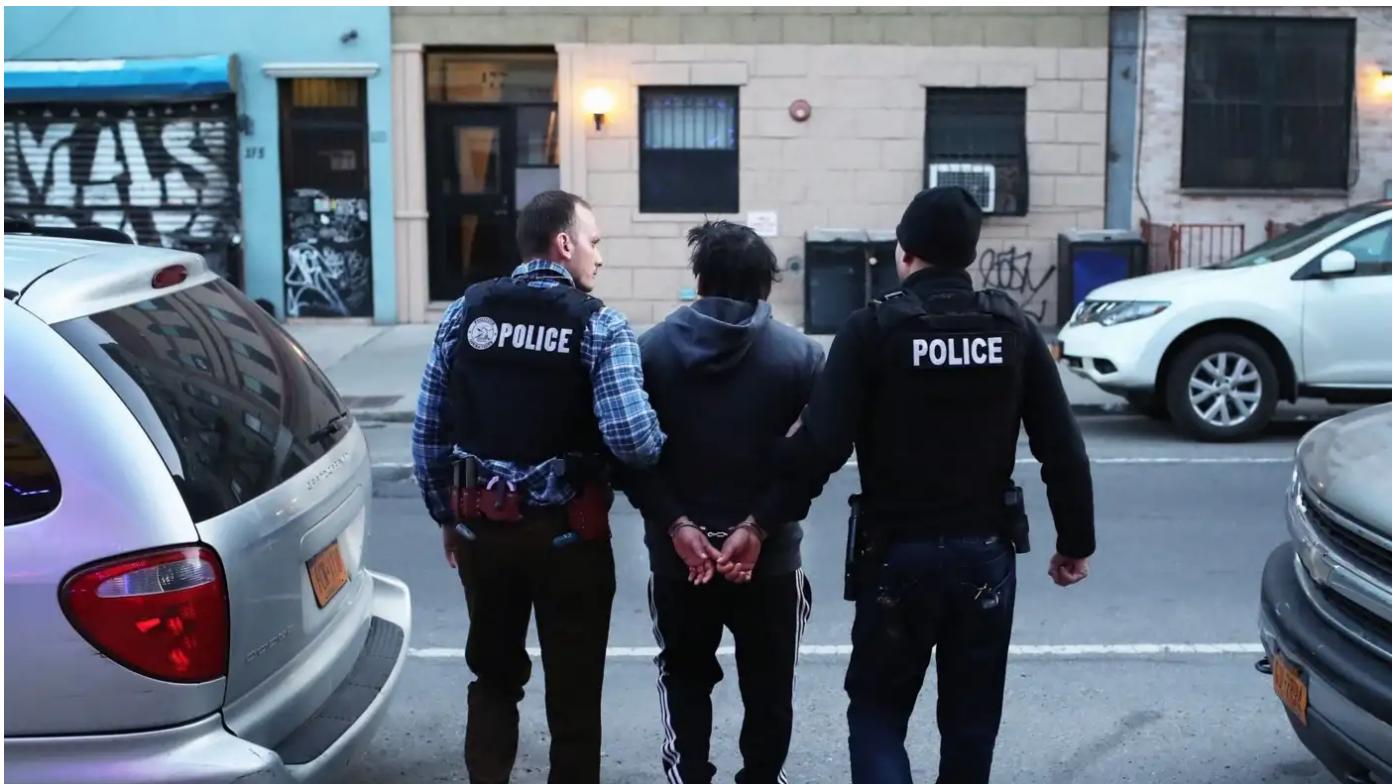


You Will Be Arrested By Data: This Is Predictive Policing



Today, humanity lives in a vast ocean of digital data. Few years prior, it was impossible to walk into a tech conference without hearing three words, “Big Data Analysis. AI. Cloud Computing.” Originally, they were dismissed by some as mere buzzwords — the latest in a long line of tech fads that would be forgotten.

Today, these so-called fads are all around us. You’ll be hard-pressed to find an organization that doesn’t use those technologies. That includes the police who’ve embraced it with open arms. Welcome to the world of predictive policing, where you can get arrested because the data said so.

