

# THE GHOST IN THE ALGORITHM: RACIAL COLONIAL CAPITALISM AND THE DIGITAL AGE

Ricarda Hammer<sup>a</sup> and Tina M. Park<sup>a</sup>

## ABSTRACT

*While technologies are often packaged as solutions to long-standing social ills, scholars of digital economies have raised the alarm that, far from liberatory, technologies often further entrench social inequities and in fact automate structures of oppression. This literature has been revelatory but tends to replicate a methodological nationalism that erases global racial hierarchies. We argue that digital economies rely on colonial pathways and in turn serve to replicate a racialized and neocolonial world order. To make this case, we draw on W.E.B. Du Bois' writings on capitalism's historical development through colonization and the global color line. Drawing specifically on The World and Africa as a global historical framework of racism, we develop heuristics that make visible how colonial logics operated historically and continue to this day, thus embedding digital economies in this longer history of capitalism, colonialism, and racism. Applying a Du Boisian framework to the production and propagation of digital technologies shows how the development of such technology not only relies on preexisting racial colonial production pathways and the denial of racially and colonially rooted exploitation but also replicates these global structures further.*

**Keywords:** Colonialism; race; global; historical; Du Bois; artificial intelligence

---

<sup>a</sup>Authors contributed equally to this work.

## INTRODUCTION

Over the past several years, a seemingly endless stream of alarming news headlines has produced a new understanding of digital technology (e.g., [Chen, 2014](#); [Dou, 2016](#); [Granville, 2018](#)). The world was temporarily rattled by reports of suicides at Foxconn factories in China alongside allegations of low wages, long shifts with limited breaks, and physically and psychologically abusive working conditions ([Bloomberg News, 2010](#); [Pomfret, Yan, & Soh, 2010](#); [The Economist, 2010](#)). These deaths made international news in part because of their tragic frequency, but also because Foxconn is the manufacturer of consumer electronics for some of the most well-known – and largely American – brands such as Apple, Dell, and HP (Hewlett-Packard). The technology industry was further faced with headlines around Cambridge Analytica’s use of harvested personal data from millions of Facebook users without their consent, in order to aggressively target political ads ([Davies, 2015](#)). Between the use of highly personalized data for political targeting and the manipulation of social media platforms by foreign agents to incite political discord in the United States ([Shane & Mazzetti, 2018](#)), people became more aware of the potential of big data and digital technology to destroy the possibilities of democratic public discourse. In light of these public incidents, there is growing suspicion that digital technology may not, in fact, hold the promise of a brighter, more equitable future.

A growing number of scholars have made a convincing case that technologies do not alleviate social inequalities but instead further entrench and automate structures of oppression. They have analyzed the capitalist and racial aspects of technology-enabled social media and its accompanying collection of personal data ([Crawford, 2016](#); [Federal Trade Commission, 2014](#); [Murray, 2018](#); [O’Neil, 2018](#)), algorithm-driven decision-making ([Noble, 2018](#); [O’Neil, 2018](#); [Pasquale, 2015](#); [Sandvig, Hamilton, Karahalios, & Langbort, 2016](#)), and the growing incorporation of surveillance devices into our homes, workplaces, public spaces, and onto our body ([Austen & Wakabayashi, 2020](#); [Benjamin, 2019](#); [Zuboff, 2019](#)). While this literature has done much to shed light on the profound impact digital technology has had on human life and social relations, it is not sufficiently global nor historical in its analyses. Due to often nation-centric analytical frameworks, it erases how digital technologies map onto longer-standing colonial pathways and help to replicate a global racial order.

This chapter aims to explain how and why the digital economy, and artificial intelligence (AI) specifically, rely on and replicate a global, racialized, and neocolonial world order, while traditional methodologically nationalist frames erase these central linkages. We show how contemporary digital economies are part of a longer history of capitalism, if we understand capitalism through a global framework, one that centers the formative structures of colonialism and racial domination in capitalism’s history. Du Boisian frameworks suggest that the construction of the global color line and racialized governance have historically enabled capitalist extraction. In this chapter, we make visible how digital technologies rely on neocolonial structures as they draw on the global division of racialized labor. At the same time, we show how artificially intelligent technologies

reproduce racialized ways of seeing and thus furthers global racialized governance. Profit structures central to the digital economy – the monetization of data – continue to operate off of the global color line; and AI in turn reproduces these ways of seeing.

Du Bois' writings on global capitalism and colonialism provide our theoretical framework. We pay specific attention to [Du Bois' \(1946\) \*The World and Africa\*](#), a book that is central to Du Bois' oeuvre, but has to date been underappreciated. We draw out the analytical lessons from Du Bois' analysis of the entanglements of colonial governance, capitalism, and racialized extraction of labor, and apply them to contemporary digital economies. The chapter proceeds in two parts. The first half outlines recent approaches to digital economies and explicates Du Bois' work to distill key analytic concepts to better understand the world of data. The second part explains how data economies are a continuation of racial colonial capitalism, both relying on a racial and colonial order and replicating it. To explain reliance, we point to the ways in which digital technology requires resource extraction often in former colonial spaces and how AI models draw on the (silenced) labor of racialized workers, often in former colonies. To explain reproduction, we foreground how the digital economy more broadly replicates a racial and colonial order through the application of technology. We show how AI is used in the context of refugee camps, border controls, and as technology in war, thus further entrenching the control of racialized bodies and colonial spaces. We conclude that racial colonial capitalist frameworks give us a way to understand these interactions – and how tech companies were able to first, exploit and second, entrench and further profit from a longer history of racial colonial capitalism.

## DIGITAL TECHNOLOGY AND CURRENT SOCIOLOGICAL EXAMINATIONS

Digital technology companies have characterized their products as holding the promise to a better future – one which enables people to build and maintain interpersonal relationships and more easily and quickly grapple with major social issues, such as climate change, educational inequality, or economic inequality, while also providing a greater variety of everyday creature comforts. Social scientists are also drawn to “big data,” with the hope that sifting through large swaths of data on human subjects and behaviors will yield new insights ([Fourcade & Healy, 2017](#); [Housley et al., 2014](#); [White & Breckenridge, 2014](#)). Even on an individual level, we look to “big data” to provide us with insights on how to make us physically healthier, more productive, or calmer.

Critical examination of technology, and in particular digital technology, is neither new nor uncommon. From concerns about the “digital divide” further entrenching already existing socioeconomic disparities ([Irving et al., 1999](#)) to the social, political, and economic transformation of a networked society ([Castells, 1996](#)) to the oversurveillance of the population ([Zuboff, 2019](#)), the focus tends to lie on the *impact* of technology on social, political, and economic relations. As we will discuss

in further detail, there is much to also examine about the *production* of digital technology, including the resources, goods, and other inputs required to create it. Furthermore, we argue the study of how, where, and by whom digital technology is produced requires an approach that is attentive to historical colonial and racist assemblages of labor, capital, and exploitation. Without such a lens, it is not possible to recognize and understand the differentiated impact of technology on the global population.

Data are the foundation for artificially intelligent systems, as they enable machines to derive possible patterns and thus “learn” and imitate social action. AI algorithms require massive datasets to train and test models and this data collection is prevalent in our everyday lives. For example, when logging into a website, we are often asked to check a box to ensure we are “not a robot” and a secondary step emerges where we are asked to either type out a jumble of letters and numbers or identify elements in a photograph. Named “Completely Automated Public Turing Test to tell Computers and Humans Apart,” but better known as “CAPTCHA” and now as “reCAPTCHA,” we are asked to enter the difficult-to-read word on the screen, and in turn, we are transcribing scanned text that could not be read by existing optical character recognition programs (Havel, 2015). Nearly 500,000 hours of “wasted human computation” was captured every day and used to digitize – and make searchable on a computer – the *New York Times*’ archive, starting all the way back in 1851 and consisting of more than 13 million articles (Havel, 2015). Since its acquisition by Google, this database of labeled images and transcribed text is also used to train Google’s algorithms (Google, 2020; O’Malley, 2018).<sup>1</sup>

Innovations in data collection have paved the way for the creation of more advanced systems, such as audio-to-text and Natural Language Processing (NLP) technology, used in home assistant devices. Every time we engage with a home assistant device, such as Amazon Echo or Google Home, we are actually serving as trainers and teachers for the neural networks which power these devices (Crawford & Joler, 2018). When the device responds incorrectly to a command and we repeat ourselves, it is deriving data to better train its future understanding of commands and appropriate responses. Between apps used to log menstrual cycles, sleep patterns, and exercise activities and apps used to order food or products from online vendors, every aspect of modern human life is recorded. With the growing popularity of wearable devices like FitBit and Apple Watch, our every movement – from our steps to our heartbeats – is collected, packaged, and monetized (Federal Trade Commission, 2014). Most mobile phones today, bolstered by advanced GPS technology, also collect detailed location data on individuals. These location data from apps on mobile phones are packaged and sold, directly or indirectly, to third parties who seek insights into consumer behavior to more effectively sell other services and products (Valentino-DeVries, Singer, Keller, & Krolik, 2018).

In recent years, a growing number of social scientists and practitioners have raised alarms about digital technologies and AI (Fuchs, 2012; Srnicek, 2016; Zuboff, 2015). Highlighting how data – and the ability to predict human behavior – have become today’s most valuable product, Zuboff explains how this form of

surveillance capitalism “aims to predict and modify human behavior as a means to produce revenue and market control” (Zuboff, 2015, p. 75, 2019). Further, data-based technology do not solely monetize human behavior itself, but this automation of decision-making replicates social fissures: Through reliance on data, machines replicate the classist, sexist, and racist structures of modern society; all the while carrying these decisions out with efficiency and obscuring these decisions under the guise of technological colorblindness.

In her excellent *Race After Technology*, Ruha Benjamin demonstrates that racism and racial bias exist beyond more narrow conceptions of “biased bots” or biased algorithms. Racism, she argues, permeates throughout all forms of digital technology as we are in the era of the New Jim Code, defined as

...the employment of new technologies that reflect and reproduce existing inequities but that are promoted and perceived as more objective or progressive than the discriminatory systems of a previous era. (Benjamin, 2019, p. 3)

Safiya Noble (2018), in turn, explains how machine learning algorithms create and naturalize a racist social order. Tressie McMillan Cottom (2020) calls for sociologists of race and racism, specifically, to meaningfully engage with the study of Internet technologies and our current digital society. These important interventions explain how digital technologies act on the world by replicating racist ways of seeing.

