

## THE MERITS AND ETHICAL CONUNDRUMS OF PREDICTIVE POLICING

*Ejup Rustemi<sup>1\*</sup>, Mefail Tahiri<sup>2</sup>*

*<sup>1</sup>University of Tetova, North Macedonia*

*<sup>2</sup>University of Tetova, North Macedonia*

*\*[ejup.rustemi@yahoo.com](mailto:ejup.rustemi@yahoo.com)*

### ABSTRACT

A strategy known as predictive policing is the application of analytical methods, particularly quantitative methods, with the purpose of identifying potential targets for police intervention, either preventing crime or solving crimes that have already occurred through the use of statistical estimates. A number of different predictive policing strategies are currently being used by law enforcement agencies all around the United States, and a great deal of literature has been written about the effectiveness of these strategies. On the other hand, forecasting is another phrase that is used to describe the process of utilizing analytical methods to discover potential targets. For the purposes of this tutorial, we will be using the terms prediction and forecasting interchangeably, despite the fact that there is a distinction between the two.

**Keywords:** *policing, technology, AI, prediction, analytics.*

### INTRODUCTION

When working with limited resources, the police are able to work more proactively thanks to predictive technologies. The purpose of these tactics is to accomplish the development of efficient strategies that will either deter criminal activity or make the work of investigators more efficient. On the other hand, it is essential that all levels of government comprehend that the implementation of predictive police techniques is not the same as obtaining a crystal ball. Artificial intelligence (AI) is a technology that has the potential to assist us in enhancing the criminal justice system and reducing crime. Using AI, we can evaluate data, forecast hazards, and make decisions more effectively. Artificial intelligence has the potential to spark ethical and social concerns, including privacy, fairness, and accountability.

We can use artificial intelligence to help us identify potential criminals and avert acts of violence. One example is the city of Chicago, which has built a list that is driven by artificial intelligence and categorizes individuals who have been incarcerated according to their likelihood of becoming future criminals. The parameters that are taken into consideration include age, criminal history, victimization, drug arrests, and involvement with a gang organization. Young individuals, persons who have been shot, and those who take drugs are more likely to commit crimes in the future, according to the findings of a recent study (Babuta, Oswald, 2018).

It is argued by proponents of artificial intelligence that this list enables law enforcement to concentrate on the most dangerous persons while simultaneously lowering the amount of human bias in policing and sentencing. They emphasize research that demonstrates that artificial intelligence programs can significantly reduce crime or rates of incarceration by integrating data and machine learning. This list, according to many who are opposed to artificial intelligence, is a covert and unfair system that criminalizes individuals for offenses that they have not yet committed. Those who are concerned about this list are concerned about the fact that it targets people of color disproportionately and has not assisted Chicago in reducing its murder rate. In addition, they have doubts about the accuracy and transparency of the AI systems.

The use of artificial intelligence can help us monitor and keep track of people and activities. The Chinese government, for instance, is utilizing artificial intelligence to develop a formidable surveillance system that incorporates video footage, social media activity, internet transactions, travel data, and personal identities into a "police cloud." This method assists law enforcement in locating criminals, lawbreakers, and terrorists. Facial recognition, voice

recognition, and other forms of biometric data are utilized in order to ensure that individuals are matched with other information.

Automated systems obviate the necessity for human oversight. Law enforcement authorities are increasingly depending on deep learning techniques. Consequently, the tools themselves are gaining more authority, and their forecasts are often accepted without additional scrutiny (Berk, Bleich, 2013). Kate Crawford and Jason Schultz describe a phenomenon they call a "accountability gap" in their paper, "AI Systems as State Actors." Based on their research, the "accountability gap" could lead to a situation where both government and private sector personnel have limited understanding or direct participation in the specific decisions that lead to harm.

Nevertheless, Crawford and Schultz highlight that the tools may have diverse origins, such as being manufactured by contractors, developed internally by government entities, or even donated. Furthermore, due to the numerous diverse arrangements, there is a dearth of understanding regarding the appropriate party to be held responsible in the event of system failure.

This research examines the existing applications of artificial intelligence in law enforcement, specifically in the domains of Medicaid and disability benefits, public teacher evaluations, and criminal risk assessments. Columbia University just launched the project in partnership with the AI Now Institute, the Center on Race, Inequality, and the Law at the New York University School of Law, and the Electronic Frontier Foundation. The aim of this research is to analyze ongoing litigation in United States courtrooms where the government's use of algorithms had a crucial role in determining the rights and freedoms at stake in the case. During these occurrences, the researchers examined the methods by which humans utilize artificial intelligence systems. Their discoveries can be summarized as follows:

The deployment of these artificial intelligence systems lacked substantial training, assistance, or supervision, and there were no designated safeguards in place for the beneficiaries. This was partially because they were used to achieve cost reductions and standardization within a monolithic technology-procurement strategy, which often overlooks constitutional liability considerations (Bond, et. al., 2014).

