
BIOGRAPHICAL SKETCH

NAME: Sarah Brayne

eRA COMMONS USER NAME: sb49337

POSITION TITLE: Assistant Professor, Department of Sociology

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	Completion Date MM/YYYY	FIELD OF STUDY
University of British Columbia, Vancouver, BC	BA	05/2008	Sociology
Princeton University, Princeton, NJ	MA	10/2012	Sociology
Princeton University, Princeton, NJ	PhD	09/2015	Sociology
Microsoft Research, Cambridge, MA	Postdoc	2015-2016	Social Media Collective

A. Personal Statement

As a sociologist, I conduct mixed methods research on how the use of big data reduces or reinforces inequalities over the life course. Specifically, I use qualitative and quantitative methods to examine the use of big data in the criminal justice system. The criminal justice system is an important institution implicated in the production of family, educational, labor market, and racial/ethnic inequality in the United States. As contact with the police is the key feeder mechanism into the criminal justice system, I focus my research primarily on law enforcement's use of big data, but also conduct research on the use of predictive algorithms in the courts. My research has received external support from the Social Sciences and Humanities Research Council of Canada and the Horowitz Foundation for Social Policy. By focusing on sociodemographic inequalities, my research fits within two of the PRC's research areas: Family Demography and Intergenerational Relationships and Education, Work, and Inequality.

In the next five years, I intend to continue working on the relationship between the use of big data for organizational decision-making practices and and inequalities along familial, racial/ethnic, and socioeconomic lines. After publishing my work on police use of big data, I intend to broaden the scope of institutions I am examining to include medical care and/or immigration. To this end, I have conducted a pilot study of the use of big data and predictive algorithms in an Emergency Room, focusing on how data-driven medical and criminal justice surveillance impacts individuals' access to health care. I am excited to be on the front lines of researching how big data is used within a range of organizations, and what the social consequences of the use of such data are for social inequality and population health.

As a new faculty member, I intend to participate in PRC working groups, the proposal boot camp for early career investigators, and grant workshops. The PRC infrastructure supports, influences, and promotes my research in various invaluable ways. In particular, my research on big data and predictive analytics fits squarely within the Science & Technical Core and will foster my expected research contributions to how predictive analytic affects organizational practices and individual outcomes in criminal justice and health fields.

B. Positions and Honors**Positions and Employment**

2006-2009 Teaching Assistant, Department of Sociology, University of British Columbia
2010-2011 Assistant Instructor, Department of Sociology, Princeton University,
2015-2016 Postdoctoral Researcher, Microsoft Research New England
2016- Assistant Professor, Department of Sociology, The University of Texas at Austin

Other Experience and Professional Memberships

2008-09 Volunteer, WISH Women's Shelter and Drop-In Centre, Vancouver, BC
2012-15 Volunteer Instructor in New Jersey State Prisons
2012-15 Graduate Associate, Program in Law and Public Affairs, Princeton, NJ
2013 Conference Co-Organizer, "Inside/Outside: Incarceration and Communication," Princeton University, Princeton, NJ

2013-15	Graduate Affiliate, Center for Information Technology Policy (CITP), Princeton, NJ
2014	Rapporteur, "Data & Civil Rights: Why "Big Data" is a Civil Rights Issue," Washington, DC
2015	Sociology of Law Book Award Committee, American Sociological Association
2015	Moderator, "Data & Civil Rights: Predictive Policing," Washington, DC
2016	Rapporteur, "AI Now: The Social and Economic Implications of Artificial Intelligence Technologies in the Near-Term," The White House and NYU Information Law Institute, New York, NY
Present	Member of the American Sociological Association (ASA), Law and Society Association (LSA), Population Association of America (PAA), American Society of Criminology (ASC).
Ongoing	Ad Hoc Manuscript Reviewer for <i>American Sociological Review</i> , <i>American Journal of Sociology</i> , <i>Demography</i> , <i>Social Forces</i> , <i>Social Problems</i> , <i>Ethnography</i> , <i>International Journal of Comparative Sociology</i> , <i>International Sociology</i> , <i>Canadian Review of Sociology</i> , <i>Journal of Quantitative Criminology</i> , <i>Policing: A Journal of Policy and Practice</i> , MIT Press

Honors

2007	Arts Dean's Student Leadership Award, University of British Columbia
2007	Kaspar Naegele Memorial Prize in Sociology, University of British Columbia
2011-13	Doctoral Fellowship, Social Sciences and Humanities Research Council of Canada (SSHRC)
2012	American Sociological Association Section on Crime, Law and Deviance Graduate Student Paper Award
2012	American Society of Criminology Gene Carte Student Paper Award (Third Place)
2013-15	Fellowship of the Woodrow Wilson Scholars, Princeton University
2014	Graduate Scholarship Award, Center for Information Technology Policy, Princeton University
2014	Horowitz Foundation for Social Policy Trustees Special Award
2016	American Society of Criminology Outstanding Article Award American Sociological Association, Sociology of Law Section, Graduate Student Paper Award American Sociological Association, Section on Crime, Law and Deviance Section, Graduate Student Paper Award

