The Future of the Robot Judge in Iran's Judicial System: From Imagination to Legal Reality

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Abstract

The rapid growth of emerging technologies, particularly artificial intelligence, has brought concepts such as the "robot judge" from the realm of imagination into the domain of serious scientific and legal discourse. The idea of replacing or complementing human judges with robots—aimed at increasing the speed, accuracy, and impartiality of judicial proceedings—has attracted the attention of many legal systems around the world. Simultaneously, this transformation raises profound legal, ethical, and cultural challenges, especially in systems based on Islamic law and traditional judicial principles. In this context, examining the feasibility of implementing a robot judge within Iran's judicial system—founded on the principles of fair trial, human dignity, and jurisprudential foundations—seems to be an inevitable necessity. The objective of this study is to analyze the legal, jurisprudential, and practical dimensions of incorporating a robot judge into the Iranian adjudicative process, while exploring the potential opportunities and threats posed by this technology. The central research question of the article is: "Given the legal framework, the requirements of fair trial, and the jurisprudential foundations present in Iran, to what extent is the realization of a robot judge feasible and justifiable?" The research method employed in this article is descriptive–analytical, utilizing library sources and a comparative review of the experiences of select countries in implementing artificial intelligence within their judicial systems. The findings of this study indicate that although AI-based tools used to assist judicial decision-making or predict judicial outcomes may be beneficial and justifiable in certain areas, the complete replacement of a human judge with a robot judge faces serious legal and jurisprudential barriers due to the necessity of exercising reason, fairness, ethical responsibility, and attention to human dignity. Under the current conditions of Iran's judicial system, such replacement lacks full legal legitimacy.

Keywords: Robot judge, artificial intelligence, fair trial, Iranian law, judicial ethics, legal technologies.

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1. Introduction

The advent of modern technologies into various domains of human life has paved the way for the emergence of novel ideas such as the "robot judge" within judicial proceedings. With significant advancements in artificial intelligence (AI), some legal scholars and practitioners worldwide have posited that intelligent robots could enhance efficiency, impartiality, and speed in judicial decision-making. In many leading legal systems, including the European Union and the United States, extensive

research is underway on the role of AI in judicial decision-making, and some countries have already adopted it in limited fields such as online arbitration and court ruling predictions.

In Iran's domestic legal context, although the issue of a robot judge has not yet been officially addressed in legislative texts, the general policies related to e-government and a smart judiciary have opened the space for exploring the future of such technologies (Gholizadeh et al., 2023).

The prevailing international perspective holds that AI can be beneficial as an auxiliary tool for human judges, yet full replacement of human judges by robots remains contentious due to the essential human elements of judgment—such as fairness, contextual understanding, and respect for human dignity. In Iranian law, such replacement encounters significant obstacles based on constitutional principles—particularly Article 34 (right to litigation) and Article 156 (independence and duties of the judiciary)—as well as Islamic jurisprudential foundations of adjudication (Gholizadeh et al., 2023; Hajiloo, 2024).

Adopting a realistic perspective, the author of this article acknowledges the positive role of modern technologies in improving the quality of legal proceedings but contends that the full realization of a robot judge within Iran's legal system faces substantial jurisprudential and legal challenges and would also require fundamental transformations in the judicial structure and legal foundations of the country.

This article first examines the theoretical foundations of the robot judge and related national and international experiences, then analyzes the feasibility of its implementation within Iran's legal and jurisprudential framework, and finally presents legal opportunities, challenges, and practical strategies.

2. Theoretical Concepts

Below, the concept of the robot judge and the role of artificial intelligence in judicial proceedings are examined.

2.1. The Concept and Evolution of the Robot Judge

According to the article *"The Robot Judge and the Evolution of Justice Systems Toward Algorithmic Models,"* a robot judge is a technological system based on artificial intelligence and algorithms designed to play a role in the judicial process. This system can analyze input data—explicit or implicit—and produce outputs such as predictions, recommendations, or even judicial decisions. The function of the robot judge is not limited to data collection and analysis but also includes accelerating and enhancing the efficiency of legal and judicial processes, particularly in areas with high caseloads and time-consuming litigation. This technology can operate with a degree of autonomy, learn, adapt to conditions, and influence physical or digital environments without direct human intervention. Nevertheless, its role remains that of a supportive tool for human judges, and its full replacement faces serious ethical, legal, and social challenges. Major concerns regarding the robot judge include the excessive delegation of decision-making responsibility to technology, ensuring transparency and fairness in the decision-making process, and maintaining ethical standards and human values in its operation. Thus, while the robot judge symbolizes technological advancement in the service of justice, it requires precise legal, ethical, and institutional frameworks to be used responsibly and effectively within judicial systems (Al-Mahrouqi & Mayada, 2024).

