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Predictive Policing Algorithms: How law enforcement agencies still perpetuate American racial inequality

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Abstract: Recently, local governments have used predictive policing algorithms from data firms to enforce laws effectively. Unfortunately, these predictive policing algorithms largely contain historically discriminatory data that perpetuates American racial structural inequality.

INTRODUCTION

Police officers and other legal professionals define predictive policing as the use of historical data to predict future crimes. With advances in computer technology, particularly the use of algorithms to track user data and artificial intelligence to accelerate processes, contributors have applied these tools to improve their predictive policing capabilities. These algorithms and other analytic tools are usually readily accessible software primarily designed for data collection in large institutions, and they use historical crime data to predict future crimes.

Black feminist thought is an epistemological framework regarding power through the lens of Black women and other marginalized groups, in which systems of oppression are interconnected rather than separate social hierarchies [10]. As Patricia Hills Collins argues, dominant epistemologies have historically privileged elite white male perspectives while marginalizing the knowledge produced predominantly by black American women [6]. Black feminist thought argues that power is not just individual control but an aspect through which social institutions and ideas operate [10]. Basically, black feminist thought argues that multiple social institutions and legal entities connect power among themselves.

Black feminist thought argues that using historically discriminatory crime data, predictive policing perpetuates and reproduces racial and structural inequalities in the United States. Even if predictive policing presents itself neutrally and objectively, a black feminist thought disputes the neutrality of policing, socially and historically situated. The historically discriminatory crime data refers to incarcerations of predominantly non-white Americans due to laws discriminating against those people. It situates marginalized voices as necessary for understanding how technology operates structural racism. This work is in partial fulfillment of the ENGR184 course using the blueprint curriculum in Ref [3,9] and captured in a collection [4].

METHODS

In this paper, two groups, corporate developers of predictive policing technologies and critical legal and social science scholars, have been selected to be compared to examine how predictive policing has been framed and interpreted. This paper uses official corporate websites and journalistic articles to assess the implementation of predictive policing systems. This paper also uses peer-reviewed articles to evaluate critical interpretations of predictive policing's social and structural dimensions. Using black feminist thought, the paper examines variations in assumptions, definitions, and interpretations of predictive policing. The analysis explores how different groups conceptualize knowledge related to crime, public

safety, and objectivity. It emphasizes how institutional power influences knowledge production, exposing tensions between assertions of neutrality and objectivity and cultural assertions of bias and discrimination.

CORPORATE USAGE OF PREDICTIVE POLICING

One early example of predictive policing technology is Predoc, originally funded by the Pentagon to forecast battlefield events before being repurposed for domestic policing. Prepon used machine learning algorithms trained on historical police crime data to predict where crimes were most likely to occur [11]. However, the system, due to containing historically discriminatory data, predicts crimes in over-policed communities. Communities that have historically been subject to over-policing generate more recorded crime data, which algorithms interpret as higher crime risk [11]. As a result, prepolls and other data firms reinforce existing surveillance patterns rather than independently identifying crime trends. Black feminist thought argues that storing historically discriminatory data about discriminated groups in America in data causes racial and structural inequalities in algorithmic decision-making.

Another company that employs predictive policing analytics is Palantir, a data analysis firm. Palantir produces data analytics platforms and sells them as evidence-based technologies to various government agencies, aggregating vast amounts of law enforcement and other government data into unified analytic systems that enable deep surveillance and profiling across agencies and domains such as immigration enforcement [5]. The Los Angeles Police Department is one example of a government agency that uses Palantir's software to predict the extent of surveillance on an individual based on incarceration history [7]. Palantir's expansion of its data analysis for government agencies such as immigration demonstrates that discrimination occurs within government institutions, fostering distrust between the government and the firm. From the perspective of Black feminist thought, the expansion of predictive policing algorithms raises concerns about how justly the increased incarcerations are justified because of establishing order, as the establishment of order means the perpetuation of racial inequality in America.

Finally, the SAS Institute, another data analytics institute, markets its analytics as a foundation for intelligence operations spanning policy, judicial decisions, and investigative insights. For law enforcement agencies, data-driven practices are a core part of their operations [8]. The SAS Institute wants to ensure that its data-driven approach is credible for institutions to use in their own workflows. Black feminist thought argues that a data-driven approach is inadequate for addressing racial inequality in America and obscures the social and institutional processes producing these datasets, allowing the reproduction of discriminatory policing practices.

