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FIELD REVIEW

Information Technology, Surveillance, and Race in the US

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ABSTRACT

The past decade has been marked by a growing awareness of the potential harms of personal computing. This recent development was spurred by a surge of news reports, films, and studies on the unforeseen side effects of constantly using networked devices. As a result, the public has become increasingly aware of the cognitive, ideological, and psychological effects associated with the constant use of personal computing devices. Alongside these revelations, a growing chorus of activists, journalists, organizers, and scholars have turned attention to surveillance technology-related matters of a different kind—those related to the carceral state and border patrol. These efforts have sparked a shift in the public consciousness, from individual experiences of technology users to how technology is used to maintain social divisions. These studies show how the explosion of network devices not only changes society but also maintains longstanding divisions between social groups. This field review highlights key concepts and discussions on information technology, surveillance, carceral governance, and border patrol. Specifically, it explores the evolution of information communication technology and racial surveillance from the late nineteenth century until the present. The review concludes by exploring avenues for bringing these conversations into a transnational dialogue on surveillance, technology, and social inequality moving forward.

Introduction

The past decade has seen a growing awareness of the potential harms of personal computing. Avalanches of news reports, films, and studies have advanced public knowledge about many of the problems that stem from the constant use of information technology. Scandals like the WikiLeaks release of classified government documents, Edward Snowden’s revelations of government surveillance programs, and Cambridge Analytica’s covert acquisition of data from tens of millions of Facebook users have alerted the

public to privacy issues. Documentaries like *The Social Dilemma* have dramatized many other calamities of digital life, such as its unique mental health risks. The last decade has also witnessed a surge of academic research on how technology allows governments and companies to monitor, monetize, and even modify our thoughts and behaviors.

> *In the US context, this shift in consciousness was sparked in part by rising concerns and protests over the spread of criminal justice and border technology.*

Alongside these revelations, a growing chorus of activists, journalists, organizers, and scholars have turned their attention to technology-related issues of a different sort. In the US context, this shift in consciousness was sparked in part by rising concerns and protests over the spread of criminal justice and border technology. The result is a growing awareness in academic and activist spaces that information technologies are not only changing society but also helping perpetuate many of its long-standing social divisions. This review explores some of the research that has helped to expand our knowledge about information technology, race, and surveillance.

Two key areas of US governance—border patrol and criminal justice—highlight how scholars are advancing conversations about surveillance technology. The first section of this review explores relations between race, surveillance, and technology before the advent of digital computers. It covers some notable studies on surveillance instruments and techniques used to preserve racial hierarchies on slave plantations, which later evolved in rapidly expanding industrial cities and at the border. The next section considers how these instruments and techniques evolved in the age of digital computers. It begins with the technological restructuring of urban police departments during the 1960s and explores similar developments in border politics and homeland security. The review ends by exploring potential lines of future research that can foster conversations between scholars and organizers around the globe concerned with technology, surveillance, and social equality.

Race, Surveillance, and Technology before Digital Computers

Studies have shown how information has been used historically to monitor and exclude minorities, long before the advent of before digital computers. Simone Browne's groundbreaking book, *Dark Matters: On the Surveillance of Blackness* (2015), places contemporary digital surveillance in a wider historical context by analyzing pre-digital methods of surveillance, starting with the transatlantic slave trade. Her book vividly illustrates how the techniques and tools of racial surveillance began on slave ships and evolved through Reconstruction, Jim Crow, and the post-civil rights era, ultimately spreading across civil society in the United States. Before computers, paper planter records were used to record personal data about enslaved people at auction blocks; identity papers were used to regulate the movement of enslaved blacks when they left plantations; lanterns were used in sundown towns to increase the public visibility of black and indigenous people.

Surveillance and personal information were also vital to maximizing the productivity of enslaved laborers. Historian Caitlin Rosenthal (2019) shows how many of our everyday activities and identities today, understood through quantified metrics, have origins in the chattel slave system. Rosenthal provides detailed histories of the information-intensive practices of slave sellers and plantation owners (see also Johnson 1999). Alongside the raw violence of the slave trade, both groups meticulously recorded information about the anatomy, family history, fertility, nutrition, productivity, and countless other aspects of enslaved individuals. Rosenthal shows how the surveillance of people and the information obtained about them during the chattel slavery system, later came to characterize disciplinary rules in factories during the industrial era.

