



Open Access



Preventing Miscarriage of Justice Using Artificial Intelligence in Pakistan

Amir Latif Bhatti¹ Sardar Ali Shah² Abdul Rehman Bhatti³ Sajjad Ali Jamali⁴

Abstract: A miscarriage of justice is considered a situation when an incorrect decision has been made in a trial, and a guilty person is sentenced and punished. This is a very common problem in the criminal justice system of Pakistan, which has not been rectified for a very long time. In spite of measures being taken in the quest to eliminate such occurrences, miscarriages of justice are apparent for various causes, including wrong eyewitness identification, tainted confessions and inadequate counsel. The failure of justice is a denial of rights as well as the offenders to justice compartments the system's credibility. In recent years, with the aid of stiff progress in artificial intelligence (AI), it seems probable that miscarriages of justice can be reduced by accurately and efficiently facilitating criminal justice. Hence, this research adopts a doctrinal method to analyze the factual position of the miscarriage of justice system in Pakistan. This work will be very useful in dealing with the problem of miscarriage of justice in Pakistan. Therefore, it can be claimed that by defining the causal factors of wrongful convictions and providing specific recommendations, this study may help build a more efficient and just criminal justice system in Pakistan.

Key Words: Miscarriage of Justice, Wrongful Conviction, Criminal Justice System, Artificial Intelligence, Fairness, Transparency

Introduction

The criminal justice system aims to guarantee efficient justice provision to every population stratum. Unfortunately, judicial mistakes, operational mistakes, and injustice are still prevalent in many world countries, including Pakistan. This aspect leads to offenders being punished and sentenced for offenses they did not commit, which is a sheer case of a miscarriage of justice. These shortcomings can be blamed on driver errors, bias, and insufficient proof (Khan, 2022). More and more interest in the modern world has been taken on whether AI can be applied to avoid the leading miscarriages of justice. AI means advancing and evolving computer science, which can perform activities usually requiring human intelligence, like pattern analysis. The potential is very high in avoiding miscarriages of justice because it actively participates in the assessment of large amounts of information and ensures the identification of specific patterns that may be unnoticed by people, as well as minimizing the impact of prejudice in certain decision-making activities (Deeks, 2019). Unfortunately, the miscarriage of justice in Pakistan's case is quite significant. It is highly populated and characterized by high crime incidences, with the criminal justice system strained through regular oversupply by inefficiencies and scams. Thus, new focus is being paid to applying Artificial Intelligence (AI) to eliminate miscarriages of justice in Pakistan (Ghias, 2010).

This research focuses on the possibility of applying Artificial Intelligence (AI) to prevent miscarriages of justice in Pakistan. In general, the study will also briefly introduce Pakistan's criminal justice system. It shall then analyze how AI can avoid miscarriages of justice. The study will take into account a discussion of several Artificial Intelligence (AI) tools and techniques, such as Predictive Analytics, Machine Learning, and Natural Language Processing (biometric authentication, facial recognition technology, and voice recognition). The research will also look at AI's potential opportunities in the criminal justice system,

¹ Civil Judge & Judicial Magistrate, Karachi, Sindh, Pakistan. Email: judge.aamir@gmail.com

² Assistant Professor, I/C Director, Institute of Law, University of Sindh, Jamshoro, Sindh, Pakistan.

³ Dean, Faculty of Law, Shah Abdul Latif University, Khairpur, Sindh, Pakistan.
Email: judge.abdulrehman@gmail.com

⁴ Civil Judge & Judicial Magistrate, Karachi, Sindh, Pakistan. Email: sajjadaliJamali602@gmail.com

whereby efficiency, accuracy, and fairness will be improved. After that, the research will discuss emerging issues and limitations to implementing AI in Pakistan's criminal justice system. These may include, but are not limited to, topics such as data accuracy, privacy, and fairness of AI systems and models. The subsequent research will also employ a review of literature to explore the use of Artificial Intelligence (AI) in the criminal justice system all over the globe. At last, the research will pinpoint the future of AI in the reduction of miscarriages of justice in Pakistan and some of the barriers that are required to be overcome to facilitate the proper working of AI in the criminal justice system. It will also provide valuable suggestions for research and development projects.

It is far more significant to avoid miscarriages of justice by employing Artificial Intelligence (AI) as one of the capacities of the highest worth, especially in countries like Pakistan, where the criminal justice system remains seriously impaired. While there are various benefits to using Artificial Intelligence (AI) in this context, there are also potential limitations and challenges that need to be considered. By exploring the present study and ascertaining areas for upcoming research and development, this research's objective is to underwrite an enhanced indulgence of the potential of Artificial Intelligence (AI) in preventing miscarriages of justice in Pakistan.

A Brief Overview of the Criminal Justice System in Pakistan

The criminal justice system in Pakistan is based on a combination of British Common Law and Islamic Law. The criminal code in Pakistan is primarily based on the British Indian Penal Code of 1860, which Pakistan adopted after its independence in 1947. Nevertheless, Islamic Law, or Shariah, is also integrated into the legal system of Pakistan, particularly in cases relating to blasphemy and adultery. The Constitution of Pakistan serves as the governing document for the country's legal system based on the principles of justice that treat everyone fairly and impartially. The system comprises the police, judiciary, and correctional institutions that work together and remain in coordination for a just and equitable system (Rajput et al., [2022](#)).

Pakistan has a federal police force, the Islamabad Capital Territory (ICT) Police, responsible for maintaining law and order in the country's capital city. Each country's four provinces - Punjab, Sindh, Khyber Pakhtunkhwa, and Balochistan - have their local police force responsible for maintaining law and order within their jurisdiction. The local police forces are led by an Inspector General of Police (IGP). At the regional level, district police forces are responsible for maintaining law and order. A Senior Superintendent of Police (SSP) heads each district police force, ensuring the safety and security of citizens within their districts while investigating criminal cases (Minhas et al., [2019](#)).