Due to the biased nature of the algorithms, they specifically focused on individuals who were more likely to need assistance in order to minimize the available funds for aid. The authors noted that, like "traveling sales representatives," these automated technologies would transfer information from one location to another, utilizing it for new audiences, hence amplifying the likelihood of bias distorting the outcomes. The writers stated that the algorithmic approach, which was designed to reduce expenses without taking legal or policy issues into account, was responsible for the fundamental constitutional issues that eventually determined the outcome of the lawsuits.

The accountability gap for constitutional transgressions may expand and deepen as artificial intelligence systems rely more on deep learning, which can enhance their autonomy and opacity.

For this reason, the question arises: how do we ensure that software corporations are held accountable for their actions? Would it be appropriate for technology corporations to take responsibility for the manner in which their products are utilized when automated systems are granted complete freedom and human monitoring is rendered obsolete? About this matter, the law is still not entirely clear.

## **FINDING THE PROPER METHODS**

Methods of predictive policing need to be used as a component of an all-encompassing plan for crime prevention in order for them to be of any help to law enforcement. In addition, in order to guarantee that predictive approaches make a major contribution, it is necessary to steer clear of the following pitfalls:

Focusing on the accuracy of predictions rather than the tactical utility of the situation is the first potential pitfall. Consider the following scenario: an analyst is tasked with providing predictions of robberies that are as "accurate" as

feasible (Berk, He, Sorenson, 2005). This means that the analyst is tasked with designing an analysis in which as many future crimes as possible happen within locations that have been projected to be high-risk, so verifying that these areas are high-risk. In order to attain this goal, one approach would be to label the entire city as a massive "risk area." However, such a classification would be of little to no use in terms of military strategy. It is possible that identifying a hot spot that is the size of a city yields accurate results; nevertheless, this does not supply any information that law enforcement authorities do not already possess. We have to be willing to accept some constraints on "accuracy" as judged by the proportion of crimes that occur in the hot places they predict. This is necessary in order to guarantee that the projected hot spots are small enough to be actionable.

## WHAT CAN GO WRONG?

Using data of poor quality is the second potential pitfall. In general, there are three types of defects that might have an impact on the quality of the data: data censoring, systematic bias, and relevance. During the process of data censorship, information regarding incidents of interest that occurred in specific locations (and at specific times) is omitted. When the data are suppressed, it will give the impression that there is no criminal activity in the locations in question. Because of the way the data are acquired, there is a possibility of systematic bias. As an illustration, if there is a particularly high volume of burglary activity reported between the hours of seven and eight in the morning, it might not be immediately apparent whether a significant number of burglaries actually took place during that hour or whether that was the time when property owners and managers discovered and reported burglaries that had taken place during the previous night (Carton et. al., 2016). Last but not least, relevancy is a term that describes how relevant the data are. In the case of certain crime clusters, having data that goes back a significant number of months or years can be of great use. A number of months' worth of data, on the other hand, will not be of much value if there is a string of robberies that are extremely similar to one another and are likely done by the same offender.

Misunderstanding the causes that led to the prediction is the third potential pitfall. There is a reasonable question that observers, particularly practitioners who are entrusted with eliminating hot spots, can ask: "For a specific hot spot, what factors are driving risk here?" A response such as "The computer said so" is not even close to being sufficient. In general, prediction tools are developed in a manner that makes it difficult, if not impossible, to highlight the risk factors that are present in particular regions.

However, there has been some progress made in this regard. The use of common sense to evaluate the parameters that are incorporated into the model will assist in preventing misleading associations from occurring when techniques such as regression or any of the variants of data mining are applied during the process.

Mistake number four: placing insufficient importance on rating and assessing. During the course of our interviews with practitioners, only a small percentage of them reported having conducted an evaluation of the effectiveness of the predictions they had generated or the interventions that had been planned in response to their forecasts. A comprehensive effort should be made to maintain the most recent data, and as part of that effort, the success of any analysis and treatments should be evaluated. The identification of areas that require improvement, the modification of treatments, and the distribution of resources are all dependent on measurements (Carton et. al., 2016).

The fifth potential pitfall is disregarding civil and private rights. The sheer act of designating some regions and individuals as deserving of additional attention from law enforcement organizations naturally raises problems around civil liberties and the rights to privacy. It would appear that labeling locations as "at-risk" has less challenges because, in this scenario, persons are not being targeted directly.

According to a decision made by the Supreme Court of the United States, the criteria for what constitutes reasonable suspicion are loosened in "high-crime areas" (also in other words, hot spots). On the other hand, the question of what exactly constitutes a "high-crime" area and what kinds of actions are permitted to be performed in such places under "relaxed" reasonable-suspicion norms remains unanswered.

