WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

Role of AI in Bail Granting Power of Courts

Vibhanshu Shekhar Singh

Amity University, Noida
E-mail- vs731471@gmail.com
DOI: https://doi.org/10.55248/gengpi.5.0524.1307

ABSTRACT—

In the Era of computer software, we cannot deny the use of Artificial Intelligence because, it has potential to work even more than humans within small amount of time. Now it's time to ease our work through the use of AI. AI is basically a simulation of human's intelligence processed by the use of software. AI can help us in decision making by analyzing various data and make probable prediction in small amount of time, which can ease our life our criminal justice system, bail is the very significant because it helps in ensuring the personal liberty of the accused. The basic jurisprudence behind the bail is to ensure the physical appearance of the accused at the trial and it also provide an opportunity to the accused to prepare defence in his favour. Granting bail is purely a discretionary matter in non bailable cases, there may be possibility of biased discretion. So, in order to curb the biased discretion, we can take recourse of AI by developing various techniques. In this work, the researcher gathered the Secondary source of data and try analyse the potential of AI in assisting the court while granting bail.

Keywords—Artificial Intelligence, Law, Practice, Technology,

1. WHAT IS AI

A. INTRODUCTION

Generally, Judges rely on their judicial mind and their own Judicial experience to determine the risk of the accused while granting bail. But it is found by the research that when they rely on their intuition, they give more weight to the facts and circumstances of the case, rather on predictions. The use of risk assessment tools started in the 1920s. However, since the 1960s, more advanced versions have been developed. In many arenas, people are beginning to believe that risk assessment tools are more accurate and efficient than human brains. According to experts, such tools are useful in reducing the amount of time that law enforcers spend on investigations.

In case of Judicial discretion, there is a lot of room the Judges to make their own decision regarding the release of the accused. This allows them to reach at just and fair results by ensuring the protection of liberty of the accused based on the facts and circumstances of the particular case. Some Judges are motivated to impose harsh detention just because of public perception, that they are responsible for the actions of accused who were released on bail. Keeping low-risk individuals in custody is not likely to affect the reputation of the judge. The main focus of this Paper is to ascertain how far AI System assist the judges while granting bail.

2. MEANING OF AI AND BAIL

A. Artificial intelligence: - "An AI machine is a robot or digital computer that can perform a task that's usually associated with an entity or individual with intelligence." [1]AI stands for "Artificial Intelligence". Artificial intelligence is a type of computer system or software that can perform specific tasks typically associated with humans, such as speech recognition and visual perception. These systems are

designed to acquire, reason, self-correct, and learn, which makes them capable of handling complex tasks without requiring much human intervention.

B. BAIL: - "Bail is a security for the appearance of the accused person on which he is released pending trial or investigation of the case." [2]

The term "bail" is derived from the Old French word "baillier," which literally means to give custody. In a legal context, bail is the system in which the accused is released by the court, on the condition that he will make sure his presence at the trial by signing a bail bond in his favour. In simple terms we can say, bail is a mechanism to set an accused free who is undergoing detention by taking security either in terms of money or property for his appearance. Bail is a conditional liberty.

3. ENABLING AI THROUGH MACHINE LEARNING

The subfield of AI known as machine learning focuses on the development of statistical models and algorithms to enable computers to make predictions and decisions, based on data without being programmed. In other words, machine learning involves instructing a computer on how to improve its performance through experience.

There are various kinds of techniques used for machine learning.

