The Real-World Minority Report:

Predictive Policing in Pittsburgh

What would you do if you were accused of a murder you had not committed

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A STEVEN SPIELBERG FILM

MINORITY REPORT

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Criminalization: roots in racist history

1600s: Legal slavery in the United States



Source: America's Black Holocaust Museum

1700s: Slave patrols, Night Watches, Indian Constables

1713: Lantern laws: early "use of technology" to monitor and control black and brown bodies

1914: Jim Crow laws

1934: Redlining - creation of the Federal Housing Administration with explicit segregationist policies

1970s - 1980s: War on Drugs

2006: Introduction of predictive policing by UCLA military researchers comparing Muslim insurgents with Latinx youth

Predictive Policing: The Real World Minority Report



Collect large amounts of data on past crime



'Minority Report' Is Real — And It's Really

Reporting Minorities

By Jack Smith IV Nov 9, 2015

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MEASUREMENT ERROR IN CALLS-FOR-SERVICE AS AN INDICATOR OF CRIME*

DAVID A. KLINGER University of Houston

GEORGE S. BRIDGES University of Washington

997

Simple indicators of crime by time of day

Marcus Felson^{*}, Erika Poulsen

School of Criminology, Rutgers University, 123 Washington Street, Newark, NJ 07102. USA

U.S. Department of Justice Bureau of Justice Statistics



Indicators of crime and criminal justice: Quantitative studies



1984

1987

2003

Indicators of

School Crime

and Safety: 2004

Ambient Temperature and Violent Crime: Tests of the Linear and Curvilinear Hypotheses

David P. Farrington

Crime Rates

Craig A. Anderson Rice University Dona C. Anderson Houston Veterans Administration Medical Center

Predicting Individual

National Center for Education Statistics

BJS Bureau of Justice Statistics

A Continuation: Broken Windows Policing

- **1969:** Philip Zimbardo's social science experiment on vandalism
- **1982:** George L. Kelling and James Q. Wilson *Atlantic* piece introducing *broken windows*

1993: Giuliani wins NYC Mayoral race, implements "stop and frisk"



Effects of Broken Windows

Does not account for drop in crime: crime dropped nationwide

Instead:

- Increased police misconduct
- Tripled misdemeanor arrests
- Disproportionate effects on POC
 - 87% of stop-and-frisks Black/Latino
 - 90% are innocent







Predictive Policing: Old thinking, New technology

The Old

Search for patterns in past crime to predict future crime (e.g. broken windows)

The New

Scale: More data \rightarrow More types of data \rightarrow More people and places affected "Appearance" of objectivity

Why we are holding this workshop

Predictive policing is being run **without public input** since 2017

We believe that this technology will be a **continuation of the city's and country's racist policing legacy**

Predictive policing is here in Pittsburgh



How did Predictive Policing Come to Pittsburgh?

2009: Prof. Daniel B. Neill develops CrimeScan, a predictive policing model, for Chicago Police





2014: Pittsburgh Police Chief Cameron McLay Saw predictive policing as an "unbiased" form of policing



2016: Partnership between Metro21, PBP, funded by Richard King Mellon Foundation

Richard King Mellon Foundation

Oct 2016: Homewood becomes the pilot area for Pittsburgh CrimeScan, trial expands to city in 2017



Broken Windows Continues

NWOT9MUT

infestations. It is well established that signals of urban disorder (e.g., "broken windows") can lead to or attract criminal behavior that hardens over time. Therefore the two areas proposed for further funding are intertwined; for example, 311 calls for abandoned, run-down buildings and properties are not only targets for clean-up but also likely leading indicators of crime. All told, the proposed work would

Making a broken windows algorithm

WILL A CRIME OCCUR HERE?



Making a broken windows algorithm: how it works



Machine learning finds **patterns in the past** in order to make **predictions about the future**

History as data

Boston: Household Net Worth (2015)

\$247,500



Source: Federal Reserve Bank of Boston

1934: Redlining - creation of the Federal Housing Administration with explicit segregationist policies

• Produced the Race-Wealth Gap

1970s-1980s: War on Drugs

- Mandatory minimums
- Drastic increases in race-based arrests

1993: Broken Windows Policing

• Increased arrests for petty crimes

Making a broken windows algorithm



More data, more information



How Predictive Policing Works In Pittsburgh



Pittsburgh Metro21 model collects 911 calls & past crime data



Find patterns in data: geographic & temporal

Predictive policing doesn't even work!

THIRD PARTY REPORTS



No difference in likelihood of shootings between individuals on/off list

> Higher rates of arrest on list

OTHER REPORTS: BY THE CREATORS OF PREDPOL





Predictive policing is *fundamentally* flawed



Machine learning does not **predict the future**, it **replicates the past**

• ML algorithms are tied to their data, and the data is steeped in our racist legacy

Tells cops **exactly what they want to hear: for profit**

• The more seasoned an officer, the more likely they agree with the algorithm

Veil of objectivity on same old policing practices

Pittsburgh Predictive Policing: Flawed Deployment



No community stakeholders are informed or involved, only city institutions



Model design and inputs are **not public record** so cannot be reviewed or audited



Pittsburgh's history of **racially biased arrest records** are reflected in the data **used to train the model behavior**



No standard operating procedures exist for how the police are to use the information generated by the model

Community was never involved



The project's oversight committee—composed of PBP, CMU, and DHS members-will meet monthly in person or via phone conference. Agenda items need to be generated by both PBP and CMU in advance.

