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Understanding The Exisitng Uses Of Ai In Criminal Justice System

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INTRODUCTION

AI technologies have found extensive applications within the criminal justice system, ushering in transformative changes that enhance overall efficiency. One prominent area where AI is making a significant impact is in *predictive policing*. By harnessing the power of sophisticated algorithms, law enforcement agencies can analyze historical crime data to identify potential hotspots. This foresight enables strategic resource allocation, allowing proactive measures to address emerging issues and optimize crime prevention efforts.[1]

In parallel, AI plays a pivotal role in risk assessment within the criminal justice system. Algorithms are deployed to evaluate the likelihood of individuals reoffending or failing to appear in court. Judges and parole boards leverage these tools to make more informed decisions regarding bail, sentencing, and parole, aiming to enhance the fairness and effectiveness of the justice process.

Facial recognition technology, powered by AI, has become an integral tool for law enforcement agencies.[2] This technology facilitates suspect identification, aids in locating missing persons, and strengthens security in public spaces.[3] Real-time identification and tracking capabilities contribute to improved surveillance, bolstering public safety measures.[4]

AI's impact extends to investigative analysis, where it assists law enforcement in handling vast datasets.[5] Whether analyzing surveillance footage, social media posts, or financial records, AI tools excel at identifying patterns, connections, and potential leads.[6] This capability enhances the efficiency and effectiveness of criminal investigations, allowing for quicker and more accurate resolution of cases.

Automated document analysis is another area where AI streamlines processes within the criminal justice system. By analyzing and processing large volumes of textual data, such as legal documents and case files, AI automation facilitates improved data management and organization. This, in turn, enhances accessibility and efficiency in handling administrative tasks.[7]

In the realm of sentencing guidelines, AI algorithms contribute to decision-making processes. Judges benefit from the ability of these algorithms to consider a multitude of factors, such as the nature of the crime and criminal

[1] Ryberg, J. (2021). Sentencing disparity and artificial intelligence. The Journal of Value Inquiry, 1-16.
[2] van Wingerden, S. G. C., Plesničar, M. M., Ryberg, J., & Roberts, J. V. (2022). Artificial Intelligence and Sentencing: Humans against Machines. Studies in Penal Theory and Philosophy, 230-251.
[3] Mason, C., and D. Bjerk. (2013). Inter-judge Sentencing Disparity on the Federal Bench: An Examination of Drug Smuggling Cases in the Southern District of California. Federal Sentencing Report, 25, 190–193.
[4] Ibid.
[5] Kopf, R.G. (2012). Judge-specific Sentencing Data for the District of Nebraska. Federal Sentencing Report, 25, 50–52.
[6] Ibid.
[7] Ibid.

history, ensuring a more consistent and fair approach to sentencing.[8]

The adoption of AI-driven systems extends beyond the courtroom to include virtual courtrooms and case management.[9] These systems automate routine administrative tasks, such as case scheduling, and introduce the flexibility of remote hearings. This not only streamlines the legal process but also offers a more accessible approach to legal proceedings.[10]

Within correctional facilities, AI is employed for prison management purposes. From inmate classification to resource allocation and behavior monitoring, predictive analytics assist in identifying potential security risks and contribute to more effective overall prison management.[11] Furthermore, Legal professionals benefit from AI-powered tools that expedite legal research processes. Capable of analyzing vast amounts of case law, statutes, and legal documents, these tools assist lawyers and legal scholars in staying informed about the latest legal developments.[12]

In evidence analysis, AI algorithms proficiently process and analyze natural language in both written and spoken forms.[13] This capability enhances the efficiency and accuracy of evidence interpretation within the legal system, contributing to fair and just outcomes.

While the integration of AI in the criminal justice system brings numerous advantages, concerns related to bias, privacy, transparency, and accountability must be continually addressed to ensure responsible and ethical use of these technologies. Ongoing research and discussions are crucial to refining and implementing AI responsibly in the criminal justice domain.[14]

1. Predictive policing

Predictive policing is a technological approach in law enforcement that uses data analysis to anticipate potential criminal activities before they occur.[15] This method has emerged as a forward-thinking tool aimed at enhancing the efficiency and effectiveness of police forces.[16] The fundamental premise of predictive policing is rooted in the belief that crime is not random; it follows patterns that can be understood and anticipated through data analysis.[17]

The concept of predictive policing is not entirely new. Law enforcement agencies have long used various methods to forecast criminal behavior, such as crime mapping and hot spot analysis.[18] However, the advent of sophisticated algorithms and the availability of big data have exponentially increased the capability to predict crimes more accurately.[19]

Predictive policing algorithms take into account various factors such as the history of crime in an area, social and economic conditions, and even weather patterns.[20] They analyze vast amounts of data collected from a myriad of

[8] Schwemer, S.F., Tomada, L. & Pasini, T. (2021). Legal AI Systems in the EU's proposed Artificial Intelligence Act. In: Proceedings of the Second International Workshop on AI and Intelligent Assistance for Legal Professionals in the Digital Workplace (LegalAIIA 2021), held in conjunction with ICAIL 2021, June 21, 2021, Sao Paulo, Brazil.