The Supreme Court of Pakistan is the highest in the country and is located in the capital city of Islamabad. It has appellate jurisdiction over all civil and criminal cases in Pakistan. Besides hearing the appeals over civil and criminal matters in its province, the Provincial High Courts located in the Provinces of Pakistan have the constitutional power to issue WRITS OF MANDAMUS for the enforcement of fundamental rights. They hear appeals from the lower courts, tribunals and other political units in their areas of jurisdiction. In addition to its appellate jurisdiction from lower courts, tribunals and other arms of government, each High Court in Pakistan has inherent revisionary and review jurisdiction. District courts, on the other hand, are situated at the district level and come up with rulings on criminal cases locally. These courts are the following: they are recognized as the lowest rust of the judicial system in Pakistan, and they hold original jurisdiction in civil and criminal cases up to a certain amount or monetary limit. They also can exercise the power to hear appeals from lower courts, especially the Magistrate Courts, and to review applications for their decisions (Sajid et al., [2020](#)).

In Pakistan, the detention, well-being, and rehabilitation or repatriation of convicts involved in criminal offenses are dealt with by correctional institutions, including jails, prisons, and places for juvenile delinquents. The Prisons Department is legally responsible for running these establishments, caring for the inmates and their basic needs, and overseeing their programs and activities that will help reform them. Borstal institutions are meant for juvenile offenders under 18 years who have been convicted of a crime for the first time. These institutions aim to provide these offenders with education and vocational training to reintegrate them into society as productive citizens. Similarly, Juvenile detention centers are meant for children under 18 years who have committed a crime. These centers provide primary education, counseling,



and other forms of rehabilitation to help these children become responsible citizens in the future (Tariq et al., 2022)

Contributing Factors Leading to Miscarriage of Justice

There are several contributing factors to the miscarriage of justice, some of which are discussed as under:

Eyewitness Misidentification: Eyewitness misidentification is a major cause of wrongful conviction and miscarriage of justice in Pakistan, as in many other countries worldwide. Eyewitness testimony is said to have been very effective evidence in criminal trials, as it is regarded as more trustworthy than different types of evidence (Zia et al., 2021). Still, eyewitness accounts can be shallow in accuracy, and the eyewitnesses themselves are often imperfect and have been known to fail on the stand. Various aspects can lead to eyewitness misidentification in Pakistan. Another circumstance that may occur in poorly illuminated areas – low light – can hamper eyewitnesses' vision and exclude their ability to identify the suspect correctly. The witnesses of violent crime scenes are often under high levels of stress, and they also go through the process of trauma; thus, they are not accurate when identifying the suspect. Concerning post-event information, witnesses may also learn about other crime-related details, such as news reports or witness discussions, which may distort witnesses' memory of the crime (Pezdek, 2020). There is another challenge known as cross-racial identification, which is quite relevant to Pakistan as racial and ethnic variation is quite evident. How police conduct lineup procedures is also looked into as influencing eyewitness misidentification. For instance, if the suspect is uniquely different from the remaining people within the lineup or somebody carries out the lineup in a suggestive way, this will influence the witness's identification. Subsequently, there is a chance that the memories of the crime will be eclipsed or distorted, and charges will be given to the wrong people. Moreover, police officers investigating a particular criminal case are likely to lead the witnesses to a specific suspect, thus creating the confirmation bias where the witness will be more likely to find the suspect proposed by the police even if the suspect is innocent. Besides the above errors, socioeconomic factors can also play a role in leading eyewitnesses to misidentify suspects. People from the lower class stand a higher chance of having never studied, been in trauma, or under a lot of stress. Some of these factors can lead to eyewitness misidentification and wrongful conviction (Nirmani et al., 2015).

False Confessions: Confession is strong evidence that closes the case due to guilt; this is why false confessions create wrong notions of justice. Understanding the argument, people found it difficult to accept that a person who has admitted to a specific crime was not involved in such a crime. True confession coexists with false confession, where the suspects confess to a crime they did not commit because of coercion, mental illness, or low intelligence quotient (Hafiza et al., 2022). In Pakistan, it is a practice that forced confessions are often extracted out of physical and psychological coercion, different types of detentions, and any other form of torture. Unfortunately for the under-trial prisoners in jails, they are exposed to horrific conditions of confinement and living barracks, inadequate necessities. Regrettably, like victims, suspects also remain out of their rights to enjoy legal aid, which makes them further exposed to coercion and other pressures and abuse. Another aspect that can contribute to false confessions in Pakistan is the lack of protection for the endangered population, including children and persons with mental health issues. Thus, children arrested for a crime might be interrogated, contrary to the presence of parents or guards, which increases the chance that these children will invent a confession. Likewise, those with mental impairments cannot comprehend the consequences of their utterances regarding what they utter or record; therefore, they are likely to be more compelled (Gudjonsson, 2021).

False Guilt Pleas: A false guilty plea is one where the accused person pleads guilty to an offense they did not commit. False pleas of guilty can occur due to one being forced, or the individual fears a harsher penalty when the truth is told at trial, or the person does not have legal knowledge of the legal system. Law Enforcement Officers or Prosecutors in Pakistan have been accused of pressurizing the accused into pleading guilty. This means that such practice of injustice can be introduced in the form of threats or by offering some benefits, such as a lighter punishment if the defendant confesses guilt. Further, there are instances where the accused enters a guilty plea, especially when they cannot hire an attorney or

comprehend the law. Similarly, the plea bargain procedure relates to both the accused and the prosecutor agreeing on specific terms and conditions wherein the accused pleads guilty, considering that he would be given a lighter sentence. Plea bargaining includes other forms, such as charge bargaining and fact bargaining. In a charge bargain, one is likely to plead that the number of charges brought or the seriousness of charges be lessened against them. In the form of a sentence bargain, the accused is told what kind of sentence they will attract if they plead guilty. It was traditional fact bargaining, which means that one has to admit that some fact is actual, provided that the prosecutor will not raise other facts as allegations. Therefore, the justice system is compromised due to the flawed procedure of plea bargaining (Conklin, [2020](#)).

