWEEN ARTIFICIAL INTELLIGENCE AND THE RULE OF LAW

The rule of law concept, although seemingly clear in denotative definition and contextual use, is an ambiguous and complex subject. The rule of law can be defined as the practice of supporting equality of all people before the law, and protection against arbitrary enforcement[52]; however, the application of this principle in practice is not as transparent nor absolute. Despite being a widely acknowledged principle and provided for in many legal documents[53], it still faces scrutiny not only regarding its legal interpretation, but also the political and philosophical considerations associated.

2.1. The rule of law

A relevant article on the rule of law, by Cameron Stewart[54], explores the validity of the principle along with its ambiguity, as scrutinised by an array of scholars and professors alike. One such example is A.V. Dicey, whose conception of the rule of law is in line with its denotative definition[55]. As a parliamentary figure, however, he essentially criticises himself as he demonstrates his support for parliament having the "right to make or unmake any law whatever(…)"[56], paradoxical to his own definition of the rule of law. His justification for this was that democracy would counterbalance legislative predicaments, believing that parliament would simply not create laws that people would find fault with.[57] Another controversial example is Dworkin's belief that judges should follow rules in their judgements but adjust them according to

[52] Choi, N. (2017). Rule of law, political philosophy. In *Encyclopedia Britannica*.
[53] Examples include the European Convention of Human Rights and the Universal Declaration of Human Rights, in which the importance of upholding the rule of law is stipulated in the respective preambles. See Council of Europe, *European Convention on Human Rights*, 4 November 1950; United Nations General Assembly, Universal Declaration of Human Rights, 10 December 1948.
[54] Stewart's article discusses the wavering legitimacy of the rule of law along with the importance of belief and trust in the principle in order for it to succeed in its objectives of promoting legal certainty. See Stewart, C. (2004). The Rule of Law and Tinkerbell Effect: Theoretical Considerations, Criticisms and Justifications for the Rule of Law. *Macquarie Law Journal.*
[55] He describes three elements he believes comprise the rule of law including the protection of an individual from arbitrary governmental authority, legal equality without distinction, and that the rule of law is customary. *Ibid.*
[56] Dicey, A.V. (1959). *Introduction to the Study of the Law of the Constitution.* (10th ed.) referenced in Stewart, *supra nota* 54.
[57] *Ibid.*

the ideal rule created by the public based on their realised mutual rights and obligations, guided by equality.[58] Both of these theories make assumptions about the society to which the legal systems serve, assuming mutual respect for each other and the system; neither of which can be guaranteed. There is a plethora of available literature on political and philosophical interpretations concerned with the rule of law; however, to analyse these theories in-depth would go beyond the scope of this paper. The significance of the aforementioned examples is to illustrate that the uncertainty encompassing the rule of law is an obstacle in itself and the introduction of a modern, similarly abstract concept such as AI is a bold step that could further challenge the relevance of the principle. The question therefore arises, what are the implications of using artificial intelligence as regards the legitimacy of the rule of law? Despite the range of differences in perception and theories of the rule of law, there is the common consensus that society should be governed by law.[59] The rule of law is a widely embraced concept; however, this is problematic in itself as the reason for which it is so accepted is due to the fact that there is no universally applied definition.[60] This allows systems to apply it as they see fit and adjust the principle in accordance with their respective legal and governmental regimes. As the aim of this paper is to assess the importance of upholding the rule of law in association with AI, it is relevant only to address the element most commonly accepted and applicable: legal certainty.

Research conducted by Zalnieriute et al., for instance, is based on three fundamental concepts of legal certainty, comprising the rule of law, that the researchers maintain have the most widespread acceptance in terms of the rule of law's meaning: transparency and accountability, predictability and consistency, equality before the law.[61] These widely accepted elements are crucial in upholding the rule of law, particularly in relation to the use of AI in the judicial system. These concepts are backed by other researchers such as Reiling and Završnik, who emphasize the importance of transparency in ethical considerations of AI.[62] Similarly, research by Sourdin and Simshaw, respectively, reinforce the importance of the relationship between accountability and transparency as regards policy and decision makers.[63] These are just a few leading examples

[58] Dworkin, R. (1985). *A Matter of Principle*, referenced in Stewart, *supra nota* 54.
[59] Demonstrated in the range of theories examined in Stewart, *supra nota* 54; Zalnieriute et al. *supra nota* 2, 1-26; Nemitz, P. (2018). Constitutional democracy and technology in the age of artificial intelligence. *The Royal Society Publishing*.
[60] Zalnieriute et al., *Ibid.,*4.
[61] *Ibid.*, 1-26.
[62] Reiling, *supra nota* 23, 6; Završnik, A. (2020). Criminal Justice, artificial intelligence systems, and human rights. *ERA Forum,* 20, 572.
[63] Sourdin, *supra nota* 40, 1126-1127; Simshaw, *supra nota* 33, 207.

of researchers who have established such premises about the rule of law, contributing to the apparent general consensus that automated decision-makers should be answerable to these minimum standards so as to ensure maximum obedience to typical court procedures. The fact that a judge may be automated, does not, and should not, undermine the importance of formal court proceedings, especially in the case of criminal offenses. In fact, it could even be argued that the degree of transparency should be set at a higher bar than it is for traditional court proceedings.

