

# Artificial Intelligence: Trends in the Judiciary Service

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**Abstract:** *This work discuss a contemporary view of the advantages and limitations of the use of Artificial Intelligence (AI) to the service of world justice. AI has been exploited within the judicial service for a long time and despite demonstrating numerous vulnerabilities and limitations. The main advantage is that this technology provides agility in accessing statistical data and jurisprudence, it is also impartial in its algorithm. The disadvantages are the limitations of machine processing speeds, limiting the number of information, and the vulnerability of hacker access on the system, making it manipulable, concerning to serious ethical issues regarding impartiality of data.*

**Keywords:** Artificial intelligence; decision; justice; technology; advantages and limitations

## 1. Discussion

A controversial subject to the judiciary is the use of the Artificial Intelligence (AI) tool in decision making. When it comes to the benefits versus challenges, some questions are raised:

What would the real benefits be?

Agility, impartiality, local and global statistics, database, an interesting tool to assist and guide the judgments of the world judicial system. And what would be the challenges?

Resistance from the fear of the unknown knowing the power of machine learning to replace the human being to judge, real possibilities of data breach and manipulation by hackers, lack of human competence to optimally manage an algorithmic program, what is the real capacity of the AI in making a meaningful data search?

In fact, we still have more questions than answers, however the use of AI as an auxiliary tool for the judiciary is undoubtedly a necessity that is here to stay. So, what can we do to improve and control this innovation for the good of the justice system? Of course, we have to pursue these innovations and logically, this need will provide further progress for other sectors.

Currently there is special hardware and software for such demands already being the bets of the big players in the technological industries.

The world is increasingly seeking to adapt to digital progress in favor of the progress of society, but how long will artificial intelligence be mastered at our disposal in a safe way?

Maybe it still take a while for us to learn to deal with this contemporary trend.

According Redden (2020) in order to update the topic of the use of AI in the judicial system, some trends can be cited:

- A design thinking approach that starts with a problem to be solved is more likely to succeed than simply adopting AI for the reason of being “cutting edge”;
- AI tools have the potential to radically improve efficiency, reduce costs, and expand capabilities across many criminal justice use cases; however, capturing these gains will likely require significant investment and time;
- Despite recent advances in AI methods, deploying AI is not a “plug-and-play” opportunity in most criminal justice applications. High-quality data are a critical prerequisite to successful AI development and deployment in new applications;
- AI is not a single technology; rather, AI is a suite of computational methods that seeks to mimic human intelligence (like any toolbox of technologies, each method has strengths and limitations);
- Risks for AI systems vary by application type; decisionmakers considering AI solutions should carefully consider the technical, ethical, and operational risks as well as limitations of any proposed solution;
- As AI technologies become a larger part of our daily lives, the skills of the criminal justice workforce will need to evolve to fully take advantage of these emerging tools;
- AI will likely enable new forms of criminal activity and the criminal justice community must be prepared to respond.
- Regardless of the technical readiness of AI systems, implementation may require substantial process or procedural changes. In addition to investing in AI technologies, leaders should also invest in a strategy for the change management efforts required to deploy AI-enabled tools effectively;
- AI technologies raise questions about risks to ethical and civil liberties, and the criminal justice system and society at large need to stay vigilant;

- Rates of adoption for AI technologies in criminal justice applications will vary, which presents an opportunity for learning through collaboration.

Still with the same authors, regarding the uses of AI in the judicial realm, six decades after the first studies on the use of AI, it is possible to consider achieving the potential of AI use in the judicial realm. In recent years, we saw the emergence of numerous lawtechs, companies that adopt software and information technologies to boost the productivity of judicial services and that are more concrete practices than the aforementioned “robot-judge” dream.

In according to Cortiz (2020) on the part of law firms, lawtech activities that use AI are predominantly based on its use to search large volumes of documents, through gathering procedural information and decisions handed down by court and even by judge. Analyzing this significant amount of data enables lawyers and parties to foresee decisions and manage risks. This is referred to as “predictive justice,” which permits choosing the most appropriate argument and obtaining the best proofs to support a lawsuit. The aforementioned examples, as well as many others in use and under development, attest to enormous gains in productivity, especially in relation to repetitive tasks or those that involve consulting immense databases. Merely bureaucratic activities or those that require much time and attention on the part of experts can be effectively delegated to machines that will accurately and correctly perform them at any time of day. Apart from these applications, other possible uses of AI by the judicial system include:

- Carrying out notary public routines that do not need to be examined by a judge, such as citations, subpoenas and attachments, which eliminates the time when a case is waiting to be processed by a clerk;
- Locating and freezing assets of debtors, known to be the most critical point in enforcing judicial decisions;
- Detecting procedural fraud (flawed distribution, vexatious litigants, embezzlement of assets by debtors, etc.);
- Providing support to the decisions of judges based on the use of
- knowledge databases proposing solutions backed by precedents;
- Rendering decisions in predictable cases that can be resolved through simple validation of premises established by law;
- Controlling the enforcement of criminal penalties and conditions for
- reduction of prison sentences;
- In electoral cases, for registering candidates and the accountability of candidates, where the system is more capable of detecting fraud than an analyst;
- In social security cases, for analyzing the concession and review of benefits.