The evolution of the robot judge began with early ideas in science fiction literature, notably when Isaac Asimov in the 1950s introduced foundational concepts such as the Three Laws of Robotics, which later served as an ethical framework for the development of artificial intelligence. With technological progress, robots initially appeared in manufacturing industries and gradually entered service, healthcare, and security domains, where their capabilities in perception, analysis, and environmental interaction markedly improved. In recent decades, the development of machine learning algorithms and big data analytics paved the way for the application of AI in the legal field. At this stage, technology has been used as an analytical tool to assist judges in processing information and predicting judicial trends. In leading countries such as the United States, China, and the United Kingdom, examples exist of AI systems being used to analyze judicial opinions, assess recidivism risks, or provide judicial recommendations (Roberts et al., 2023). However, at this stage, the technology has not yet replaced human judges, and its role remains primarily advisory and analytical.

2.2. The Role of Artificial Intelligence in Judicial Proceedings

Artificial intelligence, as one of the most significant technological achievements of the modern era, has had profound impacts across various domains, including global judicial systems. In legal proceedings, this technology—with its capabilities in data analysis, outcome prediction, and decision-making facilitation—has become an indispensable and powerful tool. The use of AI in judicial systems can not only reduce the time required to process cases and enhance the accuracy of judicial decisions, but also contribute to greater transparency and improved access to justice (Chau, 2024; Colther & Doussoulin, 2024; Giacalone & Salehi, 2022). Nonetheless, alongside the vast opportunities this technology offers, new challenges have emerged regarding its application in judicial processes. This section examines the role of AI in legal proceedings by analyzing two major aspects: first, the current applications of AI in various judicial systems that have led to improved efficiency and accuracy in legal decision-making; and second, the boundary between the human judge and AI-based technological tools, a matter that holds significant importance not only in judicial proceedings but also in upholding the principles of fair trial and transparency. Given the social, cultural, and legal complexities of judicial processes, it is imperative that AI be used as a complementary tool alongside human judges and under strict supervision in decision-making processes.

3. Current Applications of Artificial Intelligence in Global Judicial Systems

In recent years, artificial intelligence has been adopted as a novel tool in the judicial systems of several countries. This technology has been used in areas such as case management, data analysis, judicial outcome prediction, and facilitation of legal procedures. For example, China has launched Internet courts in cities like Hangzhou, Beijing, and Guangzhou, where all stages of litigation—from case filing to verdict issuance—are conducted online, with AI involved in analyzing evidence, evaluating documents, and contributing to judgments. These systems are especially utilized in cases related to cybercrime and intellectual property (Murphy & Woods, 2020; Sung, 2020).

In India, the SUPACE (Supreme Court Portal for Court Efficiency Assistance) system has been developed to streamline legal processes and reduce case processing times. This system uses AI to analyze data and offer predictions regarding case trajectories. In addition, the SUVAS (Supreme Court Vidhik Anuvaad Software) system provides automatic translation and transcription services in court sessions, thereby facilitating public access to legal information (Kerdvibulvech, 2024).

Moreover, the Supreme Court of Victoria in Australia has issued guidelines for lawyers mandating transparent disclosure of AI usage in legal document preparation. These guidelines emphasize the need for accuracy in using AI and the responsibility of lawyers regarding the reliability of the information presented.

In European countries such as Estonia, AI is used to resolve minor disputes. There, AI systems can analyze evidence and render decisions in small claims cases, which has helped reduce the burden on courts and speed up legal proceedings. These applications illustrate the growing trend of AI adoption in judicial systems worldwide. However, the use of this technology must comply with ethical, legal, and regulatory standards to prevent issues such as algorithmic bias and violations of human rights (Vlahou et al., 2021; Wang, 2024).

4. The Boundary Between the Human Judge and Technological Assistive Tools

With the ongoing advancement of modern technologies, particularly artificial intelligence (AI), the boundary between human judges and technological tools has become one of the most pressing challenges in judicial systems worldwide. While technological tools—especially AI—can serve as assistive mechanisms in judicial processes, determining the precise line between the role of the human judge and these technologies remains complex. In this regard, advanced legal systems, including that of the European Union, are meticulously regulating and defining the limits of AI usage within adjudication procedures (Ward, 2021).