[9] Ibid.

[10] Ibid.

[11] Mason, C., and D. Bjerk. (2013). Inter-judge Sentencing Disparity on the Federal Bench: An Examination of Drug Smuggling Cases in the Southern District of California. Federal Sentencing Report, 25, 190–193.

[12] Ibid.

[13] Ibid.

[14] Kopf, R.G. (2012). Judge-specific Sentencing Data for the District of Nebraska. Federal Sentencing Report, 25, 50–52.

[15] Hao, K. & Stray, J. (2019). Can you make AI fairer than a judge? Play our courtroom algorithm game. Retrieved January 17, 2022, from

[16] Harris, P. M. (2006). What Community Supervision Officers Need to Know About Actuarial Risk Assessment and Clinical Judgment. Federal Probation Journal, 70(2).

[17] Ryberg, J. (2021). Sentencing disparity and artificial intelligence. The Journal of Value Inquiry, 1-16.

[18] Ibid.

[19] Ibid.

[20] Scheid, D.E. (1997). Constructing a Theory of Punishment, Desert, and the Distribution of Punishment? The Canadian Journal of Law and Jurisprudence, 10, 441–506.

sources, including police records, surveillance footage, social media, and more.[21] The data is then processed through statistical models to identify patterns and correlations that human analysts might miss.

2. Types of Predictive Policing

According to a comprehensive report by the RAND Corporation, predictive policing methods can be classified into four main categories, each with distinct objectives and applications. These categories shed light on the multifaceted nature of predictive policing and its potential to revolutionize law enforcement strategies.[22]

1. Predicting Crimes:

Predicting crimes involves leveraging data analysis to identify specific locations and times where criminal activities are more likely to occur. This method relies on historical crime data, examining patterns and trends to forecast potential hotspots.[23] Law enforcement agencies can then allocate resources proactively to these areas, implementing preventive measures and enhancing overall situational awareness.[24] The goal is to mitigate the occurrence of crimes by strategically deploying law enforcement resources based on predictive insights.[25]

2. Predicting Offenders:

Analyzing data to predict individuals who are more likely to commit crimes is another facet of predictive policing.[26] This approach involves examining various factors, such as criminal history, socio-economic indicators, and behavioral patterns, to identify individuals at a higher risk of engaging in criminal activities.[27] By focusing attention on those deemed more likely to offend, law enforcement can tailor interventions, rehabilitation programs, or monitoring efforts to address and potentially prevent criminal behavior.

3. Predicting Perpetrators' Identities:

Predicting perpetrators' identities takes predictive policing a step further by using crime data and patterns to deduce the likely identity of unknown individuals involved in criminal activities. This method relies on sophisticated data analysis techniques, including forensic evidence and investigative insights.[28] By narrowing down the pool of potential suspects based on historical data, law enforcement can enhance their efforts to solve crimes and bring perpetrators to justice.[29]

4. Predicting Victims:

Identifying individuals or groups more likely to become victims of crime is a crucial aspect of predictive policing for enhancing preventive measures and victim support.[30] This method involves analyzing data related to demographics, socio-economic factors, and historical victimization patterns.[31] By identifying populations at a higher risk of victimization, law enforcement and support services can develop targeted outreach programs, allocate resources for enhanced community policing, and provide assistance to vulnerable individuals or communities.[32]

In summary, predictive policing encompasses a range of methodologies, each with its unique focus and

[21] Ibid.

[22] Zerilli, J., et al. (2018). Transparency in Algorithmic and Human Decision-Making: Is There a Double Standard? Philosophy and Technology, 32(4), 661–683.

[23] Schwemer, S.F., Tomada, L. & Pasini, T. (2021). Legal AI Systems in the EU's proposed Artificial Intelligence Act. In: Proceedings of the Second International Workshop on AI and Intelligent Assistance for Legal Professionals in the Digital Workplace (LegalAIIA 2021), held in conjunction with ICAIL 2021, June 21, 2021, Sao Paulo, Brazil.

