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The Impact of Artificial Intelligence on Justice Systems

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ABSTRACT

Nowadays, the emerging of Artificial Intelligence technology has become very relevant for many parts of our lives. Thus, Artificial Intelligence is changing many aspects of our living conditions, including the way in which we work. In this regard, there are predictions that many aspects of human activities will be replaced or supported by newer technologies. Moreover, the creation of advanced machinery is changing the practice of law and the way in which judges make decisions in a judicial process. The aim of this paper is to analyze the impact of AI on justice systems and the problems concern the use of Artificial Intelligence in Court, especially in the criminal justice system.

Keywords: *Artificial Intelligence; Courts; Judges; Criminal justice.*

I. INTRODUCTION

Since the invention of computers, many people have been captivated by the idea of building intelligent machines.² The conventional methods of creating intelligent systems have produced flawless outcomes ever since engineers began to understand that computers could be utilized for purposes more than simple math computation. Artificial intelligence is a feature of many computer systems in the current world, and scientists have been attempting to mimic human intelligent behavior through computer programs. Artificial intelligence holds great promise for improving our lives. In fact, in some cases, AI-based systems are now more accurate at identifying ailments than medical professionals. AI has also made it possible for institutions to do more with less money, which has positive effects on the accessibility and availability of all services.

However, what does the term “Artificial Intelligence” actually mean? “Science and a set of computational technologies inspired by human nervous system, body, and senses, as well as human learning, reasoning, and action” is what artificial intelligence is.³ That being said, there is a great deal of disagreement on the exact meaning of artificial intelligence. For instance, there

¹ Author is an Advocate at High Court Chhattisgarh, India.

² I J.N. KOK, E.J.W. BOERS, W.A. KOSTERS, P. VAN DER PUTTEN, Artificial intelligence: definition, trends Techniques and cases.

³ B.J. GROSZ, C. RUSS, A. ERIC, H.A. MACKWORTH, T. MITCHELL, D. MULLIGAN, Y. SHOHAM, Artificial Intelligence and life in 2030, 1 September 2016,

are four definitions of artificial intelligence provided by The New International Webster's Comprehensive Dictionary of the English Language (Encyclopedic Edition):

- An area of study in the field of computer science. Artificial intelligence is concerned with the development of computers able to engage in human- like thought processes such as learning, reasoning and self-correction.
- The concept that machines can be improved to assume some capabilities normally thought to be like human intelligence such as learning, adapting, self- correction etc.
- The extension of human intelligence through the use of computers in the time past physical power was extended through the use of machinery tools.
- In a restricted sense, the study of techniques to use computers more effectively by improve programming techniques.

The majority of definitions of artificial intelligence, despite the lack of a single, agreed-upon definition, have these four characteristics in common: i) "system that thinks like humans," ii) "system that acts like humans," iii) "system that thinks rationally," and iv) "system that acts rationally."⁴

Nonetheless, there are numerous ways to program artificial intelligence, with machine learning and deep learning being the two primary program designs. The former method relies on a computer program's ability to accept fresh data without human intervention. "The process by which a computer is able to improve its own performances by continuously incorporating data into an existing statistical model" is the precise definition of machine learning. Specifically, the computer gets a certain quantity of data, and then it uses that data to adjust the algorithms. The latter is a function of artificial intelligence that mimics how the human brain processes information and forms patterns to aid in decision-making.

Precisely speaking, deep learning also referred to as "deep neural learning" or "deep neural network" is a subtype of machine learning in artificial intelligence that comprises networks that can learn unsupervised from unstructured or unlabeled data. Furthermore, the vast array of tools and methods that fall under the broad category of "Artificial Intelligence" can be divided into two "buckets": the first, known as "knowledge-based systems," is associated with the idea of producing behavior through inference from a set of axioms⁸ and is capable of making decisions based on defined rules within a particular field (though it is unable to automatically learn from

⁴ F. RASO, H. HILLIGOSS, V. KRISHNAMURTHY, C. BAVITZ, L. KIM, *Artificial intelligence and Human rights*, cit

or apply the knowledge it has accumulated over time).

The second is a collection of tools that “improve their decision-making performance continuously through statistical learning.” The exponential increase in computer processing power, the resulting sharp drop in storage costs, and the consequent acceleration of data collection activities have all contributed to the development of this new wave of technology. Systems in this area include self-driving vehicles, facial recognition used in policing and natural language processing algorithms that are used to automate translation and content moderation.⁵

However, more recent technologies can be implemented to enhance the information and communication services provided by justice systems, aid in the execution of legislation pertaining to minor claims procedures, and promote international collaboration amongst justice authorities. Additionally, this can help to promote consistency in case law and the growth of transparency. In addition, artificial intelligence can be employed as a tool to assess court rulings, according to Thomas Julius Buocz, with the goal of helping to identify precedents and comparable cases as well as giving the judge preliminary advice on particular legal issues.