The General Data Protection Regulation (GDPR), which came into full force on May 25, 2018, in the European Union, is among the most influential legal frameworks affecting the use of emerging technologies—including AI—in judicial systems. The GDPR emphasizes the protection of individuals' personal data and establishes rules for data collection, processing, and utilization across various sectors, including judicial processes. Specifically regarding AI use in processing personal data, the

GDPR demands transparency, accountability, and data accessibility. These provisions are especially significant in the judicial context where AI is deployed. One of the fundamental legal principles in the European Union is the protection of human rights and the assurance of fair trial, as articulated in the EU Charter of Fundamental Rights and treaties such as the European Convention on Human Rights. Article 6 of this convention explicitly emphasizes fair trial and outlines principles such as the right to defense, the right to access a court, and judicial impartiality. The use of AI in judicial systems must adhere to these principles to prevent discrimination and human rights violations (Roberts et al., 2023).

In this context, on March 29, 2023, the United Kingdom government released its *White Paper on AI Regulation*, proposing a "proportionate and innovation-supporting regulatory framework" designed to promote innovation, identify and mitigate risks, and position the UK as an "AI superpower." This legislation permits the use of digital tools and AI technologies in evaluating digital evidence, including information retrieved from electronic devices. Nonetheless, it also stresses the need to maintain privacy and transparency in the application of such technologies. Particularly in the collection of digital evidence, assistive tools such as AI must be used in a manner that guarantees access to information for all parties involved (Kerdvibulvech, 2024).

Additionally, specific legal provisions in some European countries—such as the Netherlands and Germany—regulate the use of AI tools for predicting judicial outcomes and assessing case-related risks. For example, predictive and risk assessment systems used in some European jurisdictions are designed to evaluate the likelihood of recidivism among defendants. However, these tools must function within judicial oversight and comply with fair trial principles. Their use must result in fair and impartial decisions and avoid algorithmic bias or errors. Generally speaking, the use of AI in legal proceedings within advanced judicial systems and the European Union is subject to limitations and specific regulations aimed at protecting human rights, ensuring transparency, and guaranteeing fair trial. Existing laws emphasize the need for oversight, the safeguarding of individual rights, and the establishment of legal accountability to prevent discriminatory practices and judicial errors. These regulations ultimately strive to enhance the efficiency of judicial systems through technology while simultaneously upholding legal and human principles (Rafiq, 2024).

5. Assessing the Feasibility of Implementing a Robot Judge in Iranian Law

In today's world, remarkable advancements in technology—particularly AI—have profoundly transformed various social and legal structures. One area that has gained attention is the replacement of certain human functions with robots and AI systems. In this context, the "robot judge," or AI-based adjudicator, has emerged as a potential means to expedite judicial proceedings and improve the accuracy of rulings. This development, especially in a legal system like that of Iran—which is deeply rooted in jurisprudential foundations and constitutional principles—raises new challenges. Thus, assessing the feasibility of implementing a robot judge in Iranian law necessitates a rigorous evaluation of the Constitution and jurisprudential doctrines.

5.1. Reviewing Constitutional Principles (Right to a Fair Trial, Judicial Independence, Human Dignity)

In every legal system, foundational principles and norms form the basis for structuring judicial and legal institutions. In the Islamic Republic of Iran, the Constitution serves as one of the principal legal sources, framing both the normative structure and functional parameters of the legal system. These principles not only offer the legal foundation for procedural and substantive rules but also act as safeguards to protect individual rights and liberties against the power of the state.

The right to a fair trial is a fundamental human right explicitly enshrined in Article 35 of the Constitution of the Islamic Republic of Iran. According to this article, "In all stages of litigation, individuals must have access to competent and just courts." This principle guarantees that no individual shall be deprived of the right to defend against accusations and that all judicial decisions must be rendered through a legal and transparent process. Regarding the robot judge, a central concern arises: can a trial conducted by AI systems uphold the same standards of transparency, access, and justice? This question becomes particularly significant when considering existing disparities in access to technology and its capabilities across different regions of the country.