> *The Chinese Exclusion Act of 1882 demonstrated how] recording and analyzing personal data was central to manipulating the racial and class composition of the immigrant population.*

The nineteenth century was marked by many other developments between personal information and social control. Historian Erika Lee's book *At America's Gates* (2004) illustrates the key role that personal identification cards played in fortifying the border following the passage of the Chinese Exclusion Act of 1882, which was the country's first law to bar a specific group of people from immigrating to the United States based on racial classification. Lee details US Bureau of Immigration documents designed to assess the "fitness" of Chinese immigrants based on ethnoracial, occupational, and sexual variables. She ultimately shows how recording and analyzing personal data was central to manipulating the racial and class composition of the immigrant population. Moreover, Lee's research gives a window into the on-the-ground experiences of Chinese immigrants and naturalized citizens as they adjusted their daily lives to the increasingly invasive machinery of surveillance and exclusion.

Around the same time as the Chinese Exclusion Act, racial information was also instrumental in governing black people in northern industrial cities. Khalil Gibran Muhammad's *The Condemnation of Blackness* (2010) analyzes social scientists in the 1880s and 1890s who dedicated themselves to proving black inferiority by producing reams of racially tabulated data about education, crime, health, mortality, religiosity, sexual activity, and many other descriptors. Muhammad illustrates how influential University of Chicago sociologists and amateur statisticians analyzed and used data as pretexts for social control, from criminal justice profiling to residential segregation. With the abolishment of slavery and despite a subsequent waning support for overtly anti-black rhetoric in academic circles, the new statistically robust racial science of the late nineteenth century provided new arguments for old prejudices.

My own work explores how the production of ethnoracial data became mechanized near the close of the nineteenth century (Jefferson 2020), when electromechanical tabulating machines were used to catalog immigrants of "low stock" and black migrants in northern cities. It was a period marked by anti-immigrant reactions against eastern and southern Europeans by state officials, who clamored for new technology to enumerate and sort increasingly diverse urban populations. These information-intensive practices expanded alongside new techniques of ethnonational surveillance established in World War I.

For instance, the first Red Scare, an anti-organized-labor initiative in the early part of the twentieth century, saw the rapid expansion of file keeping and wiretapping of eastern Europeans, southern Europeans, and Russians. Many urban officials proposed electromechanical census tabulators to monitor and govern “new immigrants” from eastern and southern Europe.

Different though they are, the studies cited above have much in common with respect to surveillance, technology, and racial governance. Before digital computers, governments used various information and communication tools to surveil and subdivide populations. Throughout western European empires, measuring devices like anthropometers and calipers were used to collect information or biometric data about the anatomy of non-Europeans. Social scientists used emerging communication technology such as radios, telegraphs, and telephones to transmit information and coordinate the military-led dispossession of non-European land and resources. In addition to historical context, the works above highlight how politics and public policies shaped the technological development of surveillance.

Race, Surveillance, and Digital Computers

This section explores the development of information technology, race, and surveillance in the age of digital electronic computers. From the perspective of subordinated groups, the explosion of digital computing continued and, in some instances, enhanced surveillance practices that had been established for decades. This section provides an overview of how the surveillance of racial and ethnic minorities evolved in the digital age.

The late 1960s saw a large-scale burst of public investment in domestic surveillance equipment operated in part by computers. The decade saw war tactics creep into urban policing and border patrol, which cast criminalized communities and immigrants once again as existential threats to society (Vitale and Jefferson 2016). On the urban front, information and communication systems played a crucial part in conducting President Lyndon B. Johnson’s War on Crime. In 1968 Johnson introduced the Law Enforcement Assistance Administration, the first national agency tasked with modernizing metropolitan police across the country. The same decade also saw the introduction of the National Crime Information Center (NCIC), the country’s first nationwide criminal identification network. The NCIC received reports from law enforcement agencies around the country, establishing a massive digital database of convicted and suspected people. Other technologies introduced during this period, such as computer assisted dispatch (CAD), were intended to make urban police departments function more like military units and make patrol car deployment swifter.