Understanding the Basics of Big Data Analytics



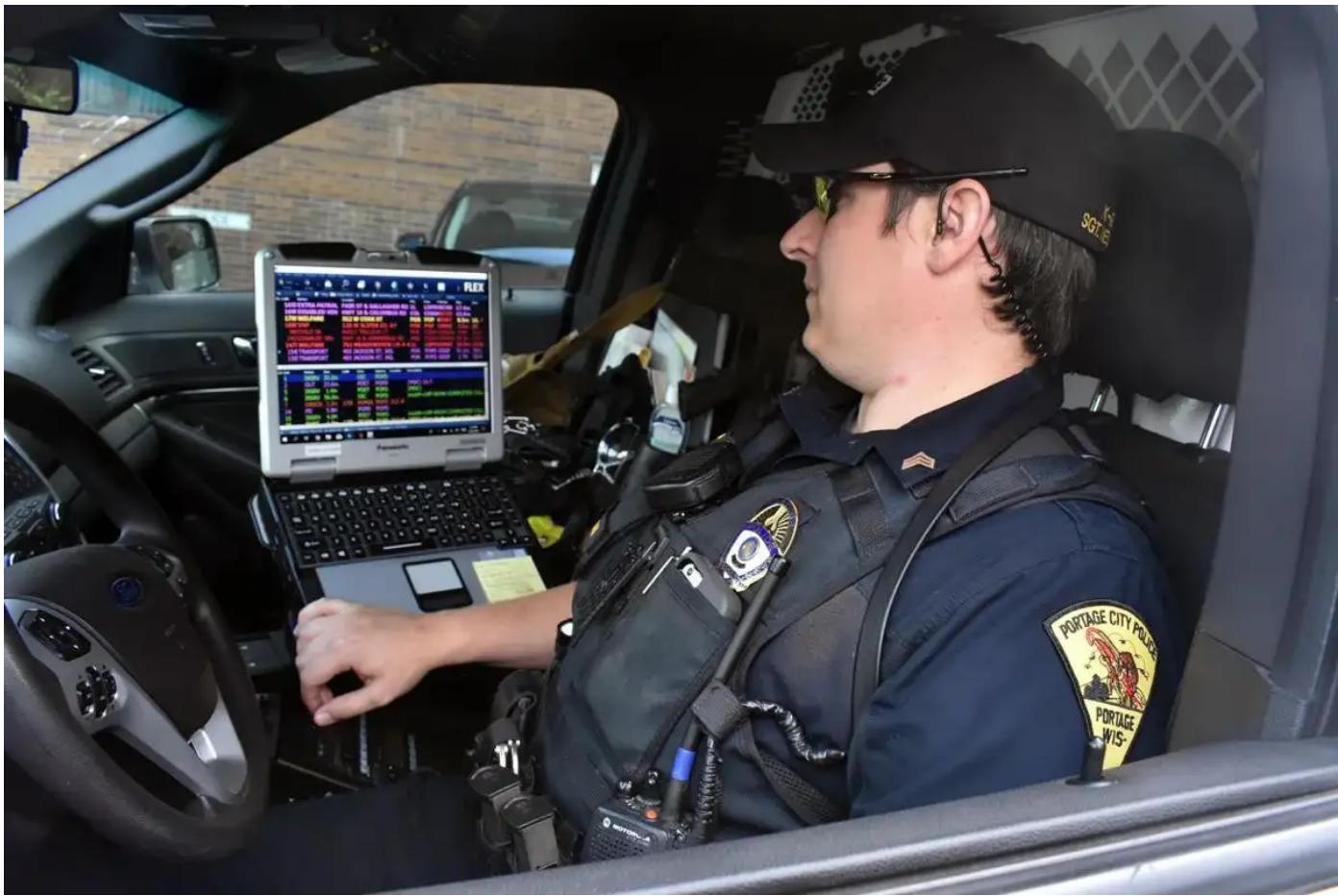
Today we live in a vast ocean of digital data. Big data analytics is the art of understanding all of this data (Image credits: Dylan Babbs)

Before diving into predictive policing, it's important to understand the technology behind it. Governments and companies have been collecting vast amounts of data about us. We didn't know it and neither did they. For decades, all this data was just sitting in databases and filing cabinets. Ignored and rotting away.

That is until Silicon Valley came knocking. The advent of cloud computing dramatically reduced the cost of processing power. With it, the doors of possibility opened. Things like AI that once existed only as research papers became commercial products. Eager to sell these new products, tech companies saw the vast piles of data and saw an opportunity.

Their sales pitch was, "Put your data in the cloud. All of it. If you have too much, we'll send a truck. Just put it there and use our AI to analyze it. You'll find things you never saw before. It'll let you do crazy things and make tons of money." Quite literally everyone bought it. That includes the police, which has increasingly relied on the use of AI in policing.