[24] Ibid.

[25] Ibid.

[26] Supra note at 67.

[27] Ibid.

[28] Supra note at 11.

[29] Schwemer, S.F., Tomada, L. & Pasini, T. (2021). Legal AI Systems in the EU's proposed Artificial Intelligence Act. In: Proceedings of the Second International Workshop on AI and Intelligent Assistance for Legal Professionals in the Digital Workplace (LegalAIIA 2021), held in conjunction with ICAIL 2021, June 21, 2021, Sao Paulo, Brazil.

[30] Ibid.

[31] Ibid.

[32] Webster, C. D., Douglas, K. S., Eaves, D., & Hart, S. D. (1997). HCR-20: Assessing the risk for violence (version 2). Mental Health, Law, and Policy Institute, Simon Fraser University.

application. By predicting where, when, and by whom crimes are likely to occur, law enforcement agencies can make more informed decisions, allocate resources effectively, and work towards creating safer communities. However, it is essential to address ethical considerations, potential biases in data, and transparency to ensure the responsible and fair implementation of predictive policing strategies.[33]

3. Benefits of Predictive Policing

The primary advantage of predictive policing is its potential to prevent crime. By predicting where police presence can be most effective, law enforcement can potentially deter criminal activity.[34] Additionally, it allows for better resource allocation, ensuring that police officers are dispatched where they are most needed. Another benefit is efficiency. Instead of relying on broad sweeps or reactive approaches, predictive policing targets specific areas and times, reducing the time and manpower spent on patrols.[35]

The primary advantage of predictive policing lies in its potential to prevent crime through strategic planning and resource allocation.[36] By leveraging advanced analytics and data-driven insights, law enforcement agencies can enhance their ability to deter criminal activities effectively. Several key benefits contribute to the effectiveness of predictive policing:

1. Crime Prevention:

Predictive policing enables law enforcement to proactively identify areas and times where crimes are more likely to occur. By deploying resources to these predicted hotspots, police presence can act as a deterrent, dissuading potential offenders and reducing the likelihood of criminal activities. This proactive approach shifts the focus from reacting to crimes after they occur to preventing them before they happen.

2. Targeted Resource Allocation:

One of the significant advantages is the ability to allocate resources more effectively.[37] By accurately predicting where criminal activities are likely to occur, law enforcement can concentrate their efforts in specific locations. This targeted approach ensures that police officers are deployed to areas where they are most needed, optimizing resource utilization and improving overall response times.[38]

3. Efficiency in Policing:

Predictive policing enhances the efficiency of law enforcement by moving away from broad sweeps or reactive strategies.[39] Instead of patrolling entire neighborhoods indiscriminately, police can concentrate efforts on specific areas and times, where the likelihood of criminal incidents is higher.[40] This targeted approach reduces the time and manpower required for routine patrols, allowing law enforcement agencies to operate more efficiently.[41]

4. Strategic Crime Reduction:

Predictive policing goes beyond immediate crime prevention and aids in long-term crime reduction strategies.[42] By understanding patterns and trends, law enforcement can develop targeted interventions, community outreach programs, and crime prevention initiatives tailored to specific areas or demographics. This strategic approach contributes to sustained reductions in criminal activities over time.

5. Data-Informed Decision-Making:

Predictive policing relies on data analysis to inform decision-making. This data-driven approach empowers law

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[33] Simmons, R. (2018). Big Data, Machine Judges, and the Legitimacy of the Criminal Justice System. University of California Davis Law Review, 52(2), 1067–1118.

[34] van Wingerden, S. G. C., Plesničar, M. M., Ryberg, J., & Roberts, J. V. (2022). Artificial Intelligence and Sentencing: Humans against Machines. Studies in Penal Theory and Philosophy, 230-251.

[35] Ibid.

[36] Webster, C. D., Douglas, K. S., Eaves, D., & Hart, S. D. (1997). HCR-20: Assessing the risk for violence (version 2). Mental Health, Law, and Policy Institute, Simon Fraser University.

[37] Supra note at 20.

[38] Zerilli, J., et al. (2018). Transparency in Algorithmic and Human Decision-Making: Is There a Double Standard? Philosophy and Technology, 32(4), 661–683.

[39] Supra note at 28.

[40] Supra note at 40.

[41] Ibid.