At the same time, grappling with data capitalism opens up the opportunity to situate contemporary digital technologies in a longer history of racial and colonial capitalism. While the monetization of data is indeed new, the logics of commodifying human life and racialized governance replicate a historical dynamic.<sup>2</sup> In beginning our analyses of capitalism not from the cotton factory in Manchester as disconnected from the colonial project, but the slave plantation, we are able to better understand how digital technologies map onto and recreate a racialized world. A Du Boisian framework brings our attention to the global color line: While scholars have produced important insights on how racism and exploitative capitalist logics are baked into digital technologies, these understandings are often disconnected from global and colonial dynamics.

An important exception here is Couldry and Mejias (2019), who explain the parallels between data economies and the colonial drive for expansion and commodification. Couldry and Mejias provide the concepts of “data colonialism” and “data relations” to more fully explore how aspects of human life are appropriated as data. This data appropriation is largely for the purpose of producing financial profit for private corporations, whereby the external appropriation is beyond the control of the individual who is being culled (Couldry & Mejias, 2019). However, in this analysis the connections between the deployment of colonial data economies and their effect on racial oppression are under-emphasized. Others have noted that digital economies rely on labor extraction overseas, but they do not ground their analyses in how colonialism created the necessary conditions for these extractive projects, nor do they center how these technologies replicate racialized governance (Gray & Suri, 2019; Huws, 2014;

Roberts, 2019). In fact, the field tends to separate analyses of “national” racial domination from the exploitation of racialized workers overseas.

Bringing together racialized oppression, colonial governance, and the profit orientation of capitalism, Du Boisian frameworks offer a more expansive approach to understand the characteristics and implications of digital economies today. Just as much as the colonial project and racialized governance enabled the extraction of labor, land, and resources, so do digital technologies replicate racial governance, while in turn extracting labor, resources, and data. AI technologies do not solely replicate national racial hierarchies but also utilize and reproduce neocolonial spaces of exception, including their application in humanitarian camps, border regions, and in war. Further, the anatomy of digital products is a global one; and tracing the constitution of these products illuminates colonial and neocolonial pathways. Du Bois’ insights give us ways to trace how these digital products get constituted, how exploitation is hidden, and why they keep in place colonial power relationships.

### **DU BOIS’ ANALYSIS OF CAPITALISM: THE RACIAL AND COLONIAL DIMENSIONS**

Du Bois’ analysis of capitalism is grounded in an analysis of racism and colonialism (Itzigsohn & Brown, 2020). Throughout his scholarship, he models why we need to understand the emergence and reproduction of capitalism on a global scale and as a racialized colonial project. In *The World and Africa* in particular, Du Bois offers a starting point to theorize how racial and colonial logics are central to the workings of modern capitalism.

Starting from the perspective of African and African diasporic history, Du Bois draws our attention to “5000 years of history” that had been erased from history books, and sketches how capitalism came about and maintained itself through slavery and colonialism.<sup>3</sup> This perspective allows him to show how modernity and the project of economic profit has, at its center, a series of colonial relationships of violence, extraction, exploitation, and dispossession. The Atlantic slave trade, colonial plantation slavery, and resource and labor exploitation cannot be divorced from our accounts of capitalism:

The Negro race has been the foundation upon which the capitalist system has been reared, the Industrial Revolution carried through, and imperial colonialism established. If we confine ourselves to America we cannot forget that America was built on Africa. From being a mere stopping place between Europe and Asia or a chance treasure house of gold, America became through African labor the center of the sugar empire and the cotton kingdom and an integral part of that world industry and trade which caused the Industrial Revolution and the reign of capitalism. (Du Bois, 1946)

He describes a relational dynamic, whereby the Industrial Revolution and economic development in the North Atlantic came about on the backs of Black and brown laborers in the colonies. Colonial violence is at the heart of capitalism; a violence that, as Du Bois makes clear, cannot be reduced to the initial impetus

of primitive accumulation, but rather is a historical continuity through resource extraction, labor exploitation, and processes of ongoing dispossession (Beckert, 2015; Johnson, 2013). Du Bois' account is historically contingent, whereby racialized violence and colonial relations change throughout history. However, colonial governance relations have been a central feature to historically existing capitalism. From the domination of the body under plantation slavery, to resource extraction and the exploitation of racialized labor, colonial operations aligned to feed into capitalist needs. In order to satisfy the need for new labor, land, and resources, colonialism forcefully opened up new markets, annexed more land, extracted more resources, and exploited more labor.<sup>4</sup>

Du Bois centers the impact of racism in the making of the modern world: Colonial elites constructed human lives as holding differential value and capitalism has historically mobilized these racial differentiations. Racial colonial logics are central to these capitalist dynamics, as:

Together with the idea of a Superior Race there grew up in Europe and America an astonishing ideal of wealth and luxury... This wealth was built, in Africa especially, upon diamonds and gold, copper and tin, ivory and mahogany, palm oil and cocoa, seeds extracted and grown, beaten out of the blood-stained bodies of the natives, transported to Europe, processed by wage slaves who were not receiving, and as Ricardo assured them they could never receive, enough to become educated and healthy human beings, and then distributed among prostitutes and gamblers as well as among well-bred followers of art, literature, and drama. (Du Bois, 1946, p. 23)

This also means that the invention and salience of modern ideas of race cannot be disentangled from the historical and global processes of colonialism. Put differently, while race hooks onto specific phenotypical characteristics, racial signification is always a result of a longer social and historical process (Hesse, 2016; Winant, 2001). These racial hierarchies in turn serve to both justify and perpetuate a social, economic, and political global order. In paying attention to the colonial dynamics in racial formations, we are able to conceptualize racial categories as artifacts of power relationships, according to which the colonizer positions themselves as superior and the colonized as inferior (Jung, 2015). Colonial elites use racialization to justify and further entrench extractive and dehumanizing forms of rule and draw on racial governance to determine the valuation of life and the determination of death (Mbembé, 2003). Through highlighting the interactions of colonialism, racial formation, and capitalism, hierarchical categories of race are the manifestation of systems of domination and exploitation. The violence of the colonial state thus articulates itself through its treatment on the racialized body, to which we turn next.

### *The Commodification of the Human*

While often written out of history, deemed as living under a premodern, "residual" or precapitalist form of economic domination, Du Bois argues that enslaved and colonized subjects are, in fact, central actors in the history of capitalism (see also: Mintz, 1985; Robinson, 1983; Williams, 1944). That is, Du Bois does not start with the figure of the wage laborer as a central figure in

capitalism, but with the enslaved. As [Bogues \(2018\)](#) proposes, the focus on enslavement in the historical formation of capitalism allows us to articulate logics of domination that go beyond that of the exploitation of the wage laborer: it illuminates a form of oppression that is racial domination, and in light of the commodity status of “the slave” – the commodification of the human being itself.

The double form of domination of capitalist exploitation *and* racialized violence is perhaps clearest in the chapter title of *Black Reconstruction in America*: “The Black Worker” ([Du Bois, 1935](#)). The enslaved person is oppressed by both a system of economic oppression designating them as a laborer and a system of racial violence that designates them not as human but as property ([Du Bois, 1935](#)). The enslaved person is a “worker,” and thus central to modern capitalism; but the mere designation of the exploited laborer is insufficient, for the worker is also “black,” which in the context of chattel slavery meant to be nonhuman. The nature of exploitation in Du Bois’ framework is thus not just the extraction of surplus value through the labor process and alienation, but instead we begin to see how *the body itself* becomes the target for exploitation. Seen through the global, colonial perspective, capitalism works through extractive labor logics but also through commodifying and making profit of the body itself.

In analytical terms, the enslaved is thus capital and labor at once: In comparison to our traditional focus on capital versus labor, the enslaved person produces value for the capitalist not only through laboring, but through *being* capital. If, for Marx, the worker works a set of hours a day, the enslaved cannot but continue to exist in the logic of property-as-person ([Goveia, 1960](#)). For Du Bois, the enslaved exist as workers producing value, as capital in themselves, and as the locus of reproduction for both labor power and capital. Through the commodification of the human being, the plantation becomes a central space of analysis, a space where all activity feeds into the extractive logics of a capitalist system. By considering capitalism from the standpoint of the enslaved person, we thus begin to focus our analysis of exploitation on that of the commodified human.

This system is totalizing – one cannot impose divisions between work and leisure time; one cannot escape the racializing logics imprinted on the body; and sexuality, the most intimate parts of human life, serve as forms of reproduction for this colonial capitalist system. This system is also deeply gendered because through the process of reproductive labor, the black female body is hyper-exploited ([Hine, 1979](#); [Roberts, 1997](#)). If we write a history of racial capitalism from the perspective of the plantation, it is the womb of the enslaved woman that becomes the engine for reproducing labor just as much as reproducing capital because the enslaved person unites both in their being ([Hartman, 2016](#); [Vergès, 2020](#)). In this sense, the enslaved woman becomes a continually reproducing source of value that is forced to feed the accumulative logics of capitalism ([Morgan, 2004](#); [Zimmerman, 2010](#)). Representing capital and labor, with an inherent ability to reproduce, the enslaved body becomes hypermonetized and is inherently unable to escape the profit drive within modern capitalism.

This framework elucidates three dynamics. First, the regime of enslavement commodifies the human, thus creating value through their mere existence. Commodification of the body through racial ideologies becomes a central



mechanism of domination within modern capitalism, at its height through the imposition of chattel slavery. This differs from the logics of labor exploitation because oppression is no longer a question of expending labor power, but one of *being* capital. Second, the enslaved Black woman was valued, not only for the labor she expended in the fields, the plantation, or in the master's home; and not only through the capital she represents; but also through her reproductive functions that produce additional capital and labor. Her capacity to bear children was commodified, the children she carried transformed into goods to be bought and sold. Third, while accounts that focus on the wage laborer may build in a distinction between labor and leisure, indicating that labor was delineated, this was not the case for the enslaved.

Slave owners extracted as much labor, as frequently as possible, without losing their asset, in order to maximize the utility of their human property. Starting from this history, we trace processes not solely of labor exploitation but also of the domination and commodification of the body: Violence on the racialized body is central to capitalist extraction. Within this relationship, the colonial other is nonhuman, while the colonizer is able to utilize violence in order to dominate, dispose, and extract. Racial categories did not emerge outside these systems of power but enunciated and further justified these power relationships. Colonizers drew on racial governance to determine the valuation of life and the determination of death.