The dangers of using AI to fight crime

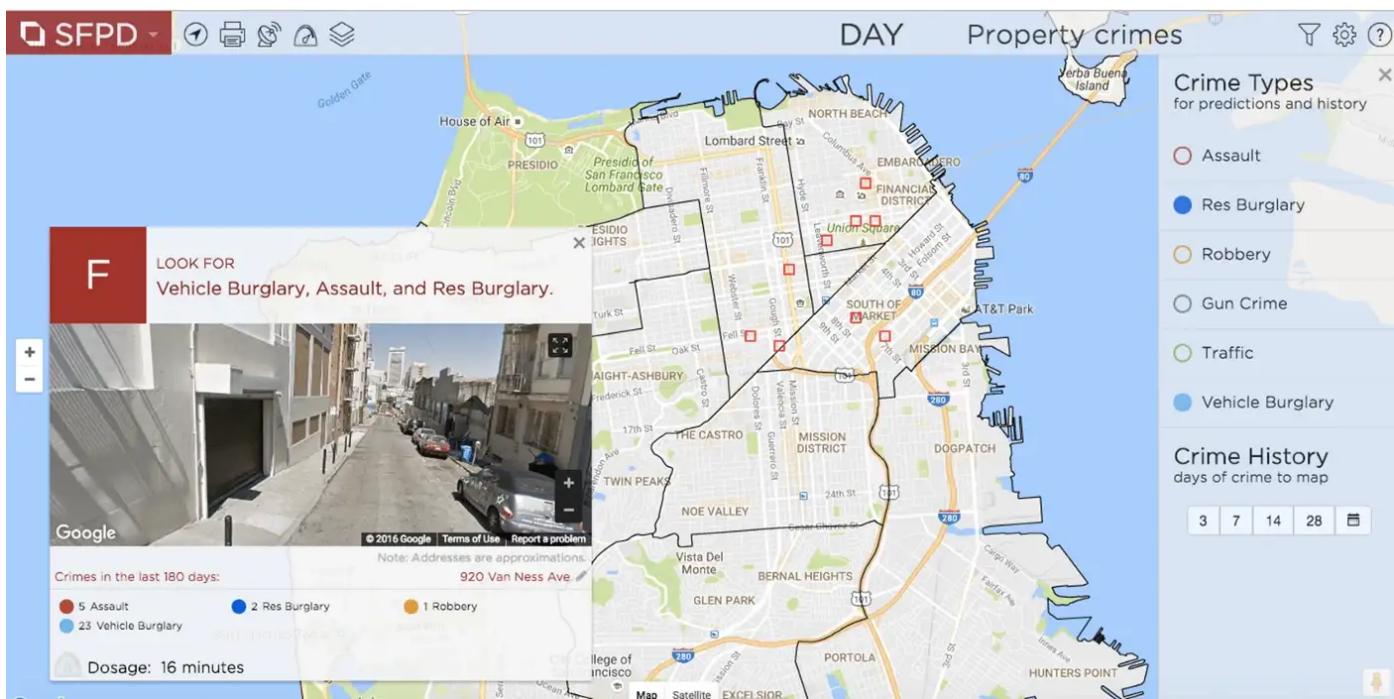


Increasingly, police departments are turning to predictive policing tools, which are pitched as solutions that can “stop crime before it starts” but this isn’t necessarily the case (Image credits: WiscNews)

By definition predictive policing uses mathematical, predictive analytics, and other analytical techniques to “stop crime before it starts.” Many of these techniques today utilize AI and other technologies to do so.

Across the US, police departments in California, Illinois, Alabama, Arizona, New York, and several other states have begun adopting this concept. Often with terrifying consequences because these are novel technologies whose implications we’re still understanding.

Biased policing algorithms



Tools like PredPol are built upon racially biased data that discriminates against minorities, which hinders their real effectiveness in battling crime (Image credits: mynewsmesa)

