

APPLICATION OF ARTIFICIAL INTELLIGENCE IN JUDICIAL ADJUDICATION: PATTERNS AND PROSPECTS

By

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Abstract

In the traditional judicial judgment, the result of the judicial judgment will be affected by the subjective factors of the judge, leading to the injustice of the trial result. Nowadays, artificial intelligence is becoming more widely used. The application of artificial intelligence procedures to the judicial judgment will standardize the judicial judgment process and maximize the fairness of the trial results. This paper on artificial intelligence had carried on the thorough analysis, put forward the principle of using artificial intelligence should follow in the legal processes, and lists the current artificial intelligence in the judicial field to build judicial database, legal knowledge map and criminal evidence system, expected to give artificial intelligence application in the judicial field to provide certain reference. The field of artificial intelligence aims to develop software and hardware that can learn, reason and make decisions like humans, with the goal of creating intelligent machines that can solve problems autonomously. Artificial intelligence prediction had allowed legal experts to deliver their services more efficiently and effectively, resulting in better outcomes for clients. Artificial intelligence could help streamline and expedite legal procedures in Nigeria. This could be beneficial in order to reduce backlog of pending cases in courts, where the legal system can be slow and laborious. Artificial intelligence excelled at certain tasks, like sifting through vast amounts of data quickly, but it lacked the emotional intelligence and creativity essential in the practice of law. Lawyers had brought a depth of understanding, empathy, and the ability to navigate nuanced situations that artificial intelligence presently

could not replicate. The future likely involves a collaborative approach, where artificial intelligence support the works of lawyers in specific tasks, allowing them to focus on the aspects of law that require a uniquely human touch. This was resolved in this paper which adopted doctrinal research method and examined artificial intelligence in contemporary judicial application and recommended among other things that artificial intelligence can be of significant benefits to legal practitioners in the judicial adjudication if cautiously utilized.

Keywords: Artificial intelligence, application, judicial adjudication, legal profession

1.0 Introduction

The judicial adjudication method used in Nigeria today is still the traditional method. Although this method has a wide range of applications, it will be affected by many subjective factors during the trial process. During the trial, judges may have a subjective concept of discrimination against groups such as homosexuals and women. This concept will lead to special emotions in domestic violence cases and sexual assault cases, which will affect the results of the trial.

This subjective awareness is not conducive to judicial justice. It has strong damage and may even lead to trial error. The judgment of event logic by artificial intelligence will not be affected by subjective factors, and the fairness of judicial judgment has been guaranteed to a certain extent. For instance, artificial intelligence such as virtual assistants, image recognition, natural language processing, machine learning, robotics, expert system as well as e-governance tools such as digital identity management, e-services portal, e-payment systems, online portals, mobile apps and national e-government strategy can help lawyers find relevant legal provisions including cases such as law pavillon, books, articles, judicial judgment data base as in National Industrial court.

However, there are many legal provisions in Nigeria, and it is very troublesome to search through books. Therefore, a judicial judgment database can help lawyers find legal provisions, articles and similar case information to assist in defence of their cases. Although the addition of artificial intelligence can bring many benefits, it is still necessary to be alert to the problems that may arise. This paper elaborates on the best way to use the artificial intelligence in judicial adjudication.¹¹

2.0 Origin and Meaning of Artificial Intelligence

Artificial intelligence has appeared in the middle of the 20th century. After entering the 21st century, with the continuous development and popularization of computer technology, the concept of artificial intelligence has gradually become a craze. Artificial intelligence is a branch of computer technology that has recently become an independent discipline². Artificial intelligence is able to simulate the human thinking pattern and deals with some problems according to this thinking pattern³.

The direction of artificial intelligence research is very wide, including speech recognition, computer vision, natural language

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¹ Information Technology (Procedure and Safeguards for Interception, Monitoring and Decryption of Information) Rules, 2009 in India establishes a frame work for lawful electronic surveillance by government agencies.

² C. Nweze, 'IMF Goldman Sachs Warn Against AI impediments to Business' The Nation Newspaper Vol.3 No.6160 of Monday 12 June 2023 p.27.