Colonial violence designates some parts of the world as spaces where rules and regulations are suspended, inventing the colony as a space of exception (Mbembé, 2003). This process strips inhabitants of their status as rights-bearing political subjects and reduces them to “bare life” (Agamben, 2005). Through its extractive drive, the colonial project's aim is to create the “generalized instrumentalization of human existence and the material destruction of human bodies and populations” (Mbembé, 2003, p. 14). The colony becomes the site of ultimate violence,

...where the controls and guarantees of judicial order can be suspended – the zone where the violence of the state of exception is deemed to operate in the service of “civilization.” (Mbembé, 2003, p. 24)

The slave plantation specifically exists as a central case of modern states of exception, whereby it is at once central to the functioning of industrial capitalism while denying their inhabitants' humanity, leaving sovereign powers to decide on the question of life and death. Colonial projects employed technologies of rule to produce the racialized subject, thus situating this subject in a specific power relationship; one that the racialized subject cannot escape. The violence of the colonial state articulates itself through its treatment on the racialized body. Through highlighting the interactions of colonialism, racial formation, and capitalism, we are better able to make sense of the monetized *and* racialized logics of capitalism.

### *The Global Veil*

To understand how the metropolitan population fails to “see” this violence in the colonies and the slave plantation, Du Bois employed his concept of the veil on a

global scale. In *Souls of Black Folk*, Du Bois introduces the veil as a way to understand the formation and impact of racism. The veil enshrouds Black America and keeps it “shut out from [the white world] by a vast veil” (Du Bois, 1903, p. 2). It separates these two worlds, rendering white America unable to truly *see* black America and to recognize the human being under the veil (Du Bois, 1903). In his later writings Du Bois (1946) explains how the veil operates not just between individuals on a micro-scale or solely between racialized groups within nation-state boundaries but also on a global scale: Colonial extraction and violence depends on the ideological constructs put forth by colonial governance, according to which the metropolitan population cannot consider the colonial population as fully human. A vast veil clouds the metropolitan world’s understanding, one which protects the metropolitan world from reckoning with the kind of violence upon which its comforts depend.

Colonial rule produces an ideological regime of secrecy and concealment that allows the maintenance of global economic linkages. Du Bois highlights that a central component of capitalism as it emerged out of the colonial system is the ideological work of “mass concealment,” whereby “secrecy” and “the deliberate concealing of character, methods and results of efforts to satisfy human wants” allows for unchecked violence:

[A] man knows neither what he is doing nor what the results of his toil will be, or who will enjoy it, or why nor whence nor how his income is made, nor at whose hurt or weal; then the opportunity for human degradation is limited only by the evil possibilities of the lower of men; murder and theft may ensue with no chance to fix the guilt. Not mass production but mass concealment is the sin of the capitalist system. This is the meaning of African slavery and this is the virus it poured into the veins of modern culture and fatally poisoned it. (Du Bois, 1946, p. 257)

An investment in the abundance of colonial commodities on the one hand, and a naturalization of this world order through racial justifications and the concealing of colonial labor relations produced a hypocrisy central to European empires: A consumer base resting on the pleasantries of life with a produced ignorance of the abject labor conditions that enable these very luxuries. The global operation of the veil created and maintained a situation where, as Du Bois remarks, the colonizer is guilty and yet, no individual can be held accountable: “A group, a nation, or a race commits murder and rape, steals and destroys, yet no individual is guilty, no one is to blame, no one can be punished!” (1946, p. 42). In order to maintain colonial exploitation then, the commodity appears as divorced from its context of violent exploitation, unmoored from opportunity for “ethical judgment.” Racial and colonial violence – and the simultaneous spatial and temporal separation of this violence – undergird the heyday of capitalist development.

Because of the stretch in time and space between the deed and the result, between the work and the product, it is not only usually impossible for the worker to know the consumer; or the investor, the source of his profit, but also it is often made impossible by law to inquire into the facts. Moral judgement of the industrial process is therefore difficult, and the crime is more often a matter of ignorance rather than of deliberate murder and theft; but ignorance is a colossal crime in itself. (Du Bois, 1946, p. 41)

Colonial ideologies produce analytical bifurcations, separating metropolitan consumers and colonial laborers in time and space even though they relate in this system of economic exchange (Bhambra, 2014; Go, 2016).

In fact, Du Bois takes this one step further: He suggests that colonial ideologies, so central to the global color line, at once blinded the metropolitan population but also psychologically protected them from coming to terms with the violence upon which their very comforts were built. For Marx, the naturalization of commodities also helps us navigate the world with ease, to subjectively allow us to make sense of the world. For Du Bois, these dynamics are racialized. The metropolitan world relies on the smooth operation of an imperial world order, which seemed to operate without agents, and without anyone culpable of exerting violence:

It all became a characteristic drama of capitalist exploitation, where the right hand knew nothing of what the left hand did, yet rhymed its grip with uncanny timeliness; where the investor neither knew, nor inquired, nor greatly cared about the sources of his profits; where the enslaved or dead or half-paid worker never saw nor dreamed of the value of his work (now owned by others); where neither the society darling nor the great artist saw blood on the piano keys; where the clubman, boasting of great game hunting, heard above the click of his smooth, lovely resilient billiard balls no echo of the wild shrieks of pain from kindly, half-human beasts as fifty to seventy-five thousand each were slaughtered in cold, cruel, lingering horror of living death; sending their teeth to adorn civilization on the bowed heads and chained feet of thirty thousand black slaves, leaving behind more than a hundred thousand corpses in broken, flaming homes. (Du Bois, 1946, p. 74)

Metropolitan populations invest in this world order. They are on the receiving end of this colonial commodity production and encounter a series of goods – furniture made from mahogany wood, sugar to sweeten the cup of tea from enslaved or indentured labor, ivory to shape the billiard balls for entertainment – as a feature of life, as a form of comfort, as an expectation. Through these logics, the metropolitan population created an investment in the veil that prevents the coming to terms with the supply chain and its dramatic human and natural toil. Colonial goods came to define a metropolitan person's modern lifestyle, defining general levels of comforts but also the interactions Europeans had in coffee houses, the kinds of cuisines they valued, the calories they required, and the way they furnished their homes (Gately, 2001; Martin, 2007; Mintz, 1985; Williams, 1944). Du Bois' global veil allows us to understand why metropolitan populations are at once unable and unwilling to see the colonial violence which enables their worlds. Once we bring to light the workings of the global veil, we may be able to pierce through it and denaturalize this world order. Du Bois offers a denaturalization tool in his idea of the colonial commodity, to which we turn next.

### *The Colonial Commodity*

Just as Marx used the commodity to explain how it hides social relations of labor, Du Bois uses the colonial commodity as a similar heuristic device. Du Bois highlights the fetishization of the colonial commodity and points out how the colonial commodity clouds colonial social relations of racial hierarchy and

violence. Thus, while Marx examines the commodity through unpacking hidden social relations of labor, Du Bois focuses on the colonial social relations constituting the commodity, veiling racialized social relations of labor at a global scale (Du Bois, 1946; Itzigsohn & Brown, 2020).

Marx explains how the commodity conceals the social relations between individuals. He states that we do not relate to each other directly but through the products we encounter on the market, and yet, there are social relations beyond the visible material world, as every object we exchange contains human labor. Marx offers a critique of our tendency to reify the perception of social relations and categories, obscuring their historical and social construction. These social relations of labor, he states, get naturalized in an inanimate object, thereby divorcing us from the conditions of its very making (Marx, 1844).<sup>5</sup>

In a similar move, Du Bois formulates a theory of colonial commodities. Yet, Du Bois explains the making of commodities through the colonial relationship. Colonial projects impose violent, racialized labor regimes in a quest to produce commodities, which then get shipped to the metropole.<sup>6</sup> Du Bois' analysis of colonial commodities does not solely conceal a social relationship of labor but one of racialized colonial exploitation, dehumanization, and oppression. We not only encounter the commodity as divorced from the relationship between capitalist and laborer but also as separated – in time and in space – from its colonial labor hierarchy, between colonial corporations and colonized or enslaved laborers. This commodity chain is racialized, whereby the exploitation of specific laborers gets justified through racial hierarchies, and it hides this exploitation behind the global veil.

Despite the ubiquity of colonial commodities, the colonial supply chain appears as naturalized to the metropolitan population.<sup>7</sup> As such, akin to Marx, Du Bois begins to question the symbolic orders that obscure and naturalize the social relations inherent in the commodity.<sup>8</sup> Du Bois uses colonial commodities as ubiquitous as tea, sugar, or mahogany furniture to reconstitute the relationship between metropole and colony; to bring to light how metropolitan goods depend on racialized supply chains and colonial resource extraction.<sup>9</sup> Thinking through the colonial commodity allows us to reconnect the relations between colony and metropole and to make visible the racialized, violent economic relationship at the heart of producing these commodities.

## THE DIGITAL VEIL

This Du Boisian framework allows us to highlight a social, political, and economic system that dehumanizes people to perpetuate their exploitation for economic gains. Du Bois shows us that the color line simultaneously hides and justifies labor and resource extraction. The violence and exploitation of colonialism and slavery get bifurcated from metropolitan spaces, while maintaining the global color line. It is precisely this erasure of racialized laborers working in former colonial sites that can be observed in today's digital economy.

In what follows, we demonstrate why Du Bois' analysis of racial colonial capitalism is useful to understand the central dynamics behind AI-enabled

services and products. We first examine how digital technologies rely on global supply chains that tread on colonial pathways; in both resource extraction and labor exploitation. Even though the digital world presents itself as fully automated, we consider the explicit and implicit extraction of human labor to develop and enable machine learning algorithms and AI. This human labor is hidden behind a global veil, while the illusion of technological advancement envelops the metropolitan population. We then examine how technology companies collect data in contemporary spaces of exception, such as humanitarian camps, border controls, and war technologies, and then use AI products to replicate racialized systems of governance. Du Boisian frameworks reach beyond national borders and allow us to take account of the symbiosis between monetary profit creation and racialized governance.

*The Persistence of the Global Color Line: The Origins of New Technologies in Old Colonial Spaces*

Historical colonial projects that drew on racialized labor exploitation, land dispossession, and resource extraction continue in contemporary supply chains of digital technological products. Du Bois theorizes how the analytic bifurcation between the finished good and its supply chain obscures the violent exploitation required to produce the goods and services we enjoy on a regular basis. In interrogating the production of the colonial commodity, Du Bois directs us to more carefully examine the narratives we construct around these objects, particularly resources and labor existing in neocolonial relationships, which erase and disregard the extractive and exploitative labor practices enmeshed in the object.