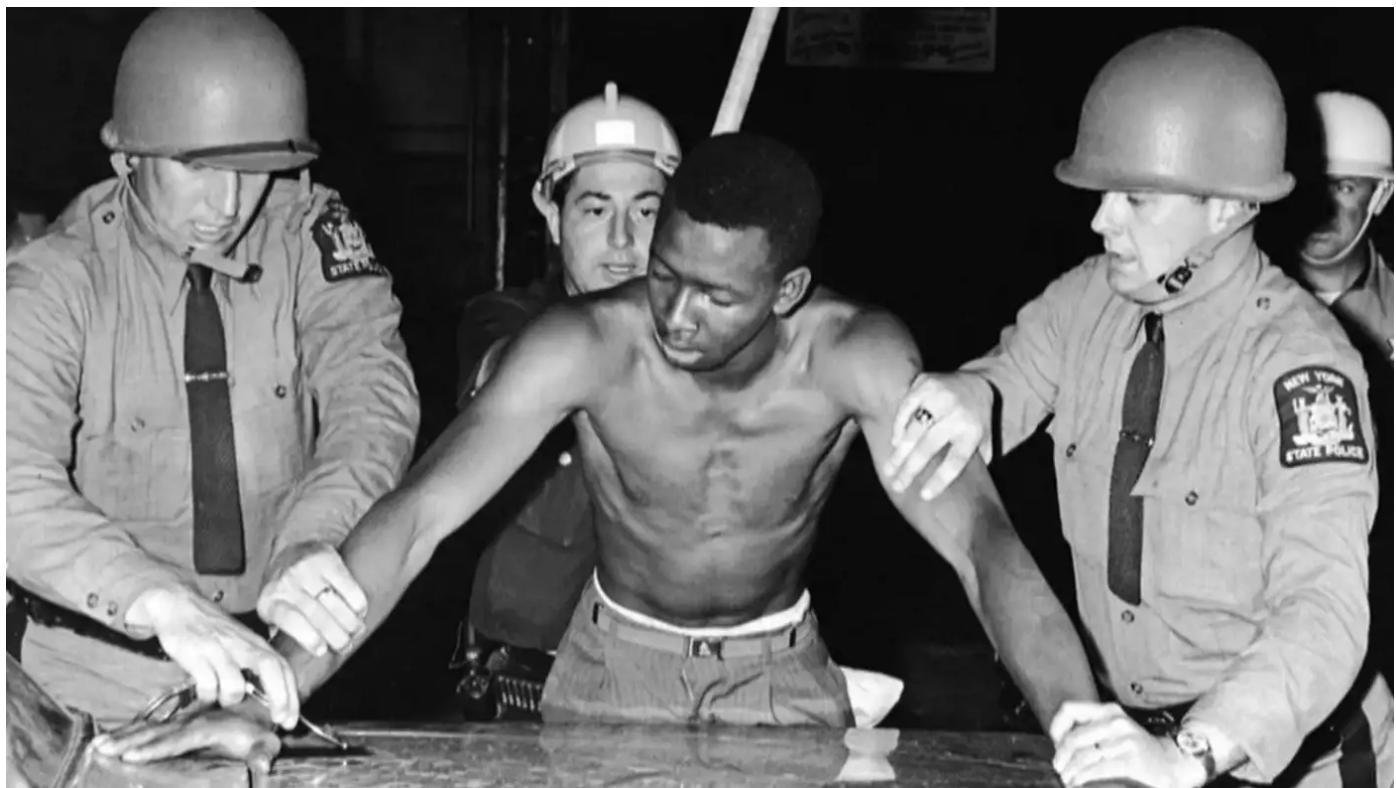
The most obvious example of predictive policing are algorithms like those by PredPol and Palantir. Such algorithms take data from a variety of sources to predict where crimes may occur. With this information, police departments allocate more officers to these locations on patrol. Sound theory but fails in practice.

These algorithms generally fall under two categories:

- **Location-based** where the algorithms look at links between places, events, and historical crime data. Based on this, they predict locations where and when crimes are more likely to happen. One example of such an algorithm is *Predpol*, which divides cities into uniform blocks and offers predictions regularly.
- **Person-based** where the algorithms evaluate whether individuals are likely to be involved in a crime. This is done by combing through their personal information such as their age, gender, marital status, history of substance abuse, criminal record, etc. A tool called *COMPAS* serves as an example, where it's used by several jurisdictions to decide if an individual is eligible for bail or not.

You'll find most police departments using both types of algorithms. The justification for their use is reduced funding and the belief that they're more objective than humans. But the bitter truth is they aren't.

Flawed data means minorities are suffering



Police in the US has a long history of abusing their power against minorities. It continues to live on in many forms including arrest records, which are used to train predictive policing tools (Image credits: BBC)

Historically, police departments across the US have a history of abusing their power against Black Americans and other minorities. This racism still exists in many forms including arrest records. These records would be the data used to train predictive tools. As such, policing algorithms are now exacerbating systemic racism.

In some cities like Chicago, these predictive policing tools generate *Most Wanted* lists for involvement in gang activity. Armed with these lists, officers would go door to door, warning residents they've been flagged, and advise them to be careful. But afterwards, when the police take action, it'll result in unfair arrests or the death of innocents like in the case of Breonna Taylor.