Judicial independence is another non-negotiable foundational principle in the judiciary of the Islamic Republic of Iran, referenced in Article 156 of the Constitution. This article states that "The judiciary is independent, and no interference or pressure from other institutions upon judges is acceptable." (Khomeini, 2006). This independence specifically refers to the individual autonomy of judges in rendering decisions, free from external political or institutional pressures. If robot judges are accepted, a critical question emerges: can judicial independence be truly maintained when decisions are influenced by algorithms and input data? Given that robot judges are directly shaped by programmed algorithms and data sets, can they remain independent of any external influence or bias? Can a robot judge effectively preserve the principle of judicial autonomy in the face of machine learning systems?

Human dignity is one of the foundational values of human rights and a core element of the Iranian Constitution. According to Article 22, "The dignity, property, life, rights, and freedoms of individuals shall not be violated except in accordance with the law." This provision, beyond protecting individual rights, underscores the necessity of preserving human dignity in judicial and legal processes. Regarding robot judges, concerns have been raised about the preservation of dignity, particularly in automated processes devoid of human judicial presence. Can judicial decisions rendered by AI systems fully respect human rights and dignity? Is it possible that machines, lacking empathetic and sociocultural understanding, may make unjust decisions that violate individual dignity?

These constitutional principles thus serve as key barriers and normative benchmarks in evaluating the viability of implementing robot judges in Iranian law. A comparative analysis between these principles and AI-based adjudication models necessitates a more detailed and transparent understanding of the robot judge's capabilities and limitations. It appears that even if robot judges are used to perform specific judicial tasks, the need for human judges to oversee the decision-making process and intervene in complex legal matters will remain essential. This analysis, particularly within the Iranian judicial system with its unique legal and religious traditions, illustrates that while technology may enhance the speed and accuracy of some judicial procedures, it cannot entirely replace human judgment with its distinctive qualities.

5.2. Analysis of the Jurisprudential Foundations of Human Adjudication and the Challenges of the Robot Judge in Shi'a Jurisprudence

In Shi'a (Imamiyyah) jurisprudence, adjudication is considered an act entrusted by the Lawgiver (Shari') to individuals who possess specific qualifications, enabling them to resolve disputes among people based on divine rulings and religious law. A judge must possess characteristics such as maturity, intellect, justice, faith, knowledge of legal rulings, and the ability to perform ijtihad (independent jurisprudential reasoning). These conditions emphasize the critical importance of personal qualification and precision in judicial decision-making. Since adjudication is regarded as a wilāyah-based function (a delegated divine authority), it is considered a divine trust that must be discharged with utmost care and caution. Furthermore, adjudication necessitates expertise in religious rulings and the capability to derive laws from Islamic sources.

In Iranian law, which draws heavily from Shi'a jurisprudence, adjudication is similarly restricted to individuals with specific human qualifications. This principle is affirmed in Article 39 of the Law on Judicial Organization (1939) and subsequent legal statutes. Accordingly, judicial rulings must be based on knowledge and justice, and judges must be capable of deriving rulings from religious texts and Islamic law.

In contrast, technological advancements and the application of artificial intelligence have raised challenges regarding the replacement of human judges with robot judges. Unlike human judges, who are endowed with qualities such as justice, faith, and interpretative reasoning, robot judges inherently lack these attributes. In Imamiyyah jurisprudence, adjudication not only requires knowledge of Islamic rulings, but also mandates that the judge possess faith and justice to issue correct and legitimate rulings. Moreover, adjudication is seen as a divine trust, and the responsibility to uphold it lies on the human judge—responsibility that a robot judge cannot bear due to the absence of moral agency and legal accountability.

Additionally, a robot judge cannot engage in jurisprudential reasoning (ijtihad) in the same way as a human scholar, particularly when addressing novel and unprecedented legal issues. Such matters demand deep understanding and legal reasoning, which exceed the capabilities of AI systems. Therefore, the use of a robot judge in Imamiyyah jurisprudence faces significant challenges, including the lack of jurisprudential reasoning, the absence of religious and legal responsibility, and the

inability to respond to emerging legal issues. In Shi'a jurisprudence, adjudication is entrusted solely to individuals with human qualifications, who can resolve disputes based on justice, faith, and knowledge of divine rulings.