³ J.F Metzi, Information Technology and Human Rights, (1996)(18) Human Rights Quarterly.

processing, machine learning theory, intelligent control robots, unmanned aerial vehicles, information retrieval and so on⁴.

In recent years, the concept of artificial intelligence has been continuously introduced into various industries⁵. Artificial intelligence has gradually entered the judicial field in Nigeria, and the development of judicial databases and intelligent case-handling systems has brought good results to the judicial field. It is foreseeable that artificial intelligence will be deeply integrated with judicial adjudication in the next development⁶.

Some courts for instance, Lagos State judiciary, Rivers State Judiciary, Federal High Courts and Supreme Court in Nigeria have gradually launched smart judicial software⁷. People can communicate with court staff on this software, which makes judicial work more convenient, promotes the popularization of legal provisions to a certain extent, and reduces the pressure on judges in handling cases. The author submits that Artificial intelligence has powerful computing power, rigorous logical thinking and the ability to continuously learn, these advantages make artificial intelligence have great advantages in judicial adjudication.

It is further submission of the author that in the field of criminal justice, the essence of fact determination is the determination of evidence, and judges may bring in value judgments in the process of determining facts, lacking rational and rigorous logical thinking.

⁴ D.Eileen, 'Human Rights in the Digital Age' Just Security, December, 2014 available at <<https://www.justsecurity.org/18651/human-rights-digital-ages/>>last accessed 2nd July, 2025.

⁵ A.Bridey, 'Coding Creativity: Copyright and the Artificial Intelligent Author' (2012) (5) Stand Tech L Rev: 1-5.

⁶ C.R. Sunstein, Social Norms and Social Roles (1996)(96) Columbia Law Review. 903.

⁷ B. Afolabi, 'FG to Release Practice Code for ChatGPT Others' The Punch Newspaper, Vol. 47 No.22997 of Tuesday June 13th 2023 p.32.

The application of artificial intelligence to fact-finding in criminal cases can make up for the logical thinking of judges in the process of fact-finding⁸.

With the deepening of artificial intelligence, the situation of unjust, false and wrongful convictions will continue to decrease, and it will save litigation resources and improve litigation efficiency.⁹

3.0 Application of Artificial Intelligence in Judicial Adjudication

When applying artificial intelligence to the judicial adjudication system, the main pursuit is efficiency and accuracy. In the judicial adjudication system, fairness cannot be ignored for the sake of efficiency¹⁰. In the process of system construction, the value of fairness should be emphasized. The help that artificial intelligence can provide in the field of judicial adjudication includes recommendation of similar cases, sentencing assistance etc, which will affect the accuracy of conviction and sentencing.

The application of artificial intelligence in judicial adjudication should be also consider procedural fairness, especially the impacts on the litigation rights of the parties. The construction of the system should realize the fairness and legitimacy of the procedure by restricting public power and safeguarding the rights of citizens. In artificial intelligence judicial adjudication, one must always insist on putting justice before efficiency. The introduction of artificial into judicial adjudication may lead to emphasis on instrumental rationality while ignoring value rationality in the judicial adjudication process.

⁸ E. Chris and S. Nigel, *Information Technology and the law* (Macmillan International Higher Education, 1986) 57.

⁹ *The Application and Regulation of Artificial Intelligence Technology in Judicial Adjudication* available at < Bing .com> last accessed on the 20th August, 2025.

¹⁰ D. Eileen, (n.4) 245.

The application of artificial intelligence will cause some people to respect absolute rational tools, and then make people give up the pursuit of value rationality, making the law a ruthless and ruthless tool. The importance of people in judicial adjudication is self-evident, and tools cannot be above people. When building a judicial adjudication assistance system, one should pay attention to balancing the relationship between instrumental rationality and value rationality, and emphasize the auxiliary and service functions of instruments.

Natural language processing is an important part of the judicial adjudication system. How to improve the analysis and processing capabilities of natural language is one of the difficulties in the research and development of artificial intelligence systems, and it is also an important development direction in the future.

