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Development of and Concerns Regarding Predictive Policing Practices JUNE 2024

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DEVELOPMENT OF PREDICTIVE POLICING TECHNOLOGY AND JUSTIFICATION FOR USE

Predictive policing is the application of analytical software to identify likely targets for police intervention and prevent crime. While the use of statistical and geospatial analyses to forecast crime levels has been around for decades, the last 8–10 years has brought the application of analytical tools and artificial intelligence to enable such predictions based on large sets of data.[1] Although predictive policing techniques often use AI, predictive policing refers to all predictive technology that has moved from simple heuristic methods to sophisticated mathematical algorithms.[2]

The Los Angeles Police Department (LAPD) emerged as an early adopter of predictive policing and started working with federal agencies in 2008 to explore the use of this technology. Since then, the LAPD has integrated an array of predictive policing programs, including LASER, which identifies areas where gun violence is thought likely to occur, and PredPol, which calculates "hot spots" with a high likelihood of property-related crimes.[3] These programs are also funded with federal assistance from the Department of Justice.[4] The New York Police Department (NYPD), the largest police force in the United States, started testing predictive policing software as early as 2012, utilizing multiple private firms including Azavea, KeyStats, and PredPol. The NYPD eventually developed its own algorithm to practice predictive policing, which it put into use in 2013 and still uses.[5]

Proponents of predictive policing say that it better processes information without human bias, preventing police officers' acting out of prejudice, or even distraction, in order to allocate police resources more efficiently and equitably.[6] Resource management may include insight into where and when to deploy officers, whether to send specialized units, what level of force is reasonable, and the type of intervention that is most suitable to the predicted risk.[7] Some also argue that predictive policing can help police departments reduce

Key Findings

Predictive policing programs utilize algorithms to allocate law enforcement resources to areas and persons identified as having a higher risk for crime, **despite a lack of evidence showing the efficacy of these determinations**.

Commercially-produced and in-house predictive policing software varies greatly in design and is **not subject to standardization or government accountability**.

Predictive policing programs rely on biased historical data, threaten the civil rights of community members, and **do not provide for transparency or accountability regarding their practices**.

For these reasons, predictive policing tools should not be used in any law enforcement agency. If agencies are using these tools, **they must be subject to frequent evaluation and practice transparency regarding data.**

costs by improving efficiency. Strong evidence within the field of criminology supports the concept that crime is predictable. A Rand Corporation Safety and Justice Program report noted, "offenders and victims follow common life patterns which overlap with geographic and temporal features to indicate increased likelihood of crime."[8] Thus, supporters of predictive practices argue that algorithms can predict future crimes more accurately and objectively than police officers alone.[9]

However, for a policing strategy to be considered effective, according to the Rand report, "crime rates should be lower, arrest rates for serious offenses should increase, and there should be an observable positive impact on social and justice outcomes."[10] Due to a lack of standardized practices or requirements for

transparency in the field of predictive policing, various police departments often develop these programs with little accountability or measurements of efficacy.[11] There is no widespread evidence that the initiatives improve community safety, and numerous advocacy groups and legal challenges have called attention to the dangers of predictive policing in terms of reproduction of biases, civil rights violations, and lack of transparency.[12]

TYPES OF PREDICTIVE POLICING TECHNOLOGY

The Technology

The most widely practiced type of method is place-based predictive policing, which typically uses preexisting crime data to identify places and times that have a high risk of crime.[13] This includes various types of technologies. Almost all placed-based programs include crime mapping and/or hot spot models which are based on analysis of large amounts of historical crime data. Place-based predictive policing can use a variety of statistical modeling methods to make its predictions: regression and clustering models, which present areas with the most predictive factors for crime; near repeat modeling, which accounts for recent history of incidence of the same crime in a specific location; and spatiotemporal analysis methods, which predict specific timing of a crime (e.g., time of day, season) based on historical data.[14]

The second most used type of predictive policing is person-based, which attempts to predict offenders and victims. In order to predict individuals at risk of offending in the future, predictive policing programs use regression and classification models with common risk factors for individuals to become offenders, such as mental illness or a history of violence. This can be supplemented with near-repeat modeling, which accounts for increased risk by related offenders after a specific crime occurs.[15] Crime mapping and hot spot models can be used to identify people/groups directly affected by at-risk locations, and outside data can also be directly used to identify people at risk for victimization or domestic violence.[16] According to ProPublica, "Subjects of such 'data scoring' systems are assessed based on the extent to which they conform to a particular group or 'class,' which dehumanizes and discriminates against individuals based on the extent to which they conform to a certain 'profile' as identified in historic data."[17] Person-based approaches are especially concerning due to this aspect; for example, it has been shown that after accounting for prior crimes, person-based formulas still flag Black defendants as future offenders nearly twice as often as White defendants.[18]

There is not a single predictive policing model used

across the country; each city develops its own program and contracts with various commercial partners to implement the technology. For example, LAPD's place-based predictive policing program uses two systems, PredPol and LASER. PredPol is a system marketed by a private company and uses a machine-learning algorithm that has three inputs: when and where a crime was committed and what type of crime it was.[19] This is considered a hot-spot model. Although studies have already shown that the PredPol technology reinforces racially biased policing patterns, the technology remains in use by the LAPD and at least 50 other law enforcement agencies around the country.[20] New York, however, developed the Violent Offender Identification Directive (VOID) tool which is a risk assessment algorithm that identifies offenders likely to be involved with future gun violence.[21] Due to a lack of standardized practices or requirements of transparency, various police departments often develop these programs with little accountability for how they do so or if they are effective.[22]