Tunnel Vision: Tunnel vision is another factor that goes hand in hand with the miscarriages of justice and wrongful convictions in Pakistan. Tunnel vision means that investigators or prosecutors become rigid in their view of the case and fail to consider information collected during the investigation that contradicts their working hypothesis. It is used in Tunnel Vision, and the latter can lead to individuals being accused and convicted of a crime without actually being guilty. Wrong tunnel vision has also been a cause of wrongful convictions in Pakistan. For instance, detectives may have preferences or presumptions about a specific individual. As a result, they may bring all their energies to arrest them, thinking that they are the culprits behind the crime without regard to other possibilities. This may result in evidence being disregarded for specific reasons. Resultantly, a wrong individual has to suffer false imprisonment.

Similarly, the pressure to solve high-profile cases is another element that may cause the consequence of tunnel vision in Pakistan. In some situations, law enforcement officials, including prosecutors, may face different forms of pressure to swiftly resolve the cases to please the general public and oblige their high-ups for their ulterior motives. This may result in a hasty conclusion while dispensing justice and renders in a failure to consider all the viable justifications that could explain the crime (Elaad, [2022](#)).

Flawed Forensic Science: Forensic science is a crucial component of the criminal justice system in Pakistan, but it is not infallible. Flaws in forensic science can lead to wrongful convictions and miscarriages of justice. The evolution of forensic science and its adoption by the criminal justice system can also contribute to wrongful convictions. One example of an error in forensic science is the misinterpretation of forensic evidence. Forensic evidence, such as DNA, fingerprints, and ballistics, can be highly technical and complex. If forensic examiners are not adequately trained, they may make errors in interpreting the evidence, leading to false conclusions and wrongful convictions. Besides, the implementation of outdated and defective forensic methods presents another issue. The field of forensic science is continuously developing. Due to ongoing developments, some techniques, including bite mark analysis, have become obsolete and disregarded as unreliable. The bite mark analysis has been discredited as an unreliable identification method, which was once used to identify suspects. The adoption of innovative forensic techniques can also be challenging. Implementing such strategies may create hindrances if they have not undergone adequate scientific testing or validation. It may cause miscarriages of justice, leading to false imprisonment due to unpredictable and unreliable results (Morgan, [2023](#)).

Jailhouse Informant Testimony: Jailhouse informant testimony is a common cause of wrongful convictions and miscarriages of justice in Pakistan. A jailhouse informant is an incarcerated person who provides testimony or information to the authorities in exchange for a reduced sentence or other benefits. While jailhouse informant testimony can be helpful in some cases, it can also be highly unreliable and subject to manipulation. One problem with jailhouse informant testimony is that it is often provided by individuals who have the motive to lie or manipulate the information they provide to receive a benefit. This may result in false, frivolous, and vexatious allegations, including twisted facts that can influence the Court's verdict, resulting in a false conviction. Another problem is that a case that is not confident-inspiring and has weak standing may be corroborated by the evidence of a jailhouse informant, even if the testimony of the jailhouse informant is doubtful. The prosecution may utilize such evidence to support its case if there is insufficient and unreliable proof. Additionally, the police and prosecutors can pressure the jailhouse informants by extending threats to record false testimony before the Court to secure a conviction. This can be particularly troublesome if the jailhouse informant is given incentives or faces threats of dire



consequences in case of not recording desired testimony before the Court (Golding et al., [2022](#)).

Professional Misconduct: Professional misconduct is a serious issue that can contribute to wrongful convictions and miscarriages of justice in Pakistan. Professional misconduct occurs when individuals who work within the criminal justice system, such as police officers, prosecutors, or forensic examiners, engage in unethical or illegal behavior that affects the outcome of a case. One example of professional misconduct is the use of coercive tactics during interrogations. Any confessions that are given after being forced or coerced either physically or psychologically by the police may not be genuine. This can result in legal mistrials and make innocent people suffer or even get a lifetime imprisonment.

An example is the prosecutors or the forensic examiners tampering with or hiding evidence. If crucial evidence is hidden or altered deliberately, a party is defrauding the court, leading to a mistrial, and the actual culprit goes scot-free. This can happen if some of the actors within the system act in an egotistical way, for example, if a detective or a lawyer needs a conviction or if the system's representatives do not want to receive negative publicity. It could also be a case of professional misconduct if some individuals within the system decide to act in a discriminated manner towards fellow persons, for instance, making them targets of racial or religious traits. This can result in the perpetration of politically influenced investigations and prosecution, with minimal faith in the criminal justice system (Garrett, [2020](#)).

Political and Extrajudicial Pressures: A fundamental cause is the political and extrajudicial influences that judges experience when delivering their decisions. Another factor is that in Pakistan, political elites have effective control over the judiciary, which makes them dictate the outcome of a judgment. Judges may feel compelled to decide cases favoring the ruling party or those with political power. Such decisions can have severe consequences, as innocent individuals may be wrongfully convicted, and justice may not be served. In addition, injustices are prevalent in our society due to judges' behaviors as they intentionally make mistakes or deliver biased judgments due to some personal interests, which can lead to more harm to society, resulting in miscarriages of justice. Undoubtedly, this has been a long-standing issue in the criminal justice system and has contributed to the masses' lack of confidence. Besides the undue pressure, local politics and power dynamics also affect judicial decisions. In high-profile cases, judges may be subject to excessive force and threats to make quick decisions that satisfy public or superior officers' desires, leading to incorrect judgments and wrongful convictions. This rush can result in an incomplete analysis of the facts, including material evidence, leading to flawed decisions. Influential individuals or groups can also falsely accuse a less affluent person who lacks the resources to fight back, manipulating the case for their benefit (Kureshi, [2022](#)).