6. The Future of Intelligent Technologies in Adjudication

In today's world, intelligent technologies are evolving at an extraordinary pace, offering innovative solutions to improve and facilitate various processes. One domain that stands to benefit significantly from these developments is the judicial system. Smart adjudication, which involves the use of technologies such as artificial intelligence, machine learning, and big data analytics, can play a pivotal role in reforming and enhancing judicial procedures. This section examines the future prospects of employing intelligent technologies in judicial processes, with attention to Islamic jurisprudence and Iranian law, as well as their application in other legal systems. This assessment provides a clear picture of efficiency gains, error reduction, and acceleration of judicial processes, while also analyzing the challenges and benefits of such technologies in enhancing access to justice and reducing litigation costs.

6.1. Efficiency, Error Reduction, and Speed Enhancement

One of the most significant advantages of using intelligent technologies in adjudication is the improvement of judicial efficiency. The use of smart tools, including natural language processing algorithms, data analysis systems, and machine learning, can assist judges and lawyers in rapidly accessing relevant information and documentation, thereby facilitating more accurate and timely decisions. In some developed countries, smart judicial systems have been designed to automatically analyze evidence and documentation and, in certain instances, provide decision-making suggestions to judges.

In Iranian law, there are no direct statutes regarding intelligent technologies in adjudication. However, related regulations such as the *Electronic Litigation Act* of 2013 (1392 SH) indirectly address this issue. These laws emphasize the use of modern technologies in registering applications, issuing notifications, and tracking case progress.

In Islamic jurisprudence and Iranian legal frameworks, judicial efficiency is regarded as an essential principle. Yet, due to limitations in human and time resources, achieving efficiency in adjudication has always been challenging. The application of intelligent technologies can alleviate these challenges and guide the judicial process toward a more efficient and expedited system. For instance, in Iran's judiciary, certain processes such as complaint registration, issuance of rulings, and case tracking can be managed intelligently with minimal human intervention. The *Electronic Litigation Act*, as mentioned earlier, seeks to streamline litigation procedures through the use of modern technologies, granting courts and judicial organizations the authority to utilize online systems for registering requests, sending notifications, and tracking case progress.

Reducing errors in judicial processes is another critical advantage of intelligent technologies. In traditional judicial systems, human error and potential bias are among the key concerns affecting judicial decisions. Employing intelligent algorithms and machine learning systems can minimize errors through accurate and impartial data analysis, thereby ensuring greater justice in judicial outcomes. Countries like Germany and the United States have launched initiatives aimed at assessing and predicting judicial decisions based on past data, indicating that these technologies can contribute to reducing judicial mistakes.

Moreover, enhancing the speed of adjudication is a prominent benefit of intelligent technologies. In many judicial systems, lengthy case processing times constitute a major issue, leading to public dissatisfaction and increasing court workloads. Intelligent technologies can expedite legal processes and help judges and judicial personnel manage cases more effectively. For example, in some Asian countries, smart systems are used to evaluate documentation and evidence, thereby accelerating case resolution. Iran's *Civil Procedure Code* and *Electronic Litigation Act* can serve as legal foundations for expediting judicial processes. The implementation of online systems and automation in adjudicative procedures can significantly reduce the time required for case resolution.

There are several global examples of the successful integration of intelligent technologies in judicial processes. In Estonia, for instance, a fully smart online judiciary system has been established, enabling citizens to quickly and easily file and track legal claims. In Iran as well, pilot projects involving the use of intelligent technologies in adjudication are currently underway, which could help decrease caseloads and accelerate case resolution.

6.2. Improved Access to Justice and Cost Reduction

Access to justice is one of the fundamental principles in any judicial system, and intelligent technologies can significantly enhance this access. Through online platforms and digital systems, individuals can benefit from judicial services without the need for physical presence in court and with minimal cost. Easier and faster access to courts, especially in remote and rural areas, can meaningfully impact judicial equity. In some developed countries, the use of online legal services and intelligent consultation tools enables citizens to resolve legal issues without requiring an attorney.

In Iran's *Electronic Litigation Act*, the implementation of electronic systems to facilitate access to judicial services has been emphasized. These systems can guide individuals through legal consultations and petition submissions online, avoiding additional expenses. It is important to note that in Iranian law, access to justice—particularly in remote areas—has always been a challenge. The adoption of intelligent technologies can help individuals in these regions access judicial services without costly and time-consuming travel to the courts. For instance, the launch of online petition systems and case tracking platforms can play a crucial role in this context. The *Electronic Litigation Act* and the "Sana" system, specifically designed for judicial case registration and tracking, can significantly facilitate access to judicial services in remote regions and reduce travel- and time-related costs (Gholizadeh et al., 2023).