Constructing a legal language knowledge graph will help improve natural language processing capabilities. Knowledge graph is to summarize various concepts and their relationship to form a semantic network systems. The purpose of constructing a knowledge map of legal language is to build a forensic linguistic system.

Natural language processing is a way of human-computer interaction. It refers to the recognition, analysis, interpretation and use of human language by artificial intelligence systems. It includes automatic Chinese word segmentation, information retrieval, information extraction, machine translation, natural language generation, etc. The core goal is to enable artificial language to understand the meaning of the natural language. The construction process of legal knowledge graph is the process of knowledge structuring. In the intelligent judicial adjudication system, the amount of training of artificial language processing modes such as Word2vec should be increased to improve the accuracy of natural language recognition.

Technology companies that develop intelligent judicial adjudication should disclose the operation process of the algorithm, which algorithm is used in the system, and what parameters are used. What data is collected, the goals that need to be achieved, the accuracy of predictions, etc, must be disclosed, except for the specific information of the parties involved in the case and the content related to national security. In the process of developing the system, it is necessary to fully explain and elucidate the content of the algorithm part, so that judicial staff can understand the procedures and principles of algorithm operation, and accept the supervision of judicial staff in order to avoid hacking. Before the system runs, the algorithm program in it should be reviewed and tested to ensure the fairness and standardization of the algorithms.¹¹

It is the submission of this paper that Artificial intelligence excels at certain tasks, like silting through vast amounts of data quickly, but it lacks the emotional intelligence and creativity essential in the practice of law. Lawyers bring a depth of understanding, empathy, and the ability to navigate nuanced situations that Artificial intelligence presently cannot replicate. The future likely involves a collaborative approach, where artificial intelligence supports lawyers in specific tasks, allowing them to focus on the aspects of law that require a uniquely human touch.

4.0 Artificial Intelligence Patterns

Artificial intelligence has been defined as the simulation of human intelligence processes by machines, especially computer system. In the contemporary world, there is an increasing dependence on its usage in various areas of human endeavors ranging from unmanned drones for military operations to computer assisted leaning to the use of robots and other animated tools for commerce, healthcare delivery and a lot more. For instance, ChatGPT is an Artificial

¹¹ C. Collins, Artificial Intelligence in Information Systems Research: A Systematic Literature Review and Research Agenda (2021) (60) (10) International Journal of Information Management 102-383.

intelligence that uses natural language processing to create humanlike conversational dialogue. The language model can answer questions and compose various written contents such as articles, social media posts, essays, codes and emails. There is no doubt that the tools can be of significant benefit to the legal practitioners in the course of judicial adjudication if cautiously utilized.

a. Judicial Database

At the present time, judicial databases in Nigeria have gradually become popular, and judicial databases include case information, electronic files, judgment documents, judicial precedents, etc. In criminal cases, the case information of different litigation settlements will be integrated into the judicial database, such as case acceptance information, personal information of the criminal suspects, defendants and the litigation proceedings of the case¹².

For the entire case, case information is the basis for handling formal cases and relevant case information will be stored in the judicial database in the form of data. During the time of criminal justice, the dossier contains a large number of evidence materials and relating to criminal suspects, which are too large and difficult to carry. The electronic file can convert the previous paper file into electronic form and can be combined with video image and capture equipment and intelligent case handling system. Electronic files can also provide users with automatic marking of litigation progress, automatic filing and retrieval viewing.

The Judgment Document Database collects the judgment documents of the courts at all trial levels, which demonstrates the judicial openness and justice system and facilitates later inquiries. The Supreme Court's guiding cases and some more typical cases are integrated in judicial precedents and the relevant judicial judgment opinions are sorted out. It is submitted that this information can be

¹² E. Asein, 'Digital Rights Management in Nigeria' (2020) 10 JILT :123.

used as a reference for case handlers in handling cases and judges in the process of adjudication.

b. Legal Knowledge Graph

Knowledge graphs are now widely used in large-scale knowledge bases. A knowledge graph is a knowledge mapping to the target objective world. The knowledge graph can connect various knowledge points and organize the logical relationship between knowledge as a whole. The legal knowledge graph can transform the legal system into a legal framework, which is beneficial for artificial intelligence to perform logical analysis according to legal terms.