In “Anatomy of an A.I. System,” Crawford and Joler trace the battery of the AI-enabled home assistant device, the Amazon Echo, back to The Salar in Bolivia (2018). The Salar is the site of the world’s supply of lithium, the material necessary to make rechargeable lithium-ion batteries. These batteries are at the center for much of new technological innovation, powering everything from the latest smartphones, laptops, to electric vehicles.

Bolivia, a former colonial territory of the Spanish empire, is one of three South American regions which is known for its natural lithium reserves – the other two being in Chile and Argentina – forming what is known as the Lithium Triangle. Lithium mining is a slow process and requires large amounts of water: nearly 500,000 tons of water to produce a ton of lithium. In order to produce lithium to create batteries for electric vehicles and cut the West’s reliance on environmentally toxic fossil fuels, Bolivians must contend with permanent damage to their landscape, as well as the poisoning of nearby water sources and soil (Katwala, 2018).

Du Bois’ framework explains why and how such extractive, as well as socially and environmentally destructive practices tread on colonial pathways and appear entirely normalized. Former colonial territories, like Bolivia, that are now considered economically underdeveloped, are believed to have few other options for economic growth and development. Lithium mining depletes natural resource

reserves, worsens environmental conditions, and reduces the viability to engage in other economic activities such as farming or fishing. And yet, it is presented as the only option for economic survival (Achtenberg, 2010; Hollender & Shultz, 2010; Keating, 2009).

In the former Belgian colony, now known as the Democratic Republic of the Congo (DRC), another important mineral is extracted: cobalt. Like lithium, cobalt is necessary for the stability and durability of rechargeable batteries. The DRC holds nearly two-thirds of the world's supply of cobalt (Walt & Meyer, 2018). Roughly 20 percent of the cobalt currently exported from the region comes from the country's "artisanal" miners (Amnesty International, 2016). A euphemistic title, "artisanal" miner refers to independent diggers who largely rely on hand tools such as chisels and mallets to dig underground tunnels extending as far as 60 meters without support braces to prevent the tunnels from collapsing (Amnesty International, 2017). Individuals sell their hand-extracted, sifted, and washed cobalt ore to licensed buying houses, which then sell them onto larger private companies, which in turn process and smelt the ore into cobalt products. Battery manufacturers in China and South Korea buy these cobalt products and work with better known technology brands such as Samsung, LG, Sony, Microsoft, and Apple for their final consumer products (Amnesty International, 2017).

The privatized and independent supply chains reflect Belgian colonialism in the Congo. Belgium relied upon a "private" style of colonization," wherein the cost of colonization had to be offset by the profits of resource extraction, as opposed to the existing coffers of the metropole, while simultaneously ensuring a return on investment for private shareholders (Vanthemsche, 2012, p. 23). This "private" style enabled a particularly violent and inhumane form of colonization, notable even among its imperial contemporaries, emphasizing "a merciless work regime" in order to maximize profit from the extraction of rubber, ivory, copper, and cobalt (Vanthemsche, 2012, p. 23). Today, with emphasis on private management of cobalt reserves and of the broader supply chain from extraction to production of the consumer electronic, cobalt mining in the DRC is also notorious for its use of child labor and nonexistent health protections for its workers or consideration of environmental concerns from cobalt processing (Walt & Meyer, 2018).

By and large, rechargeable batteries are an important innovation to power more environmentally friendly technologies. Able to hold a higher charge for a long period of time, lithium-ion batteries are the power source of choice for most consumer electronics products, including smartphones, laptop computers, tablets, and even rechargeable electric car batteries. However, the production of rechargeable batteries relies upon minimally regulated natural resource extraction and highly questionable labor practices in former colonial sites, such as the DRC and mines across South America. These labor conditions cannot be characterized solely as symptoms of an economically "underdeveloped" nation. Over half a century of brutal colonial rule, as well as a violent struggle for decolonization and preservation of the white supremacist racial hierarchy after independence, are all major contributing factors to the establishment of an independent economic

structure in the DRC (Tsurukawa, Prakash, & Manhart, 2011). Corporations are able to take advantage of the absence of well-resourced and well-managed mining infrastructures in places like the DRC and profit from the lack of labor and natural resource protections (Sovacool, 2019; Tsurukawa et al., 2011). Ironically, as consumers in the metropole demand more environmentally friendly and more efficient consumer electronics, such as electric cars or devices with longer-lasting batteries, the demand for natural resources like lithium and cobalt exponentially increase, requiring further exploitative labor practices to meet these resource demands. The need to reduce the price of these technologies, in order to encourage greater consumption of these products in places like the United States and western Europe, also means such exploitation will likely continue and remain obscured.

Supply chains between the point of extraction from the earth to the production of the final consumer product are highly convoluted and complex (Arrighi & Drangle, 1986; Bair, 2009; Feenstra, 1998; Posner, 2018). This obscures the connections between the product itself, the permanent damage done to the natural environment, and the exploitative labor necessary to produce it. It also conceals the neocolonial nature of the exchange. The natural resources necessary for the electronic products are taken out of former colonial territories, through the continued use of exploitative labor practices of former colonial subjects.

#### *Colonial Pathways: The Hidden Humans Enabling Artificial Intelligence*

Digital technology extracts value from all its users. However, the nature of labor extraction, especially the violence associated with it, differs along racial colonial lines – the color line. Moreover, the belief in the commodity erases this often-violent extraction of racialized labor. In an effort to maintain the belief in AI, tech companies tend to conceal how, hidden behind each new consumer device and digital platform, there is also a network of digital laborers enabling the seamless functionality of those devices and services (Gray & Suri 2017, 2019; Roberts, 2019). For example, Google announced a new technology in 2018, Google Duplex, which uses an AI system to conduct “natural-sounding conversations to carry out ‘real world’ tasks over the phone,” such as making restaurant reservations (Leviathan & Matias, 2018). As users and consumers, we are led to believe that tremendous growth in AI technology is underpinning this new, automated service. However, *The New York Times* revealed that nearly a quarter of the calls placed through Google Duplex were actually initiated by a human customer service representative in a call center and another 15 percent of those started by the automated system had to have a human intervene to complete the task (Chen & Metz, 2019). Eager to believe that technological innovations are now capable of handling mundane and repetitive tasks – and will increasingly handle more challenging, but less desirable tasks, such as driving on roads – as users and consumers, we are quick to ignore the possibility that another human, in a nondescript building halfway around the world, may actually be doing the work.

Humans pretending to be an AI-enabled system is not the only way human labor is built into AI technologies. Data labeling is another place where a

significant amount of human labor is hidden. Data labeling is the practice of categorizing, highlighting, or tagging data in a way that is readable for machines and algorithms. AI models are built to consume millions of labeled data and learn the hidden or obvious patterns that relate a data point to its label. Later, in order to assess the accuracy of these models, they use another dataset to feed to the model and assess if the model is able to predict the labels correctly. Training and testing are a vital part of any AI model, and therefore, the majority of AI algorithms depend heavily on a massive amount of data that have been either manually labeled by millions of workers (Pasquinelli & Joler, 2020) or collected from people's online activity. For example, a significant amount of manual labor (Shum, 2020) goes into labeling textual data; these data are later used to train NLP algorithms that automatically analyze and process texts.

Most data labeling service providers operate globally, with large factions of their labelers located in India, Kenya, and throughout Southeast Asia, while the headquarters for these technology companies are based in the United States (Kahn, 2020; Shum, 2020). MTurkers, crowdsourced micro-task workers through the Amazon Mechanical Turk platform, are increasingly international, with workers from India making up a larger proportion of workers (Ross, Zaldivar, Irani, Tomlinson, & Silberman, 2010). The geographic displacement of the unglamorous but invaluable data labeling work only helps to maintain the magic of digital technology.

Content moderation on social media platforms like Facebook, Instagram, YouTube, or Twitter can be harmful and difficult work, both in terms of the volume of work that must be processed by a human moderator and the violent or otherwise emotionally disturbing content they must view. A typical person scrolling through Facebook or YouTube is unlikely to come across extreme images like sexual and physical violence against children and adults or even pornography. Even if purposefully sought out, abusive or even distasteful content will be difficult to find, as they are removed from social media platforms for violating company guidelines. With over 2.38 billion monthly active users on Facebook as of March 2019 (Facebook Newsroom, 2019) and well over 500 hours of content uploaded to YouTube *per minute* (Jhonsa, 2018), it is remarkable that most regular users are able to utilize social media platforms without witnessing videos and images that go beyond distasteful into the realm of offensive, if not psychologically damaging. Users are told that algorithms and AI sift through the mountains of media content to keep our searches and social media feeds clear of extreme violence and child exploitation (Bickert & Fishman, 2018; Davis, 2018; Roberts, 2019).<sup>10</sup>

Yet the reality is, like the network of human assistants enabling the success of AI systems like Google Duplex, content moderation on social media platforms is not solely automated through the use of algorithms and machine learning, but also through the expenditure of repetitive human labor. A pool of human content moderators, numbering anywhere between 15,000 and 150,000 (Buni & Chemaly, 2016; Newton, 2019; Powers, 2017)<sup>11</sup> and largely based overseas, sift through thousands of pictures, videos, and text-based posts every day to remove any content that is in violation of the social media platform's guidelines. Content



moderators will review hours upon hours of murders, the sexual exploitation of children, bestiality, sexual violence and rapes, and drone shootings quickly and efficiently so that users do not accidentally stumble across these between puppy videos and photos of families and friends.

The bulk of this work takes place overseas, first and foremost in the Philippines and India. As a former US and British colony, respectively, these sites have a deeper knowledge of American, and more broadly Western, cultural values, and are better equipped to determine what is considered not only in violation of company posting guidelines but also offensive within a Western cultural context (Breslow, 2018; Chen 2014, 2017; Roberts, 2016). This is not just a story of capitalist labor exploitation. Rather, it is the prior colonial relationships that enable this content moderation to be done effectively. The history of cultural transfers between the metropole and colony (e.g., between the United States and the Philippines and Britain and India) enables workers to note the nuance between a video documenting the actions of white supremacists and a video glorifying and promoting white supremacy. Similarly, the familiarity with language is essential for these jobs: Given the difficulty of negotiating acceptable and unacceptable speech, basic training or a handbook are not sufficient for workers to effectively moderate content without either letting inappropriate material slip through or excessively removing content and ruining the user's experience (Roberts, 2016).