The Berkman Klein Center for Internet and Society at Harvard University states that artificial intelligence can have both positive and negative effects on human rights. In fact, in certain situations, an AI application can enhance a certain class of people’s ability to enjoy a given human right while negatively affecting that same human right for other people. For example, the use of automated risk scoring systems in criminal justice may lower the number of people incarcerated from the majority group while at the same time increasing the rate of mistaken incarcerations for members of the marginalized group due to systemic flaws. Similarly, there is a real chance that AI will reinforce social prejudices already in place, making them stronger, and eventually obliterating them, which would have negative effects on equality. However, by structuring the systems to have positive impacts, automated decision-making through AI can offer the possibility to rectify social wrongs. This can only be accomplished by looking for ways to correct biases in human decision-making.

Finally, it should not be understated that there may be risks associated with the judicial decision-making process in structured computer databases, and that proper protections are needed. In actuality, there may be issues with privacy, confidentiality, and the safeguarding of personal information. In this way, it is crucial to ensure that the right to a fair trial and other fundamental values are respected while using artificial intelligence in court.

⁵ F. RASO, H. HILLIGOSS, V. KRISHNAMURTHY, C. BAVITZ, L. KIM, *Artificial intelligence and Human rights*, cit.

II. THE USE OF ARTIFICIAL INTELLIGENCE IN COURT

As previously stated, technology is evolving at a rapid pace, and this is a significant issue in our contemporary society. The law is not exempt from this growth. A small group of experts believe that using artificial intelligence alone in court will aid in reaching a fair resolution to a disagreement because humans are emotionally conditioned. In this instance, artificial intelligence will work as a “black box,” transforming “the fact of the case (input) into a legal consequence (output)” and making the decision to resolve the matter on its own. Conversely, other experts, such as Dr. Nikolaos Aletras, assert that AI has to be employed as a support instrument during legal proceedings.⁶ This will strengthen legal research; in particular, legal companies will use e-discovery tools for cases requiring a large number of documents to be screened. Additionally, the use of artificial intelligence in the judiciary will lessen the impact of variables like emotional instability and fatigue.

Related to this, in December 2018, the European Commission for the Efficiency of Justice settled out the first ethical principles, associated to the use of Artificial Intelligence in a Charter, which provides basic principles that can guide judicial professionals when they confront with the rapid development of Artificial intelligence in the national judicial process. In particular, the Commission has determined five guidelines that ought to be followed when it comes to justice and artificial intelligence: The principles that need to be adhered to are as follows: i) respect for fundamental rights; ii) non-discrimination, which states that AI cannot be used as a justification for discriminating against marginalized individuals or minority groups; iii) quality and security, which addresses the processing of judicial decisions and data by using certifies sourced in a secure technological environment; iv) transparency, impartiality, and fairness, which mandates that the methods of data processing be transparent and intelligible to individuals; v) the principle of “under user control,” which implies that users need to have clear knowledge about the data processing in order to make decisions. Additionally, the General Assembly of the European Network of Councils for the Justice (ENCJ) acknowledged that the use of information and communication technology has fundamentally changed how Europe's justice system is administered in the twenty-first century during a meeting in Warsaw in June 2016 to elect new members. A Council for the Judiciary, or an equivalent governance body, should engage in the process of assessing the quality of justice by first defining a quality framework that lays out indicators, including criteria for the assessment and evaluation of the quality of justice. This was reinforced by the ENCJ. Secondly, establishing procedures for

⁶ D.L DALKE, Can Computer Replace Lawyers, Mediators and Judges?, in *The Advocate*, 1, 2013.

assessing, preserving, and enhancing the caliber of the legal decision-making process. Next, by recognizing and putting into practice best practices that boost public trust in the legal system and making sure that these procedures don't impede the independence of the judiciary either individually or collectively or the justice system.

