PARONAMA OF ARTIFICIAL INTELLIGENCE IN BRAZILIAN COURTS

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Abstract. The number of processes in Brazilian territory is high compared to other countries. In fact, the number of judges and court servers does not follow the avalanche of existing cases in our country. With this, a new element has emerged to assist the Brazilian courts, these are computer systems that use AI (Artificial Intelligence). Such intelligent tools have generated significant changes in the legal ambit. Among the AI systems currently used in the courts, are Victor (STF), Socrates (STJ) and Radar (TJMG), which aims to benefit the entire process and facilitate the work of magistrates and lawyers. To obtain greater productivity, the courts seek to adapt to new reality, aiming to achieve efficiency that society expects from justice. The present work target to conduct a study about the panorama of systems that use Artificial Intelligence installed in Brazilian courts to assist in their effectiveness and improve the Brazilian judicial process, generating productivity of the courts. In addition, it intends to answer which courts of Justice of Brazil artificial intelligence is being used and how it applies in practice.

Keywords: Artificial Intelligence, Judiciary, Brazilian Courts, Victor, Socrates.

1   Introduction

Currently, with the availability of information, people have started to recognize their rights in relation to society and, as a result, there has been an increase in the number of disputes. However, the number of servers did not keep up with the generation of processes, which led to an overload of magistrates.

According to the NJC (National Justice Council) the number of lawsuits pending by the judiciary has increased each year. As a result, some courts began to use systems with artificial intelligence algorithms to speed up processes in order to reduce the amount and help the judiciary.

In this context, this study aims to carry out a bibliographical review of scientific articles written on this topic in the sphere of the Brazilian judiciary, as well as official websites of the courts that contribute to the A.I. systems already implemented by the Brazilian Justice.

Artificial intelligence is a technique that aims to provide computers with pattern recognition means [1]. Such systems have helped several areas such as: medicine, agriculture, public security, arts, among others.

The NJC implemented a platform for the common use of systems that use A.I. in order to enable analysis of the mass of existing data and provide solutions to support the decision of judges or the preparation of minutes of judicial acts in general [2].

2   Artificial Intelligence in the Judiciary

Since antiquity, humanity has sought to find efficient ways to solve everyday problems. In the 18th century, for example, with the advent of the Industrial Revolution, there was the development of machines to optimize services in different areas of work. In order to avoid repetitive work, robots and various computer systems were later implemented. Such software enabled the automation of various processes in different industries [3].

Artificial intelligence emerged with the aim of helping with problems that traditional software could not, such as computer vision, text recognition, speech and translation [4].

Since the end of the 20th century, technology began to be part not only of companies, but also of society, with the judiciary having to adapt to the new reality. On a legal level, there are several examples of the use of Artificial Intelligence. Here are some examples:

In Italy, the police created a system called X-Law, it is an algorithm that allows "to predict crimes". This system uses algorithms to find out what are the probabilities of a crime occurring in a certain region at a certain time [5].

A British company, through its system, helped in solving corruption crimes in the *Rolls-Royce*, by helping the *Serious Fraud Office from United Kingdom*. In this case, the system created by the British company, classified documents in different categories in less time than humans and without errors, a procedure that would take months if done by humans. In addition to the use of AI, there were others with the same purpose [6].

The "rules-based AI and knowledge representation" approach allows the elements to model the world in a way that a computer can process and reason. An example would be the tax compliance system in the United States:

> "To do so, industry professionals have examined US personal income tax laws to translate the underlying logic of these legal provisions into a set of computer rules that accurately reflect the underlying meaning." [7].

According to the author [7], a program was created with application in the decision-making process of magistrates.

> "...investigated the influence of robotic systems in a sentence determination situation, the results showed that most study participants tend to agree with the material presented, and intelligent systems are treated in the same way as human being a relevant source of information for human decision making, in some cases they could be considered more trustworthy than humans".

2.1 - Artificial Intelligence in Brazilian Courts

In Brazil, according to the Federal Constitution (Brazil, 2020), the courts of the Judiciary are defined as follows, with 91 courts in total. They are:

1 supreme court: SFC (Supreme Federal Court);

4 higher courts: SCJ (Superior Court of Justice), SMC (Superior Military Court), SEC (Superior Electoral Court) and SLC (Superior Labor Court);

27 Federative Units each have: 1 CJ (Court of Justice);

27 REC (Regional Electoral Courts);

24 RLCs (Regional Labor Courts);

5 FRCs (Federal Regional Courts);

3 SMCJs (State Military Courts of Justice).

The National Council of Justice (NCJ) tries to standardize the procedural information of the courts, aiming at greater speed and intercommunication between them. Before the new CCP (Code of Civil Procedure) and the resolutions of the NCJ, in which case resolution 235/2016 stands out, it was common among lawyers to call the judiciary, especially in the 1st instance as "Russian roulette", as communication between courts, especially superiors with lower courts, was not very efficient, and for lack of regulation, monocratic decisions were often different from the majority understanding of higher courts.

Today, despite the lower frequency, there are still opposing decisions, but the care is much greater, as the reasoning of the decision may be different, as well as the "distinguishing" which deals with the hypothesis of non-

application of the precedent in the concrete case [8].