The first element comprising the rule of law addresses the importance of the aforementioned principles of transparency and accountability as regards the automation of decision making and protection of individuals against arbitrary State power. Transparency in AI is a condition that must be observed by public institutions so as to ensure that they are answerable for decisions.[64] The government should ensure that they facilitate the accessibility to rules and administrative decisions to citizens of the State, in order to maintain legal certainty. If the State does not observe this, individuals could struggle to self-regulate their compliance with the law. The use of AI could facilitate this necessary widespread communication, and potentially reach many more individuals, including those who are less inclined to make a conscious effort to look up their rights and obligations. In principle, the transparency granted to individuals could facilitate trust between the State and citizens, as well as provide the necessary grounds for accountability, should the State contravene the law.[65] The second element the rule of law observes, is predictability and consistency within the State, regarding its legislation and governmental decisive action.[66] This complements the necessity of transparency, as it also promotes legal certainty and allows individuals to adjust their conduct accordingly, in line with the law as well as protects individuals from arbitrary enforcement.[67] Moreover, the concept of predictability is also the foundation of the rule of law's precedent that similar judicial cases be treated equally.[68] This also coincides with the third element of the rule of law: equality before the law. The principle of due process, whereby every individual is subject to the same rules of justice and exercises the same rights and obligations, is enshrined in this precedent.[69] Equality before the law

[64] Zalnieriute et al, *supra nota* 2, 5.
[65] Nemitz, *supra nota* 59.
[66] Zalnieriute et al., *supra nota* 2*,* 5.
[67] *Ibid.,* 6; See also Dicey's three ideals for defining the rule of law in Dicey, *supra nota* 56.
[68] *Ibid;* Reiling, *supra nota* 23, 6.
[69] Dicey, A.V. (1982). *Introduction to the Study of the Law of the Constitution.* (8th ed.) referenced in Zalnieriute, *supra nota* 2, 6.

is a precedent well-established by now, that is also intended to ensure the removal of arbitrary practice by the State.[70]

The above mentioned elements are intended to promote equality and fairness amongst individuals and the State, contributing to the objectives of a democratic society. Democracy is essentially dependent on the respect for principle of the rule of law as the former's objectives comprise the latter's elements of accountability equality and protection against arbitrariness.[71] The rapid expansion of technology into the legal sector necessitates profound diligence in ensuring the smooth function of democracy and the appreciation of individual rights.[72] These fundamental elements are seemingly forthright and clear in definition; however, in practice, abiding by these principles is not always straightforward, and with the addition of new legislation to accommodate contemporary concepts it becomes increasingly difficult. Transparency in AI, for instance, does not only entail the necessity for codification of laws, but it also requires the full comprehension and conveyance of the system's techniques, functions, and data usage.[73]

In an ideal society, the application of the rule of law principle would be straightforward, without ambiguity, and leave little room for interpretation; however, the reality is much more complex as the rule of law is an inherently fragile construct. The following section will consider the vulnerability of the rule of law principles as regards AI.

2.2. The legitimacy issue of the rule of law in connection to artificial intelligence

There are a number of concerns associated with the use of AI in the legal field, and the rule of law, being such a vulnerable construct, is especially at risk. The elements recognised under the rule of law, mentioned in the preceding chapter, contain various problems that prove challenging for AI's accession to the legal sector. Despite discrepancies in the rule of law's definitions and its varying extent of influence on legal regimes, it can be deduced that legal certainty is of

[70] *Ibid.;* Stewart, *supra nota* 54.
[71] Saunders, C. (2020). Constitution Brief: Constitutions and International Law. International Institute for Democracy and Electoral Assistance, 7.
[72] Nemitz, *supra nota* 59.
[73] Giuffrida, I. et al. (2018). A Legal Perspective on the Trials and Tribulations of AI: How Artificial Intelligence, the Internet of Things, Smart Contracts, and Other Technologies Will Affect the Law. *Case Western Reserve Law Review,* 68(3), 779.

predominant importance. Legal certainty comprises the elements of transparency, predictability and equality thus it is important to ascertain how their credibility may be jeopardised by AI.

The first element, transparency, is challenged by the two types of automation by which an artificially intelligent decision-maker runs as they are vulnerable to implicit biases present in input data.[74] Moreover, there are ways in which biases can be concealed by human controllers, further adding to the concerns over the absence of transparency.[75] One such way is intentional secrecy created by public institutions, under the guise of trade secrets.[76] This allows the data used for the formulation of outcomes to remain a secret, unavailable to the public, in accordance with the law protecting such secrets.[77] It may also be concealed under data privacy laws, therefore exploiting the protection laws granted to protect data subjects from confidentiality breaches.[78] The ability to justify the concealment of data on the grounds of intellectual property (IP) rights also proves problematic in court cases, as it essentially precludes the possibility for further scrutiny into the technology behind a decision. These limitations further exacerbate the issue of unaccountability and provide a potential rationale for authorities to allow arbitrary enforcement to escape investigation and go unpunished. The accuracy of a system cannot be successfully countered with evidence if there is no transparency or accessibility on the grounds provided for by IP law.[79] The inference from this is that as long as the use of AI in the judicial system is not harmonised with human rights law, IP protection can prevail over fundamental rights matters such as the prohibition of discrimination. Aligning the use of AI systems with human rights legislation could provide grounds for the derogation from the protection granted to trade secrets, in respect of the use of AI in the judicial system, on the basis of anti-discrimination and fair trial laws. In the absence of such harmonisation, the transparency requirement of the rule of law is essentially rendered redundant. Besides this, another obstacle to transparency is the lack of understanding of technology, technological processes, system functions, *inter alia.* If an individual lacks understanding of certain basic functions, the way in which an AI decision-making system functions, will be entirely incomprehensible.[80] This fault cannot,