The Victims of Wrongful Convictions: Miscarriages of Justice in Pakistan

In our culture, individuals or prisoners who are wrongfully convicted for a crime and suffer prolonged sentences in prison are often acquitted by the High Courts and Supreme Court (Madni et al., [2019](#)). To discuss such prevailing issues regarding miscarriages of justice in our society, the following are just a few examples of criminal cases.

The State versus Ghulam Qadir and others

The accused, Ghulam Qadir, and his brothers were subjected to a murder trial for three years in 2002, leading to their death sentence. The High Court upheld their conviction upon appeal in 2009, and they filed an appeal with the Supreme Court of Pakistan in 2010. However, the Supreme Court did not issue a verdict until six years later. In October 2016, the court acquitted the three individuals due to the flawed nature of the testimonies used to convict them. Sadly, Ghulam Qadir and Ghulam Sarwar had already been executed in jail in Bahawalpur on October 12, 2015, a year before the Supreme Court's acquittal. The Supreme Court also expressed concerns about the inadequate training of lower court judges and the prosecution department while delivering its verdict.

The State versus Mazhar Hussain

The Supreme Court acquitted Mazhar Hussain in Criminal Appeal No. 357 of 2010, overturning his death sentence, which the Session Court imposed in April 2004 for the murder of Muhammad Ismail in May 1997.

However, the accused, Mazhar Hussain, had passed away due to coronary failure while still imprisoned, significantly belating the exoneration. After the trial court sentenced Mazhar Hussain to death, he appealed to the High Court, which upheld the verdict. In September 2010, the Supreme Court granted leave to appeal, and a three-member bench began hearing the case in October 2016, six years later. The Supreme Court concluded that the prosecution's case was flawed, with significant omissions, doubts about the medical evidence, and the credibility of eyewitnesses at the crime scene. Mazhar Hussain was falsely accused of a crime and was sentenced to prison after a trial. Still, the Court later found that the prosecution had failed to prove its case due to insufficient evidence against the accused for the charge leveled against him. As a result, his sentence was overturned, and he was acquitted. Sadly, Mazhar Hussain had already passed away while in prison, hoping for justice to prevail.

The State versus Asma Nawab

Asma Nawab was wrongly accused of murdering her family and spent 20 years in jail. The incident occurred in Karachi in 1998, when Asma was only 16 years old, and her parents and brother were killed during a robbery attempt. The prosecution swiftly pursued the case and convicted her and her fiancé, sentencing them to death after a 12-day trial. Although Asma challenged her conviction, the matter lingered due to the slow and inefficient legal system, resulting in the accused being unnecessarily dragged for a crime she did not commit. It was unfortunate for Asma that her lawyer did not file an appeal with the Supreme Court until 2015. Eventually, the Court ordered her ultimate release after three years that the prosecution had failed to prove the beyond reasonable doubt owing to legal lacunas and insufficient material evidence. Despite the initial trial's quick conclusion in 12 days, it took almost 20 years to resolve her appeal, and she remained imprisoned.

Stories like these are familiar in Pakistan, where people suffer due to flaws in the criminal justice system. Even if they are found not guilty, the accused and victims of flawed prosecution and wrongful conviction that result in miscarriages of justice ultimately have psychological, emotional, financial, and social consequences. They are denied their basic fundamental rights, which are always guaranteed by the rule of law.

What is Artificial Intelligence (AI)?

The following definitions can be taken into account for a thorough understanding of the meaning of Artificial Intelligence (AI):

According to Copeland, B.J., *"Artificial Intelligence (AI) is the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings. The term is frequently applied to the project of developing systems endowed with the intellectual processes characteristic of humans, such as the ability to reason, discover meaning, generalize, or learn from past experience"* (Gordon, [2023](#)).

According to the Oxford Dictionary, *"Artificial Intelligence (AI) is the theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages"* (Jarek et al., [2019](#))

Machine intelligence is what is meant by Artificial Intelligence (AI). The study and creation of computer systems can carry out tasks that typically need human intelligence, such as speech recognition, decision-making, and language translation. AI is the ability of the system to emulate human intelligence, make decisions, and learn quickly (Cioffi et al., [2020](#)).

AI Tools and Techniques in Preventing Miscarriages of Justice

Using AI can effectively avoid miscarriages of justice in Pakistan's criminal justice system. AI technology can help find cases of wrongful convictions, decrease the influence of biases and mistakes, and increase the effectiveness and reliability of investigations and trials. Some AI tools and techniques that can be used to prevent miscarriages of justice in Pakistan include predictive analytics, machine learning, facial recognition technology, and natural language processing. (Dwivedi et al., [2021](#)).

Predictive Analytics: There is a type of data analysis known as 'Predictive Analytics.' It is an extraordinary



AI instrument that applies statistical formulae and mechanisms of machine learning to identify trends and forecast future trends. It is usually over-sighted to be obscure; thus, it is not fast for human analysts to get results compared to computers. It is applied in almost all sectors nowadays and encompasses finance, marketing, health care, and law enforcement (Ghasemi et al., [2021](#)). Criminal justice is collaborating with public and private entities to develop new approaches for risk assessment instruments for appraising and managing risk and recidivism. Predictive analytics tools implemented in the criminal justice system have enjoyed a lot of support as a revolutionary approach to the sentencing of offenders since they are capable of presenting an objective way of sending offenders to jail for different durations or other punishments, thereby likely to do so with minimal or almost no input from people since this amounts to human errors. This approach has favors from both the Democratic and Republican parties as part of a more extensive process of reforming the criminal justice system. Regarding the matter of miscarriages of justice, the function of the PA application can be to analyze and gather information regarding previous cases of wrongful convictions that could indicate the likelihood of injustice that may lead to criminal convictions (Kauffman et al., [2020](#)).