The 1960s and 1970s also saw expansions of surveillance equipment at the US–Mexico border. This was in part sparked by Richard Nixon, the first US president to call for a physical barrier across the entire southern border. Determined to end guest worker programs and ban the hiring of undocumented immigrants, Nixon’s administration called for technical upgrades at the border. The southern borderlands became a landing spot for surplus equipment from the Vietnam War (Massey 2020). Iván Chaar-López (2019) details how the Immigration and Naturalization Service implemented an electronic fence at the US–Mexico border that had been developed by the Defense Department to divide North and South Vietnam in 1970. The fence was a semi-automated intrusion detection system, originally created by

the US Air Force to track Vietcong forces moving between Vietnamese borders. In the US–Mexico demarcation, ground sensors, infrared sensors, and radio towers subsequently fortified the border.

Photo by Ed Hinchliffe

In urban police departments of the 1980s, there was no greater catalyst for installing digital computers throughout law enforcement than President Ronald Reagan's wars on drugs and crime (Jefferson 2020). By the early twenty-first century, the imprisonment of over two million people, and the correctional supervision of an additional five million, would require a greater investment in information communications technology, which fundamentally altered the structure of the carceral state. The skyrocketing number of arrestees clogged up criminal processing; the explosion of criminal records overloaded filing cabinets with paperwork; the eruptions of trials overburdened judges and prosecutors with enormous paper trails. These administrative woes played a large part in developing information management systems for district attorneys, judges, parole and probation officers, patrol officers, prison administrators, and prosecutors. Prison overpopulation also stimulated the growth of electronic monitoring programs. To manage prison overcrowding, correctional authorities across the country initiated early release programs in which parolees, probationers, and convicted people on early release were made to wear GPS bracelets so that authorities could constantly monitor their whereabouts (Kilgore 2013).

The late 1990s and early 2000s saw a steady stream of information technology developed for targeting specific social groups, but two significant events altered the development of surveillance and technology and gave rise to unprecedented levels of state surveillance. The first one was the birth of the World Wide

Web; the second was the War on Terror (Bauman 1998; Haggerty and Ericson 2006). In addition to resuscitating nativism, the War on Terror also renewed calls to upgrade and expand public security infrastructure. This time public safety agencies ranging from local police to the Federal Bureau of Investigation were linked together in a networked system that constantly monitored, assessed, and notified agents of threats at each level of the government in an increasingly broad range of locations (Graham 2011).

Three decades after the US government built an electronic fence at the US–Mexico border, scholars and journalists have written about the Department of Homeland Security's plans to build "virtual fences" and "virtual walls"—borders made of automated tollway systems, checkpoints, control rooms, drones, facial recognition software, ID card systems, infrared cameras, license plate readers, military-grade surveillance cameras, motion sensors, and radar (Thompson 2009). While projects like these have seen limited success, such efforts to digitize border patrol operations have played a key role in making immigrant prosecution, not drug offenses, the largest driver of imprisonment in the US. Patrisia Macías-Rojas (2016) demonstrates how the overcrowding of detention centers gave further impetus to developing the technological capacities of border patrol. Focusing on the expansion of the Criminal Alien Program in Arizona-Sonora border towns, Macías-Rojas sheds light on the mountains of information about unauthorized border crossers produced and shared by border patrol, homeland security, and local authorities. Immigration and Customs Enforcement regularly monitors the national license plate database, the world's largest of its kind, to track the daily vehicular movements and activities of suspected immigrants (Funk 2019).

The general public has also been brought into border patrolling through their personal networked devices. For instance, the Texas Virtual Border Watch project uses crowdsourcing to allow civilians to monitor border activity from personal devices. Virtual community-building companies such as BlueServo let users worldwide monitor border crossings remotely and alert authorities. Thus public agencies, private businesses, telecommunications companies, and many more people have become vectors of immigrant surveillance via technology.