[74] Hacker, *supra nota* 26, 5,6.
[75] *Ibid*., 35.
[76] Burrell, J. (2016). How the machine 'thinks': Understanding opacity in machine learning algorithms. *Big Data and Society* referenced in Zalnieriute et al., *supra nota* 2, 14.
[77] Such is the case with COMPAS software. See Burrell (*Ibid.*).
[78] *Ibid.*
[79] For reference, see EWCA Civ 1058, C1/2019/2670 [196-198] and *Wisconsin v. Loomis* referenced in Castro (Castro, C. (2019). What's Wrong with Machine Bias. *Ergo - An Open Access Journal of Philosophy*, 6(15), 406.)
[80] Burrell, *supra nota* 76.

however, be entirely attributed to the State; it would be almost impossible to monitor whether each individual has a sufficient grasp of technology in order to successfully maneuver an AI system. The possibility to learn more, by granting access to relevant literature or channeling information through government resources would comprise at least a minimum safeguard and ensure the accessibility of information, in line with legal certainty principles. The transparent, safe and reliable use of AI would require significant human comprehension so that control could be exercised and compliance could be ensured.[81] Regardless of an individual's knowledge of technology, it can be said of AI, that there are programmes that function based on logic that cannot be fully comprehended by humans.[82] This is due to the complexity of data, correlations, and cross-analyses inherent in the datasets the systems are computing, at speeds much faster than a human is physically capable of. This is problematic in itself as allowing an automated system to run on knowledge produced from input data and training makes human interference more necessary to ensure compliance with obligations.[83] If the automated system's knowledge goes beyond that of the human controller, it follows that the automation's full conformity with the law can never be guaranteed. This is due to the fact that successfully establishing the AI's interpretation of law and its extent of recognition of rights requires the human's awareness of the system's processes.

Ancillary to these obstacles, are concerns relating to responsibility and liability of AI, which must be established to conform to democratic societal standards. In the absence of liability, there is no accountability; thus, no one would be answerable for breaches of rights, which would ultimately further erode the legitimacy of the rule of law. As AI is not yet autonomous, it is not an independent entity and is therefore not fully self-reliant. Due to this, it is not held automatically liable for indiscretions and, as a result, the question as to who retains liability for the system is still left open for interpretation. This gap in legal coverage presents a considerable obstacle to legal certainty and, consequently, the rule of law. A machine such as AI, although technically an inanimate object, is capable of constructing its own output and forming conclusions based on available data. Based on this, there are suggestions that it could be treated

[81] Automated machines can "outgrow their initial coding and ude new sets of data to produce an outcome", this may then result in gaps in human intelligence due to lack of awareness of the algorithms formed, independently, by the system. See Giuffrida et al., *supra nota* 73, 778-781.
[82] *Ibid*.; Zalnieriute *supra nota* 2.
[83] Sourdin, *supra nota* 41; Simshaw, *supra nota* 33.

as an autonomous being, governing its own "thought" and output processes.[84] This level of liability would require that the machine can justify itself and provide an explanation as to its algorithmic processes and the yielded decision.[85] The complexity of this assertion and the current standard at which AI functions in the judicial system suggests that this extent of liability is the least likely to apply in the imminent future. The liability attributed to AI must still rely heavily on human involvement, the extent of which is also unestablished. The difficulty in ascertaining who should be held accountable for infringements is due to the lack of consensus over who should be responsible for the AI concerned. The fact that the data, the means by which an automated machine yields outcomes, is so extensive and may extend over years, is a primary challenge. The existence of machine biases, for instance, which perhaps lead to an arbitrary decision by automated technology, cannot be automatically attributed to the system's programmers. This is largely due to the fact that there are an array of ways in which biased data could go undetected by the programmer; for instance, biases may present themselves in automated decisions as a result of old data that contains either direct or indirect biases[86], demographic inconsistencies[87], outdated statistics[88], *inter alia*. On the contrary, the fact that it is known to humans that there is the inherent possibility that biases exist within the data, may constitute grounds for negligence on the part of the programmer or system controller. The lack of autonomy and liability attributable to AI reinforces the requirement of human involvement and accountability in automated decision-making. As regards the present day capabilities of technology, the liability burden must be retained by humans; however, the question pertaining to who specifically holds responsibility still remains. Until the role of, and the extent to which, humans will be relied on in automated decision-making in the judicial system is determined, the

