# Artificial Intelligence within the Judiciary

For the Judicial Education Institute - Turks and Cacos Islands

# Challenges

- Litigation
- Speed
- Limited resources (human, financial, structural)
- "Delayed justice is not justice; it is qualified and manifest injustice."
  - Ruy Barbosa, in **Prayer to the Young**, 1921.



# A possible solution: Technology

Technology is reframing the way we live and interact. It is only natural that it also changes the way we deliver justice.

# The Online Courts Movement

"What is a court? Is it a place where I go, or is it a service that is delivered to me?" (Susskind)

The OCM rethinks the way we handle conflicts.

### The Online Courts Movement

#### The Approach:

- Court as a service, not a place
- Online environments (efiling, online meetings, and hearings)
- Asynchronicity



# Example: Brazilian Federal Justice

- Scenario: Approximately 80 million lawsuits
- Settlement rate: Less than 8%
- A judge rules on 13 lawsuits per working day
- Since 2019, technology has been seen as a way to deal with all of that.



# Example: Brazilian Federal Justice

- 3rd Federal Court of Campos Virtual Decision Panel
- The **Virtual Decision Panel** allows users to see which decisions of each type have been drafted, providing an organized overview of ongoing procedural activities.



Descrição	Quantidade
Sentenças para assinar	1 <b>C</b>
Despachos para assinar	1 <b>C</b>
Minutas para assinar	2 <b>C</b>
Minutas bloqueadas	0 <b>C</b>
Expedientes	0
Minutas com lembrete	0
Urgentes	0

# Example: Brazilian Federal Justice

#### • 3rd Federal Court of Campos -Judge's Virtual Desk

• The Judge's Virtual Desk, on the other hand, works like a virtual counter, where the judge can view what still needs to be decided. It organizes the cases as if they were physically laid out in front of the judge, allowing them to choose where to begin, and thus prioritize their decisions more efficiently.

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### Example: Brazilian Federal Justice

- 3rd Federal Court of Campos –
- Judge's view of the draft prepared by the team for a decision to be issued.

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PROCEDIMENTO DO JUIZADO ESPECIAL CÍVEL Nº 5003140-39.2024.4.02.5103/RJ
AUTOR: PAULO ROBERTO FORTUNATO SELVO
RÉU: INSTITUTO NACIONAL DO SEGURO SOCIAL - INSS
DESPACHO/DECISÃO
Intime-se novamente a parte autora para que, no prazo de 10 dias úteis, manifeste-se sobre a proposta de acordo formulada pelo INSS, no bojo da contestação (evento 16, CONTI), informando, na oportunidade, se recebe ou não benefício de aposentadoria ou pensão de Regime Próprio de Previdência Social. Em caso positivo, deverá apresentar declaração nos moldes do anexo I da Portaria nº 528/PRES/INSS, de 22/04/2020.
Vale destacar que a aceitação deverá ser assinada pela
propria parte autora ou por advogado com poder específico para transigir, como determina a lei processual (CPC, art. 105).
Após, voltem os autos conclusos.
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### The Online Courts Movement

#### • Key Principles

- Prioritizing settlement over state decisions
- Gathering data to understand patterns of behavior
- Adopting technological tools to assist judges and judicial operators



### The Online Courts Movement

- General risks related to the new space:
- **1.Cybersecurity** and the need to reframe protection – e.g., Brazil
- **2.Digital Divide** unequal access to digital technologies



A deeper dive: what can technology do for the Judiciary?

- Automation vs Artificial Intelligence
- Automate: To make something operate automatically by using machines or computers. There is no room for choice. *E.g.,* information delivery.
- Al: Multiple paths, and the system chooses one.
- **Automation:** Simple, with no risk. What about AI?

# Al within the Judiciary

**1.Predictive AI** (especially machine learning systems): classifies data, identifies patterns from past events, and makes predictions about future events.

**2.Generative AI:** generates data.





### 1) Predictive AI

- Currently, Brazil has approximately 140 AI projects in the Judiciary.
   80% of them adopt machine learning (ML).
- But what is ML and how does it work?