Another important benefit of using intelligent technologies in adjudication is the reduction of costs associated with judicial processes. Litigation costs—including travel expenses, legal and consultation fees, and procedural costs in traditional court systems—can be significantly lowered. With the use of online and intelligent systems, many of these costs are minimized. For example, in many countries, digital case management and intelligent legal consultation systems have substantially reduced litigation expenses. Globally, in countries such as the United Kingdom and Australia, initiatives like "online courts" have helped decrease costs and enhance access to justice (Al-Mahrouqi & Mayada, 2024; Chau, 2024). These countries utilize digital systems for case registration, online legal consultations, and case status tracking, which minimize expenses. In the UK, the use of intelligent technologies for low-cost legal consultations is expanding. These systems are especially beneficial for low-income individuals and those who cannot afford legal representation. In this regard, intelligent legal consultation systems can serve as auxiliary tools for individuals seeking legal advice and reduce the costs of in-person consultations. The UK's *Online Court Law* utilizes intelligent systems for affordable legal consultations. These services assist low-income individuals in accessing online legal counsel and reducing attorney fees (Wang, 2024).

Accordingly, the integration of intelligent technologies into adjudication can contribute to the realization of social justice. Access to judicial services—particularly for low-income and vulnerable populations—can be significantly improved through these technologies. This not only reduces costs but also makes access to justice more universally attainable. In developing countries, the use of such technologies can also help close social and economic gaps and promote justice.

6.3. Challenges of Responsibility, Fairness, and Human Understanding

The use of a "robot judge" as a decision-making entity in judicial processes may ostensibly aim to increase speed and efficiency, yet it faces serious legal and jurisprudential challenges in practice. The first challenge concerns civil and criminal liability arising from erroneous decisions. According to Article 1 of the *Civil Liability Act* (1959) in Iranian law, "Anyone who causes damage to another without legal justification is responsible for its compensation." However, when a robot judge issues an incorrect ruling resulting in deprivation of liberty or financial harm, it remains unclear who is liable for the damage: the algorithm's creator? the programmer? the implementing institution (e.g., the judiciary)? or none? This gap requires a reinterpretation of the concept of a "liable actor." In Shi'a jurisprudence, liability is based on a human act performed with knowledge and intent. The principle of *man atlaf mal al-ghayr fahuwa lahu damin* (whoever destroys another's property is liable) or *la darar* (no harm shall be inflicted) applies only to voluntary actors. Therefore, in the case of a robot judge—a being lacking will, intellect, and intent—liability cannot be ascribed jurisprudentially unless its actions are attributable to a human agent.

Another foundational pillar of adjudication is human understanding and the ability to assess moral, psychological, and social contexts of each case. For example, in adjudicating a crime like theft, a human judge may consider factors such as extreme poverty, necessity, or the defendant's family situation, and use legal tools to reduce or suspend punishment (in accordance with

Articles 37 and 38 of the *Islamic Penal Code* of 2013). A robot, however, lacks "contextual comprehension" and relies solely on input data and rigid rules. In Islamic jurisprudence, many forms of legal determination are delegated to the human judge's faculties. For instance, in judging based on testimony (*bayyina*), assessing the justice and credibility of witnesses, or a judge's personal knowledge in determining truth or falsehood—all involve human elements that are not algorithmically replicable.

Real-world examples of these challenges are noteworthy. In the United States, the use of the COMPAS algorithm to assess recidivism risk in certain states led to rulings that higher courts found to be "racially biased and lacking transparency" (Rafiq, 2024; Sung, 2020). The algorithm had been trained on biased data and categorized Black defendants as higher risk. A similar risk exists in Iran: if a robot judge is trained on past judicial decisions potentially affected by bias or human error, these flaws may be systematically reproduced.

The element of fairness, which holds a high position in both Shi'a jurisprudence and Iranian statutory law, has no equivalent in artificial intelligence structures. In Imamiyyah jurisprudence, the principles of *justice* and *benevolence* (*al-adl wa al-ihsan*) must not only govern the issuance of rulings but also their execution. Likewise, the Iranian legal tradition in certain types of disputes (such as family law, divorce, and custody cases) embraces the element of compromise and fairness, especially under the *Family Protection Law* (2012), Articles 41, 45, and 46, which emphasize the judge's role in assessing emotional, moral, and personal circumstances of both parties. Yet, a robot judge cannot apply customary or moral judgment in contexts such as restorative justice or facilitating reconciliation. As a result, its rulings may contradict the biological and psychological realities of human life.