[84] This is based on the contention that machines could be treated similarly to corporations and be liable for their actions as well as be sued for damages related to infringements. See Hubbard, F.P. (2011). "Do Androids Dream?": Personhood and Intelligence Artifacts. *Temple Law Review*, 83 referenced in Giuffrida et al., *supra nota* 73, 764.
[85] Explainability is a fundamental aspect of accountability as regards ethical automated decision-making. See Cath, C. (2018). Governing artificial intelligence: ethical, legal and technical opportunities and challenges. *The Royal Society Publishing*, 2.
[86] Indirect statistical discrimination, for instance, occurs when algorithms detect a correlation between features that correlate with belonging to a specific group. Direct statistical discrimination arises from programmers inputting certain data and manipulating variables to create a correlation and relationship where there is not explicitly one accounted for. See Hacker, *supra nota* 26, 7, 35.
[87] In order for AI to produce reliable results and form safe, justifiable conclusions, there must be a significant amount of data on a given subject. See Reiling, *supra nota* 23, 8. See also Dr Anil Jain in EWCA Civ 1058, *supra nota* 51.
[88] See study on machine bias by Castro, *supra nota* 75, 408.

question of where to allocate liability will remain unanswered. Consequently, without this established liability, the rule of law is threatened by practices which are less than transparent.

Following issues of transparency, are predictability concerns, which are sufficiently clear as regards legal certainty. There must be a degree of predictability in law and legal reasoning in order to be aligned with transparency and legal stability objectives. In order to derive the benefit of reliability and efficiency in legal practices, there must be consistency and equality. Achieving this is difficult due to the lack of predictability and transparency in the machine's learning process; such issues may be exacerbated by large datasets as well as the constant influx of new data, necessary to keep the system updated with the law as it stands as well as evolving demographic patterns.[89] Moreover, a study conducted by the developers of one such risk assessment tool COMPAS, which will be reviewed in chapter three, examined and found that the reliability of the system as a whole reached "satisfactory" levels.[90] This conclusion was reached after extensive analysis of the system's accuracy in predicting crime recidivism in individuals, weighed against characteristics such as gender and race, finding that the majority of coefficients indicated that the levels of reliability were sufficiently high.[91] Despite the general conclusion presented by the researchers that the reliability levels were "within generally acceptable ranges", it is worth noting that there is evidence of data falling below the satisfactory threshold, which, although not significantly far from the limit, underlines the limitations of technology.[92] This study is just one example of the inconsistencies that may present themselves in automated decision-making, having an impact on legal certainty within the judicial system. Such inconsistencies in reliability of systems comprises an additional obstacle to the safeguarding of the rule of law in the context of predictability.

Besides the element of predictability is equality, which is a concept often used synonymously with the rule of law. This correlates with the importance of predictability in the way in which individual cases are treated by the judiciary; essentially, it is the idea that individuals in similar circumstances will be treated equally and that laws will be applied similarly.[93] This follows the legal requirement of due process rights, enshrined in numerous legal documents, particularly

[89] Zalnieriute et al., *supra nota* 2, 9; Reiling, *supra nota* 23, 4.
[90] For a comprehensive review of the study see Brennan, T. (2009). Evaluating the Predictive Validity of the Compas Risk and Needs Assessment System. *Criminal Justice and Behaviour*, 36(1), 21-40.
[91] *Ibid,* 27.
[92] *Ibid*, 30-31.
[93] Zalnieriute et al., *supra nota* 2, 20.

those pertaining to human rights, conferring rights to individuals and placing obligations on authorities to respect this principle. These rights, which will be addressed in greater detail in chapter three, are interrelated with the rule of law and are therefore at stake when the general principle of equality is disregarded.

As regards the multiple obstacles AI has yet to overcome for successful accession into the judicial sector, determining these high standards could be the first reasonable step towards AI governance while ensuring conformity to the rule of law and securing its validity. This returns the thesis back to the question, what are the implications of using artificial intelligence as regards the legitimacy of the rule of law?. The argument that the absence of explainability in the exercise of power is enough to preclude such systems from use in the judicial sector is augmented by the importance of transparency and accountability, due to the consideration that the very essence of the rule of law demands rationalisation for any assertion of power. Decisive action that cannot be adequately justified by that which exerts it, the AI, is therefore not in accordance with protections afforded by the due process requirement and should not be used in such a context, by principle of the rule of law.[94] A judge that cannot be held accountable for its decisions would thus delegitimise the rule of law's objectives and further challenge its already fragile authority.

The next question that must be asked in this context is the primary research question, how does the importance of maintaining the rule of law and fundamental human rights impede the development and progression of artificial intelligence in the judicial system? Evidently, the elements that formulate the rule of law have significant vulnerabilities which make the judicial system a less than ideal construct for incorporating automated decision making. Human rights encompasses these elements thus any phenomena that threaten to debunk the rule of law's legitimacy, also jeopardise human rights. The rule of law, although not as strictly enforceable as human rights, is a widely respected concept; therefore, any arbitrary threat to its values will face significant scrutiny from scholars, lawmakers and the general public alike. Additionally, the threat to legal certainty necessitates human intelligence to establish safeguards as well as ensure the technology's compliance with rule of law and human rights law and principles. An impediment to the development of AI within the judicial system is created by the need for human intelligence in order for AI's use to be conceivable as this also opposes the idea of automation

[94] As supported by Nemitz in his opinion piece on the relationship between technology and law in the context of rule of law and human rights. See Nemitz, *supra nota* 60, 13.

and the purpose of its initial integration into the judiciary. This current requirement for human intervention is important in the context of human rights obligations and will be explored in the following chapter.