[42] Završnik, A. (2019). Algorithmic justice: Algorithms and big data in criminal justice settings. European Journal of Criminology, 18(5), 1–20.

enforcement agencies with actionable insights, allowing for informed and evidence-based decisions. The integration of technology and analytics enables law enforcement to stay ahead of emerging trends and adapt their strategies accordingly.[43]

While predictive policing offers substantial advantages, it is crucial to address potential ethical concerns, biases in data, and privacy considerations.[44] Striking a balance between crime prevention and protecting individual rights is essential to ensure the responsible and fair implementation of predictive policing strategies. [45]Additionally, ongoing evaluation and refinement of these systems are necessary to optimize their effectiveness and minimize unintended consequences.[46]

4. Challenges of Predictive Policing

Despite its potential, predictive policing faces significant challenges and criticisms. One of the most pressing concerns is the risk of bias.[47] Algorithms are only as good as the data they are fed, and if historical crime data is biased, the predictions will be too.[48] For instance, if a police department historically over-polices certain neighborhoods, the algorithm might unjustly label these areas as high risk, leading to over-policing that perpetuates a cycle of bias.[49]

Transparency and accountability are also major concerns. The proprietary nature of many predictive policing tools means their inner workings are not open to public scrutiny.[50] This lack of transparency can erode public trust in law enforcement. Furthermore, the effectiveness of predictive policing is still under scrutiny. Critics argue that it is difficult to measure whether this approach actually reduces crime or simply displaces it to other areas and times.

Predictive policing also raises significant legal and ethical questions. The use of personal data, especially when gathered from social media or other public sources, might infringe on individuals' privacy rights.[51] Moreover, the potential for predictive policing to lead to pre-emptive actions against individuals deemed at risk of committing crimes raises ethical issues around due process and the presumption of innocence.[52]

Despite these challenges, the use of predictive policing is likely to grow as technology advances and the hunger for data-driven solutions increases. The future of predictive policing could see improvements in algorithms, making them more accurate and less biased.[53] There is also a push for greater transparency and regulatory oversight to ensure that predictive policing tools are used ethically and justly.[54]

In conclusion, predictive policing represents a significant shift in law enforcement tactics, offering both promising benefits and formidable challenges. Its success depends on the ability to balance effective crime prevention with the protection of individual rights and the maintenance of public trust.[55] As the technology evolves, so too must

[43]Supra note at 34.
[44]Supra note at 45.
[45] Ibid.
[46] Webster, C. D., Douglas, K. S., Eaves, D., & Hart, S. D. (1997). HCR-20: Assessing the risk for violence (version 2). Mental Health, Law, and Policy Institute, Simon Fraser University.
[47] Završnik, A. (2019). Algorithmic justice: Algorithms and big data in criminal justice settings. European Journal of Criminology, 18(5), 1–20.
[48] Ibid.
[49] Zerilli, J., et al. (2018). Transparency in Algorithmic and Human Decision-Making: Is There a Double Standard? Philosophy and Technology, 32(4), 661–683.
[50] Ibid.
[51] van Wingerden, S. G. C., Plesničar, M. M., Ryberg, J., & Roberts, J. V. (2022). Artificial Intelligence and Sentencing: Humans against Machines. Studies in Penal Theory and Philosophy, 230-251.
[52] Ibid.
[53] Završnik, A. (2019). Algorithmic justice: Algorithms and big data in criminal justice settings. European Journal of Criminology, 18(5), 1–20.
[54] Zerilli, J., et al. (2018). Transparency in Algorithmic and Human Decision-Making: Is There a Double Standard? Philosophy and Technology, 32(4), 661–683.
[55] Schwemer, S.F., Tomada, L. & Pasini, T. (2021). Legal AI Systems in the EU's proposed Artificial Intelligence Act. In: Proceedings of the Second International Workshop on AI and Intelligent Assistance for Legal Professionals in the Digital Workplace (LegalAIIA 2021), held in conjunction with ICAIL 2021, June 21, 2021, Sao Paulo, Brazil.

the policies and practices that govern its use to ensure that it serves the interests of justice and community well-being.