Furthermore, keeping the majority of content moderation overseas also has another benefit for major tech companies: They can maintain the illusion that such violence does not exist on the Internet or on their platforms and anything that does exist is managed by the most cutting-edge AI. It allows users to believe that their content is not curated or managed, nor their free speech curtailed. The metropole can maintain its ignorance regarding the kind of labor required to provide us with a clean, functioning, safe Internet.

Further, it feeds into tech companies' narratives about contributing to the greater good by providing valuable tech jobs to "economically developing" nations like the Philippines and India and all over the world. Despite lacking any of the creativity, innovation, and prestige of most US-based tech jobs, these are nonetheless jobs working for, even if not directly within, highly regarded tech companies. While US-based content moderation firms are emerging, the bulk of the labor is still conducted overseas, where monitoring can occur at all hours and in multiple languages. Furthermore, labor costs are lower and working conditions may be less scrutinized by both regulators and consumers in the United States. Whereas a Facebook employee working in its headquarters in Menlo Park will earn on average \$240,000 per year (in salary, bonuses, and stock options), spending their days in an "airy sunlit complex designed by Frank Gehry" with free, healthy lunches served daily in their cafeteria, third-party contractors working as content moderators for Facebook in Phoenix, AZ, will earn about \$28,000 working in a blank office park with limited bathroom stalls and cramped cubicles (Newton, 2019). Pilipino content moderators receive even less, earning between \$300 and \$500 a month (\$3,600 to \$6,000 a year), with none of the perks of a nice office space, on-site amenities, or qualified and consistent mental health support (Chen, 2014).

This narrative of the poor and impoverished “other” helps to justify the outsourcing of the most undesirable jobs which provide the necessary support and infrastructure to maintain the kind of digital life we desire; while the physical distance allows us to forget that such work and labor even exist in the first place. Such narratives allow tech entrepreneurs to “maintain the ideology of the non-hierarchical organization within their walls,” keeping the high-technology work that is “mindful, challenging, and creative” in-house and outsourcing the work that does not meet the creative ideals of tech entrepreneurship (Irani, 2015). In addition to sustaining the narrative of bringing necessary tech jobs to the poor, Black and brown people of former colonies, companies can also keep the psychological violence waged upon content moderators overseas obscured.

### *Racialized Subjection through the Development of Artificial Intelligence*

To create more accurate AI, users need to feed the machine more data: More posts about what they are thinking about on Facebook, more feedback on which products they like or dislike on Amazon, and more fitness tracking data with greater regularity (Fourcade & Healy, 2017). What users unknowingly do, however, is to create greater value for the companies which process and monetize them. Search engines like Google become more accurate with use, as data on which links were more useful to users and which were infrequently selected allow them to refine their algorithms and produce better search results (Park, 2017). Social media platforms are more engaging and gain frequency in use the more users they have and the more content the users produce. Third parties use the data to target individualized advertisements for other products and services, taking an individual from being a user, then a producer, and back around to being a consumer (Zuboff, 2019). These products and services, in turn, are likely to also collect consumer/user data, which companies monetize through engaging other advertisers and businesses, thus continuing the cycle.

However, data collection, the improvement of artificially intelligent systems, and the further development of digital technologies take place in a world that is structured through colonial and racial orders. Data collection and experimentation (A/B testing) are two pillars of developing artificially intelligent systems. To carry out these practices, companies often exploit and further entrench these unequal social relations. As Zuboff and others have found, major tech companies, such as Google and Facebook, continuously experiment, seeking “real-life” laboratories where their new technology can be tested at scale (Swearingen, 2018b; Zuboff, 2015), aiming to improve the accuracy of the algorithms, and determining features necessary for widespread adoption and use of the product or service. And, while all users are potential experimental subjects on whom to test new features or technology, companies are known to take advantage of their global reach.

For example, when Facebook explored changes to its popular “News Feed” component, testing how user engagement would change if News Feeds either showed only news from friends and another which included posts created by media publishers, this experiment happened almost entirely outside the United

States and Western Europe. Facebook engineers relied on Bolivia, Slovakia, Sri Lanka, Serbia, Guatemala, and Cambodia as testing sites. This change was immediately disruptive for each nation's local news ecosystems and threatened the livelihood of some local newspapers for the longer term (Swearingen, 2018a, 2018b).

Further, Facebook launched a project to subsidize the cost of Internet access to their Facebook mobile app, specifically in areas where people have to pay for cellular data by the megabyte making smartphone app usage prohibitively expensive (Swearingen, 2018a). In 2013, Facebook targeted the 100 million citizens of the Philippines for its "Free Facebook" program. While in theory, the impact of Facebook should have been minimal, the social media platform ended up potentially serving as the only news source: users could read headlines and posts posted by friends in their Facebook Newsfeed, but without a costly cellular data plan, they could not browse to other news media websites (Swearingen, 2018a). On its face, Facebook as the de facto news source for millions of people may not raise any alarms. However, given the high propensity of disinformation to spread quickly on Facebook (AVAAZ, 2019; Baptista & Gradim, 2020; Madrigal, 2017), this resulted in a high volume of false information being spread during an election year giving rising legitimacy to a dictatorial leader, Rodrigo Duterte (Vaidhyathan, 2018).<sup>12</sup>

The experimentation on marginalized populations and subsequent surveillance of these populations is more explicit when considering the development of biometric technology, including facial recognition systems. Here, the value generated from data collection is not only monetary; rather, the use of AI-driven technology strengthens the ability to govern and control racialized bodies. In her work examining the digitization of human bodies in United Nations High Commission for Refugee (UNHCR) camps and conflict zones, Dongus argues that lucrative emerging biometric technologies are often tested in "developing" and "politically unstable" regions (Dongus, 2019a). Biometric enrollment is a requirement for people living in UNHCR refugee camps: The implementation of biometric identification technology at refugee camps transforms them into "labcamps" where private corporations pilot algorithmic and biometric technologies outside of their own sterile laboratories, while continuously gathering additional data to train their algorithms (Dongus, 2019b).<sup>13</sup> Border regions are similar spaces of exception, in which technology companies are able to experiment with new surveillance mechanisms, all the while collecting more data. The European Union's Border and Coast Guard Agency FRONTEX, for instance, recruits a host of technology companies to supply aerial surveillance drones to monitor "illegal activity" in the Mediterranean (Csernatoni, 2018) and worked with digital companies to foster maritime surveillance data (Monroy, 2020). Just as colonial territories and plantations were testing sites for new technologies of population management, identification, and governance (Breckenridge, 2014; Browne, 2015; Pugliese, 2010), refugee camps and other regions marked as "developing" or "unstable" serve as the same kind of political-judicial gray zones (Agier, 2011), where the people within these spaces are not recognized as human with defensible rights to autonomy and privacy. Under the guise of social good and techno-solutionism,

corporations are able to step in to test their own wares while purporting to help manage “unmanageable” populations (Molnar, 2020).

For racialized communities, the data produced from their own app-usage or collection of their biometric data can be transformed to create technology to police, imprison, survey, or even kill them.<sup>14</sup> In 2019, Google allegedly targeted people with “darker skin” to improve its facial recognition technology, with third-party vendors supplying the photos for the training dataset supposedly concealing the purpose for the photo and the fact that participants were being recorded (Otis & Dillon, 2019). More recently, a group of researchers in China came under scrutiny for their use of photos collected from Uyghur, Korean, and Tibetan students at Dalian Minzu University to train their facial recognition algorithm (Van Noorden, 2020). The purpose of the algorithm was to specifically distinguish the faces of Uyghur people, the predominantly Muslim minority ethnic group in China that has been targeted by draconian surveillance practices and mass detention by the Chinese government (Mozur, 2019). For this reason, in addition to the absence of informed consent and extraction of personal data from racialized people and other marginalized populations (Keyes, Hoy, & Drouhard, 2019), the explicit “diversification” of facial recognition training datasets is concerning because of how facial recognition technology is used for mass surveillance and racial profiling (Coldewey, 2020; Levy & Hirsch, 2020).

Further, a 2020 investigation found that the US military purchased location data – providing highly granular movement data of people around the world – from apps marketed toward those in the Muslim community, including popular Muslim prayer and Quran apps (Cox, 2020). This identity-oriented data acquisition is especially alarming because of the growing reliance on electronic surveillance and data tracking by the US National Security Agency. In the past, the National Security Agency relied on SIM card activity data and other location data to select and justify drone strike targets (Scahill & Greenwald, 2014). Access to commercial location databases have also been acquired by the US Department of Homeland Security, US Customs and Border Protection, and the Immigration and Customs Enforcement agency to target immigrants at the United States–Mexico Border (Tau & Hackman, 2020). The transformation from human being to datapoint, the abstraction of human life to a movement of dots on a screen, dehumanizes and as such further entrenches the detachment necessary to pull the trigger, impose surveillance systems, or conduct arrests. For racialized and marginalized subjects, datafication is intrinsically tied to questions over life and death.

If one begins from the standpoint and historic experiences of racialized colonial subjects, one can trace how technologies collect and capitalize behavioral and biological materials from unwitting donors, while then surveilling and controlling them. The now-famous story of Henrietta Lacks, a black woman whose genetic material was taken during a medical procedure, then analyzed, cultured, and repurposed many times over for cancer research without her knowledge, consent, or compensation is archetypical of how dehumanizing extractive practices can be (Skloot, 2010). Similarly, the experience of Sara Baartman, the South African Khoikhoi woman, whose body was displayed in colonial exhibitions and then dissected, speaks to the total domination of bodies (Qureshi, 2004).<sup>15</sup>

The monetization of our lives as data has become a central feature of today's capitalist economy. However, privacy solutions and the ability to carve out a part of life that is not monetized requires respect for rights-bearing individuals. In spaces of necropolitics, AI technologies not solely breach privacy, but rather replicate and automate violent governance structures and racist ways of seeing. While the commodification of life is monetized for the average Facebook user, this commodification becomes a question of total control for those who are subject to police surveillance, prisons, border regions, refugee camps, or war. Technologies take on governance functions that entrench racist, classist, and gendered orders while creating further profits for technology companies. These surveillance regimes are used most freely in the postcolony and other spaces of exception (Mbembe, 2001). We are not suggesting path-dependent processes from enslavement to the production of digital technologies. Rather, seeing the historical symbiosis of colonial governance, racial oppression, and capitalism helps us to make visible how some of the very same logics shape contemporary digital technology practices. Racial colonial capitalism encompasses technologies that maximize the extraction of value while keeping racialized orders in place.