### One step back:

### what is an algorithm?

**"Algorithm** is a sequence of instructions that tells a computer what it should do"**(Pedro Domingos)**.



#### INPUT→PROCESSING→OUTPUT

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### **ALGORITHMS**

#### CATEGORIES:

#### **1.Programming algorithms / Good Old-Fashioned A.I.:**

The programmer defines the entire path that the information (input) will follow until the end of the process when the result (output) is presented.

→ Although intelligent decisions are made in this case, the software has not learned anything by itself. These algorithms do NOT worry us.

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### **ALGORITHMS**

#### **CATEGORIES:**

#### **2.** Non-programming algorithms / Machine Learning

Alan Turing ("Computing Machinery and Intelligence"): "Why, instead of giving the computer all available information, don't we program the computer like a child's brain, with an autonomous ability to learn?"

**MLA** (Machine Learning Algorithms) learn based on the data they are fed. Due to this "learning" activity, they create their own programming.

The technique spread since the 1970s and has recently gained traction due to big data.

### **Example: Neural Network with Back Propagation** (supervised learning):

Supervised learning technique: uses labeled data sets to train algorithms to recognize patterns and predict outcomes. *Example:* bank loans

#### •Neural Network (NN):

A learning model based on a trial-and-error strategy, gradually identifying the best paths and decisions to achieve specific goals.

•Back Propagation: When the goal is reached, the system reinforces the path in the underlying mathematical model.



### In a nutshell

- Predictive AI analyses DATA to find PATTERNS OF BEHAVIOR and to make reccomendations upon them
- The data is in the PAST. There is NO CREATIVE ACTIVITY in this species of AI.



# Predictive AI in the Judiciary

Real examples:

- Identification of lis pendens, issue preclusion (collateral estoppel) or time-barred lawsuits
- Electronic judicial attachments and asset research



# Predictive AI in the Judiciary

Examples:

- Classification of lawsuits (defining the procedural process, grouping similar cases)
- recommendation of applicable laws & binding precedents



# Predictive AI in the Judiciary

Examples:

Identification of similar cases to use their rulings as models

Drafting decisions based on previous rulings



## Predictive Al Risks

Loomis

Case:

an important red flag

## **Predictive Al Risks**

1) Opacity

2) Discrimination



### Opacity

- **BLACK BOX**: Machine learning algorithms (MLAs) operate in complex ways, and simply observing the output of their operation usually doesn't reveal the internal processes that convert inputs into results.
- Even examining the code often doesn't resolve the issue of opacity, as the code in ML algorithms does not dictate the rule governing decisions; instead, it provides instructions that guide the learning process.
- In reality, the **RULE OF DECISION** arises from the interaction between the learning process and the vast amount of data fed into the system.

### **Solving Opacity:**

**Explainable AI (XAI)** – an emerging field focused on demystifying the "black box" decisions of AI systems. XAI seeks to understand the models and steps involved in AI decision-making through the use of additional algorithms.



### Discrimination

#### SOURCES OF BIAS

1. DATA - Algorithms learn from the data they are provided, and since this data is produced within biased societies, it is natural that algorithms also learn and replicate these biases. As a result, they often end up targeting historically vulnerable groups, such as women and Black people.



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# Discrimination

#### **SOURCES OF BIAS**

2) **PROGRAMMING** – Framing the problem: translating complex issues in a way that the software can understand. For example, defining terms like "a good professor" or "a good employee."

# Solving discrimination?

#### A Much Harder Task!

Identifying the sources of bias through which discrimination infiltrated the system.

Different strategies include: data cleaning according to fairness parameters, reframing potential solutions, etc.



Predictive AI: Overcoming Challenges, Embracing Opportunities

- **Predictive Al vs. Human Brain**: Both are opaque and discriminatory.
- **Hybrid decisions** (human + machine) present an opportunity to address the opacity and implicit (or explicit) biases of human decision-makers, which can be much harder to detect and eliminate than computational ones.



### 2) Generative Al



### **Generative Al -**How does it work?

- Google vs GenAl
- CREATIVITY
- Output  $\rightarrow$  sth new!