1. Supervised Learning: In supervised learning, the aim is to train a mapping function that can predict the output value of a given feature or input. This method is carried out through a set of examples that are labelled. The learning algorithm is then provided with a dataset with both the input and output pairs. The goal is to learn an unsupervised rule that can be utilized to predict the output of new inputs. We can enable AI through supervised machine learning involves several steps, including:
    a. Problem Definition: The Initial step is to decide the problem that the AI system will deal with. Basically, it involves identifying the goal of the system, the types of data that will be used, and the metrics that will be used to evaluate the system's performance.
    b. Data Collection and Preparation**:** The second step in developing an AI system is to gather and prepare the necessary data to train it. This process involves identifying the sources of the data, transforming them into a format that can be used for training, validating, and testing.
    c. Feature Selection: The third step in the development of an AI system involves choosing the most crucial features, which will be used in training the system. This involves recognizing the characteristics that will be most relevant to the given problem.
    d. Model Selection**:** The fourth step is to select an appropriate supervised machine learning algorithm for the problem. It involves evaluating the performance of several different algorithms on the training data and selecting the one that performs best.
    e. Model Training: In next step**,** the selected algorithm is trained by using the specified features, and the model's parameters are adjusted to reduce the differences between its predicted and actual outputs.
    f. Model Validation: In next step, the trained model is then validated on the validation data to evaluate its performance. This involves assessing the accuracy of the model's predictions and making adjustments to the model if necessary.
    g. Model Testing**:** In next step, Once the model got validated, it is tested on the testing data to evaluate its generalization performance. This involves assessing the model's performance on data that it has not seen before.
    h. Deployment: In next step, After the model has been thoroughly tested and validated, it can be released into a production environment and used in a system or application that can use its predictions to perform actions or make decisions.
    i. Monitoring and Maintenance**:** Finally, the deployed model should also regularly be maintained to ensure that its performance continues to improve. This can be accomplished by regularly monitoring its progress, adding new data, and training it again if required. [3] [4]
2. Unsupervised learning: -Unsupervised learning is an approach to machine learning that involves, identifying structures or patterns in data without requiring predefined examples or targets. This method works best when it comes to detecting hidden relationships or data patterns.
3. Semi Supervised Learning: In semi-supervised learning, the data collected is composed of both unlabelled and labelled examples. This method aims to improve the accuracy of its training model by using the labelled data to guide its learning process. This is beneficial in certain situations, such as when there is a limited quantity of labelled data. This method is particularly beneficial when the cost of labelling data is high or there is a limited supply of samples.
4. Reinforcement learning**:** It involves training an agent to behave in a certain way in order to get a reward signal. This process works by giving the agent feedback in the form of punishments or rewards, which it then uses to learn a policy that will allow it to maximize its reward. The goal of this method is to provide an agent with the necessary skills to make informed decisions. This is unlike supervised learning, which involves training the agent on specific data.

4. HOW SML WORKS IN GRANTING BAIL.

Supervised machine learning is used in granting bail by creating a predictive model that can estimate the probability of a defendant failing to appear in court or committing another crime if they are released on bail. The process involves the following steps:

1. Data Collection**:** The first step is to collect a dataset of past cases that includes information of the accused who were granted bail, as well as those who were denied bail. The dataset should include information on the accused's characteristics, such as age, criminal history, and employment status, as well as information whether they appeared in court and whether they committed another crime while on bail.

2. Data Pre-processing: The second step is to pre-process the data to ensure that, it is ready for use by a machine learning algorithm. In addition to monitoring the model's performance, this can also involve cleaning the data and converting it into a suitable format.
3. Feature Selection: The third step is to select the most important features that will be used in the predictive model. This involves identifying the characteristics that are most closely related to the accused's likelihood of appearing in court or committing another crime while on bail.
4. Model Training**:** The fourth step is to train a machine learning algorithm, such as logistic regression or decision trees, using the labelled data. The algorithm learns to predict the likelihood of a defendant failing to appear in court or committing another crime based on the selected features.
5. Model Validation: The next step is that the trained model is then validated on a separate dataset to evaluate its performance. This ensures that the model doesn't get too fitted to the training data. It can also generalize well to new situations.
6. Deployment: The last step is that, once the model is validated, it can be deployed to assist judges in making informed decisions about granting bail. Judges input the accused's characteristics into the model, and the model produces a probability score indicating the likelihood of the defendant appearing in court or committing another crime if released on bail.

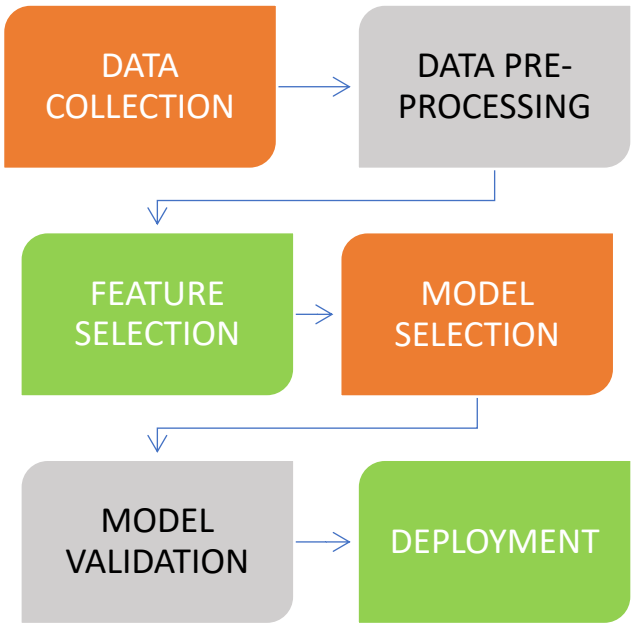

Figure 1: showing model regarding use of AI While granting bail.