With the new CCP, an attempt was made to make the jurisprudence stable, complete and coherent, art. 926, CCP. Stable jurisprudence for the author [8] is:

"The stability of jurisprudence prevents courts from simply abandoning or modifying without any plausible justification (sometimes even without any justification) their consolidated understandings. The court cannot, under penalty of violating the principle of legal equality and, above all, legal certainty, simply fail to apply a consolidated understanding without serious, palatable and duly exposed justification" (Page 1.394).

In addition to possible decisions opposing the understanding of higher courts, there is the problem of the number of cases being processed by the courts. With the proposal to resolve the intercommunication and the delay in trial, artificial intelligences in the courts were created. An example of how it works would be "Victor", an artificial intelligence of the SFC, which obtains to filter extraordinary appeals and repetitive appeals in order to find cases with general repercussion, by changing the individual analysis, optimizing the functioning of the Court [9].

The objective of the NCJ is that community courts with each other, automating the judiciary and supporting the decisions of magistrates.

Talking about the SFC - "Victor" system, it acts mainly in the separation, classification and identification of the themes of general repercussion of the five main parts of the records: appealed judgment, the judgment of admissibility of the extraordinary appeal, petition of the extraordinary appeal, sentence and grievance in the resource [9]. "Victor" uses a learning mechanism with the purpose of evaluating resources on topics of general repercussion [10]. According to SFC data:

"...the system evaluates about 10 thousand extraordinary resources, a task that required an average of 30 minutes of service, the robot "Victor" performs it in just five seconds" [11].

It also identifies the appeals that fall under one of the twenty-seven most recurrent themes of general repercussion and the respective return to the courts of origin.

Socrates, the SCJ system, uses the text recognition technique, separates and classifies the process even before the procedural distribution [7]. The system displays the questioned provisions of law and the paradigms cited to justify the divergence of resources. In addition, the Socrates system is being improved to identify identical controversies and position actions that can apply precedents and precedents of the SCJ itself [12].

States such as Acre, Alagoas, Amazonas, Ceará and Mato Grosso do Sul, use the same system, called LEIA *(Legal Intelligent Advisor)*. The system acts mainly in the classification of appeals that fit precedents [7]. Precedents are "model" decisions that serve to judge similar cases [8].

According to CJAC information:

"The system seeks mathematical semantic correlation of the document and indicates those processes that have the highest level of statistical significance with the algorithm" [13].

The CJ from Rondônia created the Synapse. An algorithm using AI technique that shows the next steps of the process to the magistrate and assists him in the judgment with sentence suggestions. According to the court itself:

"The model created by the court has already used 44,000 orders, sentences and judgments of a magistrate to train an Artificial Intelligence that classifies the type of movement in the judicial process" [14].

The Minas Gerais State Court of Justice created the Radar system, with the ability to identify and separate appeals with identical requests. According to the author [7]:

> "In a session of the 8th Civil Chamber of the Court of Justice of Minas Gerais (CJMG) a total of 280 cases were judged in less than a second. It was the beginning of the Radar project".

Once the system classifies and separates the appeals, the judges elaborate a "model" vote to proceed to judgments together in similar cases.

At CJPR, the Artificial Intelligence and Automation Project (AIAP) is a system used for tax enforcement. According to the author[15].

> "AIAP managed to carry out more than 4,500 requests for blocking in values, AIAP helped to block more than R$ 3.5 million".

The author [7] shows that the AIAP system works together with the government software Bacenjud (used for blocking values), identifying data from the active debt certificate.

The CJRJ also created a system for tax enforcement called PoC (*Proof of Concept*). This system also works in conjunction with two other existing ones, *BacenJud, RenaJud* (Judicial Vehicle Restriction) and *InfoJud* (Judiciary Information System)

According to the author [7]:

"It performs online attachment via BacenJud and RenaJud systems of amounts available at banking institutions and unavailability of motor vehicles, also provides consultation via InfoJud with the Federal Revenue database in order to identify assets subject to attachment in the debtor's assets."

At CJPE, he created the Elis project, the system analyzes various documents, dates and procedural data, with a focus on tax enforcement. In addition to identifying registration differences, different competences and possible prescriptions [16].

The CJRS and the CJRN, inspired by the Elis Project, of the Pernambuco Court of Justice, developed a system using AI, also applied in tax enforcement processes [17].

The CJGO created BERNA, a program that identifies and unifies several processes in progress that are similar in order to apply to them certain knowledge acquired from the court itself or from the higher courts [7].

3   Conclusion

The judicial system as well as several companies found the need to use intelligent systems to assist in decision making. The number of lawsuits in the courts grows every year and, as a result, the relationship between demand and magistrates becomes unbalanced. In this context, artificial intelligence emerged to assist from the screening of cases in the Brazilian Federal Superior Court to the next steps after a trial.

Among the computational systems used in federal and state courts, Victor (SFC), Sócrates (SCJ) and Radar (CJMG) stand out. Victor uses a machine learning engine for the purpose of evaluating resources on topics of general repercussion. The feature that caught the most attention of this AI is the processing speed.

In the same vein, Socrates displays the questioned provisions of law and the paradigms cited to justify the divergence of resources.

We cannot deny the help that intelligent systems have done in the courts. It is something that the judiciary will be able to expand over the following years, implementing for the most part.

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