3. ARTIFICIAL INTELLIGENCE IN THE JUDICIAL SYSTEM AND ITS RELATIONSHIP WITH HUMAN RIGHTS

Evidently, the rule of law principle and human rights are interrelated in that the exercise of the latter requires observance of the former and, arguably, one cannot be without the other. The notion that human rights are inherently vested in any natural human being is comparable to the inference that the rule of law is indiscriminate in application to individuals. Moreover, many human rights envelop the objectives implied by the rule of law, such as the right to a fair trial, and the right to an effective remedy, *inter alia*. As illustrated in earlier chapters, the rule of law seeks to dissolve inequalities and promote fairness within society and against authority, thereby protecting from autocratic practices and conferring fundamental freedoms to individuals. Human rights uphold the rule of law principle by essentially prescribing several of its elements in writing and setting forth the protections afforded to human beings, in harmony with these elements. As inalienable human rights encompass the concept of the rule of law, it is also important to consider these issues from a human rights perspective, which will be explored in this chapter. The practice of upholding human rights as well as the importance placed around the rights varies culturally and, although a universal concept, the approaches taken towards the actual application of the rights is not universal. This chapter explores the application of human rights and topical uses of AI within the respective judicial systems of the USA and Europe, which are two different regions that are often compared with one another as regards their legal systems and approaches to international law. The purpose of this chapter, however, is not to compare nor contrast the systems to one another, but to examine uses of AI within different systems by taking relevant case examples, with a view to ascertaining the role human rights play in these uses.

The debate surrounding the use of AI in the judicial system is primarily based on the potential uses that have not yet been realised due to their controversial nature as well as the limitations in human understanding. This chapter focuses on the threat of relying on AI to produce judgements and make decisions having an impact on humans' lives and liberties; more specifically, the concerns associated with the right to a fair trial and due process, in respect of the threat to in-court adjudication. These rights are simply examples of the array of rights potentially at stake; however, to evaluate possible threats to all relevant human rights concerned would reach beyond scope of this thesis. It is therefore necessary to underline that as this research examines the

relationship between human rights and the rule of law, the focus will be on the abovementioned rights. The discussion also leads to the controversy surrounding the extent to which today's technology may allow AI to be used in the absence of human intervention. To this, the question arises; to what extent can artificial intelligence, as it currently stands, be used within the judicial system without significantly infringing fundamental human rights?. If technology is to be used for such purposes, the objective should be to create a system that reinforces human rights and the rule of law, rather than challenges these principles. The purpose of this chapter is not to analyse every piece of human rights legislation applicable to the respective countries, but it is to consider the common fundamental rights in light of controversial AI encounters. Assessing instances, whereby AI was used for judicial purposes, can provide insight into its capacity to make important decisions and to benefit, rather than diminish, the judicial system.

3.1. Human rights and artificial intelligence in the context of the rule of law

The general use of AI in the legal sector has been explored in the first chapter of this paper; however, its use in the judicial system is the main focus of this research and therefore must also be addressed in the context of human rights. The following sections will inspect various uses of artificial intelligence within Europe and the USA, respectively. It is important to reinforce here that the purpose of this paper is not to compare the two systems to one another but rather to provide a broader perspective and insight into different innovative uses of AI and the affiliated concerns.

The following sections will examine the systems that have been put into practice, against considerations of human rights in the context of the rule of law.

3.1.1. Europe and the United States

It is first necessary to acknowledge the fact that Europe is a continent comprising many different countries thus the scope of the coverage provided in this research must be established forthwith. To analyse regimes of individual countries would surpass the limitations of this thesis; however, throughout this chapter, general references are made to Europe as well as legal instruments that govern general European regimes. Moreover, it is important to clarify that this chapter generally refers to practices applicable to all European countries, rather than European Union (EU)

member states. For this reason, the Charter of Fundamental Rights of the European Union is excluded from the analysis.

As regards approaches to human rights, the USA has garnered attention recently over certain practices not in line with international human rights according to the most recent Human Rights Watch Annual Reports, outlining the decline in enforcement of rights, characterised by a multitude of breaches at the hands of several State authorities, thereby reflecting poorly on the USA's effort in protecting fundamental rights.[95] Most relevantly, the reports broach the subject of AI use for risk assessment, particularly the concerns alluding to the insidious biases possibly prevalent in the systems.[96] Furthermore, similarly to Europe facing disparities amongst its countries in the application of international law, the US, being composed of 50 different States, faces a similar predicament. To further exacerbate matters, individual States may implement obligations to a different extent and provide for more extensive protection of rights[97], allowing disparities in application of human rights law on a national level as States may implement rights not recognised by the federal government, thereby presenting an additional challenge to the prospective safe use of AI. This issue, however, has not discouraged innovation towards AI systems for use in the judicial system.

As mentioned in the preceding chapters, predictive analysis is one of the fundamental uses of AI in the judicial system, its main purpose being risk assessment of felons' likelihood to reoffend. This task has typically been carried out by judge's upon evaluation of a given case, taking into consideration multiple factors such as existence of past offenses, the nature of the offenses, or whether the offender has been convicted for violent crime, to name a few.[98] Making use of technology that can carry out this assessment independently would be time-efficient and seemingly consistent and uniform in application. This presumption, however, is not entirely accurate as data becomes outdated due to legal standards and rules being subject to change, as well as demographic generalisations evolving.[99] As a result, predictive accuracy declines along with its credibility and reliability within the judicial system. Notwithstanding this fact, the

[95] See Human Rights Watch Reports 2020 and 2021: United States.
[96] *Ibid*.
[97] The tenth amendment of the US Constitution prescribes that the powers not delegated to the United States by the Constitution are granted to the States, or to the people, as long as the Constitution does not prohibit the powers. See United States Constitution. Amend. X.
[98] Brennan at al., *supra nota* 91.
[99] Reiling, *supra nota* 23, 9; Castro, *supra nota* 79, 408.

incentive to continue using these tools for predictive analysis has not weakened, as the pursuit of creating a system which may potentially replace a human judge continues.