5. Predictive Sentencing

The integration of artificial intelligence through recidivism risk assessment algorithms is becoming increasingly prevalent in the judicial system, with at least twenty states now incorporating these tools in bail, parole, and sentencing decisions.[56] Originally developed in the 1920s, modern algorithms have evolved significantly, employing machine learning to predict the likelihood of defendants committing future crimes.[57] The intended benefits of these algorithms include reducing repeat offenses, decreasing prison populations, and mitigating racial biases.[58] Moreover, the predictive tools may not be reliably accurate; studies have shown that these tools can exhibit racial bias, incorrectly flagging black defendants as high risk at nearly twice the rate of white defendants.[59]

Despite these potential advantages, the use of these predictive tools has sparked constitutional concerns, particularly in relation to due process and equal protection rights.[60] A central issue is the lack of transparency stemming from the outsourcing of algorithm development to private companies.[61] These companies often claim trade secret protection, as seen in a 2016 case in Wisconsin, which prevents the disclosure of the methodologies behind the risk assessments to defendants or the public.[62] This secrecy impairs the defendants' ability to challenge their assessments' accuracy or fairness, which can significantly impact their sentencing outcomes.[63]

The opacity of these tools also limits the information available to judges, leading to an increased reliance on the policy choices of private companies and potentially granting them undue influence in sentencing.[64] This situation has been critiqued for creating an accountability deficit and for raising questions about the robustness of constitutional protections when private entities play such a pivotal role in the criminal justice system.[65]

To address these concerns, it has been suggested that there should be a shift towards greater openness and legislative revisions to enhance accountability and legitimacy in the use of these algorithms.[66] Drawing on legal precedents concerning private delegations, like the private delegation doctrine from the New Deal era, could serve as a basis to ensure more transparency and state oversight.[67] By extending freedom of information laws to cover these tools and subjecting companies to disclosure requirements similar to public entities, the legal process would be more equitable and transparent.[68]

Furthermore, it is crucial to validate these tools on the local populations they are used upon.[69] Without proper validation studies, there's no certainty that the tools are accurately predicting recidivism, which can lead to unjust sentencing outcomes. Some states have made strides towards transparency by developing their algorithms, like Pennsylvania and Ohio, and being more open about their development and validation processes.[70]

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[56] Alyssa M. Carlson, Note, The Need for Transparency in the Age of Predictive. Sentencing Algorithms, 103 Iowa L. Rev. 303, 308 (2017).
[57] Ibid.
[58] Ibid.
[59] Ibid.
[60]Supra note at 33.
[61]Ibid.
[62]Supra note at 22.
[63] Webster, C. D., Douglas, K. S., Eaves, D., & Hart, S. D. (1997). HCR-20: Assessing the risk for violence (version 2). Mental Health, Law, and Policy Institute, Simon Fraser University.
[64]Nishi, A. (2019). Privatizing Sentencing: A Delegation Framework for Recidivism Risk Assessment. Columbia Law Review, 119(6), 1671–1710.
[65] Ibid.
[66] Salganik, M. J., et al. (2020). Measuring the predictability of life outcomes with a scientific mass collaboration. Proceedings of the National Academy of Sciences, 117(15), 8398–8403.
[67] Ibid.
[68] I Schwemer, S.F., Tomada, L. & Pasini, T. (2021). Legal AI Systems in the EU's proposed Artificial Intelligence Act. In: Proceedings of the Second International Workshop on AI and Intelligent Assistance for Legal Professionals in the Digital Workplace (LegalAIIA 2021), held in conjunction with ICAIL 2021, June 21, 2021, Sao Paulo, Brazil.
[69]Ibid.
[70] Ibid.

In conclusion, while these algorithms have the potential to streamline the criminal justice process, significant issues surrounding transparency and fairness must be addressed.[71] Legislative changes based on principles of private delegation are necessary to ensure that the use of privately developed algorithms in sentencing adheres to constitutional responsibilities, maintaining fairness and equality within the justice system.[72]

Risk assessment tools in the criminal justice system aim to provide a single numerical score that estimates the likelihood of a defendant's reoffending.[73] This score influences various decisions by judges, determining aspects such as the type of rehabilitation services a defendant should receive, pre-trial detention, and the severity of their sentences.[74] A low score often leads to more lenient outcomes, while a high score has the opposite effect. Risk assessment tools in the criminal justice system are designed to quantitatively estimate the likelihood of a defendant's reoffending, typically providing a single numerical score.[75] This score plays a significant role in influencing various decisions made by judges, impacting crucial aspects of the criminal justice process. The use of risk scores has become a common practice in many jurisdictions, guiding decisions related to rehabilitation services, pre-trial detention, and the severity of sentences imposed on defendants.[76]

The process involves assessing numerous factors related to an individual's background, criminal history, and other relevant variables.[77] These factors can include past criminal behavior, age, employment history, education, and social environment.[78] The goal is to create a comprehensive profile that informs the risk assessment tool's algorithm, producing a numerical score that reflects the perceived risk of the individual reoffending.[79] The implications of these risk scores are significant:

1. Decision-Making by Judges: Judges often rely on these risk scores to inform their decisions during various stages of the criminal justice process. The scores influence judgments related to pre-trial detention, bail conditions, and sentencing.[80]

2. Rehabilitation Services: The risk score may guide recommendations for rehabilitation services. A lower score might suggest a lower perceived risk of reoffending, leading to recommendations for less restrictive or intensive rehabilitation programs.[81] Conversely, a higher score might indicate a need for more intensive intervention.