All of this results in a dangerous feedback loop. Biased data means police arrest more people in black and other minority neighbourhoods. In turn, the algorithms deem the neighbourhoods to be high-risk. More policing means more unfair arrests. As a result, minority neighbourhoods are designated crime hotspots while others are under-policed. Yet, this is only the beginning.

An unjust courtroom built on noble intentions

If anyone on a *Most Wanted* list does get arrested, be it big or small, prosecutors will seize on this fact. Using the fact they were flagged on these lists as leverage, they push for higher charges. This is the beginning of an unjust trial for many minorities when arrested.

The second area where minorities are unfairly disadvantaged is when being granted bail. For the unfamiliar, in the US, there's a system of cash bail where anyone arrested pays the court a fixed amount of money. This money held as collateral to ensure they show up for their trial and is returned if proven innocent.

It sounds simple in theory. However, the median amount for bail in the US is \$10,000. Much higher than what most Americans can afford and often this burden falls on low-income women like mothers, grandmothers, sisters, and other close relatives. Further, 69% of America's pre-trial population in this situation are people of colour.

The system of cash bail is why at any given time, you'll find that half a million Americans are sitting in jail because they couldn't pay bail.

It's for this reason, courts across the US are adopting algorithms to conduct risk assessments. The algorithms used to create these risk assessments analyze how likely a defendant is to commit a crime if they were to be released on bail. Often, they will utilize the same datasets utilized by predictive policing tools.

You can now likely start to see where the problem is. These risk assessment algorithms unfairly give higher scores for defendants of colour vs white defendants for the same crime. An example of this is the case of James Rivelli, a white male that was arrested for shoplifting.



Risk assessment algorithms unfairly favor white defendants over black defendants (Source: ProPublica)

Despite an extensive criminal record that included 5 years in a Massachusetts state prison, **James Rivelli's risk assessment score was only 3/10.** In sharp contrast, **Robert Cannon, a black male arrested for the same crime received a**

risk assessment score of 6/10. James would go on to shoplift \$1,000 worth of tools from Home Depot to fuel his then drug addiction, from which he is now sober.

Thankfully, these risk assessments aren't absolute. Rather, they're merely a tool that judges can utilize to make a fairer decision when granting bail. Despite the noble intentions of their proponents, these assessments have only replaced one problem with another. As Dr. Inga Strumke points out, fixing this will require solving one of the greatest ethical dilemma's facing AI today.

Technology isn't inherently evil



(Image credits: Ordermentum)

Much like how kitchen knives can be used to either cook or stab someone, technologies like AI and Big Data analysis aren't evil by design. Hence, while being aware of the dangers of predictive policing, it helps to explore how such technologies are being used for good across industries.

For example, farmers use AI and big data analytics in numerous ways. They help farmers analyze weather, temperature, water usage or soil conditions to make better decisions about their harvests. AI has also brought about a practice called precision agriculture. It involves

technology being used to actively combat diseases, weeds, pests, and poor nutrition of plants to improve harvests.



(Image credits: Operation Smile, Zute Lightfoot)

A novel one is [Microsoft's partnership](#) with [the non-profit Operation Smile](#). Since its founding in 1982, the non-profit has helped children suffering from cleft conditions get the treatment they needed. Utilizing the Power BI data analytics platform and AI-powered Microsoft Pix camera app, Operation Smile can help more children receive the medical care they need.

