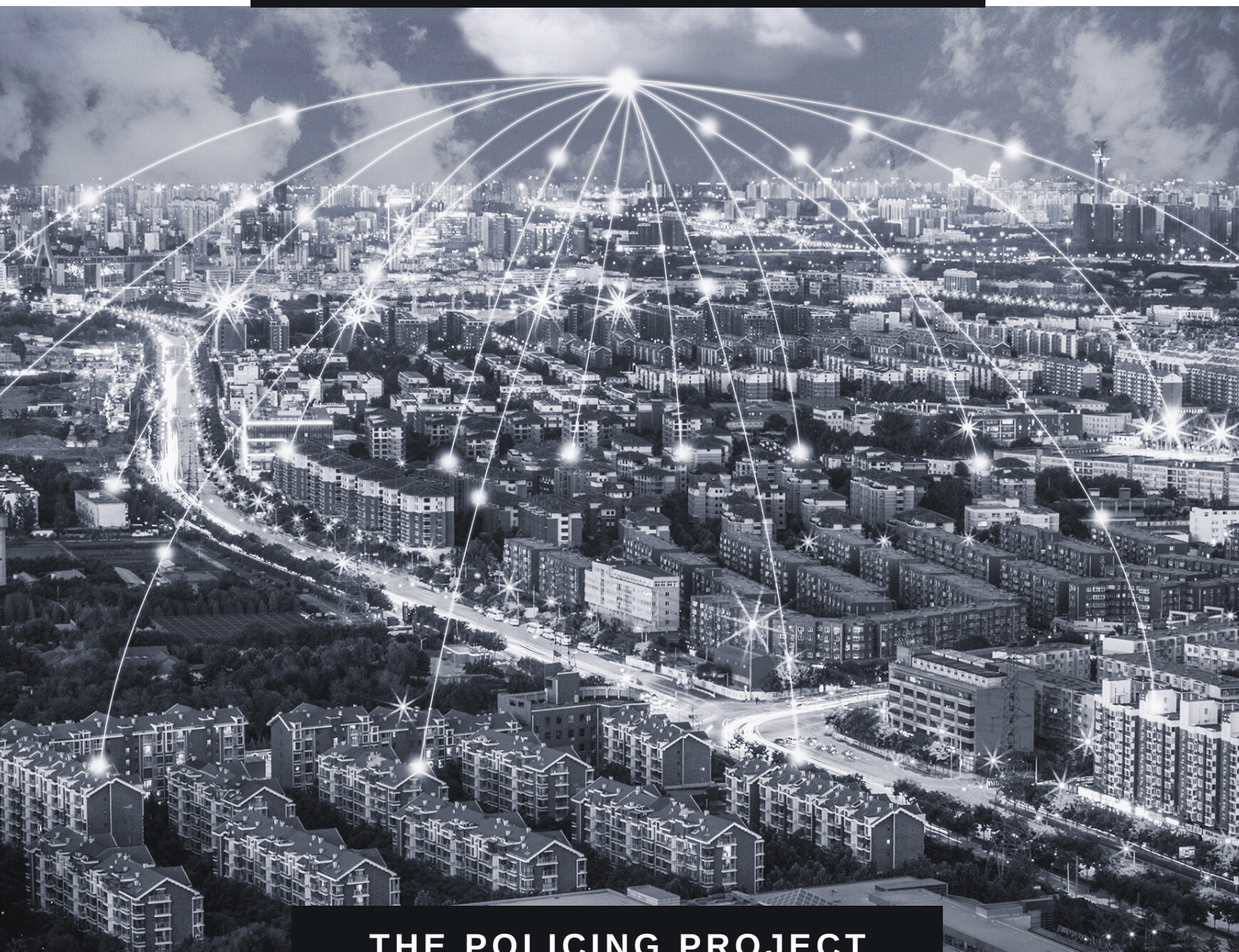# CONVERSATIONS ON POLICING TECH:

CRIME FORECASTING AND PREDICTIVE POLICING

2020-2021 SALON SERIES

THE POLICING PROJECT

About the Policing Project Salon Series

As part of our ongoing work to help promote the ethical use of policing technology, the Policing Project is hosting a series of closed-door salons to work through some of the most difficult questions we face. Made possible through support from Microsoft, the salons enable us to vet our projects and discuss pressing issues around law enforcement's use of technologies with a diverse set of experts, including privacy advocates, technology vendors, police chiefs, academics, legal experts, community leaders, and government officials.