3.1.2. The use of AI in practice

3.1.2.1. Europe

A relevant example of an innovative approach to judicial AI is that of a programme developed by a group of researchers whose objective was to create a system that could accurately predict case outcomes based on decisions given by the European Court of Human Rights (ECtHR).[100] The programme utilised machine learning to analyse judgements concerning human rights breaches, detecting situational patterns wherein the Court would rule whether an ECHR right had been violated.[101] The study also indicated that the facts of the case were the most valuable for the machine to learn and recognise the pattern of decisions made following similar facts.[102] More importantly, as regards the rule of law and reliability, is the fact that the average predictive accuracy of the technology was found to be 79%.[103] This may seem reasonably high, however, in terms of the rule of law, this number cannot satisfy the requirements of reliability, consistency and predictability. The likelihood of predictive inaccuracy remains at 21% which reinforces the fact that full autonomy cannot be granted to the machine as there is still significant room for error. Further, the ECtHR's database, where the machine took cases from, does not include cases resulting from inadmissible requests[104], indicating a lack of data. This is very problematic for AI's successful accession to the judiciary as the trust and certainty in the system will decline without sufficient predictive skills. Additionally, there is a general consensus that in order for AI to be reliable to any degree, it must have access to an extensive dataset that provides for an array of variables.[105] This necessity can be examined in light of human rights and the prohibition of discrimination, conferred by a number of human rights instruments applicable to European countries, whereby rights must be conferred to each indvididually equally, without distinction on

[100] Aletras, N. et al. (2016). Predicting judicial decisions of the European Court of Human Rights: a Natural Language Processing perspective. *PeerJ Computer Science.*
[101] *Ibid.* referenced in Sourdin, *supra nota* 40, 1125.; Reiling, *supra nota* 23, 5.
[102] *Ibid.*
[103] Aletras et al., *supra nota* 100.
[104] Reiling, *supra nota* 23.
[105] As maintained by Surden, *supra nota* 50; Hacker, *supra nota* 26; *Ibid*.

any basis, such as race or gender, *inter alia*.[106] Pursuant to this, the inability for AI to interactively address variables may actually decrease the formation of biases that may present themselves in a human judge.[107] The fact that machines can remain emotionally impartial for the sake of a fair judgement is perhaps massively overlooked.[108] On the contrary, in accordance with the possible existence of bias formation arising from outdated demographic statistics or limited datasets, the obligation of equal treatment cannot be observed by automation.[109] The outcomes provided by the AI are probability calculations based on limited variables that could be allotted to numerous individuals; this may therefore result in inaccurate risk assessment due to the lack of elaboration for each variable corresponding to each offender.[110] The AI's algorithm has learnt only to process these variables and is therefore confined to the data it has been trained on. This leaves no room for interpretation, which is a necessary aspect in order to ensure that, not only are similar cases treated equally, but unique features of a case are treated as such.[111] This largely forms part of the argument that human involvement is necessary in at least some part of issuing a decision; if a routine case is presented, its outcome may be predictable and thus may be partially automated[112]; however, this should still be subject to confirmation by a human. This is important as, in addition to impartiality, there must be justification for the way in a which a decision was reached.[113] Moreover, in unprecedented cases, there will be insufficient availability of data, which will likely lead the AI to a general conclusion, too broad to apply to a case with unique components, thereby eroding reliability and the rule of law.

3.1.2.2. United States

The US has been a proactive participant in the development of AI, and has encouraged its use within the judicial system for a variety of purposes. As regards criminal justice, for instance, it

[106] See Article 14 European Convention on Human Rights; Article 26 International Covenant on Civil and Political Rights.
[107] Sourdin, *supra nota* 40, 1124.
[108] The essence of the right to a fair trial, under Article 6 of the ECHR, requires impartiality.
[109] Maintained by Završnik, who also considered the logic behind removing humans for the sake of impartiality, but reinforced the importance of a human judge to be able to interpret individual cases. See Završnik, *supra nota* 62.
[110] Human Rights Watch, *supra nota* 95.
[111] For risk assessment, a judge should be able to evaluate individuals based on their unique risk factors. Barabas, C. et al. (2019). *Technical Flaws of Pretrial Risk Assessments Raise Grave Concerns*, 1.
[112] Reiling, *supra nota* 23, 6.
[113] AI may be capable, to an extent, of producing a justification for a given decision but only a human can provide insight into interpretation of given circumstances giving rise to the decision. *Ibid;* Explainability and interpretability are important ethical considerations for AI. See Cath, *supra nota* 85.

has been recorded that almost all States use a risk assessment tool at some stage of the proceedings.[114] Systems utilising tools for basic uses such as case analysis or due diligence reviews have been developed to facilitate researchers and legal professionals.[115] These tools aid users and are not likely to detrimentally impact human lives if used with caution; however, automated systems used to predict case outcomes, such as COMPAS, raise concerns regarding the fair application of justice.