From a jurisprudential perspective, the legitimacy of adjudication is contingent upon the fulfillment of specific qualifications. Jurists such as Imam Khomeini, Sahib al-Jawahir, Muhaqqiq al-Hilli, and Shahid al-Thani have stipulated conditions such as *ijtihad* (jurisprudential competence), justice, maturity, and intellect as prerequisites for judges. Therefore, from a Shi'a jurisprudential standpoint, if such a system independently issues rulings, not only will the verdict lack legitimacy, but the validity of its judgments may also be questioned (Khomeini, 2006). In Iranian law, according to Article 166 of the Constitution, a judge must issue rulings based on legal reasoning and in accordance with legal principles. A robot judge, however, lacks the capacity for legal reasoning in the strict sense.

Based on the above, these challenges demonstrate that although AI technologies can be used as advisory or complementary tools in litigation (e.g., drafting pleadings, classifying documents, or suggesting similar rulings), delegating the entire adjudication process to a machine fundamentally conflicts with jurisprudential doctrines, legal principles, and human experience. The solution does not lie in the complete replacement of humans, but rather in a balanced coexistence between human judgment and machine assistance in judicial procedures.

6.4. The Dangers of Ignoring the Fundamental Principles of Fair Trial

One of the most serious threats posed by the use of a robot judge is the neglect or weakening of the fundamental principles of a fair trial. Fair trial is not only a legal concept but also an ethical, jurisprudential, and even religious value that forms the foundation of the legitimacy of judicial decisions. In Iran's legal system, the principle of fair trial is explicitly enshrined in several constitutional articles, including: Article 34 (the right to seek justice), Article 35 (the right to legal representation), Article 36 (legality of punishment), and Article 37 (the presumption of innocence). Any innovation or technology that endangers these principles undermines judicial justice and, consequently, the legitimacy of adjudication (Gholizadeh et al., 2023; Hajiloo, 2024).

In the context of employing a robot judge, a primary concern is the violation of transparency and the right to defense. For instance, how can the defendant or their lawyer become aware of the robot's decision-making algorithm and defend against it? According to Articles 194 and 195 of the *Criminal Procedure Code*, the accused must be informed of the charges and the course of the proceedings. In jurisprudence as well, the principle *"al-bayyina 'ala al-mudda'i wa al-yamin 'ala man ankara"* and the practices of the Prophet and the Imams in listening to the defense of the accused emphasize the importance of the right to defend oneself and to be aware of the trial process. If a robot judge renders a decision using a non-transparent and complex algorithm (such as deep learning), the parties to the case lose the ability to meaningfully challenge the decision. Moreover, principles such as the personal nature of responsibility and the proportionality of punishment to both the crime and the offender's personality may easily be overlooked in machine-based adjudication. A robot judge lacks the capacity to recognize individual

differences, personality traits, and the family and cultural conditions of the accused. For instance, two defendants who commit similar offenses may require entirely different judicial responses—something that a human judge, through experience, legal training, and human intuition, is able to distinguish. Structurally, however, a robot judge lacks this ability and relies solely on statistical data or previous patterns (Hajiloo, 2024).

From a jurisprudential perspective as well, fair trial is a confirmed and emphasized principle in classical legal sources. In texts such as *Makāsib* and *Jawāhir al-Kalām*, the principle *"ḥurmat dam al-muslim wa mālih wa 'irdih"* (the sanctity of a Muslim's life, property, and reputation) highlights the elevated status of the defendant's rights. Even in classical Islamic courts, adjudication was based on the physical presence of the judge, direct confrontation with the accused, and a thorough assessment of both the external and internal aspects of the case. For example, the judge was expected to infer meaning from facial expressions or behavioral cues—something that artificial intelligence algorithms cannot reliably replicate.

Another principle that may be neglected in machine-based judicial systems is impartiality and non-discrimination. While judicial impartiality is one of the pillars of a fair trial (Articles 3 and 4 of the *Civil Procedure Code*), artificial intelligence algorithms may harbor hidden biases originating from discriminatory or incomplete training datasets. As previously noted, in the United States and the United Kingdom, it has been demonstrated that algorithms sometimes behave unjustly toward minorities or specific groups because they were trained on biased datasets. Similarly, in Iran, historical case data may reflect certain social or judicial biases that, when used to train a robot judge, could lead to the reproduction of discriminatory rulings (Hajiloo, 2024).