Risks:

A risk is that a partnership does not develop between PBP and CMU as outlined above, but instead CMU researchers and the project are viewed as external and barriers to internal operations of PBP.

A second risk is that predictive policing will not prevent crimes in Pittsburgh for any number of reasons. Past CMU research has shown that predictive modeling is accurate enough to support crime prevention in Pittsburgh, so the remaining issues are dosage level (getting it high enough) and type of crime prevention measures taken by field officers (available time is spent appropriately in patrol and COP activities as determined by field officers). These risks are largely minimized by starting with a pilot study in one zone and conducting experiments.

A third risk is that field officers will not carry out prevention work (e.g., intense targeted patrol, problem-solving in partnership with residents), but only respond to 911 calls with a focus on arrest as is usual.

From the project's grant request to the Richard King Mellon Foundation via the RTKR

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No Transparency

1.

All hot spot documents, particularly the locations of the hot spots identified per police zone per week, used in weekly roll call meetings since Jan 1, 2015. Locations should be provided as granularly as possible, with the date associated with each location's identification as a hot spot.

4. A current screenshot of the hot spot dashboard provided to officers through the computers in their vehicle

As per Item C-1, providing Hot Spot locations would jeopardize the safety of officers and the effectiveness of crime prevention patrols. These records are exempt under RTKL. 65 P.S. §§67.708(b)(1)(ii); (b)(2).

RESPONSE

REQUEST

As per Item C-4, the "hot spot dashboard" available to the Pittsburgh Bureau of Police would jeopardize the safety of officers and the effectiveness of crime prevention patrols. These records are exempt under RTKL. 65 P.S. §§67.708(b)(1)(ii); (b)(2). There is, however a public dashboard which provides crime information on the City's webpage: Burgh's Eye View and check the Police Blotter option.

REQUEST

3. Ai

Any code or technical implementations of the Model

RESPONSE

As per Item C-3, as CMU developed the code, it is not the City's to give. Records involving trade secrets and confidential proprietary information are exempt under RTKL. 65 P.S. §67.708(b)(11).

Predictive policing programs across the country are secretive



Difficult to audit: Erases predictions or log who creates / accesses them

Legal dispute: 2-year-long legal battle between NYPD and Brennan Center for Justice to keep from disclosing information

NEW ORLEANS

Implementation kept secret: "key city council members" unaware of the program for 6 years until accidental statement by Mayor Landrieu after program lapse

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What's in the Data? Race Disparities in Arrests

Machine learning models learn patterns from data



Proportion of Property Crime Offenders Nationally



Proportion of Property Crime Arrests by rate in Pittsburgh



*University of Pittsburgh Pittsburgh's Racial Demographics 2015: Differences and Disparities

What's in the Data? Race Disparities in Arrests

Machine learning models learn patterns from data

Proportion of Black Violent Crime Offenders Nationally Proportion of Black Violent Crime Arrests in Pittsburgh Black populutation in Plttsburgh



*Bureau of Justice Statistics, 2018

*University of Pittsburgh Pittsburgh's Racial Demographics 2015: Differences and Disparities Source: Statistical Atals, Race and Ethnicity in Pittsburgh, PA

What's in the Data: Other Cities

NEW YORK

Model **used stop-and-frisk data** that may not have lead to arrests or convictions

NYPD requested access to **demographic data to predict crime**, such as: Median income, household language, people in the area receiving food stamps or other public assistance income, school enrollment and educational attainment

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50% of black men in Chicago age 20-29 are on Strategic Subject List (SSL) a.k.a. "Gang Database"

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No Standard Operating Procedures



RESPONSE

2.

Use policies and standard operating procedures for the Model

As per Item C-2, a policy does not exist.

No Standard Operating Procedures

Lack of standard operating procedures gives police free reign

CHICAGO

"Gang Database" (Strategic Subject List) "intended" to connect potential victims/perpetrators with social services, instead is used to target for arrest:

• 26 people on the SSL list referred to social services, 280 were arrested (2017)

LOS ANGELES

Crime Analysts Chose Hotspots around Skid Row: Hot spots chosen subjectively by journalists

Project Laser: Citizens arbitrarily added to list with no prior arrests, based on "referrals" from detectives or patrol officers

The Logic and Progression of Predictive Policing



Solidarity Against Predictive Policing



How Pittsburgh is Fighting Back

Sign the petition to ban predictive policing:

Link: tiny.cc/nopredpol

Petition / mailing list: nopredpolpgh@lists.riseup.net