The use of COMPAS software is subject to debate due to its use of criminal record-based data and analysis of answers to an extensive questionnaire, answered by an offender, in order to perform predictive analysis on recidivism. The system analyses the available data to reach decisions regarding pretrial detention, early release, sentencing and probation relevant to the individual under scrutiny.[116] The controversial use of COMPAS software has been further exacerbated by the monumental case of *Wisconsin v. Loomis*[117]*,* which incentivised investigation into the adherence of the system to legal principles. Mr Loomis was charged with operating a stolen vehicle and attempting to run from the police;[118] following these events, the COMPAS algorithm identified Loomis as a high risk to society and the first instance court denied his request for parole.[119] Subsequently, Loomis appealed on the grounds that the use of COMPAS violated his right to due process, afforded by the fifth Amendment of the Constitution, but his appeal was referred to the Supreme Court of Wisconsin. The Court held that as the COMPAS outcome was not the sole basis for the decision, Loomis's due process rights were not violated.[120] The main contention of this judgement was that as the lower court had the opportunity to review the case, the COMPAS decision, and possibly deviate from the outcome, due process was sufficiently acknowledged.

This case is significant as it relies on due process, which essentially comprises principles of anti-discrimination and fair trial rights, as observed by the rule of law. Due process is prescribed

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[114] Zhang, S.X. et al. (2014). An Analysis of Prisoner Reentry and Parole Risk Using COMPAS and Traditional Criminal History Measures. *Crime and Delinquency,* 60(2) referenced in Hamilton (Hamilton, M. (2015). Back to the Future: The Influence of Criminal History on Risk Assessments. *Berkeley Journal of Criminal Law*, 20 (1), 89).
[115] One such example are the case analysis tools developed by Ravel, which are integrated in the legal information provider LexisNexis' services, after their subsequent acquisition of Ravel. Reiling, *supra nota* 23, 6.
[116] Reiling, *supra nota* 23, 5.
[117] Wisconsin v. Loomis, 881 N.W.2d 749 (Wis.2016).
[118] *State v. Loomis: Wisconsin Supreme Court Requires Warning Before Use of Algorithmic Risk Assessments in Sentencing*. (2017). Harvard Law Review, 1531.
[119] Završnik, *supra nota* 62, 573.
[120] See Paragraph 120 in Wisconsin v. Loomis, *supra nota* 117.

in the Constitution and is analogous to human rights prescribed in international law. As the US has somewhat excluded itself from international human rights constraints, the due process requirement is especially important; reservations to the International Covenant on Civil and Political Rights (ICCPR), for instance, have precluded certain protections to an extent.[121] Further, the US has declared that articles one through 27 of the ICCPR are not self-executing[122], meaning they must be transposed into national law in order to have effect.[123] Essentially, this allows US courts to manipulate the standards of anti-discrimination within their judicial system; thus, providing a receptive environment for potentially biased software, such as COMPAS.

The significance of this case is that the decision essentially provided a loophole for COMPAS to escape the presumption of possibly biased outcomes, based on the rationale that a human judge had the opportunity to overturn the decision. It can be deduced from this case that the fundamental concern was whether the incriminating decision had been verified by a human judge.

Notwithstanding the fact that the AI's potential biases were overlooked in this case, this decision augments the argument that in order for COMPAS, and other automated risk assessment tools, to be in compliance with the rule of law and human rights, there must be at least partial human oversight.

3.2. Upholding the rule of law and implications for the safe use of artificial intelligence

Evidently, the uses of AI are beneficial within the judicial system to a certain extent, as long as they can be monitored and evaluated, in order to ensure maximum observance of the rule of law and human rights. Different possible solutions may be offered in order to ensure optimum possible security of outcomes, including the option for systems to be regulated and decisions to be confirmed by a human moderator.

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[121] See, for instance, reservation on Article 26 of the ICCPR, prescribing the prohibition of discrinination, the US has issued an understanding that "distinctions based upon race, colour, sex (...) are to be permitted when such distinctions are, at minimum, rationally related to a legitimate governmental objective." See Declarations and Reservations on the International Covenant on Civil and Political Rights, New York, 16 December 1966. United Nations Treaty Collection. 13-14.

[122] *Ibid.*

[123] Saunders, *supra nota* 71, 4.

Researchers have proposed a number of possible solutions towards the improvement of AI, with a view to increasing its transparency for use in the judicial system. Several proposals call for evaluations or audits, in order to regularly ensure AI's compliance and consistency with regulations.[124] Another proposition is the administration and prescription of impact assessments, similar to those necessitated in the general data protection regulation.[125] Such evaluations can foster transparency, by demanding responsibility on the part of the authorities, and by making information accessible to those concerned[126], thereby instilling trust in the systems and securing legal certainty.

These minimum standards must be realised in order for AI to garner trust and conform to standards implicitly set by human rights, leading back to the question; to what extent can artificial intelligence, as it currently stands, be used within the judicial system without significantly infringing fundamental human rights? In light of the obligations conferred by the rule of law and human rights legislation, predictive analysis AI could be utilised if reviewed by a human judge, who may then decide to refer to the automated decision, or disregard it, in his own evaluation. The aforementioned "satisfactory" accuracy ratings of predictive tools suggest that AI could be useful for assistance but its output cannot be relied on as an absolute decision.