3. Pre-Trial Detention: The risk assessment score can influence decisions about whether a defendant should be held in pre-trial detention or released on bail. A lower score might result in a greater likelihood of release, while a higher score could lead to a decision for pre-trial detention based on concerns about flight risk or public safety.[82]

4. Sentencing Severity: The risk score may impact the severity of the sentence imposed by the judge. A lower score may be associated with more lenient outcomes, such as reduced prison sentences or alternative forms of punishment. Conversely, a higher score might lead to more severe sentences, including longer periods of incarceration.[83]

While risk assessment tools aim to enhance objectivity and consistency in decision-making, concerns have been

[71] Ibid.
[72] Alyssa M. Carlson, Note, The Need for Transparency in the Age of Predictive. Sentencing Algorithms, 103 Iowa L. Rev. 303, 308 (2017).
[73] McKay, C. (2020). Predicting risk in criminal procedure: Actuarial tools, algorithms, AI and judicial decision-making. Current Issues in Criminal Justice, 32(1), 22–39.
[74] Supra note at 144.
[75] Rudin, C. Wang, C & Coker, B. (2020). The Age of Secrecy and Unfairness in Recidivism Prediction. Harvard Data Science Review, 2(1).
[76] Ibid.
[77] Braverman, D. W., Doernberg, S. N., Runge, C. P., & Howard, D. S. (2016). OxRec model for assessing risk of recidivism: Ethics. The Lancet Psychiatry, 9, 808–809.
[78] Ibid.
[79] Ibid.
[80] Husak, D. (2019). Why Philosophers (Including Retributivists) Should be Less Resistant to Risk-Based Sentencing. In Predictive Sentencing, ed. J. de Keijer et al. Oxford: Hart Publishing.
[81] Supra note at 54.
[82] Ibid.
[83] McKay, C. (2020). Predicting risk in criminal procedure: Actuarial tools, algorithms, AI and judicial decision-making. Current Issues in Criminal Justice, 32(1), 22–39.

raised about potential biases inherent in the data used to train these algorithms.[84] There are worries that historical disparities and systemic biases in the criminal justice system may be perpetuated or even exacerbated by these tools.[85] Additionally, the transparency and explainability of these algorithms have been questioned, raising issues about due process and the right to challenge algorithmic decisions.[86] The rationale behind using these algorithmic tools is to make resource allocation more accurate by predicting criminal behavior. In theory, it reduces bias in the decision-making process, as judges rely on data-driven recommendations rather than their subjective judgment.[87]

However, the problem lies in the data used to train these algorithms, which is often historical crime data. Machine learning algorithms identify statistical patterns in data, and if historical crime data is used, they identify correlations, not causations.[88] For instance, if the data shows a correlation between low income and high recidivism, it doesn't prove that low income causes crime. Risk assessment tools mistakenly turn these correlations into causal scoring mechanisms.[89]

This approach puts communities that have historically faced over-policing, particularly low-income and minority communities, at risk of receiving high recidivism scores. The risk assessment algorithms may inadvertently amplify and perpetuate existing biases, creating a feedback loop of bias-tainted data. The proprietary nature of most risk assessment algorithms makes it difficult to question their decisions or hold them accountable.[90]

The debate over these tools continues, with civil rights and community-based organizations urging against their use. While some jurisdictions are turning to these tools to address overcrowded jails and prisons, critics argue that data-driven risk assessment can sanitize and legitimize oppressive systems.[91] It diverts attention from fundamental issues affecting low-income and minority communities, such as underfunded schools and inadequate healthcare access.[92]

6. Other examples of the Use of AI in Criminal Justice Systems

The integration of Artificial Intelligence (AI) into the criminal justice system has ushered in a new era of data-driven decision-making, aiming to enhance efficiency, fairness, and accuracy. Here's a more detailed exploration of three prominent AI tools that have been adopted in this domain:

1.1. COMPAS (Correctional Offender Management Profiling for Alternative Sanctions)

COMPAS (Correctional Offender Management Profiling for Alternative Sanctions) is a decision support tool used by U.S. courts to evaluate the recidivism risk of defendants.[93] It was developed by Northpointe (now Equivant) and is utilized in multiple jurisdictions including New York, Wisconsin, California, and Florida's Broward County.[94] The tool uses algorithms to create risk scores based on various factors, such as criminal history, substance abuse, and community ties, aimed at predicting general and violent recidivism, as well as pretrial misconduct.[95] The tool generates a risk score based on this data, which is then used by judges, parole boards, and