However, the impact of the digital revolution on European courts is not evenly distributed. As a result, several western European nations, including Malta and Latvia, appear to have created a very sophisticated strategy with practical applications in terms of legal assistance. However, in a few States, like Estonia and Poland, the topic still seems to be in its infancy and will likely be restricted to the development of efficient information technology management in the near future. In addition, Artificial Intelligence seems to be one of the most fascinating and talked-about technologies involved in the massive digital revolution.⁷ In Europe, the goal is to improve the effectiveness of legal and case law consultation, offer frameworks for decisions, examine all corporate documentation, and identify any conflicting or incompatible contractual provisions. For example, some private businesses seek to predict court decisions through a process known as "predictive justice".⁸ Supporters of this approach claim that these technologies would help to smooth out court decisions, increase transparency, and make it simpler to predict them.

Nonetheless, some courts in the United States of America are analyzing a person's risk assessment utilizing cutting-edge technologies like COMPAS.⁹ These devices serve as an illustration of how artificial intelligence may make decisions based on statistical data and are specifically employed in criminal trials to estimate a defendant's propensity to commit new crimes. COMPAS has been branded as unfair by some commentators,¹⁰ who assert that the algorithm may contain biases like racism and discrimination. In conclusion, in my personal point of view, the application of Artificial Intelligence in a judicial procedure, must be limited and follow some fundamental principles such as the right to a fair hearing, the right of non-discrimination, the right to an equal treatment and the respect of human dignity, especially in the criminal law system.

⁷ C. BARBARO, Y. MENECEUR, Issues in the use of artificial intelligence (AI) algorithms in judicial systems, 1, 2018.

⁸ The object is to predict the outcome of a dispute on the basis of criteria previously provided by the user, or to predict the risk of infringement.

⁹ 5 D. KEHL, P. GUO, S. KESSLER, Algorithms In the criminal justice systems: assessing the use of risk assessment in sentencing, 1, July 2017.

¹⁰ J. LARSON, J. ANGWIN, How we analyzed the COMPAS Recidivism Algorithm, 1, May 23 2016

III. JUDGES AND ARTIFICIAL INTELLIGENCE

Our society views judges as having a difficult role.¹¹ In fact, they may be involved in a variety of tasks, including intricate interpersonal interactions, conflict resolution, and adjudicative functions that may involve other judges or, less frequently, juries in some jurisdictions. Different jurisdictions and judges approach their work in different ways. For example, some judges may be more responsive than others, while others may be more compassionate or focused on therapeutic justice. In light of these differences, it might be crucial to ascertain how advancements in artificial intelligence could alter the function of judges in a legal system.

Are there any facets of the judicial role that, in light of AI advancements, guarantee that judgment will always be done by humans? The best way to address this issue is to look at the recent shifts in the ways judges use technology in the courtroom. Predictive coding is one application of AI that is becoming more and more common these days.¹² This is particularly true in the United States, where predictive coding is already being used to help with sentencing decisions and to ascertain whether recidivism was more likely in criminal cases.¹³

Tania Sourdin identifies three ways that technology is changing the legal system in her book *Justice and Technological Innovation*. The first is “supportive technology,” which is the most fundamental level and refers to the use of technology to assist those participating in the legal system. In the meantime, tasks that were previously completed by humans can be replaced by the so-called “replacement technology” found in the second level.¹⁴ The third level, known as “disruptive technology,” has the power to alter the legal system and enable whole new kinds of justice. The majority of technologically aided justice changes implemented today concentrate on the first and second levels. Furthermore, a lot of individuals now find justice services and learn about the legal system online thanks to the first level of supportive innovation, and the number of internet businesses offering unbundled legal services has grown significantly in recent years.¹⁵ Additionally, there is a surge in the use of online court processes for some types of disputes and criminal justice proceedings at the second level.¹⁶ Other technologies may combine to form the “third level,” supporting both the legal and negotiation processes by

¹¹ T. SOURDIN, *Judge vs Robot? Artificial Intelligence and judicial decision- making*, 41, 2018, 1114.

¹² Predictive coding is «an industry specific term used to describe a Technology-Assisted Review process involving the use of Machine learning Algorithm to distinguish relevant documents from non relevant documents. it is based on a subject matter experts’ coding of a training set of documents» <https://www.edrm.net>

¹³ Many of these current developments may have an impact on judges by removing some tasks related functions but unlikely entirely reshape the judicial function or role

¹⁴ T. SOURDIN, *Judge vs Robot? Artificial Intelligence and judicial decision- making*, cit.

¹⁵ T. SOURDIN, *Judge vs Robot? Artificial Intelligence and judicial decision- making*, cit., .1117-1118.

¹⁶ in particular, in the bail applications.

providing individuals with more advanced online counsel backed by artificial intelligence, encouraging them to explore other possibilities, and interacting in different ways. Some of the more useful technology programs, in contrast to conventional rational decision-making techniques, are made to promote the development and multiplicity of possibilities rather than generating a single result.