C. Contributions to Science

The impact of involvement in the criminal justice system for individuals' involvement with medical, financial, educational, labor market, religious, and civic institutions

The degree and scope of criminal justice surveillance increased dramatically in the United States over the past four decades. Qualitative research suggested the rise in surveillance may be met with concomitant increases in individuals' efforts to evade it. However, there had been no quantitative test of this theory. Therefore, I developed the concept of "system avoidance," whereby individuals who have had contact with the criminal justice system avoid surveilling institutions that keep formal records. Using data from Add Health ($n = 15,170$) and the NLSY97 ($n = 8,894$), I found that individuals who have been stopped by police, arrested, convicted, or incarcerated are less likely to interact with surveilling institutions, including medical, financial, labor market, and educational institutions, than their counterparts who have not had criminal justice contact. By contrast, individuals with criminal justice contact are no less likely to participate in civic or religious institutions. Because criminal justice contact is disproportionately distributed, this study suggested system avoidance is a potential mechanism through which the criminal justice system contributes to social stratification: it severs an already marginalized subpopulation from institutions that are pivotal to desistance from crime and their own integration into broader society.

Brayne, Sarah. 2014. "Surveillance and System Avoidance: Criminal Justice Contact and Institutional Attachment." *American Sociological Review*. 79(3): 367-391.

The use of big data and predictive algorithms in the criminal justice system

In this line of research, I examine the intersection of two structural developments: the growth of the United States' criminal justice system and the rise of "big data." The scope of criminal justice surveillance—from the police to the prisons—has expanded rapidly since 1972. At the same time, enthusiasm over big data—the computational analysis of massive and diverse datasets—has swept a range of fields including finance, health, sports, and criminal justice. However, what we know about police surveillance in the age of big data is largely speculative, focusing on the *possibilities*, good and bad, of new forms of algorithmic policing. The technological capacities for surveillance far outpace empirical research on the new data landscape. Consequently, we

actually know very little about how the police use big data in daily operations and with what consequence for social inequality. In my research, I draw on interviews and ethnographic observations to offer a unique on-the-ground account of the use of big data inside one of the most technologically advanced law enforcement agencies in the United States. I answer four overarching questions. First, what does policing look like in the age of big data? More specifically, how do the police use predictive analytics and new surveillant technologies to deploy resources, identify criminal suspects, and conduct investigations? Second, does the adoption of big data analytics transform police organizational practices and, if so, how? Third, how do the police themselves respond to the adoption of new data-driven practices? Fourth, what are the implications of new surveillance practices for law and social inequality? I demonstrate how on the one hand, the use of big data analytics has the potential to reduce bias, increase efficiency, and improve prediction accuracy, but on the other hand, also reproduces and deepens existing patterns of inequality, threatens privacy, and challenges civil liberties.

Brayne, Sarah. 2016. *Policed: Surveillance and Prediction in the Age of Big Data*. Book manuscript in progress.

Brayne, Sarah. 2016. "Stratified Surveillance: Policing in the Age of Big Data." Article under review.

Brayne, Sarah. 2016. "Police Contestation Over the Use of Big Data." Article in progress.

Complete List of Published Work in MyBibliography:

<https://www.ncbi.nlm.nih.gov/sites/myncbi/sarah.brayne.1/bibliography/51034399/public/?sort=date&direction=descending>

D. Research Support

Ongoing Research Support

None

Completed Research Support

Horowitz Foundation for Social Policy 2014

This project drew on qualitative fieldwork to understand how big data analytics are used by law enforcement, and what the implications of such usage are for social inequality, organizational practice, law, and policy.

Graduate Research Award for "Stratified Surveillance: Policing in the Age of Big Data"

Role: Principal Investigator

Responsibilities: Design and oversee the project execution, including data collection, data management and analysis, and writing of reports, the book, and articles.

Center for Information Technology Policy, Princeton University 2014

Graduate Scholarship Award

This project drew on qualitative fieldwork to understand how big data analytics are used by law enforcement, and what the implications of such usage are for social inequality, organizational practice, law, and policy.

Role: Principal Investigator

Responsibilities: Design and oversee the project execution, including data collection, data management and analysis, and writing of reports and publications.

Center for Health and Wellbeing, Princeton University 2013

U.S. Health Care and Health Policy Research Grant

This project examined the relationship between criminal justice and medical surveillance, analyzing the extent to which medical institutions share personal data with criminal justice agencies and to what consequence.

Role: Principal Investigator

Responsibilities: Design and oversee the project execution, including data collection, data management and analysis, and writing.

Social Sciences and Humanities Research Council of Canada 2013

Doctoral Fellowship

This project used survey data from the National Longitudinal Study of Adolescent Health and the National Longitudinal Survey of Youth to understand whether individuals involved in the criminal justice system (i.e., who have been stopped by the police, arrested, convicted, or incarcerated) avoid institutions such as medical, financial, labor market and educational institutions.

Role: Principal Investigator

Responsibilities: Design and oversee the project execution, including quantitative analyses, and writing of reports and publications.