Ultimately, robots are incapable of properly understanding public interest, restorative justice, or goals of social rehabilitation. While human judges often approach cases—especially those involving juveniles, women, or vulnerable defendants—with a rehabilitative and human-centered perspective, artificial intelligence bases its decisions strictly on past patterns. For instance, Article 91 of the *Islamic Penal Code* (2013) allows the judge to apply alternative punishments for minors under the age of 18, taking into account their mental development. Such nuance lies beyond the capabilities of machine algorithms—unless programmed superficially and mechanically, which introduces additional risk (Mostafavi Ardabili et al., 2022).

In sum, the absolute deployment and full replacement of human judges with robot judges constitutes a serious threat to the principles of fair trial within the legal and jurisprudential system of Iran. Although the limited use of artificial intelligence as a judicial assistive tool can be beneficial, the legitimacy of adjudication, public trust, and human dignity all demand the preservation of the human element in judging. Therefore, the future of robot judges in Iran lies not in replacing the human judge, but in fulfilling complementary and assistive roles. AI can make significant contributions to judicial efficiency by analyzing precedent, predicting decisions based on established rulings, classifying cases, and identifying similar legal issues—without undermining the core principles of justice, transparency, or the right to defense.

In the long-term, the gradual introduction of robot judges in non-sensitive or low-stakes civil matters—such as minor financial claims or non-contentious cases—may be considered. Even then, the algorithms used must be legislatively approved, transparent, evaluable, and appealable. From a jurisprudential perspective, essential qualifications such as "judicial eligibility," "divine intent in judgment," and "the capacity for customary and ethical discernment" are conditions that a machine system currently lacks. Therefore, the future of robot judges in Iran—provided their roles remain limited to technical, transparent, regulated, and auxiliary functions—may contribute to judicial reform. However, full replacement of human judges—at least within the foreseeable future—will remain incompatible with Islamic principles, the fundamentals of fair trial, and the legal framework of Iran. Any development in this area must proceed with scholarly caution, jurisprudential analysis, and a robust legal framework to safeguard justice, dignity, and judicial legitimacy.

7. Conclusion

This study, aiming to assess the feasibility of realizing robot judges in Iran's judicial system—from imagination to legal reality—analyzed the theoretical, legal, and jurisprudential dimensions of the issue. It was first clarified that the concept of the robot judge, under the influence of rapid developments in artificial intelligence, has evolved from a speculative idea to a global legal and ethical challenge. A review of foreign legal systems, especially in the European Union and the United States, revealed

that the predominant approach focuses on using AI as an assistive tool for human adjudication, while full replacement of human judges with robots faces significant legal, ethical, and human constraints.

In analyzing the legal status of Iran, several obstacles to the adoption of robot judges were identified. Constitutional principles of the Islamic Republic of Iran—including Article 34 (right to seek justice), Article 156 (judicial independence), and Article 167 (reference to jurisprudential sources in case of legal silence)—all underscore the centrality of the human judge and human rationality in adjudication. Moreover, the foundations of Shi'a jurisprudence view adjudication as a human act rooted in contextual awareness, fairness, and moral responsibility—elements that cannot be delegated to beings lacking consciousness and human understanding.

The findings of this study indicate that while the use of artificial intelligence technologies as judicial assistants can enhance adjudicative processes, improve speed, forecast similar rulings, and reduce potential errors, the full replacement of the human judge with a robot judge, within the legal, jurisprudential, and cultural context of Iran, not only lacks legal legitimacy but is also incompatible with the principles of fair trial and the preservation of human dignity. Accordingly, the article concludes that the full realization of a robot judge in Iran's judicial system is currently unfeasible. Any partial introduction of technological functionalities into the adjudication process must be preceded by substantial legal reform, the establishment of strict regulatory standards, and a re-evaluation of the jurisprudential and legal foundations of judicial authority.

Recommendations:

- Instead of replacing the human judge, efforts should focus on developing AI-based assistive tools in judicial procedures;
- A clear legal framework should be established for the use of intelligent technologies in adjudication;
- Legal and technical training should be provided for judges and judicial staff to familiarize them with modern tools;
- Interdisciplinary research in jurisprudence, law, and technology should be promoted to continuously assess developments in this field.

Authors' Contributions

Authors contributed equally to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Ethical Considerations

All procedures performed in this study were under the ethical standards.

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Conflict of Interest

The authors report no conflict of interest.

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