## CONCLUSION

In *The World and Africa*, Du Bois wrote of a world bifurcated and shaped by the global color line. Charting the development of global racial capitalism, from the Atlantic Slave trade, to colonial labor relations to neocolonial tech production chains, this Du Boisian framework allows us to see how some bodies become racialized and with it, highly exploitable. The logics of Du Bois' racial colonial capitalism continue long after the dissolution of formal colonial systems. The violence of colonial commodities can be updated to the dynamics of extraction and neocolonial exploitation of contemporary technology: instead of playing the piano, the young woman is tapping on the screen of her iPhone, idly flipping through her TikTok, Instagram, and Twitter in quick succession. Instead of being surrounded by mahogany furniture, her home is well appointed with the latest smarthome devices, like an Amazon Echo home assistant.

These commodities are, in many ways, neocolonial commodities: they hide globally situated, exploitative social relations, and resource extraction. The materials needed to power the woman's iPhone and Amazon Echo are mined in far-flung places like the Democratic Republic of Congo and Bolivia, where former colonial subjects are now working in dangerous conditions for nominal profit to mine the minerals necessary to manufacture the batteries. Social media apps are constantly monitored by people in other former colonial territories, so she does not view anything unsavory or potentially traumatizing. She uses facial recognition apps and photo filters, without paying much attention to their development and use in surveillance situations. The color line persists, separating her from the environmental damage caused by the extraction of natural resources and the physical and psychological exploitation of mostly nonwhite, former colonial subjects. The veil, manifested now in the mythology of technical

advancements like algorithms and machine learning, ensures she does not see the violence or suffering. Today's belief in technological products and solutions draws our attention away from the deep global ties that enable the creation of these products through violent labor practices and devastating environmental extraction that often tread directly along colonial lines. Immersed in the smooth functioning of a safe Internet space, we replicate patterns of colonial veiling as we fail to see the psychologically and physically harmful labor necessary to provide us with this safety.

Artificially intelligent systems also do not only rely on this colonial past; but they replicate its forms of governance: Data collection, which often draws on vulnerable populations, is monetarily profitable, but AI-powered machines also learn and reproduce racialized forms of seeing. Their use in border and war technology, and surveillance systems replicates racialized forms of governance. These technologies outsource decision-making powers and thus automate control, in policing and surveillance as much as global spaces of exception, such as refugee camps, border controls, and war. The extraction of data from the most vulnerable and the AI-driven governance of racialized populations work hand in hand.

As Tressie McMillan Cottom argues in her analysis of platform capitalism and race, "we cannot cede the study of digitality to the center of discipline" by decoupling the empirical study of the Internet from the study of race and racism (McMillan Cottom, 2020). There is a growing body of scholars, from within sociology and from other adjacent disciplinary and interdisciplinary fields, dedicated to the study of digital technology's relationship to racism and coloniality. Black women,<sup>16</sup> in particular, have led both the fields of sociology and technology (e.g., engineering, AI, data science) toward a more robust study of the social impacts of technology and the ethical and responsible development of that technology.

As we have shown, a better historical and analytical understanding of the logics of racial colonial capitalism allows us to understand the totalizing commodification we are currently experiencing. It better directs our attention to see who is most affected and how extensive and violent these technologies can be. For example, the relationship between technology companies, government agencies, and politically liminal sites like refugee camps and border zones are only recently coming to the attention of scholars. How is governance transformed by the use of privately owned surveillance technology? How do measurable datapoints, such as eye movement, shape how government agencies determine the worthiness of individuals to be admitted to their citizenry?

Racial colonial capitalism is not a historic, bygone era of capitalism; it is ongoing and seeps into even the most contemporary and modern of fields, AI, and digital technology. As a framework, racial colonial capitalism draws attention to the legacies of racialized colonization, specifically how digital technology relies on established racial and colonial orders for its production, refinement, and use. It also illuminates how digital technology replicates racial and colonial orders, further enabling and justifying the control of racialized bodies and colonial spaces. If we are to effectively prepare for, if not altogether alter, the

impact of these new technologies, it is necessary to examine and evaluate them, not as singular, technical innovations, but as part of a global system of racial colonial capitalism.

## NOTES

1. In Google's marketing materials for reCAPTCHA, they state, "Every time our CAPTCHAs are solved, that human effort helps digitize text, annotate images, and build machine learning datasets. This in turn helps preserve books, improve maps, and solve hard AI problems" (Google, 2020).

2. This is not to say that researchers who examine individual technologies, such as Facebook or Uber, do not consider or understand the social impact of the whole of digital technology. On the contrary, most critical scholars studying new digital technology recognize how the component they examine fits into a much larger system of social interactions between technology and humans. However, less has been published regarding the broader social systems affecting the creation, distribution, and use of these various technologies.

3. In his later writings, such as "The African Roots of War" (Du Bois, 1915), "The Souls of White Folk" (Du Bois, 1920b), "The Hands of Ethiopia" (Du Bois, 1920a), and *Color and Democracy* (Du Bois, 1945), Du Bois further explains how and why racial formations and resistance struggles are rooted in colonial history.

4. Du Bois goes beyond Marxist analyses of colonialism (Miles, 1987), dependency theory (Frank, 1998), and World Systems analysis (Wallerstein, 1974) because he centers racialization as a structuring force. Wallerstein, for instance, pioneered the global framework of unequal relationships between the core, semi-periphery, and periphery, which represent distinct positions in our global division of labor and differential economic positionalities (Wallerstein, 1974). However, even though these approaches analyze the interaction of capitalism and empire, colonialism and racialization tend to exist as superstructural social phenomena which are ultimately driven by underlying economic relations (Grosfoguel, 2000). These works made important inroads in explaining the need for a global framework to understand the maintenance and reproduction of capitalism, but they do not center colonial violence and the dehumanization of people through race as a structuring force in these dynamics. The reliance on economic relations gets us away from analyzing racialized violence and its centrality in enabling capitalist functioning (Go, 2013).

5. "Whenever, by an exchange, we equate as values our different products, by that very act, we also equate, as human labor, the different kinds of labor expended upon them" (Marx, 1867, p. 322). The peculiar character of commodities in capitalist societies, Marx writes, is that we confront the commodity as containing value in itself, as opposed to stemming from the labor process it took to produce it. While classical economists had assumed the value of the commodity in and of itself, it is, in fact, created by the labor process. And yet, it seems to exist entirely divorced from its production process and thereby "reflects the social characteristics of men's own labour as objective characteristics of the products of labour themselves, as the socio-natural properties of things" (Marx, 1867, pp. 164–65).

6. Somewhat ironically, it was *stimulant* goods that doused Western European populations, including sugar (Mintz, 1985; Walvin, 2019), rum, tobacco (Gately, 2001), cocoa, coffee, as well as other products, such as cotton (Beckert, 2015; Riello, 2013), so central to European industrial development.

7. This idea of the colonial commodity fetishism offers a unique contribution to our analyses of supply chains. Traditional commodity chain analyses trace the "disintegration of production" (Feenstra, 1998), examining the variegated supply chain of global production. Any consumption good, this scholarship suggests, encapsulates a long supply chain, from raw materials to labor to transportation mechanisms, thus constituting a wide and global production network (Bair, 2009). Commodity chain analyses explain how and

why the rewards won from goods are highly unequal, thus reinstating a global division of labor between exploitable laborers and consumers (Arrighi & Drangle, 1986). However, because this literature does not explicitly theorize colonialism which gave rise to the spatial separation between “us” and “them,” it does not analyze the racialized dynamic at the heart of this exchange, nor does it offer an explanation for why we came to perceive commodity chains as bifurcated.

8. Marx referred to the commodity as an “objective thought form.” In discussing the historical and social construction of the very same categories which political economists of his time, such as Smith or Ricardo, took for granted, Marx offered a critique of the naturalization with which we treat these categories as given, thus failing to make explicit their constitution. The objective thought forms point out how our categories of thought are historically and socially constructed while appearing naturalized to us. Critique, in turn, means to unsettle naturalized socioeconomic relations in showing their historical and social constitution (Rehmann, 2014). Much like Marx, Du Bois used the colonial commodity to, at once, unearth a power relationship that gets abstracted and perceived as the objective outcome of a natural social order.

9. This denaturalization tool is similar to Edward Said’s “contrapuntal reading.” Through contrapuntal reading, Said hones in on inconspicuous objects that make up our intimate lives and he traces their larger global connections and silent but violent histories. Reading *Mansfield Park*, for example, he notes how this novel supposedly tells the story of a local English family. Yet, the family’s wealth deeply depends on their linkages to slave-based sugar production in the British West Indies. He notes the presence of colonial commodities, including sugar, tea, coffee, furniture, and shows how these signs tell a larger colonial story, well beyond their immediate social context. Postcolonial sociologists have demonstrated how for sociology, contrapuntal reading rests on reconstituting relations that have been severed in conventional narratives (Bhabra, 2007, 2013, 2014; Go, 2013, 2016; Magubane, 2005).

10. Roberts’ “Behind the Screen: Content Moderation in the Shadows of Social Media” is highly recommended for more information; based on 8 years of research in the field of content moderation and is one of the only scholarly works which explores this field in depth (2019).

11. Due to nondisclosure agreements and the use of overseas third-party content moderation firms, it is difficult to accurately count the number of people moderating content for the various social media platforms. These estimates are provided by industry experts based on available data.

12. Due to massive consolidation and acquisition of competitors, the technology sector is dominated by a handful of monopolistic corporations. Such monopolies leave little choice for people to select less extractive options. “Free Basics” by Facebook, for example, provided free Internet access to their mobile app and a handful of other specific websites. In return for limited access to the Internet, Facebook required access to SMS, phone, photo, and other media files on smartphones (Advoc, 2017). In other words, for those with limited access to technology in Columbia, Ghana, Kenya, Mexico, Pakistan, and the Philippines (the pilot countries where “Free Basics” was launched), individuals had to choose either providing Facebook with detailed and constant user data or not having access to the Internet at all.

13. This is doubly important, as researchers are also under pressure to use “diverse” training datasets to minimize bias, including racial and gender bias, in technologies like facial recognition software (Lohr, 2018). Photographic training data, collected from refugee camps in places like Malawi and Thailand, are more likely to include nonwhite people, thus diversifying datasets.

14. In some cases, “labcamps” also involve gig work for refugees, where they label training data for machine learning algorithms (Dongus, 2019b). While there is yet to be a documented case where workers in these “labcamps” labeled data for use with AI/ML systems that specifically target refugee communities (e.g., facial recognition algorithms for use in conflict zones), this is also not entirely unlikely given how innocuous-seeming



datasets, such as public Flickr accounts, are used to develop harmful technology, or how law enforcement uses facial recognition algorithms to target Black and other nonwhite communities.