[124] Cath, *supra nota* 85, 2; Reiling, *supra nota* 23, 25.
[125] See Nemitz, *supra nota* 59.
[126] *Ibid.*

CONCLUSION

The concept of AI and its use within the judicial system is essentially a paradox; its initial introduction into the legal system was to yield the benefits of limiting arbitrariness by use of an impartial system, indifferent to emotion or situational factors, to render decisions. As far as technology has advanced today, however, this ideology has not been realised, due to the fact that AI systems are believed to encompass biases that may affect decision-making and output results. The argument that AI reduces arbitrariness by treating similarly placed individuals uniformly, based on sample sets and data correlations, can be dismissed due to existence of underlying biases that may lead an algorithm to dispel an indirectly discriminatory judgement or to an overly-general outcome as a result of a limited dataset. Additionally, AI cannot effectively sidetrack from its path, which is built on input data and guidelines; thus, it does not necessarily accommodate appropriate modifications. Human judges, however, have the capacity to interpret cases and elaborate on judgments at their discretion, allowing individualised justice and circumstantial factors to be taken into consideration. Contradictory to this, is the fact that this freedom enjoyed by a human judge allows for arbitrary practice as he may digress and disturb the case, ultimately opposing due process principles and obstructing the rule of law. On the contrary, it is easier to hold a human judge accountable for this violation, than it is to hold an automated system liable, and reasonable sanctions can be incurred, by the former, in accordance with well-established law. The fact that AI's accession to the judicial system is of paradoxical value constitutes an obstacle in itself. It allows for a constant debate over its credibility and security, simultaneously putting fundamental rights and the rule of law's legitimacy at risk. Regulation on AI, harmonised with human rights standards and legislation, could address these inherent contradictions by guaranteeing protection and the availability of redress when these contradictions are brought to light.

In addition to these hindrances, is the rule of law's unestablished legitimacy, which makes it vulnerable to threats. Despite this, certain core concepts have been determined, which reinforce its purpose and role in the judicial system. The importance of transparency, accountability, reliability and equality all derive from the rule of law principle and are, as a result, also at stake. These elements must all be observed in order to secure legal certainty and cultivate trust between private individuals and authority as well as to uphold respect for human rights in a democratic

society. While it is important to foster innovation within the judicial system, in order to keep up with contemporary intelligence, it is also important to have due regard for individual freedoms.

This brings the analysis back to the paper's initial thesis that recognition of human rights and the concept of the rule of law serve as predominant impediments to the advancement of AI within the judicial system. This is because, despite the rapidly developing world of technology and innovation in all sectors, it is of fundamental importance to consider intrinsic human values. The importance of protecting basic human rights, encompassing the rule of law, is one of the most influential difficulties. Similarly, maintaining the rule of law also proves to be a major disincentive towards introducing artificially intelligent judges to independent decision making. This is attributable to the rule of law being a fragile construct with essentially no true, universally-settled denotative meaning, leaving it vulnerable to arbitrary practice. This vulnerability combined with the use of novel technology, which is still largely misunderstood and mishandled, as well as human limitations, pose a considerable threat to justice. Consequently, is the return to the initially posed question, how do fundamental human rights and the importance of maintaining the rule of law impede the development and progression of artificial intelligence within the judicial system? In accordance with the rule of law, enshrined in human rights, due process, reliability and transparency must be observed within the judicial system; thus, factors having the potential to deviate from these objectives serve as impediments.

In spite of the array of various opinions conveyed by different scholars, philosophers, AI experts, and lawmakers alike, there is one conclusion that is common amongst researchers, and that is the necessity of human involvement in automation, as regards the judicial system. Technology as it stands today is not advanced enough to intuitively apply legal norms and consider intrinsic rights in diversified cases therefore, in the absence of human verification, full compliance with human rights cannot be guaranteed yet. Further still, there are limitations in human understanding, which preclude full comprehension of the system's algorithmic methods, which cannot satisfy requirements of the law. If the automation is not transparent to the system controllers themselves, it should not be considered suitable for use in the judicial system, where transparency is paramount. Finally, the main contention is that without human intervention, the rule of law is rendered redundant and completely removing humans from decision-making processes, where the potential impacts could be detrimental to the life of another, is inconceivable in the foreseeable future.

In accordance with human rights, in support of the rule of law, the main solution, at present, is to focus on enhancing the use of AI as an assistive tool to adjudication, before considering it as a possible replacement. The aim should be to pursue technology that can strengthen and reinforce the value of the rule of law. For as long as the use of AI in the judicial system is not harmonised with human rights law, there will be gaps in legislation, which allow for situations in which the rule of law is superfluous in terms of AI. Possible ways to combat this would be to align AI with human rights standards, by incorporating it into various legal instruments, through amendments, providing grounds for countering practices contrary to the rule of law.

Research has demonstrated the capability of automation in the judicial system and the aid it can provide to lawyers; however, it has also brought to light the imminent considerations that need attention in order for AI to truly thrive in the legal sector. Certain areas are significantly better suited to embracing AI, whereas other areas, such as risk assessment in criminal justice, need considerably more attention.

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