It is crucial to mention that the use of supervised machine learning in granting bail should be just one of many factors considered by judges. The final decision should always be made by a human judge who takes into account all relevant factors, including the severity of the charges and the defendant's individual circumstances. [5] [6] [7]

V. WHAT TYPE OF DATA REQUIRED BE FEED IN AI SYSTEM REGARDING BAIL?

The data that is feed into an AI system for the purpose of assisting with bail decisions can vary, depending on the various considerations. However, some of the types of data that may be considered includes:

1. Criminal history: Information about the accused past criminal record, including any prior convictions, arrests, or charges.
2. Flight risk: A defendant's likelihood of being a flight risk is assessed by taking into account his or her ties to the community, family obligations, and employment status.
3. Severity of the charges: The nature and severity of the charges that the accused is facing can also be considered in bail decisions.
4. Social and economic background**:** Data related to accused's social and economic background, including factors like age, race, education, and employment status, may also be considered.
5. Risk assessment: Risk assessment tools may be used to predict the likelihood of the defendant committing additional crimes or failing to appear in court if released on bail. If the person has not appeared at a pre-trial hearing within the last two years, or if they have not been present at one for more than two years, then they are considered to be unfit for trial.

6. Other relevant factors: Other factors that may be relevant to the bail decision, such as mental health status, substance abuse issues, or prior compliance with court orders.

It is crucial to mention that the use of certain data, such as race or ethnicity, in the bail decision-making process is controversial and may be subject to legal restrictions. It's important that Machine Learning systems used in the bail process are designed to prevent bias and ensure fairness and transparency. [6] [8]

VI. HOW FAR MACHINE LEARNING CAN BE USED AS TOOL WHILE GRANTING BAIL.

AI through Machine Learning can be used in several ways to assist judges in making more objective and data-driven decisions while granting bail. Here are some examples:

1. Risk Assessment: AI algorithms can be used to analyse data from past bail decisions and identify patterns that correlate with a higher likelihood of a defendant fleeing or committing a crime while out on bail. Based on this analysis, the AI system can generate a risk score for each defendant, which judges can use to make more informed decisions about whether to grant bail and under what conditions.
2. Case Analysis**:** AI can also be used to analyse case details, such as the charges, the accused's criminal history, and other relevant factors, to provide judges with additional information to consider when making bail decisions.
3. Prediction of Outcomes**:** AI can be used to predict outcomes in individual cases. By analysing data from past cases with similar characteristics, AI algorithms can provide judges with predictions of how likely a defendant is to show up for court, reoffend, or comply with the conditions of their bail.
4. Monitoring**:** AI can also assist in monitoring accused persons who are released on bail. For example, an AI-powered monitoring system could track the accused's location using GPS, monitor their social media activity, or detect the presence of alcohol or drugs in their system. If the AI system detects any violations of the conditions of bail, it can alert authorities or judges to take appropriate action.

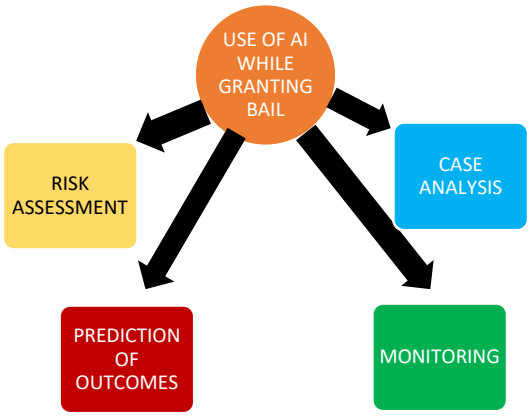

Figure 2 : Showing various use of AI while granting bail.