COMPAS: Correctional Offender Management Profiling for Alternative Sanctions is an AI system that belongs to case management and is coupled with the decision support system. This system was created by North Pointe, now known as Equivant. The system is currently implemented by various courts in the United States of America, such as New York, Wisconsin, Florida, and California, among others, to ascertain the probability of a defendant again engaging in criminal acts. Hence, it illustrates the application of predictive analytics in the criminal justice system (Završnik, [2021](#)).

Machine Learning: Machine learning algorithms have revolutionized the criminal justice system's capacity to analyze and interpret data more quickly than humans. Applications of this technology currently include facial recognition, providing decision-making assistance to judges, and identifying high-risk criminal areas in cities. Incorporating AI in the justice system is significant because it illustrates how this human-centric concept of justice can be modernized. In Estonia, the judiciary system is set to transition to a human-free workforce, with AI employed to determine individuals' culpability for minor crimes (Campbell, [2020](#)). While convicted persons can still appeal, this marks the first time a machine has had autonomous judging capabilities. Proponents argue that such innovations will reduce the time required for human intervention in individual cases. Machine learning tools can also be used on such criminal case data to evenly search and detect specific patterns and trends that may indicate other areas of higher risks of false convictions. Using advanced computing, it is possible to learn a lot about the evidence that may otherwise be overlooked, including the statements collected from the witnesses and the pattern of the data found during the forensic investigations, among other case records (Mahar et al., [2021](#)). Probably the most well-known use of this technology is AI-based facial recognition, which possesses significant capabilities to identify criminals who try to hide their faces. Also, unlike other identification technologies such as fingerprints or DNA, facial recognition can lower the time it takes to generate an alert, and this has made police authorities around the world embrace the technology. Facial recognition in criminal cases is one example of how machine learning is applied to enhance and advance conventional methods (Jadhav et al., [2020](#)).

Natural Language Processing: Natural language processing (NLP) is a component of Artificial Intelligence (AI) that concerns the interaction of man and machine using natural languages. It means analyzing natural language and understanding it with the help of algorithms or particular techniques principally aimed at scrutinizing speech, text, and other types of communication (Obanda, [2022](#)). To avert miscarriages of justice, NLP can be applied to examine various case-related documents like police reports, witness statements, or other legal papers to develop language markers suggesting a higher likelihood of wrongful conviction. Moreover, the case of Natural Language Processing (NLP) has been encouraging in determining a court's predicted ruling after analyzing past precedent cases. Regarding the capability of these algorithms, they can predict how a specific court can rule, thus helping lawyers to argue their case correctly and ensuring that judges make fair decisions. Due to steady research and technology enhancement, these services will probably improve with time. Since the NLP programs work under the machine learning model, the more such programs are applied, the more they prove helpful since the cases analyzed lead to better

insights. Consequently, although the enrichment of artificial intelligence, machine learning, NLP, expert systems, and other related applications significantly advances data processing and computing, it cannot be compared to objective intelligence. However, with NLP algorithms, one can detect prejudice or paradoxes in the language that a witness or person posting on social media uses regarding a case. With the help of NLP, it is possible to determine those sources that contain materials that may influence the judgment of an issue and contain biases or misrepresenting information. All these developments in NLP delineate an extremely encouraging future for the law as a practice and the pursuit of justice. Perhaps this AI tool could prevent wrongful convictions or high-profile miscarriages of the justice system. Judges of the courts can make better decisions and ensure that justice is served with the help of these resources (Alonso et al., [2021](#)).

Artificial Intelligence (AI) and The Courts of Law

Attention is being paid to the possibilities of AI applications in courts. That is why the chance of AI enhances the justice system, as accuracy and efficiency are the main reasons for using AI (Bonneton et al., [2020](#)). The current debate on AI in courtrooms is regarding the technology that has been to serve depending on the corresponding real environment when properly applied (Scholtes, [2021](#)).

eDiscovery: Organizing Information AI Tool Used in USA & UK

Organizing information with the help of AI can be helpful, especially when it comes to identifying the tendencies in incredible amounts of texts and documents. For instance, eDiscovery in the United States is the automated investigative process to obtain relevant parts of electronic information before the actual court process. The eDiscovery process uses machine learning AI trained to identify the best algorithm for sorting through large amounts of information. Parties agree on the search terms and coding used, which the judge assesses and confirms. This method of document investigation is recognized by courts in the United States and the United Kingdom and is faster and more accurate than manual file research (Reiling, [2020](#)).

Solution Explorer: Advisory Function AI Tool used in Canada

AI that provides advice can be helpful for people who are looking for a solution to their legal problem but do not know where to start. Similarly, professionals in the legal field can benefit from this tool by getting assistance in resolving their law-related queries. AI can also help them identify a solution to complex issues that need in-depth judicial review, resulting in judges' assessments of accuracy and efficiency as a matter of routine. The British Columbia, Canada-based Civil Resolution Tribunal provides a concrete illustration of this advisory function. They have developed an advanced AI system called 'The Solution Explorer,' offering free legal information with computation assistance. It includes proper counseling with interactive questions and answers to the public round-the-clock. In addition, the system can resolve conflicts and, if necessary, start preparing for the proceedings at the Tribunal. It is a purpose-built expert system updated quarterly based on analytical data and user feedback. While this is not yet "real" AI, it is a practical example of the advisory function that can help people resolve more problems and prevent disputes or court cases (Anderson, [2019](#)).