There are two ways to build a legal knowledge graph, one can build an expert system, or one can build a machine learning path. The combination of the two methods can better display the knowledge. Building an expert system is to pre-build a knowledge graph model through manual construction, and further build a database. Machine learning, on the other hand, actively constructs a knowledge graph by collecting a large amount of data.¹³

c. Criminal Evidence System

The criminal evidence system can examine a single piece of evidence, and can provide a standard of evidence guide function. In judicial practice, it is necessary to verify the authenticity, legality and relevance of a single piece of evidence. The single evidence review in the criminal evidence system can conduct comparative teaching and research on the collected data in terms of procedure, form and content, and automatically generate review conclusions.

Judicial staff can make supplementary evidence or explanations based on this conclusion. The evidence standard guidance function in the formal evidence system can formulate standards for the specific evidence of each crime, provide case- handling personnel

¹³ See Legal Knowledge Graph available at Bing.com> Last accessed 3rd July.2025.

with unified, standardized, concise, detailed, data-based, case-handling guidelines, and provide learning and reference for machine identification and judgment Standard sample.¹⁴

5.0. Prospects of Artificial Intelligence

Artificial intelligence has developed in some jurisdictions. Recently, the Supreme Court of Nigeria introduced “legal mail” which all counsel must have and all processes must be served through this electronic mail. As from the 16th July, 2018, it became mandatory. The Supreme Court will only serve processes by electronic means (legal Mail) on all matters. Hence, all new filings as from 16th July, 2018, must bear Counsel’s legal email address.

This is a clear effort by the Supreme Court to deviate from manual filling and serving of court processes by keying into emerging technological trends. Today, there are considerable number of artificial intelligence in the form of ‘robot’ that are programmed in such a way that it can answer any question on laws, particularly, procedural laws. Will it then be correct to say that, very soon, artificial intelligence will take over completely the works of lawyers? The answer is in the negative, and the reason been that, artificial intelligence can only aid the quick dispensation of matters and help in the reduction of the log of cases in courts.

The following are some of the contributions artificial intelligence could bring in aiding the proper administration of justice.

- a. The artificial intelligence can be very useful in areas that require research and analysis of laws and procedures. It will be very useful in aiding legal practitioners and judges to locate cases and statutory provisions within a very short time. Since it is programmed, it operates within that sphere

¹⁴ I. Roberts & B. Zuckerman’s, *Principles of Criminal Evidence*, (Oxford Academic,1990) available at Oup.com> last accessed 3rd July,2025.

and so, one literally knows what he expects when using such artificial intelligence.

- b. Since it is a computer, programmed to function as per the information impute in it, it will give accurate information compare to if such information is to be obtain manually. For example, if one uses an online search engine to search for a case, it will bring a more perfect match compare to when such search is to be done manually by first going through index of cases before scanning through law reports and one may still end up not getting the information needed.
- c. The long hand mode of taking down the submission of counsel in courts could also be overcome by the use of artificial intelligence. This could be done by having a voice recorder in courts, which converts words spoken by counsel into writing. This will also go a long way to help in quick dispensation of cases that are before the courts.

6.0 Conclusion

Artificial intelligence can bring higher efficiency and more rational judgment results to judicial adjudication. But in the process of using artificial intelligence, one must keep in mind that artificial intelligence can only be used as an auxiliary means. In the legal field, one must establish a new state of judicial adjudication based on artificial intelligence and on the premise of ensuring the security of citizens' information and data.¹⁵ The legal profession should be diversified so as to make the legal practice area a serene environment for young and striving lawyers. It is believed in this paper that the introduction of artificial intelligence will enhance the administration of justice as in contrast to the view expressed by some individuals that the artificial intelligence is coming to replace

¹⁵ AI in Indian Judiciary Conclusions available at< Bing.com> Last accessed on the 15th July, 2025. See also Nigeria Data Protection Act, 2023.

and totally take away the works of lawyers in the legal practice. Artificial intelligence has come to stay, judiciary should key into it and make the best use of the technological devices that could aid proper, faster and quicker dispensation of justice.