According to Zhu et al., (2021) AI is a recently emerging system that uses computers and big data as the basis to simulate human-like behavior with machines. Artificial intelligence is a way to imitate human thinking by learning

massive data knowledge and using algorithms to reason and analyze the data. In the current age of advanced technology, many jobs in the justice system can be replaced by artificial technology technologies. Many courts have now scrutinized the use of artificial intelligence in the judiciary. With AI, timely warnings on all aspects of admissions can effectively protect random or outdated trials and allocate social resources appropriately. In addition, it may better redress cases of misconduct and irregular conduct in the judiciary, which is conducive to justice. Based on BP neural network, research on related content and other methods has drawn relevant arguments, which will provide a certain theoretical basis for artificial intelligence to assist the judicial field in the future. The research in this article shows that artificial intelligence is conducive to suppressing duty crimes in the judicial field, promoting the transformation of extensive processing to intensive processing, and is conducive to judicial efficiency. In 2017, there were more than 8 million first-instance civil cases, but only 100,000 cases were closed. But by 2020, with the construction of smart courts, millions of cases out of more than 10 million first-instance civil cases are expected to be closed.

Bigaton (2021) on her book “Between Humans and Thinking Machines: The Legal Challenge of Building a Global Governance of Artificial Intelligence under the Prism of Ethics”. Whose work reports an urgent attention to the challenges of using AI in the judiciary environment, as well as requests the importance of responsible progress of technologies to control this artificial intelligence tool for the global judiciary system.

According to Reiling (2020) AI can have a number of functions for courts and judges, and also for parties to a case and individuals seeking justice. The function with the best evidence so far of success, is the structuring of large amounts of information, which could make the administration of justice more efficient. Advisory and forecasting are functions that are still subject to many reservations. But when judges use AI results in their judgment, this is accepted in practice, provided they give their reasons. However, there are conditions attached to making AI useful for courts.

The world has already understood that AI has been inserted in the legal environment, but there is the necessity for the improvement of this technological mechanism regarding machine learning in judicial systems. For the proper functioning of justice allied to AI some ethical principles must be followed: Respect for fundamental rights; Equal treatment; Data security; Transparency; AI under user control.

## 2. Conclusions

Artificial intelligence is a noble resource for the good of the Judiciary Service already contributing in significant ways globally, but technological advances need to be developed, especially regarding safety issues by the vulnerability of the system through manipulation by hackers. So efforts must be concerned in promoting advances in control and guidance of the limitations of AI as an instrument to the judicial service.

## References

- [1] Redden, J., Dix, M. O., & Criminal Justice Testing and Evaluation Consortium. (2020). Artificial Intelligence in the Criminal Justice System. U.S. Department of Justice, National Institute of Justice, Office of Justice Programs. Available: <http://cjtec.org/>
- [2] Cortiz, D. (2020). Artificial Intelligence: fairness, justice and consequences. Internet Sectoral Overview. Available: [https://cetic.br/media/docs/publicacoes/6/20201016165931/panorama\\_setorial\\_ano-xii\\_n\\_1\\_Year%20XII%20-%20N.%201%20-%20Artificial%20Intelligence\\_fairness%20justice%20and%20consequences.pdf](https://cetic.br/media/docs/publicacoes/6/20201016165931/panorama_setorial_ano-xii_n_1_Year%20XII%20-%20N.%201%20-%20Artificial%20Intelligence_fairness%20justice%20and%20consequences.pdf)
- [3] Zhu, K.; & Zheng, L. Based on Artificial Intelligence in the Judicial Field Operation Status and Countermeasure Analysis. Volume 2021 | Article ID 9017181 | <https://doi.org/10.1155/2021/9017181>
- [4] Bigaton, T.R. Between Humans and Thinking Machines: The Legal Challenge of Building a Global Governance of Artificial Intelligence under the Prism of Ethics. Lumen Publisher, 1st edition. Available at: <https://www.amazon.com.br/Entre-Humanos-M%C3%A1quinas-Pensantes-Intelig%C3%A2ncia-ebook/dp/B09MMKLW4J>
- [5] Reiling, A.D., 2020. Courts and Artificial Intelligence. *International Journal for Court Administration*, 11(2), p.8. DOI: <http://doi.org/10.36745/ijca.343>