[84] Supra note at 47.
[85] Supra note at 44.
[86] Ibid.
[87] Supra note at 134.
[88] Braverman, D. W., Doernberg, S. N., Runge, C. P., & Howard, D. S. (2016). OxRec model for assessing risk of recidivism: Ethics. The Lancet Psychiatry, 9, 808–809.
[89] Ibid.
[90] Husak, D. (2019). Why Philosophers (Including Retributivists) Should be Less Resistant to Risk-Based Sentencing. In Predictive Sentencing, ed. J. de Keijer et al. Oxford: Hart Publishing.
[91] Rudin, C. Wang, C & Coker, B. (2020). The Age of Secrecy and Unfairness in Recidivism Prediction. Harvard Data Science Review, 2(1).
[92] McKay, C. (2020). Predicting risk in criminal procedure: Actuarial tools, algorithms, AI and judicial decision-making. Current Issues in Criminal Justice, 32(1), 22–39.
[93] Lansing, S. (2012). New York State COMPAS-Probation Risk and Needs Assessment Study: Evaluating predictive accuracy (Tech. Rep.). Albany, New York: New York State Division of Criminal Justice Services, Office of Justice Research and Performance.
[94] Ibid.
[95] McGrath, R. J., Lasher, M. P., Cumming, G. F., Langton, C. M., & Hoke, S. E. (2014). Development of the Vermont Asessment of Sex Offender Risk-2 (VASOR-2) Reoffense Risk Scale. Sexual Abuse: A Journal of Research and Treatment, 26, 271-290

other decision-making authorities to determine bail amounts, sentencing lengths, and eligibility for parole.[96]
The software's risk assessment methodology includes measures like the likelihood of an individual failing to appear for trial or committing new crimes while on pretrial release.[97] The general recidivism scale predicts new offenses post-release, while the violent recidivism scale focuses on predicting post-release violent offenses, incorporating factors like a person's history of violence and non-compliance.[98]
The benefits of COMPAS include a data-driven approach intended to mitigate human biases, thus promoting uniformity in decision-making across different cases.[99] It also provides a structured framework for assessing an individual's potential risk, which is particularly valuable in crowded judicial systems.[100]
Critiques of COMPAS revolve around its proprietary nature; the algorithms are trade secrets and thus not available for public inspection, raising due process concerns. The Wisconsin Supreme Court ruled that while judges can consider COMPAS scores during sentencing, they must also be aware of the tool's limitations. There's also criticism that the use of machine-learning algorithms can perpetuate existing biases if the input data is biased, leading to discriminatory outcomes.[101] Furthermore, some argue that simpler algorithms could perform just as well as COMPAS without the opacity.There are concerns regarding potential racial and gender biases in its predictions. Additionally, the proprietary nature of the algorithms, often described as a 'black box', has prompted debates about the transparency and accountability of the system.[102]

1.1. HART (Harm Assessment Risk Tool)

The Harm Assessment Risk Tool (HART) is an algorithmic system aimed at assessing the risk of individuals reoffending, particularly to inform prosecutorial decisions.[103] Like COMPAS, HART analyzes a range of data to create a risk profile that helps prosecutors determine the advisability of pursuing charges based on the potential recidivism of the accused.[104] Its main benefit lies in adding a layer of structured data analysis to the prosecutorial process, potentially reducing reliance on subjective judgment and enhancing the consistency of decisions.[105]
However, HART's application in such sensitive legal decisions has sparked ethical debates. Concerns center on the inherent biases that may be present in the data and algorithm, the opaque nature of the algorithmic decision-making process, and the broader implications of depending on an automated system for decisions that have profound consequences for individuals' lives.[106]
In conclusion, while AI tools like COMPAS, PredPol, and HART offer promising advancements in the criminal justice system, they also underscore the importance of continuous evaluation, transparency, and ethical considerations. As these tools become more integrated into the system, striking a balance between leveraging their capabilities and ensuring fairness and justice will be paramount.