Traffic Violation Cases: AI tool used in the Netherlands

The District Court of East Brabant in the Netherlands, in collaboration with Tilburg University, Eindhoven University of Technology, and Jheronimus Academy of Data Science, is researching the use of AI in traffic violation cases. The study aims to develop a tool that may assist judges in handling and deciding matters related to traffic violations. Data from the District Courts of East Brabant and Zeeland-West Brabant and the Arnhem-Leeuwarden Court of Appeal are being used in the study to ensure sufficient data for the research (Qasim et al., [2023](#)).

Predictive Justice: AI Tool Used in the Supreme Court of the US (SCOTUS)

AI that purports to predict court decisions is gaining interest, commonly called "predictive justice." However, this term is controversial because the outcome of prediction algorithms is not just nor entirely



predictive. "Forecast" is a more accurate term to describe the result, as it looks like a weather forecast rather than a fact. Court proceedings are often unpredictable; therefore, Artificial Intelligence (AI) is being explored to reduce this risk. Commercial predictive justice tools are offered in the US, but their workings are business secrets. Nonetheless, non-commercial applications provide some insight into their operations. A group of American academics has developed a machine learning application that predicts the outcome of cases at the Supreme Court of the United States with an accuracy of 70.2% and the voting behavior of individual judges with 71.9% accuracy. The application uses information about the case and individual justices' political preferences and past voting behavior (Winshel, [2020](#)).

Predictive Justice: NLP Tool Used in Europe for ECHR

By analyzing information from earlier judgments, a 'Natural Language Processing' and machine learning tool has been developed that predicts whether a particular provision of the European Convention on Human Rights (ECHR) has been violated in a given situation. This tool claims to have an accuracy of 79%, and the material it processes has already undergone several "complexity reduction" steps. The tool only uses judgments from the online ECHR database, which excludes cases resulting from inadmissible requests. The decisions justify the rulings and help identify patterns in text documents. The results indicate that the facts of the case before the Court are the strongest indicator of the outcome. The tool is a helpful aid for judges in quickly identifying a judgment's direction (Medvedeva et al., [2020](#)).

COMPAS: AI Tool used in the Criminal Courts of the US

COMPAS is the abbreviation of "The Correctional Offender Management Profiling for Alternative Sanctions." The COMPAS is an AI tool US criminal court judges use to predict recidivism risk in defendants or convicted persons. Proponents of COMPAS argue that it helps to assess recidivism risk more objectively, reducing unnecessary detentions (Fair et al., [2021](#)). However, the tool has been criticized for its bias against African American defendants, as it overestimates their risk of recidivism compared to Caucasian Americans. COMPAS uses data from a criminal record and a 137-question questionnaire, including whether someone hungry can steal. Despite the intention of the tool to reduce detentions, judges using COMPAS detain more people than before. The high detention rate in the US is viewed as undesirable for several reasons (Kucina, [2022](#)).

Ravel: AI Tool for Analyzing Judgments in the US

Ravel, a startup based in the US, created subscription-based tools for analyzing patterns in court judgments and judges' profiles. However, there is no publicly available information regarding the accuracy of the devices. LexisNexis, the leading provider of legal information in the US, acquired Ravel and integrated its tools into its service offering (Frolova et al., [2021](#)).

Conclusion and Recommendations

This research has examined the potential usage of Artificial Intelligence (AI) in preventing miscarriages of justice in Pakistan's criminal justice system. The study examines prior incidents related to unjust and wrongful convictions in Pakistan and involves the main stakeholders as participants from the criminal justice system. The research has thoroughly analyzed the prospects and challenges of using AI in the prevailing circumstances in the legal system. It has emerged from the study that accuracy and efficiency are two factors that have excellent prospects in the cutting edge of technology; the areas touched include but are not limited to eyewitness identification, evidence analysis, and decision-making. However, there is still room, with strengths as well as weaknesses and future trends, that legal and IT experts should consider for meeting the issues regarding data quality, privacy, and the possible use of Artificial Intelligence (AI) in the software for the discontinuity of miscarriage of justice in Pakistan. Likewise, it should emphasize the need to continue studying, experimenting, and expanding knowledge in the field. Through the findings highlighted in the present research and the contributing factors that lead to cases of wrongful convictions and miscarriages of justice, the authorities in Pakistan and the nations with similar problems of injustice can design and implement an improved criminal justice system.

1. **Increase Awareness and Training:** It should be attempted to promote AI's actual advantages to the institutions such as judges, lawyers, and all legal persons around the world, as well as understanding at the same time, some of the drawbacks present within the legal framework. These should entail education programs that seek to prepare people to answer questions relating to the use of AI tools and the analysis of results produced by the AI tools.
2. **Develop Standards and Guidelines:** There are guidelines about how AI should be used in the criminal justice system, and they should be set down. This should address matters related to data acquisition, archiving, processing, and use as well as ethical issues such as fairness and bias.
3. **Increase Collaboration between Legal and IT Experts:** There should be more Legal and IT experts to incorporate more AI into a legal system legally and according to IT requirements.
4. **Implement Accountability Mechanisms:** It must have been mentioned how and why AI targets specific decisions, and the procedures must also be ordered to explain how distinct choices could be changed at the superior's discretion. This could include establishing a brand new authority or giving citizens the right to challenge outputs produced by those systems.
5. **Develop Context-specific Solutions:** AI tools should be designed should be according to the cultural, legal and social systems in the context where they are intended to be used. As to the identifier it is crucial to underline that any such a process must involve inputs from the broad cross section of people in the community, the common folk.
6. **Address Data Quality and Privacy Concerns:** This has to be done so that the persons whose data will be used for training on the AI system are protected. The other issues are also suggested to be assessed concerning data quality, finding biases in the data, and checking inaccuracy.
7. **Monitor and Evaluate the Use of AI in the Criminal Justice System:** There should always be a reporting and an assessing methodology in terms of whether the implementation of AI in the framework of the criminal justice system meets the purpose or has other negative consequences.
8. **Foster Public Trust and Confidence in AI:** The social acceptability of AI in the criminal justice system means that the population has to be made aware of AI's uses and have faith in such use. These can be achieved by creating awareness among the demographic units involved, ensuring that they are held accountable, and can contribute during the creation and utilization of AI resources.
9. **Address Concerns about job Displacement:** There is still controversy on whether the application of AI will affect legal personnel's employment. Hence, some effort must be made to provide new training to legal professionals and look for new employment possibilities in the AI sector.
10. **Ensure that AI is Used as a Tool, Not a Replacement for Human Judgment:** AI's role entails serving the legal professional and assisting it in arriving at the required decision, not the reverse. It would be logical to remember that the goal of criminal justice should be handled following the decisions made by the legal professionals of the judicial system.
11. **Address Power Imbalances:** It is also possible that incorporating AI in the criminal justice environment will enhance the jeopardy of power relations between elements of society. Imbalances such as these, for instance, can be offset by creating culturally sensitive AI or language-appropriate AI. However, there is legal aid, and the available services in the area should reach out to the people in the unfavorable stance.
12. **Support ongoing research and development:** The application of AI in the criminal justice system is still very recent and developing. Further work is required to elaborate on the subsequent releases that would make AI competent, efficient, and accountable for the new problems and opportunities in the utilization.