15. Ruha Benjamin's work delves more into this subject, examining whose bodies (usually nonwhite, non-Western) are used for scientific research and who is served, or not served, by that science, and how those dynamics are gendered and racialized (2019).

16. Here, we refer to leading and rising figures like Rediet Abebe, Ifeoma Ajunwa, Ruha Benjamin, Abeba Birhane, Joy Buolamwini, Timnit Gebru, Amber Hamilton, Ayanna Howard, Tressie McMillan Cottom, Alondra Nelson, Safiya Umoja Noble, Whitney Laster Pirtle, Deborah Raji, among so many more.

## REFERENCES

- Achtenberg, E. (2010). Bolivia bets on state-run lithium industry. NACLA. Retrieved from <https://nacla.org/news/bolivia-bets-state-run-lithium-industry>
- Advox. (2017). *Free basics in real life: Six case studies on Facebook's internet "on ramp" initiative from Africa, Asia and Latin America*. Amsterdam: Global Voices.
- Agamben, G. (2005). *State of exception*. Chicago, IL: The University of Chicago Press.
- Agier, M. (2011). *Managing the undesirables: Refugee camps and humanitarian government*. Cambridge: Polity Press.
- Amnesty International. (2016). "This is what we die for": Human rights abuses in the democratic Republic of the Congo power the global trade in cobalt. AFR 62/3183/2016. London: Amnesty International.
- Amnesty International. (2017). *Time to recharge: Corporate action and inaction to tackle abuses in the cobalt supply chain*. AFR 62/7395/2017. London: Amnesty International.
- Arrighi, G., & Drangle, J. (1986). The stratification of the world-economy: An exploration of the semiperipheral zone. *Review (Fernand Braudel Center)*, 10(1), 9–74.
- Austen, I., & Wakabayashi, D. (2020). Google sibling abandons ambitious city of the future in Toronto. *The New York Times*, May 7.
- Avaaz. (2019). *US 2020: Another Facebook disinformation election?*. New York, NY: Avaaz.
- Bair, J. (2009). *Frontiers of commodity chain research*. Stanford, CA: Stanford University Press.
- Baptista, J. P., & Gradim, A. (2020, November 5). Online disinformation on Facebook: The spread of fake news during the Portuguese 2019 election. *Journal of Contemporary European Studies*.
- Beckert, S. (2015). *Empire of cotton: A global history*. New York, NY: Vintage Books.
- Benjamin, R. (2019). *Race after technology: Abolitionist tools for the new jim code*. Cambridge: Polity.
- Bhambra, G. K. (2007). *Rethinking modernity: Postcolonialism and the sociological imagination*. London: Palgrave Macmillan.
- Bhambra, G. K. (2013). The possibilities of, and for, global sociology: A postcolonial perspective. *Political Power and Social Theory*, 24, 294–314.
- Bhambra, G. K. (2014). *Connected sociologies*. London: Bloomsbury Press.
- Bickert, M., & Fishman, B. (2018). Hard questions: What are we doing to stay ahead of terrorists?. *Facebook Newsroom*. Retrieved from <https://newsroom.fb.com/news/2018/11/staying-ahead-of-terrorists/>
- Bloomberg News. (2010). Foxconn workers in China say 'meaningless' life sparks suicides. *Bloomberg News*, June 2.
- Bogues, A. (2018). We who were slaves. *Souls: A Critical Journal of Black Politics, Culture, and Society*, 20(4), 368–374.
- Breckenridge, K. (2014). *Biometric state: The global politics of identification and surveillance in South Africa, 1850 to the present*. Cambridge: Cambridge University Press.
- Breslow, J. (2018). Moderating the 'worst of humanity': Sexuality, witnessing, and the digital life of coloniality. *Porn Studies*, 5(3), 225–240.
- Browne, S. (2015). *Dark matters: On the surveillance of blackness*. Durham, NC: Duke University Press.
- Buni, C., & Chemaly, S. (2016). The secret rules of the internet. *The Verge*, April 13.

- Castells, M. (1996). *The rise of the network society*. West Sussex: Wiley.
- Csernaton, R. (2018). Constructing the EU's high-tech borders: Frontex and dual-use drones for border management. *European Security*, 27(2), 175–200.
- Chen, A. (2014). The laborers who keep dick pics and beheadings out of your facebook feed. *Wired UK*, October 23.
- Chen, A. (2017). The human toll of protecting the internet from the worst of humanity. *The New Yorker*, January 28.
- Chen, B. X., & Metz, C. (2019). Google's duplex uses A.I. to mimic humans (sometimes). *The New York Times*, May 22.
- Coldewey, D. (2020). IBM ends all facial recognition business as CEO calls out bias and inequality. *TechCrunch*, June 8.
- Couldry, N., & Mejias, U. A. (2019). *The costs of connection: How data is colonializing human life and appropriating it for capitalism*. Stanford, CA: Stanford University Press.
- Cox, J. (2020). How the U.S. military buys location data from ordinary apps. *Vice*, November 16.
- Crawford, K. (2016). Can an algorithm be agnostic? Scenes of contest in calculated publics. *Science, Technology & Human Values*, 41(1), 77–92.
- Crawford, K., & Joler, V. (2018). Anatomy of an AI system. Retrieved from <https://anatomyof.ai/>
- Davies, H. (2015). Ted Cruz using firm that harvested data on millions of unwitting Facebook users. *The Guardian*, December 11.
- Davis, A. (2018). New technology to fight child exploitation. *Facebook Newsroom*. Retrieved from <https://newsroom.fb.com/news/2018/10/fighting-child-exploitation/>
- Dongus, A. (2019a). Galton's utopia - data accumulation in biometric capitalism. *Spheres: Journal for Digital Cultures*, 5.
- Dongus, A. (2019b). The high-tech labor camp as laboratory. *Künstliche Intelligenz Und Medienphilosophie HfG Karlsruhe*. Retrieved from <https://kim.hfg-karlsruhe.de/the-high-tech-labor-camp-as-laboratory>
- Dou, E. (2016). Deaths of Foxconn employees highlight pressures faced by China's factory workers. *The Wall Street Journal*, August 21.
- Du Bois, W. E. B. (1903). *The souls of black folk*. New York, NY: Dover Publications, Inc.
- Du Bois, W. E. B. (1915). The African roots of war. *Atlantic Monthly*, May, pp. 707–714.
- Du Bois, W. E. B. (1920a). The hands of Ethiopia. In *Darkwater: voices from within the veil* (pp. 32–42). New York, NY: Harcourt, Brace & Company.
- Du Bois, W. E. B. (1920b). *The souls of white folk, dark water: voices from within the veil*. New York, NY: Henry Holt and Company.
- Du Bois, W. E. B. (1935). *Black reconstruction in America*. New York, NY: Free Press.
- Du Bois, W. E. B. (1945). *Color and democracy: Colonies and peace*. New York, NY: Harcourt, Brace & Company.
- Du Bois, W. E. B. (1946). *The world and Africa*. Oxford: Oxford University Press.
- Facebook Newsroom. (2019). Company info: Stats. *Facebook Newsroom*. Retrieved from <https://newsroom.fb.com/company-info/>
- Federal Trade Commission. (2014). *Consumer generated and controlled health data*. Washington, DC: Federal Trade Commission.
- Feenstra, R. C. (1998). Integration of trade and disintegration of production in the global economy. *Journal of Economic Perspectives*, 12(4), 31–50.
- Fourcade, M., & Healy, K. (2017). Seeing like a market. *Socio-Economic Review*, 15(1), 9–29.
- Frank, A. G. (1998). *Reorient: Global economy in the Asian age*. Berkeley, CA: University of California Press.
- Fuchs, C. (2012). The political economy of privacy on Facebook. *Television & New Media*, 13(2), 139–159.
- Gately, I. (2001). *Tobacco: A cultural history of how an exotic plant seduced civilization*. New York, NY: Grove Press.
- Go, J. (2013). For a postcolonial sociology. *Theory and Society*, 42, 25–55.
- Go, J. (2016). *Postcolonial thought and social theory*. Oxford: Oxford University Press.
- Google. (2020). Google Recaptcha. *Google ReCAPTCHA*. Retrieved from <https://www.google.com/recaptcha/intro/index.html?hl=ja>