Regarding this, the Civil Justice Council of the United Kingdom proposed in February 2015 that Her Majesty's Online Court be established for civil disputes valued at less than £25,000. The plan was for the court to function as a tiered system, with the first tier enabling disputants to assess their issues by entering data into an online system that would classify their problem, give them information about their rights and entitlements, and recommend possible solutions to the dispute.¹⁷

Is it ethical to discuss replacing judges now that improved technology help people resolve disputes early and improve the issues that are brought before judges? AI is capable of creating complex conclusions that can predict a dispute's outcome through sophisticated "branching" and data searching, however it is inappropriate to discuss the replacement of judges because judicial decision-making is influenced by a wide range of circumstances. The Australian Law Reform Commission has, in effect, strengthened the statement that "such factors include inductions and intuition, as well as the capacity to assess the social impact of decision".¹⁸ Judges also have a significant role in case administration, the resolution of civil disputes, judicial commentary, and the education of future generations. Judges are not just decision-makers in legal matters; they also play a vital role in society. Therefore, rather than taking the place of judges, artificial intelligence technologies should be used to augment current human labour and enable better efficiencies.¹⁹

In conclusion, defining the bounds of what constitutes appropriate Judge AI necessitates taking into account moral dilemmas, as well as inquiries into the identity of those who create algorithms and Judge AI and the degree to which judicial power over oversight will be preserved. In fact, a lot of technological futurists believe it's unlikely that AI will completely replace humans. Rather, technology advancement is expected to augment human intelligence. This method implied that judges might continue to be human, but with additions.

¹⁷ D. ASKER, *Online dispute- the future for Civil Claims?* April 2015.

¹⁸ Australian Law Reform Commission, *Technology: what is means by federal dispute resolution*, n.23, 1993

¹⁹ T.J. BUOCZ, *Artificial intelligence in Court, legitimacy Problems Of AI Assistance in the Judiciary*, 2, 1, Spring 2018.

IV. ARTIFICIAL INTELLIGENCE AND CRIMINAL JUSTICE

The most terrifying instrument that democratic society can use to prevent someone from exercising their fundamental human rights is the criminal justice system. Given the seriousness of its effects on human rights, lawmakers have developed a framework of procedural rights to shield criminal defendants and convicted parties from human decision-making inconsistencies, such as deliberate abuse of authority or unintentional influence from things like weariness or racism.

Currently, a number of justice systems use automated decision-making methods to achieve efficiency and fairness. As previously noted, for instance, numerous courts in the United States of America are permitted to employ the so-called COMPAS to ascertain a person's risk assessment. However, the way these mechanisms function can negatively impact a wide range of rights. This type of technology relies on human data questionnaire entry and automates the examination of any data that has been entered into the system. This type of tool, according to studies, uses machine learning approaches to continuously adjust risk parameters in response to fresh inputs.

The first attempt to codify the process of determining a person's risk of recidivism dates back to the 1920s, when stratification started to identify objective factors that are predictive of this risk for parolees, according to the Harvard University-based Berkman Klein Center for Internet and Society.²⁰ The goal was to minimize prejudice in the criminal justice system that can be attributed to human bias and to prevent needless deprivations of liberty. With the increasing sophistication of these evaluations, statisticians started taking into account both static and dynamic factors. Eventually, this resulted in the creation of risk assessment inventories, like the Level of Service Inventory, which are used in the field by people with limited statistical knowledge. Furthermore, the pre-existing system has sentenced those it believes to pose the highest risk to lengthy prison sentences, during which time those inmates are prohibited from reoffending, systematically skewing the data available to actuarial risk assessment systems that identify who is at risk of reoffending.

In connection with this, risk assessment instruments in the US have been criticized as being unjust because of the police's excessive focus on minority individuals and neighbourhoods. These tools have actually overestimated the risk of recidivism for people from minority communities relative to majority communities. For instance, Brisha Borden, an Afro-American,

²⁰ RASO, H. HILLIGOSS, V. KRISHNAMURTHY, C. BAVITZ, L. KIM, *Artificial intelligence and Human rights*, cit., 22-23.

was late picking up her god-sister from school when she and a friend stole an unlocked children's scooter and bicycle. Along with her friend, she was taken into custody and accused of stealing the products, which had a combined value of \$80. When their case was compared to one comparable to it, Vernon Prate, a 41-year-old White guy, was apprehended for stealing \$86.35 worth of tools from a nearby Home Depot store. This man was an experienced criminal who had previously served five years in prison for his convictions of arm robbery and attempted armed robbery. Although Borden had a record, it was for crimes from her youth. After COMPAS reviewed the cases of these two individuals, the African-American received a high risk assessment and the White- American, a low risk assessment.