Photo by Pixabay

The general public's awareness of criminal justice computer technology is comparatively recent. Cathy O'Neil's *Weapons of Math Destruction* (2016) was one of the first works to bring the issue into public debate. A trained mathematician, O'Neil exposed methodological flaws in criminal justice data science by illustrating the vicious circle between arrest data and patrol deployments. According to O'Neil, if future crimes are predicted by analyzing past arrests, then the behavior of police officers—where they are stationed, what activities they are alerted to, who they choose to arrest—are all important variables that deserve consideration in predictive analysis. That same year Julia Angwin et al. (2016) published a similar, highly influential essay in *ProPublica* on machine bias and criminal sentencing. Their research turns attention to the risk assessment software used to determine fines, prison terms, release dates, and other decisions throughout the criminal justice system. One of their key arguments is that while many criminal justice data analysts claim their models are colorblind, risk assessment models include data that are proxies for racial profiling. Data concerning a person's residence, employment history, or educational attainment are correlated with race; therefore, by using these variables to predict criminality, the data suggests some races are more predisposed to crime than others.

My research in *Digitize and Punish* explores the political economy of carceral technology and how it has prolonged the wars on crime and drugs (Jefferson 2020). The study brings attention to the industry of academic researchers, companies, and technologists that fuels the spread of carceral surveillance technology. It builds on the work of activist scholars Angela Y. Davis (2003) and Ruth Wilson Gilmore (2007), who examine connections between capital, crime and punishment, and race. Both show the role agricultural, industrial, and financial capital have played in the history of racial punishment in the US. In this vein, my work highlights the role of IT capital in the history of criminal justice surveillance technology in cities. Much like the virtual fence built on the US–Mexico border, I argue that the union of technology, policing, and punishment has altered the landscape of mass criminalization, changing

everything from where and how criminal sanctions are administered to the long-term consequences of those sanctions. Through the use of smartphones, criminal processing has moved from precinct stationhouses to the streets; through GPS technology, correctional authorities such as parole officers can monitor the movement of parolees in their homes. Projects of such magnitude have required building new data storage facilities, data management systems, telecommunications infrastructures, and new techniques for gathering, analyzing, and using information. It has required establishing points of surveillance across physical and digital spaces. All this sprawling infrastructure has been brought together in control centers, which ultimately allow authorities to monitor targeted individuals and groups to unprecedented degrees.

Urban spaces subsequently become more like border spaces, where immigrants, gang suspects, and their families become objects of heightened surveillance.

In a similar vein, geographer Margaret Ramírez (2019) shows how California's gang database, which produces all manner of information about gang suspects, their friends, and families, blurs distinctions between border patrol, criminal justice, and counterterrorism activities. The database helps border patrol, counterterrorism, and local law enforcement to conduct joint operations and function more like a single institution. Urban spaces subsequently become more like border spaces, where immigrants, gang suspects, and their families become objects of heightened surveillance.

Scholars have shown how technologically advanced forms of surveillance and control have been extended in similarly constituted, low-income communities through nonenforcement agencies. For instance, political scientist Virginia Eubanks shows how the increasing reliance on information technology allows the criminal justice system to police low-income communities more intensively. Her book *Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor* (2018) illustrates how information networks link criminal justice to welfare agencies and child protective services. More specifically, she highlights software used by these services to predict and, in some cases, alert authorities of potential welfare and parental offenders. One consequence of these institutional links is a more diffuse style of "policing" that places under greater scrutiny not only criminal suspects and convicts but also members of lower-income communities.

The works above have gained momentum alongside a rising tide of activist opposition to crime control technology. On the West Coast, organizations such as the Stop LAPD Spying Coalition and Secure Justice have mounted challenges against facial recognition software used by police with some success. On the East Coast, the Surveillance Technology Oversight Project developed a virtual law firm model to provide legal services for people who have been subjected to surveillance abuse. The project has filed several lawsuits against the New York Police Department for cell phone monitoring, using facial recognition technology, and developing geographic information systems (GIS) to map public sentiments toward the police. In the Midwest, Citizens Police Data Project created the largest police misconduct database in the country, while grassroots groups like Mijente have mobilized opposition to the Chicago Police

Department's gang database. Innovative initiatives like the carceral tech resistance network have created hubs for community-based knowledge, training, and organizing against the proliferation of surveillance technology at the borders, policing and imprisonment, and through our everyday uses of digital devices. Momentum is building in engineering communities and the private sector in opposition to the spread of surveillance technology, and groups such as the experimental Logic School for tech workers, the Minnesota-based Women in Technology organization, or the recent spate of social science-oriented research groups at major tech corporations are contributing to new ways of thinking and responding to surveillance technology.