- Goveia, E. V. (1960). The West Indian slave laws of the eighteenth century. *Revista de Ciencias Sociales*, 1, 75–105.
- Granville, K. (2018). Facebook and Cambridge Analytica: What you need to know as fallout widens. *The New York Times*, March 19.
- Gray, M. L., & Suri, S. (2017). The humans working behind the ai curtain. *Harvard Business Review*, January 9.
- Gray, M. L., & Suri, S. (2019). *Ghost work: How to stop silicon valley from building a new global underclass*. New York, NY: Houghton Mifflin Harcourt Publishing Company.
- Grosfoguel, R. (2000). Developmentalism, modernity, and dependency theory in Latin America. *Nepantla: Views from the South*, 1(2), 347–374.
- Hartman, S. (2016). The belly of the world: A note on black women's labors. *A Critical Journal of Black Politics, Culture, and Society*, 18(1), 166–173.
- Havel, J. (2015). Recaptcha: The genius who's tricking the world into doing his work. *The Hustle*, December 3.
- Hesse, B. (2016). Preface: Counter-racial formation. In P. K. Saucier & T. P. Woods (Eds.), *Conceptual aphasia in black: Displacing racial formation*. Lanham, MD: Lexington Books.
- Hine, D. C. (1979). Female slave resistance: The economics of sex. *The Western Journal of Black Studies*, 3(2), 123–127.
- Hollender, R., & Shultz, J. (2010). *Bolivia and its lithium: Can the "gold of the 21st century" help lift a nation out of poverty?*. San Francisco, CA: The Democracy Center.
- Housley, W., Procter, R., Edwards, A., Burnap, P., Williams, M., Sloan, L., ... Greenhill, A. (2014). Big and broad social data and the sociological imagination: A collaborative response. *Big Data & Society*, 1(2), 1–15. doi:10.1177/2053951714545135
- Huws, U. (2014). *Labor in the global digital economy: The cybertariat comes of age*. New York, NY: Monthly Review Press.
- Irani, L. (2015). The cultural work of microwork. *New Media & Society*, 17(5), 720–739.
- Irving, L., Klegar Levy, K., McConnaughey, J., Everette, D. W., Reynolds, T., & Lader, W. (1999). *Falling through the net: Defining the digital divide*. Washington, DC: National Telecommunications and Information Administration, U.S. Department of Commerce.
- Itzigsohn, J., & Brown, K. L. (2020). *The sociology of W. E. B. Du Bois: Racialized modernity and the global color line*. New York, NY: New York University Press.
- Jhonsa, E. (2018). How much could Google's YouTube be worth? Try more than \$100 billion. *The Street*, May 12.
- Johnson, W. (2013). *River of dark dreams: Slavery and empire in the cotton kingdom*. Cambridge, MA: The Belknap Press of Harvard University Press.
- Jung, M.-K. (2015). *Beneath the surface of white supremacy: Denaturalizing U.S. racism past and present*. Stanford, CA: Stanford University Press.
- Kahn, J. (2020). If data is the new oil, these companies are the new Baker Hughes. *Fortune*, February 4.
- Katwala, A. (2018). The spiralling environmental cost of our lithium battery addiction. *Wired UK*, August 5.
- Keating, J. (2009). Bolivia's lithium-powered future. *Foreign Policy*, October 21.
- Keyes, O., Hoy, J., & Drouhard, M. (2019). Human-computer insurrection: Notes on an anarchist HCI. ArXiv:1908.06167 [Cs].
- Leviathan, Y., & Matias, Y. (2018). Google duplex: An AI system for accomplishing real-world tasks over the phone. *Google AI Blog*. Retrieved from <https://ai.googleblog.com/2018/05/duplex-ai-system-for-natural-conversation.html>
- Levy, A., & Hirsch, L. (2020). Amazon bans police use of facial recognition technology for one year. *CNBC*, June 10.
- Lohr, S. (2018). Facial recognition is accurate, if you're a white guy. *The New York Times*, February 9.
- Madrigal, A. C. (2017). What Facebook did to American democracy. *The Atlantic*, October 12.
- Magubane, Z. (2005). Overlapping territories and intertwined histories: Historical sociology's global imagination. In J. Adams, E. S. Clemens, & A. S. Orloff (Eds.), *Remaking modernity: Politics, history, sociology* (pp. 92–108). Durham, NC: Duke University Press.
- Martin, L. C. (2007). *Tea: The drink that changed the world*. North Clarendon, VT: Tuttle Publishing.
- Marx, K. (1844). Economic and philosophical manuscripts. Moscow: Progress Publishers.

- Marx, K. (1867). *Capital volume I*. New York, NY: Penguin Classics.
- Mbembé, J. A. (2001). *On the postcolony*. Oakland, CA: University of California Press.
- Mbembé, J. A. (2003). Necropolitics. *Public Culture*, 15(1), 11–40.
- McMillan Cottom, T. (2020). Where platform capitalism and racial capitalism meet: The sociology of race and racism in the digital society. *Sociology of Race and Ethnicity*, 6(4), 441–449.
- Miles, R. (1987). *Capitalism and unfree labour: Anomaly or necessity?*. London: Tavistock Publications.
- Mintz, S. W. (1985). *Sweetness and power: The place of sugar in modern history*. New York, NY: Penguin Books.
- Molnar, P. (2020). *Technological testing grounds: Migration management experiments and reflections from the ground up*. European Digital Rights & Refugee Law Lab. Retrieved from <https://edri.org/wp-content/uploads/2020/11/Technological-Testing-Grounds.pdf>
- Monroy, M. (2020). EU pays for surveillance in Gulf of Tunis. Security Architectures and Police Collaboration in the EU. Retrieved from <https://digit.site36.net/2020/06/28/eu-pays-for-surveillance-in-gulf-of-tunis/>
- Morgan, J. L. (2004). *Laboring women: Reproduction and gender in new world slavery*. Philadelphia, PA: University of Pennsylvania Press.
- Mozur, P. (2019). One month, 500,000 face scans: How China is using A.I. to profile a minority. *The New York Times*.
- Murray, S. (2018). Does harvesting worker data lead to empowerment or exploitation?. *The Financial Times*, October 31.
- Newton, C. (2019). The trauma floor. *The Verge*, February 25.
- Noble, S. U. (2018). *Algorithms of oppression: How search engines reinforce racism*. New York, NY: New York University Press.
- O'Malley, J. (2018). Captcha if you can: How you've been training AI for years without realising it. *TechRadar*, January 12.
- O'Neil, C. (2018). *Weapons of math destruction: How big data increases inequality and threatens democracy*. London: Penguin Books.
- Otis, G. A., & Dillon, N. (2019). Google using dubious tactics to target people with 'darker skin' in facial recognition project: Sources. *New York Daily News*, October 2.
- Park, D. (2017). Individualization, information asymmetry, and exploitation in the advertiser-driven digital era. *The Political Economy of Communication*, 5(2), 22–44.
- Pasquale, F. (2015). *The black box society: The secret algorithms that control money and information*. Cambridge, MA: Harvard University Press.
- Pasquinelli, M., & Joler, V. (2020, November 21). The nooscope manifested: AI as instrument of knowledge extractivism. *AI & Society*. doi:10.1007/s00146-020-01097-6
- Pomfret, J., Yan, H., & Soh, K. (2010). Foxconn worker plunges to death at China plant: Report. *Reuters*, November 5.
- Posner, M. (2018). See no evil. *Logic*, August 7.
- Powers, B. (2017). The human cost of monitoring the internet. *Rolling Stone*, September 9.
- Pugliese, J. (2010). *Biometrics: Bodies, technologies, biopolitics*. London: Routledge.
- Qureshi, S. (2004). Displaying Sara Baartman, the 'Hottentot' venus. *History of Science*, 42(2), 233–257.
- Rehmann, J. (2014). *Theories of ideology: The powers of alienation and subjection*. Chicago, IL: Haymarket Books.
- Riello, G. (2013). *Cotton: The fabric that made the modern world*. Cambridge: Cambridge University Press.
- Roberts, D. (1997). *Killing the black body: Race, reproduction, and the meaning of liberty*. New York, NY: Vintage Books.
- Roberts, S. T. (2016). Digital refuse: Canadian garbage, commercial content moderation and the global circulation of social media's waste. *Media Studies Publication*, 14, 1–11.
- Roberts, S. T. (2019). *Behind the screen: Content moderation in the shadows of social media*. New Haven, CT: Yale University Press.
- Robinson, C. J. (1983). *Black Marxism: The making of the black radical tradition*. Chapel Hill, NC: The University of North Carolina Press.

- Ross, J., Zaldivar, A., Irani, L., Tomlinson, B., & Silberman, M. S. (2010). Who are the crowdworkers? Shifting demographics in mechanical turk. In *Proceedings of the 28th international conference on human factors in computing systems, CHI 2010*, Atlanta, GA.
- Sandvig, C., Hamilton, K., Karahalios, K., & Langbort, C. (2016). When the algorithm itself is a racist: Diagnosing ethical harm in the basic components of software. *International Journal of Communication*, 10, 4972–4990.
- Seahill, J., & Greenwald, G. (2014). The NSA's secret role in the U.S. assassination program. *The Intercept*, February 9.
- Shane, S., & Mazzetti, M. (2018). Inside a 3-year Russian campaign to influence U.S. voters. *The New York Times*, February 16.
- Shum, S. (2020). *Humans in the loop: Impact sourcing and freelance labor in the data labeling industry*. San Francisco, CA: CSR.
- Skloot, R. (2010). *The immortal life of Henrietta Lacks*. New York, NY: Random House.
- Sovacool, B. K. (2019). The precarious political economy of cobalt: Balancing prosperity, poverty, and brutality in artisanal and I industrial mining in the democratic Republic of the Congo. *The Extractive Industries and Society*, 6(3), 915–939.
- Srnicek, N. (2016). *Platform capitalism*. Cambridge: Polity Press.
- Swearingen, J. (2018a). Facebook used the Philippines to test free internet. Then a dictator was elected. *New York Times*, September 4.
- Swearingen, J. (2018b). In seeking to stop fake news, Facebook killed real news. January 16. Retrieved from <https://nymag.com/intelligencer/2018/01/in-seeking-to-stop-fake-news-facebook-killed-real-news.html>
- Tau, B., & Hackman, M. (2020). Federal agencies use cellphone location data for immigration enforcement. *The Wall Street Journal*, February 7.
- The Economist. (2010). Light and death. *The Economist*, May 27.
- Tsurukawa, N., Prakash, S., & Manhart, A. (2011). *Social impacts of artisanal cobalt mining in Katanga, democratic Republic of Congo*. Freiburg: Öko-Institut e.V.
- Vaidhyanathan, S. (2018). *Antisocial media: How Facebook disconnects us and undermines democracy*. Oxford: Oxford University Press.
- Valentino-DeVries, J., Singer, N., Keller, M. H., & Krolik, A. (2018). Your apps know where you were last night and they're not keeping it secret. *The New York Times*, December 10.
- Van Noorden, R. (2020). The ethical questions that Haunt facial-recognition research. *Nature*, 587(7834), 354–358.
- Vanthemsche, G. (2012). *Belgium and the Congo, 1885–1980*. Cambridge: Cambridge University Press.
- Vergès, F. (2020). *The wombs of women: Race, capital, feminism*. Durham, NC: Duke University Press.
- Wallerstein, I. (1974). *The modern world - system I: Capitalist agriculture and the origins of the European world-economy in the sixteenth century*. Berkeley, CA: University of California Press.
- Walt, V., & Meyer, S. (2018). Blood, sweat, and batteries. *Fortune*, August 23.
- Walvin, J. (2019). *How sugar corrupted the world: From slavery to obesity*. Boston, MA: Little, Brown and Company.
- White, P., & Breckenridge, R. S. (2014). Trade-offs, limitations, and promises of big data in social science research: Promises of big data in social science. *Review of Policy Research*, 31(4), 331–338. doi:10.1111/ropr.12078
- Williams, E. (1944). *Capitalism & slavery*. Chapel Hill, NC: The University of North Carolina Press.
- Winant, H. (2001). *The world is a ghetto: Race and democracy since World War II*. New York, NY: Basic Books.
- Zimmerman, A. (2010). Three logics of race: Theory and exception in the transnational history of empire. *New Global Studies*, 4(1), 1–11.
- Zuboff, S. (2015). Big other: Surveillance capitalism and the prospects of an information civilization. *Journal of Information Technology*, 30, 75–89.
- Zuboff, S. (2019). *The age of surveillance capitalism: The fight for a human future at the new frontier of power*. New York, NY: PublicAffairs.