## FEARS REGARDING PREDICTIVE POLICING

Address specific places and factors that are generating crime risk Although predictive policing has garnered a lot of attention and has shown a lot of promise, there are fallacies that should be avoided and mistakes that should be avoided when adopting these approaches. A significant number of the misconceptions originate from expectations that are not realistic. For example, predictive policing has been so overhyped that the reality cannot meet the hyperbole.

The computer is able to predict the future completely. In spite of the fact that a significant amount of news coverage supports the notion that predictive policing is a "crystal ball," the algorithms that are produced determine the likelihood of future events rather than actual events. The process of finding patterns can be significantly simplified by computers, but the accuracy of their predictions is directly proportional to the quality of the data that is used to produce them.

The computer will handle everything on your behalf. However, despite having advanced software suites, humans are still required to find the relevant data, analyze and process it, conduct analyses based on evolving crime patterns, review and interpret the analysis results (while disregarding any incorrect findings), suggest interventions, and implement actions to make use of the findings and assess the effectiveness of the interventions.

You will need a model that is both robust and expensive. Indeed, most agencies do not necessitate the utilization of cutting-edge software packages or high-end equipment to implement a predictive policing service. Simple heuristics were almost as effective as analytical methods in executing certain jobs for predictive police, as evidenced by several case studies. Complex models have the potential to enhance forecast accuracy, but there is a risk that their effectiveness may diminish over time (Cino, 2017).

Predictions are exactly what they sound like. In order to achieve actual reductions in crime, it is necessary to take action based on projections. An end-to-end process includes predictive policing as one of its components. It is imperative that law enforcement agencies steer clear of the following typical problems in order to guarantee that predictive policing will reach its full potential:

Emphasizing precision over performance. While it may be accurate to label an entire city as a crime hotspot, when it comes to efficiently allocating limited police resources, such a large area is not feasible for targeted interventions due to its size.

The analysts must be willing to acknowledge and adhere to certain limitations on the accuracy, which can be measured by the percentage of total crime that is documented in the data. This is essential to identify small-scale hotspots that can be feasibly addressed by the police. Dependent on data of mediocre quality. Data censoring, systematic bias, and irrelevant data are three common examples of deficiencies in data quality. Data censoring refers to the deliberate omission of data on incidents of interest that occurred at specific locations or times. Systematic bias arises from the way data are collected, leading to biased results. Irrelevant data refers to data that are not useful for addressing the specific problem at hand (Cino, 2017).. An incorrect comprehension of the factors that led to the prediction! For the purpose of avoiding acting on spurious associations, analysts should employ common sense when selecting elements for analysis when applying techniques such as regression or data mining.

Assessing and evaluating are not given sufficient importance. When researchers from RAND conducted interviews with practitioners, they discovered that only a small percentage of respondents had examined the accuracy of the forecasts made by their respective departments. The identification of areas that could use improvement and the efficient distribution of resources are both dependent on effectiveness measurement.

This includes disregarding civil and private rights. Concerns regarding civil and private rights are raised when particular regions or individuals are designated as deserving of special attention from law enforcement. In a decision that was handed down by the Supreme Court of the United States, it was decided that the standards for reasonable suspicion are lowered in "high-crime areas." However, the definition of such an area and the steps that can be taken are still up for debate.

## FINAL REMARKS

One of the most important benefits that predictive policing tools offer to law enforcement agencies who are contemplating implementing them is increased situational awareness. The capabilities that are required for small agencies that have relatively few offenses and criminal patterns that are reasonably understandable may be relatively simple. Examples of such capabilities include those that are offered by basic spreadsheets or statistical programs. It is possible that larger agencies that have higher data demands will require more complex systems that are compatible with both the systems that are already in place and those that are used in other jurisdictions.

The researchers recommend that manufacturers explain their systems as identifying crime risks rather than foretelling them. This is for the benefit of the developer. It is also important for developers to be mindful of the financial constraints that law enforcement organizations operate under when it comes to the acquisition and maintenance of new technology. Various business approaches, such as regional cost sharing, should be taken into consideration by vendors in order to make predictive systems more easily accessible to smaller organizations.

For the purpose of combating criminal activity, the researchers stress the importance of including predictive policing into the action done to prevent criminal activity. Interventions that are successful often have top-level backing, adequate resources, automated systems that provide the necessary information, and staff that are assigned with the freedom to fix crime problems while also being accountable for doing so. When combined with reliable predictive analytics, the development of intervention programs that include such characteristics can go a long way toward ensuring that the threat of criminal activity that was forecasted does not materialize into illegal activity (Babuta, Oswald, 2018).