About the Policing Project

We partner with communities and police to promote public safety through transparency, equity and democratic engagement.

Our work focuses on front-end, or democratic, accountability — meaning the public has a voice in setting transparent, ethical, and effective policing policies and practices before the police or government act. The goal is to achieve public safety in a manner that is equitable, non-discriminatory, and respectful of public values.

For more information, visit **www.PolicingProject.org**

The report was written by Policing Project Staff Attorney Katie Kinsey and Student Fellow David Wechsler.

Event Description and Review

Predictive algorithms have become ubiquitous across the healthcare, education and transportation sectors, but their uptake for crime forecasting in law enforcement contexts has received particular (and justifiable) scrutiny. Despite this focus, fundamental questions about the efficacy and potential bias of predictive algorithms used to allocate police patrol resources continue to be debated. Some argue that, compared to analog human crime forecasting, modern, AI machine learning algorithms create unprecedented efficiencies and enable objectivity in allocating patrol. Others counter that the public safety benefits are minimal and objectivity an illusion as these algorithms merely entrench the biases inherent in our criminal justice and policing systems.

As part of our tech salon series, the Policing Project invited academics, advocates, law enforcement and government officials, and industry representatives to further explore key issues animating the debate about predictive algorithms used for crime forecasting.[1] Led by **Policing Project Executive Director Farhang Heydari**, the salon asked participants to consider three lines of inquiry:

(1) The relative advantages and disadvantages of using machine learning algorithms for crime forecasting as compared to analog methods;

(2) How to assess and address the role that race inevitably plays in the data that informs these algorithms' predictions; and

(3) Whether there are particular actors or types of interventions that could make use of these algorithms' predictive outputs in ways that actually reduce harm and promote public safety.

Discussion Overview

Consensus emerged around a basic premise: the data used to inform predictive algorithms is imperfect. Many participants expressed concern with data derived from discovered crime—i.e., crimes that are observed and reported by police on patrol—given its correlation with race. Still, these deficiencies did not dissuade some supporters of predictive algorithms from arguing that decisions informed by data at least are better than human intuition. Others

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[1] The salon focused exclusively on issues with place-based predictive policing and did not address the use of predictive algorithms to identify individuals or groups.

disputed this contention, explaining that the algorithms just automate beat officers' decision-making. In the words of one participant, machine learning algorithms can find patterns in data—they can't fix problems of structural racism that are inherent in that data.

Several participants worried that the focus on inputs might distract from meaningful discussions about impact. For example, even if "good" data were inputted into the system, there still is a risk of disparate impact in vulnerable communities. A better solution—and one that also is made easier by technology—would be to think about the impacts we want to avoid, why we want to avoid them, and how to adjust allocation policies to make improvements.

In addition to issues with the data inputs, participants raised the problems of both over and under-reliance on algorithmic output. In the under-reliance camp, several government officials and law enforcement representatives explained that, in their experience, getting officer buy-in to actually use and understand these tools was a major hurdle to implementation. By contrast, academic researchers expressed serious concerns with human deference to machines, commonly referred to as automation bias.

Public trust also was discussed as a relative disadvantage of predictive policing algorithms. Even participants agnostic about the use of predictive policing felt that any benefits it may provide over traditional hotspot mapping are offset by both its expense and the public backlash it attracts. Many agreed that lack of public trust, owing in large part to the public's awareness of racial issues with the input data, is a major barrier to community buy-in for this technology.

Turning to the relative advantages of algorithmic models, law enforcement officers expressed optimism about greater crime-fighting benefits of predictive algorithms as compared to analog methods. Given that crime tends to occur in clusters, they viewed these algorithms as providing an efficient way to identify clusters and deploy their limited resources where the need is greatest. Proponents of predictive policing further argued that it could enable transparency in police decision-making. They reasoned that it is easier to identify, track, and audit the inputs of machine decisions than human intuition. And access to information about the factors that influence this decision-making information could help supervising officers better evaluate patrol plans and increase public trust in these systems. Although data transparency may be a byproduct of these systems rather than the primary goal, participants were excited about the potential of peaking behind the curtain of data-driven solutions to hold government actors accountable.