Employing Artificial Intelligence (AI) in Pakistan's criminal justice system should prevent miscarriages of justice in the society and remove all the possibility that the legal system is not fair, transparent, and efficient.



References

- Alonso, M. A., Vilares, D., Gómez-Rodríguez, C., & Vilares, J. (2021). Sentiment analysis for fake news detection. *Electronics*, 10(11), 1348. <https://doi.org/10.3390/electronics10111348>
- Anderson, D. Q. (2019). The convergence of ADR and ODR within the courts: the impact on access to justice. *Civil Justice Quarterly*, 38(1), 126–143. https://ink.library.smu.edu.sg/sol_research/2842
- Bonnefon, J., & Rahwan, I. (2020). Machine thinking, fast and slow. *Trends in Cognitive Sciences*, 24(12), 1019–1027. <https://doi.org/10.1016/j.tics.2020.09.007>
- Campbell, R. W. (2023). Artificial intelligence in the courtroom: The delivery of justice in the age of machine learning. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.4425791>
- Cioffi, R., Travaglioni, M., Piscitelli, G., Petrillo, A., & De Felice, F. (2020). Artificial intelligence and machine learning applications in smart production: Progress, trends, and directions. *Sustainability*, 12(2), 492. <https://doi.org/10.3390/su12020492>
- Conklin, M. (2020). The truth can be deceiving: How criminal justice headlines are misinterpreted. *The Truth Can Be Deceiving: How Criminal Justice Headlines Are Misinterpreted*, NE. U. EXTRA LEGAL (Mar. 21, 2020).
- Deeks, A. (2019). The judicial demand for explainable artificial intelligence. *Columbia Law Review*, 119(7), 1829–1850. <https://columbialawreview.org/content>
- Dwivedi, Y. K., Hughes, L., Ismagilova, E., Aarts, G., Coombs, C., Crick, T., ... & Williams, M. D. (2021). Artificial Intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *International Journal of Information Management*, 57(101994), 101994. <https://doi.org/10.1016/j.ijinfomgt.2019.08.002>
- Elaad, E. (2022). Tunnel vision and confirmation bias among police investigators and laypeople in hypothetical criminal contexts. *SAGE Open*, 12(2), 215824402210950. <https://doi.org/10.1177/21582440221095022>
- Fair, H., & Walmsley, R. (2024). *World prison population list*. ICPR.
- Frolova, E. E., & Ermakova, E. P. (2021). Utilizing artificial intelligence in legal practice. In *Smart Technologies for the Digitisation of Industry: Entrepreneurial Environment* (pp. 17–27). Singapore: Springer Singapore.
- Garrett, B. L. (2020). Wrongful convictions. *Annual Review of Criminology*, 3(1), 245–259. <https://doi.org/10.1146/annurev-criminol-011518-024739>
- Ghasemi, M., Anvari, D., Atapour, M., Stephen Wormith, J., Stockdale, K. C., & Spiteri, R. J. (2021). The application of machine learning to a general risk–need assessment instrument in the prediction of criminal recidivism. *Criminal Justice and Behavior*, 48(4), 518–538. <https://doi.org/10.1177/0093854820969753>
- Ghias, S. A. (2010). Miscarriage of chief justice: Judicial power and the legal complex in Pakistan under Musharraf: Miscarriage of chief justice. *Law & Social Inquiry: Journal of the American Bar Foundation*, 35(04), 985–1022. <https://doi.org/10.1111/j.1747-4469.2010.01211.x>
- Golding, J. M., Neuschatz, J. S., Rawn, K. P., Lippert, A., Bornstein, B. H., Pals, A. M., & Le Grand, A. M. (2022). The influence of jailhouse informant testimony on jury deliberation. *Psychology, Public Policy, and Law: An Official Law Review of the University of Arizona College of Law and the University of Miami School of Law*, 28(4), 560–572. <https://doi.org/10.1037/law0000346>
- Gordon, J. S. (2023, May). What Is Artificial Intelligence? In *The Impact of Artificial Intelligence on Human Rights Legislation: A Plea for an AI Convention* (pp. 15–28). Cham: Springer Nature Switzerland.
- Gudjonsson, G. H. (2021). The science-based pathways to understanding false confessions and wrongful convictions. *Frontiers in Psychology*, 12, 633936. <https://doi.org/10.3389/fpsyg.2021.633936>
- Hafiza, M. K., Sajjad, A., Nasir, S., Qazi, L. A., Muhammad, A., & Mohammad, A. T. (2022). Exoneration of primary suspect after false confession with the help of forensic DNA analysis. *Forensic Genomics*, 2(1), 17–20. <https://doi.org/10.1089/forensic.2022.0001>
- Jadhav, E. B., Sankhla, M. S., & Kumar, R. (2020). Artificial intelligence: Advancing automation in forensic science & criminal investigation. *Seybold Report*, 15(8), 2064–2075.
- Jarek, K., & Mazurek, G. (2019). Marketing and Artificial Intelligence. *Central European Business Review*, 8(2), 46–55. <https://doi.org/10.18267/j.cebr.213>