Information plays a significant role in the field of law enforcement. In order to prevent or regulate criminal activity, law enforcement agents collect intelligence, evidence, and leads, process them, and then take action based on their findings. The ability of artificial intelligence technologies to rapidly acquire, process, and analyze large amounts of data on human behavior is what makes AI the ideal partner for law enforcement. This is because information, also known as data, about human behavior is essential for law enforcement.

The use of artificial intelligence can assist law enforcement in a variety of ways, including the detection of shoplifters' suspicious behavior, the identification and issuance of fines to online scammers, the location of stolen vehicles, the analysis of text-based evidence to identify potential intelligence, and, of course, the autonomous patrolling of roads or skies in unmanned vehicles.

In 2018, the United Nations Interregional Crime and Justice Research Institute (UNICRI) and the International Criminal Police Organization (INTERPOL) joined forces to arrange a worldwide event centered on the potential benefits and risks that artificial intelligence and robots offer to law enforcement. Several governmental agencies are currently engaged in the study of applying artificial intelligence to enhance crime prevention and control, despite the law enforcement community's limited familiarity with this relatively new idea and the existing gaps in expertise. This was exemplified throughout the conversation.

Predictive policing is the utilization of artificial intelligence (AI) in law enforcement to anticipate and forecast potential criminal activity prior to its occurrence. This is arguably one of the most fascinating and controversial implementations of artificial intelligence. Predictive policing is often seen as the ultimate solution in combating organized crime. This is because technology allows law enforcement to transcend its usual reactive response to crime and adopt a more proactive stance. Derived from the principles outlined in "The Art of War," the term "foreknowledge" can be described as the strategic advantage that allows enlightened leaders and skilled commanders to consistently triumph over their adversaries, surpassing the accomplishments of ordinary individuals (Babuta, Oswald, 2018).

Although this advanced technology is quite complex in terms of its technological aspects, it is widely recognized and featured prominently in several science fiction novels. Notably, it was depicted in the renowned film *Minority Report*, helmed by Steven Spielberg. The film depicts a specialized law enforcement agency that utilizes the abilities of precognitive individuals to anticipate and prevent crimes, apprehending potential offenders before they can commit their acts. The film is an adaptation of Philip K. Dick's eponymous novel, originally released in 1956. This occurrence

is merely a coincidence, as it happened in the same year that John McCarthy delivered a public presentation at the Dartmouth Conference on the nascent field he termed "artificial intelligence."

Predictive police, in reality, does not employ "precogs" to ascertain the individuals likely to commit a crime, unlike the fictitious concept depicted in *Minority Report*. Instead, police departments utilize AI algorithms to evaluate data on the kind, location, date, and time of past crimes. This analysis enables them to generate predictions for the most probable occurrence of future crimes, including their location and nature. Subsequently, this forecast is transmitted to the police department. The law enforcement agency can enhance the efficiency of its resources by strategically deploying police personnel at the times and areas when their presence may be most necessary, utilizing this information.

## CONCLUSION

Predictive policing technology has the ability to revolutionize law enforcement by enabling them to effectively combat crime for the first time in history. However, if the data that fuels this technology is influenced by bias, the risks will surpass any potential advantages. Regarding predictive policing, we are now in the initial phases of its development. However, it is becoming more and more crucial for law enforcement to tackle these concerns and ensure that the implementation of predictive policing is fair, accountable, transparent, and explainable. Moreover, individuals who will be affected by such tools should be had the chance to participate in the development and execution of these technologies. Regarding the ethical use of artificial intelligence, law enforcement presents a unique scenario as it is a group that, as some argue, may prioritize security above other concerns, such as privacy. If law enforcement can effectively exhibit ethical leadership in the implementation of artificial intelligence tools like predictive policing, it is likely that other communities will adopt similar practices..

## REFERENCES

- Babuta, A., Oswald, M., & Rinik, C. (2018). *Machine Learning Algorithms and Police DecisionMaking: Legal, Ethical and Regulatory Challenges*. Royal United Services Institute for Defence and Security Studies.
- Berk, R. A., & Bleich, J. (2013). *Statistical procedures for forecasting criminal behavior: A comparative assessment*. *Criminology & Pub*.
- Berk, R. A., He, Y., & Sorenson, S. B. (2005). *Developing a practical forecasting screener for domestic violence incidents*. *Evaluation Review*.
- Bond, B. J., Hajjar, L., Ryan, A., & White, M. D. (2014). *Lowell, Massachusetts, Smart Policing Initiative: Reducing property crime in targeted hot spots*. Washington, DC: Bureau of Justice Assistance.
- Carton, S., Helsby, J., Joseph, K., Mahmud, A., Park, Y., Walsh, J., & Ghani, R. (2016). *Identifying police officers at risk of adverse events.* In *Proceedings of the 22nd ACM SIGKDD*.
- Cino, J. G. (2017). *Deploying the Secret Police: The Use of Algorithms in the Criminal Justice System*. *Ga. St. UL Rev*.