Many predictive policing programs are developed internally and uniquely by the agency using them. Outside of this practice, studies have identified three primary commercial predictive policing software systems used by major cities: Azavea (which since 2018, includes HunchLab); KeyStats; and PredPol.[23]
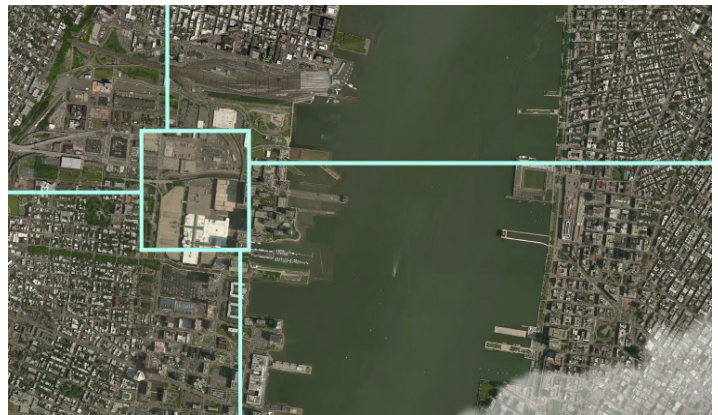

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CONCERNS REGARDING PREDICTIVE POLICING

Data Biases

Police data reflects the practices, policies, biases, and political and financial accounting needs of a given department. Thus, if a police department has discriminated against or over-policed certain populations in the past, those biases will be reflected in the data that informs the predictive policing system and in the

system's recommendations. Creating these algorithms to allocate policing resources essentially correlates crime with an area or group of people, as opposed to concluding that these areas or people need help or intervention for their particular circumstances.[24] The AI Now Institute has proven that some police departments rely on data that is "derived from or influenced by corrupt, biased, and unlawful practices" to inform their predictive policing systems.[25] According to a report by the activist organization Stop LAPD Spying Coalition, the LASER program used in Los Angeles creates a "racist feedback loop" in which a "disproportionate amount of police resources are allocated to historically hyper-policed communities."[26] As predictive policing becomes more common in cities across the country, more projects and investigations are being created to assess the level of bias they produce.

Civil Rights Concerns

The very act of labeling areas and people as worthy of further law enforcement attention inherently raises concerns about civil liberties and privacy rights. Predictive analytics tools may make it easier for police to claim that individuals or specific areas meet the reasonable suspicion standard, and when based on biased information, can ultimately be used to justify more stops among specific populations. Some legal experts argue that predictive policing systems could threaten rights protected by the Fourth Amendment, a legal standard that helps protect individuals against "unreasonable searches and seizures" by the police.[27] Inclusion of measures of association as risk predictors can lead to individuals being categorized as guilty by association based only on certain characteristics, without any evidence to suggest they have been involved in criminal activity; this is a violation of the First Amendment right to freedom of association.[28]

Transparency and Accountability

In addition to concerns over discriminatory practices, there is a severe lack of transparency and accountability from agencies that utilize predictive policing programs. While these programs are conducting analysis and informing police actions, they cannot be relied on to produce valid results without an independent audit or other accountability measures. The vendors of police technology have shown no evidence of providing this accountability and oversight, and government actors rarely have the tools to do so themselves. Very few police departments have evaluated the accuracy of the predictions they produce or the interventions developed in response to their predictions.[29] The effectiveness of

any analysis and interventions should be assessed as part of the overall effort in departments using predictive policing methods. Unfortunately for policymakers, departments are often able to develop and enact predictive policing programs without needing to disclose their doing so to either the city officials or public.[30] For example, the NYPD does not keep audit logs of who creates or accesses predictions and does not save the predictions it generates in any way.[31] This makes it difficult for independent auditors or policymakers to properly evaluate these tools, including whether the predictions reinforce biased practices or are effective in reducing crime as a result of utilizing the recommendations. Even when invoking the Freedom of Information Act, the New York Civil Liberties Union was still denied access to any data regarding the NYPD's predictive policing and surveillance practices.[32] Across the country, it is difficult to assess or solve the problems associated with predictive policing because there is little public accountability or governmental accountability for police institutions regarding this technology.

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POLICY RECOMMENDATIONS

Predictive policing algorithms inherently rely on historical crime data, which due to the history of biased policing in the U.S., will inevitably produce similarly biased predictions, which can result in biased outcomes. According to U.S. Department of Justice figures, you are more than twice as likely to be arrested if you are Black than if you are White and five times more likely to be stopped without just cause.[33] Feeding this data into predictive tools, even if factually accurate, further perpetuates these trends. Furthermore, due to disparities in many of the characteristics considered in person- and place- based predictors, even without explicitly considering race, these tools are racist. Though by law, the algorithms "do not use race as a predictor, other variables, such as socioeconomic background,

education, and zip code, act as proxies."[34] Due to the nature of predictive algorithms, these factors cannot be disentangled from the use of the tools and endanger the civil rights of Americans. Predictive policing programs should be wholly dismantled for this reason.

Where predictive policing programs cannot be removed from use entirely, there are smaller reforms that should be initiated in the meantime:

- Federal or state law must mandate that algorithms and practices utilized in any predictive policing program be publicly available. Even when investigated by outside sources, it is extremely difficult to get any sense of how these tools are truly functioning and what specific impacts they have on communities.

- Government-led evaluation of the impact of all predictive policing algorithms must be required in order to address the practice's bias. Agencies must regularly evaluate the impact of their programs and thus be able to provide evidence that their tools both effectively address crime and do not discriminate against certain groups.

Once the algorithms and data being used are transparently available, it is very unlikely that programs would be able to produce such seemingly positive evidence of efficiency and minimal bias, further pointing towards abolishing the practice altogether.

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