1.1. VRAG

The Violence Risk Appraisal Guide (VRAG) is a tool designed to assess the risk of violence and predict criminal recidivism, specifically focusing on violent offenses.[107] It is one of several risk assessment tools used in the field

[96] Ibid.
[97] Ibid.
[98] Petersilia, J. (2003). When prisoners come home: Parole and prisoner reentry. New York: Oxford University Press.
[99] Ibid.
[100] Ibid.
[101] Ibid.
[102] Kuhn, M., & Johnson, K. (2013). Applied predictive modeling. New York: Springer.
[103] Fass, T., Heilbrun, K., DeMatteo, D., & Fretz, R. (2008). The LSI-R and the COMPAS. Criminal Justice and Behavior, 35, 1095–1108.
[104] Ibid.
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of forensic psychology and criminal justice. The VRAG was developed by R. Karl Hanson and Monique T. Bussière and is based on the analysis of various risk factors associated with violent recidivism.[108] Some of the factors considered by the VRAG include prior criminal history, age at first conviction, and psychopathy.[109]

The validity of the VRAG, like any risk assessment tool, has been the subject of research and scrutiny.[110] Generally, research has shown that the VRAG has moderate predictive accuracy, meaning it is better than chance at predicting violent recidivism, but it is not perfect. It is essential to understand that no risk assessment tool can predict future behavior with absolute certainty

Critics and researchers have raised concerns about the potential for bias, particularly related to the overrepresentation of certain groups in the criminal justice system and the reliance on historical data that may be influenced by systemic biases.[111] Additionally, the VRAG, like many risk assessment tools, relies on historical data, and its accuracy may be influenced by changes in an individual's circumstances, mental health, or other factors that may not be adequately captured in the tool.[112]

It's important to note that the use of risk assessment tools, including the VRAG, should be approached with caution, and their application should be part of a broader decision-making process within the criminal justice system.[113] Many jurisdictions are continually refining and updating risk assessment tools, considering both their strengths and limitations, and adapting to new research and legal standards.

1.1. VASOR-2

The Vermont Assessment of Sex Offender Risk-2 (VASOR-2) is a sophisticated and meticulously developed risk assessment tool designed to evaluate the risk of sexual offenders for reoffending.[114] This instrument is a crucial component in the field of forensic psychology and sex offender management, providing professionals with a systematic approach to assessing the likelihood of sexual reoffense.[115] The VASOR-2 is rooted in the need for accurate and reliable methods of assessing the risk of sexual reoffending. Sexual offenses are particularly complex, and risk assessment tools play a pivotal role in aiding professionals in the criminal justice and mental health sectors to make informed decisions regarding the management and treatment of individuals convicted of such offenses.

The primary objective of the VASOR-2 is to provide a comprehensive evaluation of the risk of sexual reoffending. Building on its predecessor, the VASOR, this second iteration incorporates advancements in research and methodology to enhance its predictive accuracy and utility. The tool considers a multitude of factors, ranging from an offender's criminal history to psychological characteristics, in order to generate a nuanced risk assessment.[116]

1.1. Predpol

PredPol is designed to predict potential crime locations, which allows law enforcement agencies to take a proactive approach in their operations.**[117]** It analyzes large quantities of historical crime data to identify patterns and trends that indicate where crimes are likely to occur within certain time frames.**[118]** This predictive capability enables law

[108] Ibid.

[109] American Psychological Association; Quinsey, Harris, Rice and Cormier, 2nd Edition (2006); Violent Offenders: Appraising and Managing Risk; APA, Washington D.C.

[110] Ibid.

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[116] Schwemer, S.F., Tomada, L. & Pasini, T. (2021). Legal AI Systems in the EU's proposed Artificial Intelligence Act. In: Proceedings of the Second International Workshop on AI and Intelligent Assistance for Legal Professionals in the Digital Workplace (LegalAIIA 2021), held in conjunction with ICAIL 2021, June 21, 2021, Sao Paulo, Brazil.

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enforcement to strategically allocate patrols and resources to these predicted hotspots, which could deter criminal activities.[119] The main benefits of PredPol include improved efficiency in resource distribution, more effective patrolling, and a possible reduction in crime rates by having officers present in areas where crimes are most likely to happen.[120] Despite these advantages, PredPol has not been without controversy. Similar to COMPAS, it has been criticized for possible biases in its predictive models.[121] There are worries that the system may perpetuate existing prejudices, particularly if it is using historical crime data that may already be biased.[122]

8.Conclusion

Therefore, integration of both static and dynamic risk factors in the risk assessment process enables professionals in the criminal justice system to adapt interventions, supervision strategies, and treatment plans based on the evolving risk profile of individuals.[123] By recognizing the potential for change over time, the VASOR-2 contributes to a more nuanced and responsive approach to risk assessment and management within the criminal justice system.

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[123] Ibid.