These examples illustrate that data firms use predictive analytics and sell these algorithms to agencies, without explicit knowledge of the discriminatory practices in their records. Black feminist thought argues that predictive policing algorithms rather recycle power towards the institutions perpetuating discriminatory practices in the first place. Despite the presentation as neutral and evidence-based, they are not in the views of African American women in a poor neighborhood.

SCHOLARLY INTERPRETATION OF PREDICTIVE POLICING

Scholars argue that predictive policing algorithms are part of a broader institutional expansion of surveillance and data consolidation. Brayne discovers that "evidence-based" or "data-driven" analytic tools fit into long-standing institutional trends towards surveillance and data consolidation. It forces a small number of data firms, such as SAS and Palantir, to consolidate more data into a single source and to have local and national governments rely on them to function effectively [2]. What it shows is that expanding data from local to larger forms of government embeds predictive policing within larger systems of

institutional surveillance. From the Black feminist thought, expanding predictive policing to broader forms of government reinforces existing power structures catered to elite white men.

Researchers also argue that algorithmic bias that leads to discriminatory practices cannot be a purely technical problem. Ziosi and Pruss find that different groups - including police officers, developers, community members, and researchers - interpret bias in predictive policing systems differently depending on their institutional roles. Their study shows that "algorithmic bias" is a socially contested concept shaped by the perspectives and priorities of different stakeholders [12]. This finding indicates that institutional power structures, especially governments and those in authority, shape who is seen as an expert and what counts as knowledge. The people in power define bias differently from the communities, like marginalized groups, that are the most affected by these systems.

Research on algorithmic fairness in predictive policing also highlights how policing data embeds structural inequalities in persons. Ahmed S. Almasoud and Jamiu Adekunle Idowu found that much of the research on predictive policing focuses on racial bias while overlooking other forms of inequality, including biases related to age, gender, and socioeconomic status. Their study further argues that policing practices, like arrest patterns and deployment decisions, can contribute more to discriminatory outcomes than the algorithms themselves [1]. These policing practices show that the individual acting may have their own biases, and the use of historically discriminatory data in these predictive models perpetuates them. Black feminist thought argues that ridding racially discriminatory patterns in technology does not go away and that individuals, particularly police officers, can act on these discriminatory practices due to the institutions having them act on it.

Altogether, predictive policing is not an evidence-based approach to predicting and preventing future crime, but a cultural one, shaped by social, historical, and individual contexts. Researchers demonstrate that past policing strategies disproportionately target poor African American communities, and others like it, that dominate the datasets predictive policing systems rely on. Black feminist thought provides a useful framework for understanding these dynamics by emphasizing how power relations embedded in social institutions shape knowledge production.

CONCLUSIONS

Predictive policing algorithms do very little to make predictions beneficial for many communities and further perpetuate racial capitalism and stereotypes towards historically marginalized communities. Although data analysis firms face no short-term impact on their operations, the United States government has gone out of its way to fund them to improve many facets of the government, including military strategies and immigration enforcement, with long-term implications. Governments can eradicate entire communities, causing history to lose and eradicating any sustainable progress of any discussions of ongoing racial systemic inequality and progress of racial equality, where everyone is given the proper tools to succeed and can succeed based on their will. Incarcerations increase, and any misguided decision from government agencies speeds up. Nevertheless, it does not mean that incarcerations increase significantly quickly. People cannot make decisions on their own, and data analysis firms can control decisions, weakening the federal government and its citizens.

According to black feminist thought, addressing racial inequality in America requires local police departments to evaluate historical crime datasets for patterns of racial discrimination before using them to train their predictive policing algorithms. Next, local police departments should be able to compel any firm that aggregates data to disclose the process by which it aggregates data for predictive analysis,

to combat the opacity of predictive policing systems. It allows systems to be publicly accountable and to undergo independent auditing. Then, having local politicians invite marginalized communities to serve on oversight boards and other participatory governance structures can challenge institutional assumptions about crime and risk while ensuring that technological systems reflect broader social perspectives and are useful to everyone. Alternatively, do not use it.

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