Future Research: A Transnational Approach

The future of research on surveillance technology might very well look deeper into the past and adopt more transnational perspectives. Colonial exploitation has for centuries depended on the production, analysis, and exchange of massive quantities of information. Colonial powers have used technologies to measure, classify, and monitor non-European colonialized subjects; innovations in biometrics (i.e., fingerprinting for passports) to regulate the flow of colonized workers as they move from countryside to city; and filing systems to divide communities and govern them in different ways. Bringing these histories into contemporary discussions about US border control and carceral power would be a fruitful way of expanding understandings about surveillance technology and forging transnational research networks and organizations.

Photo by Kelly L

A great deal of scholarly work has been done on how colonists centralized information about individuals and groups of people, and how these practices secreted into Western societies (Anderson 2004). As Edward Said argued in *Orientalism* (1979), archives of data, information, and scientific research stood at the core of British colonialism in the Middle East and South Asia. Calipers, compasses, filing cabinets, index cards, planimeters, and printing presses are only a few of the pre-digital information technologies used to construct these grand databanks. Radhika Singha (2000) and Chandak Sengoopta (2003) offer illustrative accounts of the innovations in biometric identification (i.e., anatomical information such as fingerprints or measurements of body parts) made in British India in the nineteenth century, many of which made their way into colonial homelands. The Bengal Delta was once an epicenter of the application of pre-digital information technology to racial surveillance. The East India Company produced extraordinary amounts of information to exploit India's raw resources, monitor its dissidents, and control peasant workers on British plantations. The company's Fort William College in Calcutta published volumes upon volumes about Indian castes, customs, geography, histories, languages, and religions, which were later taught to company administrators and merchants. Colonial authorities employed a diverse range of mechanical tools to register, classify, and track everything from peasant workers to political dissidents and criminalized tribes. Perhaps the most influential technology to come out of this history was biometrical, namely colonial fingerprinting that formed the basis for modern forensics across the West.

In a similar vein, Keith Breckenridge (2014) illustrates how the expansion and consolidation of South Africa's apartheid state relied heavily on pre-digital technology and surveillance. It was especially reliant upon biometric passports that included the fingerprinting of colonized workers to regulate their movements. By the late eighteenth century, the British developed identification tools and systems to differentiate Africans, accord different rights to them, and track their movements from rural to urban areas. Passports were used to record and scrutinize this information. Groups classified as "native foreigners" were made to carry passports and undergo random ID checks. Additionally, "native passes" were used to enforce contracts, collect taxes, and patrol indigenous Africans. Following the defeat of the Boers during the Anglo–Boer war, the British turned to gathering personal information in the establishment of apartheid. In 1907 the colonial government passed the Asiatic Registration Act, which required all Indian and Chinese persons eight years old or older to submit personal information to a central registrar. It was also pitched as a scientifically based means of government administration to help settlers enforce contracts, establish checkpoints in the municipality, and excise taxes. Unregistered nonwhites and those without certificates were subject to deportation from the colony.

> *Studying surveillance technology from transnational and historical perspectives brings attention to important similarities between groups, more specifically, about the ways information harvesting tools and surveillance are thrust upon them to make them more governable and/or exploitable.*

Pre-digital histories of information and surveillance technologies like these abound and offer fertile

grounds for future research. Shifting attention to historical cases is not just a matter of academic intrigue. In an age when social differences are so highly celebrated in progressive thought and practice, studying surveillance technology from transnational and historical perspectives brings attention to important *similarities* between groups, more specifically, about the ways information harvesting tools and surveillance are thrust upon them to make them more governable and/or exploitable. By engaging with research from the Global South, scholars could further expand public discussions about the rise and spread of these methods and identify commonalities about the relation between technology, surveillance, and racialized modes of control. If there are general principles associated with these relations, looking to the past or looking abroad may offer keys to understanding control tech—and resistance—in the United States and abroad. Scholarship in the Global South could also provide clues into how people in the past have pushed back against the propagation of surveillance and where they found success, no matter how seemingly small.

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