

**How Enforcement Affects Equality**  
Algorithmic Discrimination in Predictive Policing Technology  
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“With liberty and justice for all...”

This line from America’s pledge of allegiance contains an ideal of equality that has been a driving factor for many regulatory policies in the country. Yet there have been major caveats in the actual realization of this promise. The United States has a tumultuous history of enforcement tactics that have disproportionately affected marginalized communities, namely poor communities of color. Looking back to post slavery and the rise of Jim Crow in the south, explicit race based segregation was legalized provided that the separation was “equal,” when it in fact was not. Then after the civil right’s movement outlawed Jim Crow, the war on drugs surfaced. Again, marginalized communities of color were targeted as certain drugs carried substantially harsher penalties than others. This time period bred mass incarceration, ushering in a period known as the New Jim Crow era, as dubbed by civil rights lawyer Michelle Alexander<sup>1</sup>. Once people realized these faults in the justice system, they created tools to maintain the objectivity in deliberations: algorithms. However, the same disproportionate treatment persists. Legal algorithmic technologies have perpetuated systematic discrimination by creating a data cycle that renders communities of color susceptible to aggressive surveillance.

Predictive policing exemplifies this tendency. One such type, called PredPol, has garnered much criticism over its usage. By identifying areas of high crime rates based off patterns of past arrests, the idea is that now police officers can concentrate their resources more efficiently. Not only can the algorithm direct officers to specific areas but it can

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<sup>1</sup> Alexander, M. (2010). *The new Jim Crow: Mass incarceration in the age of colorblindness*.

also predict factors that lead to the next wave of crime rather than just a single instance<sup>2</sup>.

This technology has proven to be discriminatory for two main reasons: 1) it disparately impacts<sup>3</sup> poor communities of color<sup>4</sup> 2) and it reinforces historical data creating a biased feedback loop.

In regards to the first reason above, researchers claim that the technology is completely color blind, but there are factors that act as proxies for race. Latanya Sweeny finds that “racially associated first names were predictive of race,<sup>5</sup>” and in the case of predictive policing, nuisance data (petty crimes, minor offenses etc.) are proxies for poverty, and in turn these neighborhoods are becoming a proxy for crime, which then become proxies for minority groups. “Neutral” tactics comparable to predictive policing algorithms such as ‘stop and frisk’ have corroborated this relationship<sup>6</sup>. A closer look at the New York Police Department’s databases showed that out of the 700,000 stop and frisks, 85% of the encounters were with African American or Latino men and in some neighborhoods these men were stopped multiple times<sup>7</sup>. Taking into account the Equal Employment Opportunity Commission’s measurement of adverse impact<sup>8</sup>, this figure indicates a gross discrepancy in the enactment of the policy and those affected by it. Predictive policing technology follows this trend by inadvertently directing police to poor minority communities in high volume. Even if the search criteria are neutral the results are not.

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<sup>2</sup> O’Neil, C. (2016). Weapons of math destruction: How big data increases inequality and threatens democracy:(85).

<sup>3</sup> Seiner, J. (2006). Disentangling Disparate Impact and Disparate Treatment: Adapting the Canadian Approach. *Yale Law & Policy Review*, 25(1), 95-142. Retrieved from <http://www.jstor.org/stable/40239673>

<sup>4</sup> Ibid. “Disparate impact occurs when policies, practices, rules or other systems that appear to be neutral result in a disproportionate impact on a protected group. For example, testing all applicants and using results from that test that will unintentionally eliminate certain minority applicants disproportionately is disparate impact. Disparate treatment is intentional employment discrimination.”

<sup>5</sup>Sweeney, Latanya. (2013). “Discrimination in Online Ad Delivery.” *ACM Queue* 11(3): 1-19.

<sup>6</sup> O’Neil, C. (2016). Weapons of math destruction: How big data increases inequality and threatens democracy:(91).

<sup>7</sup> Ibid (92).

<sup>8</sup> “calculate the percentage of people affected in each group and then divide the smaller value by the larger to get the ratio and compare the result to 80” Sweeney, Latanya. (2013). “Discrimination in Online Ad Delivery.” *ACM Queue* 11(3): 1-19.

Furthermore, consider the magnitude of the effect on these communities by examining predictive policing technologies' tendency to reinforce historical prejudices in the enforcement system. In effect, "[PredPol] creates a pernicious feedback loop. The policing itself spawns new data, which justifies more policing<sup>9</sup>;" in a sense it predicts what it already knows. Therefore, the effect on marginalized communities is never-ending. The algorithm mostly tracks nuisance data, which also in itself is more predictable and more frequent than serious crimes. As Cathy O'Neil explains, "a drunk will pee on the same wall...a junkie will stretch out on the same park bench, while a car thief will move about, working hard to anticipate the movements of police.<sup>10</sup>" As the arrests for these small crimes increase so do the data that flag neighborhoods as crime hubs. Police have a flawed logic in assuming that only number of arrests correlates to crime, when in fact many other potential factors can too. Why not patrol affluent areas where thieves have more to gain? Or near college campuses where underage drinking is likely to occur? In effect, users of predictive police technology feed into their own confirmation bias and fail to combat it by searching for crime where it is unexpected.