The biggest ethical dilemma in AI today

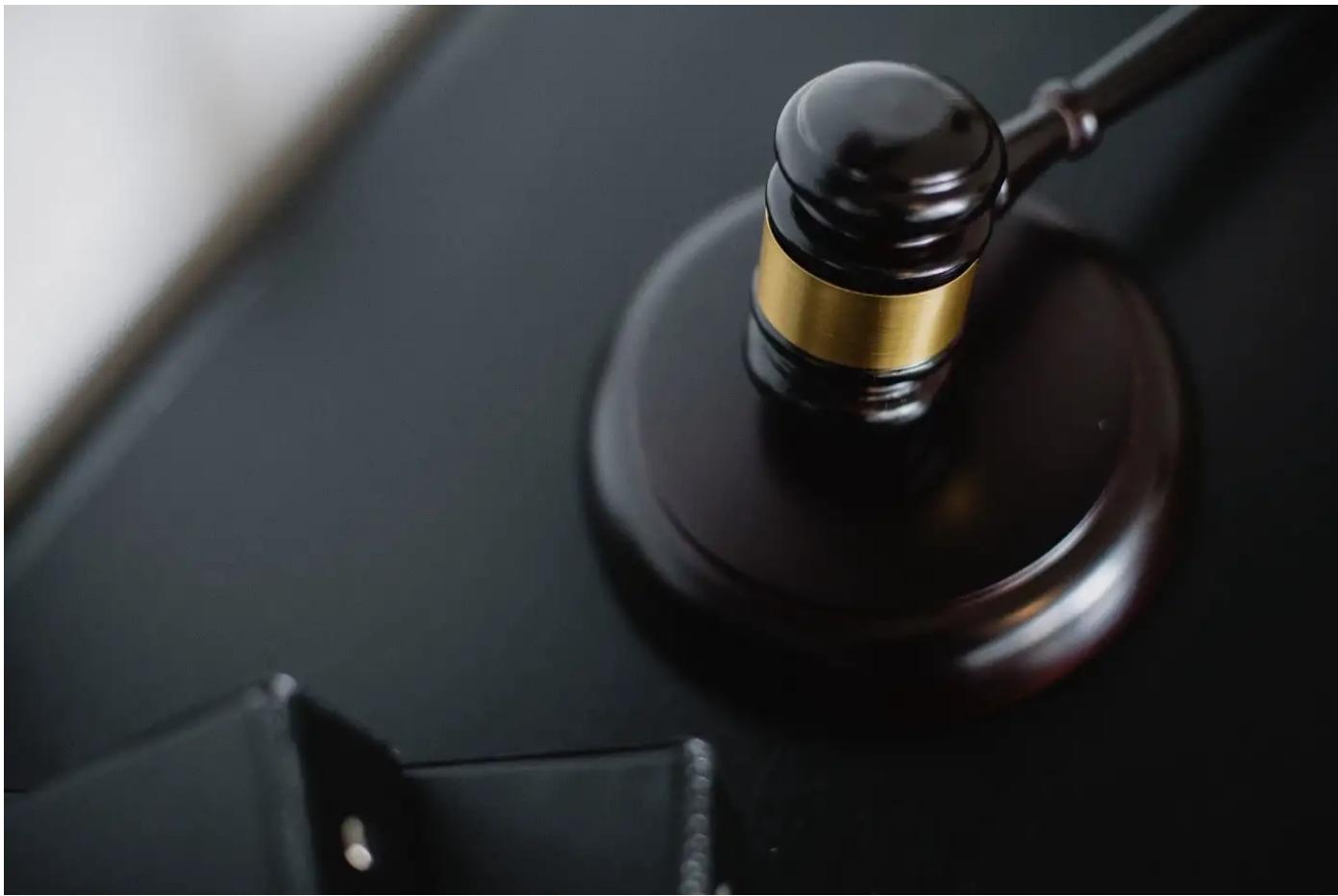
Contrary to the fantasies of Silicon Valley, technology on its own can't magically fix everything. Yes, artificial intelligence and other technologies can do great good as we just saw. But the disruptive nature of these technologies is a double-edged sword.



In a world where police officers increasingly are equipped like soldiers with deadly weapons, Silicon Valley's philosophy of breaking things will result in dead bodies if its not careful (Image credits: The Intercept)

In realms like policing, where there is zero room for error, the *move fast and break things* philosophy has dangerous consequences. Even if they were built with noble intentions, the unhindered use of policing algorithms is harming minorities.

For this reason, some cities in the US have chosen to actively boycott these tools. However, this is the exception rather than the norm. Even then, it doesn't necessarily address the root cause, like in Chicago where predictive policing was replaced with a database to police gangs that had many of the same problems.



The use of AI in policing and justice is one of the greatest ethical dilemmas it faces today. Can it overcome this hurdle? Only time will tell (Image credits: Sora Shimazaki)

Originally, predictive policing was meant to bring about a fairer world of justice. As it stands, there is no quick technical fix to address the issue of biased data that exists to train these systems. But if we fix this issue then could we bring about the promised world of justice? Perhaps.

Yet, the definition of *fairness* itself has varied greatly over the year. If you were to travel 50 years back to the 1970s, a lower risk assessment score for a white defendant compared to a black defendant accused of the same crime would've been completely fair.

So can these AI systems adapt to the changing definition of fairness agreed upon by society? Or are we doomed to trust human beings to deliver justice when they are prey to their own biases? Only time will tell if AI will be able to surmount this great ethical dilemma, or if the companies using AI in this realm choose to simply ignore it.