- Kauffman, M. E., & Soares, M. N. (2020). AI in legal services: new trends in AI-enabled legal services. *Service Oriented Computing and Applications*, 14(4), 223–226. <https://doi.org/10.1007/s11761-020-00305-x>
- Khan, I. A., Saleem, H. A. R., ud Din, H. S. J., & Jawad, M. (2022). Wrongful Conviction and Miscarriage of Justice. *Competitive Social Science Research Journal*, 3(1), 214–227. <https://cssrjournal.com/index.php/cssrjournal/article/view/132>
- Kucina, I. (2022). Challenges of digitalisation in the judicial system. *SOCRATES. Rīgas Stradiņa universitātes Juridiskās fakultātes elektroniskais juridisko zinātnisko rakstu žurnāls / SOCRATES. Rīga Stradiņš University Faculty of Law Electronic Scientific Journal of Law*, 2(23), 51–60. <https://doi.org/10.25143/socr.23.2022.2.051-060>
- Kureshi, Y. (2022). *Seeking Supremacy: The Pursuit of Judicial Power in Pakistan*. Cambridge University Press.
- Madni, A., Habib, R. I., & Akhtar, N. (2019). Wrongful Prosecution a Miscarriage of Justice: Need for Procedural Reforms in Pakistan. *Pakistan Journal of Social Sciences*, 39(4), 1649–1657. <https://pjss.bzu.edu.pk/index.php/pjss/article/view/791>
- Mahar, S., Zafar, S., & Nishat, K. (2021). Headnote prediction using machine learning. *The International Arab Journal of Information Technology*, 18(5), 678–685. <https://doi.org/10.34028/iajit/18/5/7>
- Medvedeva, M., Vols, M., & Wieling, M. (2020). Using machine learning to predict decisions of the European Court of Human Rights. *Artificial Intelligence and Law*, 28(2), 237–266. <https://doi.org/10.1007/s10506-019-09255-y>
- Minhas, A. S., & Shah, S. A. A. (2019). Police reforms: an appraisal. *ISSRA Papers*, 11(I), 39–56. <https://issrapapers.ndu.edu.pk/site/article/view/61>
- Morgan, J. (2023). Wrongful convictions and claims of false or misleading forensic evidence. *Journal of Forensic Sciences*, 68(3), 908–961. <https://doi.org/10.1111/1556-4029.15233>
- Nirmani, W. A. S., & Karunanayake, D. D. K. S. (2015). Socio-economic Schemata Conveyed through Physical Appearance of a Criminal in an Eyewitness Context. *Journal of Social Sciences – Sri Lanka, Faculty of Social Sciences, University of Kelaniya, Sri Lanka*, 07(03), 185–195. <http://repository.kln.ac.lk/handle/123456789/11053>
- Obanda, S. (2022). *Using Natural Language Processing for Case Brief Generation and Verdict Support in the Kenyan Court System* [Doctoral dissertation]. University of Nairobi.
- Pezdek, K. (2020). Expert testimony on eyewitness memory and identification. In *Expert psychological testimony for the courts* (pp. 99–118). Psychology Press.
- Qasim, M. M., Farhad, M. A., Iqbal, M. A., & Ghani, M. J. (2023). Use of Artificial Intelligence for Better and Rapid Criminal Justice System. *Journal of Xi'an Shiyu University, Natural Science Edition*, 19(2), 1330–1344. <https://www.xisdjxsu.asia/V19I02-111.pdf>
- Rajput, M. A., & Benavides-Vanegas, F. S. (2022). Reformation of the Criminal Justice System of Pakistan. *European Scientific Journal*, 18(5), 87–108. <https://doi.org/10.19044/esj.2022.v18n5p87>
- Reiling, A. D. (2020). Courts and artificial intelligence. *International Journal for Court Administration*, 11(2), 1–10. <https://doi.org/10.36745/ijca.343>
- Sajid, I. A., Asad, A. Z., & Ashiq, U. (2020). Juvenile Courts in Pakistan: Structure, Processes, and Issues. *Pakistan Journal of Criminology*, 12(1), 45–64. <https://www.pjcriminology.com/wp-content/uploads/2020/08/4-Imran-Ahmad-Sajid.pdf>
- Scholtes, J. (2021). The LegalTech Bridge. In *Meesterlijk: Liber Amirocum tergelegenheid van het emeritaat van Prof dr HJ van den Herik*. Ipskamp.
- Tariq, A., Khan, M. M. A., & Ullah, I. (2022). Reformation of prisoners through rehabilitation; The analysis of the Pakistani system in the light of International standards. *Review of Education, Administration & Law*, 5(3), 257–266. <https://doi.org/10.47067/real.v5i3.240>
- Winshel, A. J. (2020). *Speaking Simply: The Efficacy of Linguistic Complexity in Oral Arguments for the Supreme Court of the United States* [Doctoral dissertation]. Stern School of Business New York.
- Završnik, A. (2021). Algorithmic justice: Algorithms and big data in criminal justice settings. *European Journal of Criminology*, 18(5), 623–642. <https://doi.org/10.1177/1477370819876762>
- Zia, M. H., Hassan, H., & Ali, A. (2021). Reliability of Eyewitness Memory: A Case Study. *Journal of Isoss*, 7(2), 361–370. https://www.joi.isoss.net/PDFs/Vol-7-no-2-2021/24_I_ISOSS_7_2.pdf