Yet, it is this confirmation that keeps the police force relevant. Targeting high-risk crime areas and feeding the cycle with more arrests ensures that police have a chance to exercise their enforcement power. When they are not exercising this power, they are idle. The best way to maintain this power is to create more instances where power needs to be wielded. Michel Foucault posits that surveillance and power uphold one another and these algorithms fuel this reciprocity even more. Regard "punitive methods not simply as consequences of legislation...but as techniques possessing their own specificity in the

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<sup>9</sup> O'Neil, C. (2016). *Weapons of math destruction: How big data increases inequality and threatens democracy*.

<sup>10</sup> Ibid.

more general field of other ways of exercising power,<sup>11</sup> and it is evident that predictive policing is not a tool for safety but a strategy to retain authority. This is why the current state of predictive policing criminalizes poverty and geographic location instead of criminals.

However, if liberty and justice are meant for all, it is clear that the reality described above calls for a remedy. The question is who bears the responsibility? There are many actors at play in this system: police departments, data scientists, private companies, the United States Justice system and individual officers themselves. The biggest challenge will be finding a solution that can both maintain systems of power and ameliorate the afflicted. Still, a natural solution would be for developers to explain how their software works in order for skewed output to be traced to one factor. One drawback to this solution, noted by Aanny and Crawford, suggests that exposed data requires more than just exposure but rather a “system ready and ‘capable of processing, digesting, and using the information’ to create change (Heald, 2006: 35–37).<sup>12</sup>”

Nevertheless, awareness is the first step, therefore some of the burden of resolution rests with developers. Letting people know the flaws in their technological design and making their revision efforts public would allow users to engage with the output more dynamically and less by rote. Furthermore, though “technology can foster discriminatory outcomes, it also...can thwart unwanted discrimination,<sup>13</sup>” so with more concerted efforts from algorithm developers, discriminatory output can be diminished before used on the public. Perhaps this looks like testing for adverse impact before distributing the technology or programming the algorithm to consider criterion such as

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<sup>11</sup> Foucault, Michel. 1975. Chapter 1 in *Discipline and Punish: The Birth of the Prison*. Vintage.

<sup>12</sup> Ananny, Mike, and Crawford, Kate. 2016. “Seeing Without Knowing: Limitations of the Transparency Ideal and its Application to Algorithmic Accountability.” *New Media & Society*.

<sup>13</sup> Sweeney, Latanya. (2013). “Discrimination in Online Ad Delivery.” *ACM Queue* 11(3): 1-19.

the number of times an area is patrolled per month in order to work against the pernicious cycle of arrests.

Additionally, the users themselves should also be held accountable. Police Departments nationwide and their forces need to be more meticulous when interpreting the output of predictive technologies since they are the promulgators of the predictions. They should consider adding a section to their training curriculum that teaches discretion when interpreting predictive algorithms' outputs. Similar to a solution proposed for technology companies, police departments can encourage individual police officers themselves to report discriminatory behavior of the technology<sup>14</sup>. Though, this would encroach upon officers' opportunities to exercise their power, it would still allow them to recognize bias in the system and create a check and balance for the force. Concordantly, those under algorithmic scrutiny can also play a role in forging a solution. For example, residents in heavily patrolled neighborhoods can send information to police about unlawful behavior they encounter in other neighborhoods. Thus, patrolling units can be more evenly dispersed and the algorithm can be populated with data from lightly patrolled areas. Regulatory structures can also be added to these efforts such as the American Civil Liberties Union. It could organize a certification program for predictive policing technologies to demonstrate that they do not threaten the liberties of protected classes. Together, these aspects can address algorithmic discrimination with precision.

Spawning from Jim Crow to the New Jim Crow then to War on Drugs, the justice system has come to algorithms. Algorithms have unexpectedly created a similar motif where zero tolerance policies, encourage the use of nuisance data, flagging poor

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<sup>14</sup> Garcia, Megan. 2017. "[How to Keep Your AI from Turning into a Racist Monster \(Links to an external site.\)Links to an external site.](#)" *Wired*. February 13, 2017.

neighborhoods as high risk and by extension minority groups. All of these associations are implicitly encoded into predictive policing technologies, like PredPol, to perpetuate existing systems of discrimination. The impact is not only adverse on poor, marginalized communities of color but also continuous because of the vicious feedback of arrests. The solution is multi-faceted combining the efforts of technological developers, police forces and residents, and regulatory bodies. This approach tackles algorithmic discrimination at each level for all actors to play a part in the solution. Still, the remedy must progress past human actors and to the ideals upon which the institutions behind them are founded. Police need to determine if they will enforce the law equally across jurisdictions or engage in efforts to preemptively prevent crime. Developers must not lean on the feigned objectivity of machines and residents must understand the implications of power built into this new wave of surveillance. Above all, it is essential that all involved recognize their part in ensuring “liberty and justice for all...”

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