In addition, Wisconsin filed five criminal charges against Eric Loomis at the beginning of 2013 in connection with a drive-by shooting in La Crosse. Although Loomis acknowledged driving the same vehicle later that night, he denied taking part in the shooting. Two of the less serious offenses, “attempting to flee a traffic officer and operating a motor vehicle without the owner's consent,” were accepted by Loomis as a guilty plea. Using COMPAS, the Wisconsin Department of Officer conducted an investigation to assess Loomis' risk assessment. Loomis was sentenced to six years in prison and five years of extended supervision by the trial court, which cited the COMPAS assessment in its sentencing decision.²¹

Then, Loomis filed a motion for post-conviction relief in the trial court, claiming that the court's use of the COMPAS assessment violated his right to an individualized sentence and his right to be sentenced based on accurate information. He also claimed that the use of COMPASS violated his right to due process. However, the Wisconsin Court of Appeals certified the appeal to the Wisconsin Supreme Court²² after the trial court rejected the post-conviction request.

The American legal system has now long bemoaned the absence of objective metrics for determining individual sentencing in criminal cases. Assessment proponents contend that these analyses increase the transparency and reasonability of sentence. However, the use of new technology in the legal field has not always been cheerful, and the research on COMPAS and related evaluations raises the possibility that this situation will also be unfavorable. Therefore, the Loomis ruling did not address whether courts should continue to utilize these assessments given the hazards.

Do these machines, then, positively affect a criminal defendant's rights? On the one hand, these instruments would be preferable to circumstances in which judges have practically free reign to

²¹ Case Loomis vs State/ 81 N.W.2d 749(2016).

²² Ibid.

decide on bail and sentencing. However, there is a chance that some offenders will be mistakenly classified as high risk, which could have a detrimental effect and lead to a harsher sentence than they otherwise would have received. In particular, there is a serious risk that this kind of tools are and will impair the right of minority group to equality and non-discrimination.²³ Due to the lack of a meaningful court review, these instruments negatively affect a defendant's right to a fair and public trial, to a defense, and to an appeal. The Canadian Supreme Court stated in *Ewert v. Canada* that risk assessment instruments “may lack validity in predicting the same traits in minority groups that are developed and validated based on majority groups.” This could, among other things, negatively affect the rehabilitation of individuals from minority populations by limiting their access to cultural programming and opportunities. Additionally, courts lack the institutional capacity to examine how these tools are used in court, yet the objective veneer that covers these tools' outputs hides the subjective judgments that are ingrained in them.²⁴

But as was indicated in the preceding paragraphs, intelligent machines are designed to make sense of the world by using statistical data that their designers provide. A broad use of these instruments in the criminal justice system will be troublesome, particularly for the duty of state. In the Loomis case, for instance, one of the issues that the defendant was considering was the court's ineffective motivation. Therefore, judges are required by law in every legal system to provide a valid justification for each sentence they impose. The Italian Republic Constitution, for instance, stipulates in article 111 that “valid reasons must be provided for all legal proceedings”.²⁵ This indicates that the system guarantees the right to appeal to the parties in a judicial proceeding, but it also guarantees the right to motivation as a fundamental right. The American Constitution²⁶ implicitly guarantees this similar principle. Lastly, despite the fact that women are more sophisticated than males when it comes to automated risk assessment tools, a cursory application of these techniques will lead to unfairness, prejudice, and unequal treatment of people.

V. CONCLUSION

Artificial intelligence is becoming a more and more important part of our society, and its influence on the legal system is unavoidable. However, human labour cannot be replaced by artificial intelligence computers, particularly in the legal system. The judicial system's use of

²³ *Ewert vs Canada*, 2018 SCC 30.

²⁴ UDHR arts 10 and 11(1).

²⁵ Constitution of the Italian Republic, 1948, art 111

²⁶ It is indirectly identified on the Due Process clause indicated in the 5th Amendment of the American Constitution in order to protect the Bill of Rights

artificial intelligence responsibly will enhance the job of judges and attorneys. In fact, rather than taking the role of judges, artificial intelligence must be used as a helpful tool. Furthermore, the application of AI must adhere to fundamental principles and not violate human rights, particularly when handling fundamentally complicated circumstances like criminal ones.