Next, participants considered whether predictive policing could be designed to reduce racial disparities in deployment by using different data. In general, there was agreement that no matter what inputs are used, race will show up in the data because it is baked into every facet of our society. Accepting the premise that any historical dataset will correlate with race in some way, multiple participants considered whether community survey data may be a more equitable source of input data. Although community survey data isn't unbound from race, it at least could inject a measure of community input into patrol allocation. Increased public trust could even result from using survey data if the community feels that their voices are being heard.

Finally, participants moved away from evaluating the predictive algorithms themselves to consider questions about the appropriate interventions (or intervenors) used in response. One law enforcement representative posited that predictive algorithms could add significant value to patrol deployment, but only if police use the information they provide as part of a mission to reduce harm rather than simply make arrests. With harm reduction as the operating principle, an agency could use the predictive algorithm's information that a neighborhood is at high-risk for violent crime to determine where to focus community outreach efforts or direct community programming solutions. One law enforcement officer agreed that how police may use the algorithms' output (i.e., to facilitate arrests and surveil vulnerable communities) and not the output itself, is the bigger issue with predictive policing. The same officer concluded the session by sharing that his department saw significant crime reduction by re-defining the metrics of success for officers on patrol; instead of the number of arrests or tickets, success was determined by implementation of more general safety measures. To enable these harm reduction efforts, participants agreed that predictive algorithms would need to incorporate diverse sources of data such as employment, education, income, and environmental data. Although many participants supported the idea of using the algorithms' outputs for harm reduction—rather than carceral—interventions, they raised significant doubts about whether law enforcement were capable of (or should be charged with) carrying out such a mission. Rather, social work or grassroots community organizations were suggested as more appropriate alternative responders.

The discussion ended without clear answers to many of the challenging questions presented. One conclusion was clear, however: close scrutiny of the data inputs and a commitment to using the outputs to reduce harm are essential to any effort to use these tools to promote public safety.

LIST OF ATTENDEES

Matthew Barter, *Sergeant*, Manchester Police Department

Emily Black*, Doctoral Research Assistant*, Computer Science Department, Carnegie Mellon University

Ralph Clark, *President and CEO*, ShotSpotter

Andrew Ferguson, *Professor of Law*, American University Washington College of Law

Dylan Fitzpatrick, *Data Science and Applied AI Postdoctoral Scholar*, University of Chicago

Barry Friedman, *Faculty Director*, Policing Project; *Jacob D. Fuchsberg Professor of Law and Affiliated Professor of Politics*, NYU School of Law

Sue Glueck, *Senior Director of Academic Relations*, Microsoft

Jeremy Heffner, *Manager*, Data Science, CentralSquare

Farhang Heydari, *Executive Director*, Policing Project, NYU School of Law

John Hollywood, *Senior Operations Researcher and Policing Market Manager*, RAND Corporation

Annie Hudson-Price, *Senior Staff Attorney*, Policing Project, NYU School of Law

Sabih Khan, *Industry Leader - Strategy and GTM*, Public Safety and Justice, Salesforce; former *Deputy Chief*, Strategic Initiatives Division, Chicago Police Department

Katie Kinsey, *Staff Attorney*, Policing Project, NYU School of Law

Daniel Krashen, *Professor of Mathematics*, Rutgers University

Jens Ludwig, *Edwin A. and Betty L. Bergman Distinguished Service Professor*; *Director*, Crime Lab; *Co-director*, Education Lab, University of Chicago

Kristian Lum, *Assistant Research Professor*, Computer & Information Science, University of Pennsylvania; former *Lead Statistician*, Human Rights Data Analysis Group

Cameron McLay, *Senior Director*, CompStat for Justice, Center for Policing Equity; former *Chief*, Pittsburgh Police Department

Camelia Naguib, *Assistant Inspector General*, Audit Section, Office of the Inspector General, Los Angeles

Jerry Ratcliffe, *Professor*, Criminal Justice, Temple University; *former officer*, Metropolitan Police, London

Danyelle Solomon, *Director*, Justice Reform and Racial Equity Policy, Microsoft

Vincent Southerland, *Executive Director*, Center on Race, Inequality, and the Law; *Assistant Professor of Clinical Law*, NYU School of Law

Rosamunde van Brakel, *Research Professor*, Law, Science, Technology & Society Research Group, Vrije Universiteit Brussel

Daniel Wagner, *Deputy Superintendent*, Cambridge Police Department

Morgan Williams, *Postdoctoral Fellow*, NYU Wagner School of Public Service