### GenAl

- General Tools Available Examples include ChatGPT, Claude, Gemini, Bard, and others.
- Specific Tools for Specialized Tasks

Generative AI can be used for more focused tasks, such as creating knowledge repositories, generating diagrams, producing slides, and summarizing court decisions.

# What is GenAl good at (for now)

- Improving Texts: Correcting, summarizing, and changing styles.
- Comparing Ideas: Analyzing and contrasting different concepts.
- **Suggesting Alternatives**: Offering new perspectives and creative solutions.
- **Creating Histories**: Generating fictional narratives or timelines.



# What is GenAl good at TODAY?

- **Creating Campaigns**: Tailoring marketing or electoral campaigns for specific audiences.
- Creating Deepfakes:

Manipulating images and recordings to misrepresent reality.



### The Prompt: Framing the Right Question

- Prompts are inputs given to Al models to get specific responses. They can be natural language sentences, questions, code snippets, or a mix of both, depending on the task.
- Examples of Fun Prompts:
- Tell me a joke about [topic].
- Write a pun-filled birthday message for my friend.
- Create a playlist of songs about [X].



### The Prompt: Framing the Right Question

#### **Examples of Legal Prompts:**

- Develop a Legal Strategy: Prompt: What are the risks and benefits of pursuing [describe strategy]?
- **Create Discovery Questions**: *Prompt*: Generate a list of clear and concise questions for opposing parties in discovery for [specific legal issue].



# The Prompt: Framing the Right Question

Josh Kubiki's guide on how to Interact with chatgpt follows a model called the 5 Ps:

#### prompt < personas >

Guide < 5 P's >

Primegive it some contextPersonapersonality, tone, expertise, backgroundPromptclear, specific, series of actionsProductwhat do you want back and howPolishelaborate, refine, verify, and evaluate

# GenAl in the Judiciary



# GenAl in the Judiciary

#### USES:

- 1) Private Uses of GenAl for Judges:
- Writing assistant for drafting opinions and decisions
- Aid in analyzing case details and arguments
- Tool for exploring alternative legal scenarios
- Summarizing legal documents
- Identifying inconsistencies in witness testimonies
- Assisting in drafting questions for expert witnesses, etc.
- $\rightarrow$  Regulation?



# GenAl in the Judiciary

#### 2) Institutional uses:

- General institutional use ightarrow demands education
- Specialized gpts for specific legal tasks: early initiatives in Brazil. Eg: Assis (TJ/RJ)

#### →Cost

 $\rightarrow$  governance agreements on sensitive data

### Problems of GenAl





THE MAIN PROBLEM: **HALLUCINATIONS -** INCORRECT OR MISLEADING RESULTS HALLUCIONATIONS ARE A CONSEQUENCE OF VARIED REASONS REGARDING **TRAINING DATA** (INSUFFICIENT OR BIASED); **MODEL ASSUPTIONS** (INCORRECT ASSUMPTIONS); **DESIGN FOCUS** (ON PATTERN-BASED CONTENT GENERATION); **ADVERSARIAL ATTACKS** (BAD ACTORS CAN MANIPULATE THE OUTPUT BY SUBTLY TWEAKING THE INPUT DATA); **LIMITATIONS OF AI TECHNOLOGY**. How to avoid the problems of GenAl in the Judiciary?

- SPECIFIC PROMPTING
- ETHICAL ALIGNMENT (VS JAILBREAKS)
- **GROUNDING:** connects the output to verifiable sources of information
- **REVIEWING :** Eg: Brazil
- REGULATION

# The path forward

### The path forward

GATHERING/ONGANIZING DATA

**ANALYSING** THE LEGAL SYSTEM/ENVIRONMENT

#### **CHOOSING** BEETWEN:

- 1) AUTOMATION,
- 2) PREDICTIVE AI
- 3) GENERATIVE AI



### CONCLUSION

 In this rapidly evolving landscape, the key question for the future of the Judiciary is not IF technology will be integrated, but rather
 WHERE AND HOW it will be implemented, and what safeguards must be in place to ensure its responsible use.



# THANK YOU

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