It is crucial to mention that while AI can be a useful tool in making more informed and objective bail decisions, it should not replace human judgment entirely. Judges should still have the ability to exercise discretion and consider the unique circumstances of each case when making bail decisions. [9] [10] [11] [12]

SR. NO	Countries using AI in granting bail.	Name of Methods
1.	U.SA	1.Colorado Pretrial Assessment Tools (CPAT). 2. Public Safety Assessment (PSA) 3. Virginia Pretrial Risk Assessment Instrument (VPRAI)
2.	U. K	1. Harm Assessment Risk Tool (HART), 2. Offender Assessment System (OAS)

3.	Brazil	1. VICTOR 2. SOCRATES 3. SIGMA
4.	India	1. Supreme Court Portal for Assistance in Court Efficiency (SUPACE) 2. Optical Character Recognition (OCR) 3. Crime and criminal tracking network and system (CCTNS).

TABLE I: Different AI software used by different countries

VII. TO WHAT EXTENT JUDGES SHOULD RELY ON THE RESULT PROCESSED BY AI(SML) WHILE GRANTING BAIL.

While supervised machine learning algorithms can assist the court in making informed decisions about granting bail, judges should not rely solely on the results produced by the algorithm. Instead, the algorithm's output should be treated as one of many factors that judges consider when making bail decisions.

There are several reasons for this:

1. Limitations of the Algorithm**:** The quality of supervised machine learning algorithms is only as good if the data they're trained on is good. If the algorithms are trained on incomplete or biased data, they might produce unreliable or inaccurate predictions. Therefore, judges should take into account the limitations of the algorithm when interpreting its output.
2. Human Judgment**:** Bail decisions often require judges to make subjective judgments about the accused's individual circumstances. These judgments may be based on factors that cannot be easily quantified or captured by a machine learning algorithm, such as the defendant's family or community ties. Therefore, judges should rely on their own judgment when making bail decisions, in addition to the output produced by the algorithm.
3. Legal and Ethical Considerations: Judges are bound by legal and ethical considerations that may not be fully captured by a machine learning algorithm. For example, judges must ensure that bail decisions do not violate accused's rights or discriminate against certain groups. Therefore, judges should take into account legal and ethical considerations when making bail decisions, in addition to the output produced by the algorithm.

VIII.CAN AI CURB BIASED JUDICIAL DISCRETION WHILE GRANTING BAIL.

Judicial discretion is the nothing but the power of judge to give decision based on his personal evaluation guided by the various principle of law. Through the use of AI, judges can potentially reduce their bias in granting bail by providing them with data-driven recommendations. An AI system may analyse wide range of data to identify patterns of bias, such as those related to race, socioeconomic status, and gender. These recommendations can then be used to make more objective decisions. Unfortunately, while AI systems can be useful in reducing judicial bias, they must be supervised and trained properly.

An AI system can then generate more objective bail recommendations by analysing data related to various factors, such as gender, race, and socioeconomic status. However, it's important to keep in mind that this method is only as good as the data it uses. If the data it uses is biased, the system will make the recommendations biased. AI systems are incapable of making moral or ethical decisions, and they must be utilized alongside humans in all scenarios. Since they can only do so with the help of a person's judgment, systems must be trained and designed to work with humans who have the necessary expertise and discretion to make informed decisions. [11]

VII. CONCLUSION

Artificial Intelligence (AI) is a complex issue that has many potential advantages and disadvantages for the legal profession. It can help improve the efficiency of legal work by analysing vast amounts of data. It can also assist in reviewing documents and performing other tasks. AI can help legal professionals reduce their time and improve their efficiency by allowing them to focus more on more strategic or complex work. It can also help lower costs and provide more people with access to legal services. However, there are still concerns about the potential impact of artificial intelligence on the legal profession. One of these concerns is that it could replace or displace some jobs. This could have a negative impact on the profession and society's role of lawyers. In addition, there are also questions about the fairness and accuracy of the decisions made using AI. Despite the advantages of AI, it is still important to note that it can only perform as well as the data that it has been trained on. In addition, it can potentially contribute to the development of biased and incomplete data in the legal system. This raises questions about the accountability and transparency of the decisions that are made using AI. At last, this paper concludes that supervised machine learning algorithms (AI) can be a valuable tool for assisting judges in making bail decisions.

However, judges should treat the algorithm's output as one of many factors to be considered, and should rely on their own judgment and legal and ethical considerations when making final bail decisions.

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