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The Rise of Police Robots: Technocapitalism and the Policing of Race

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Introduction

At a TED conference in 2017, Marc Raibert, the founder of Boston Dynamics and the former Carnegie Mellon and MIT professor of engineering, computer science, and robotics, gave a talk that featured a live demonstration of their quadruped, remote-controlled robot named Spot (Figure 1). In this talk, Raibert showcased a range of Spot's capabilities, including making it dance and fetching a soda with its robotic arm, to which the audience repeatedly responded with laughter and applause, clearly amused by the robot's antics. While indeed entertaining, Raibert's demonstration obfuscates some of the more consequential issues that are implicated in the potential use of robots like Spot in urban spaces, and particularly by repressive state apparatuses (RSAs) like the police. As Louis Althusser (2001) demonstrated, these RSAs include a range of apparatuses such as the government, police, military, and the criminal justice system, all of which operate according to an ideology of violence. One such issue comes to the fore near the end of Raibert's talk, where Helen Walters, the head of curation, poses the following question: "[s]o what about the dark side? What about the military? Are they interested?" (2017: min. 13:58). To Walters' question, Raibert responds: "[s]ure, the military has been a big funder of robotics. I don't think the military is the dark side myself, but I think, as with all advanced technology, it can be used for all kinds of things" (2017: min. 14:04).

Figure 1: Spot (Boston Dynamics)

Raibert's dismissive response of the military's influence and funding of private sector robotics programs, including those previously developed at Carnegie Mellon University, the Massachusetts Institute of Technology (MIT), and Boston Dynamics, fails to address the serious implications that such partnerships generate in the domains of security and policing. One of the real dangers that emerge between the collaborative efforts of post-secondary institutions, the military, and technology companies are the detrimental and life-changing consequences they can have on people and communities of color (Muhammed 2010; Maynard 2017), who have long been targeted by RSAs and, more specifically, by the militarized police since the late 1990s.

The militarization of the police gained momentum in 1997 when the Clinton administration introduced the 1033 program under the National Defense Authorization Act. As David Brancaccio, Rose Conlon, and Candace M. Wrenn (2020) observe, the 1033 program allowed the Department of Defense (DoD) to distribute excess military equipment, which would have otherwise been destroyed, to local police agencies across the United States (US). Since the program's

inception, the DoD has distributed over seven billion dollars of military and tactical equipment to more than eight thousand local police agencies (Brancaccio, Conlon, and Wrenn 2020). The militarization of law enforcement across the US, which includes weaponizing police officers with a range of firearms, tactical gear, armored vehicles, grenade launchers, and explosives (Edmondson 2020), has almost certainly contributed to the disproportionate use of deadly police force against, predominantly, Black people (Lowery 2015; Khan 2019).

Protests against the exorbitant police killings of Black people in the US, often organized by the Black Lives Matter (BLM) movement, have been frequently met with heavily militarized police responses. Not only was this evident with the 2014 protests that erupted in Ferguson, Missouri, following the fatal police shooting of Michael Brown, it was also evident more recently with the police's militarized response to the protests and demonstrations against the police killing of George Floyd (Gross 2020). These police responses and others stand in stark contrast to the attacks on the US Capitol Hill in Washington, DC, on January 6, 2021. Not only did the mob that breached the Capitol consist of white supremacists, but some members of the Capitol Police were also suspended and investigated for their roles in the attack (Ray 2021).

While the Obama administration placed some restrictions on the 1033 program in 2015, the Trump administration rescinded those limitations in 2017, arguing that military-grade equipment and vehicles were necessary for the protection of police officers (Edmondson 2020). With the 1033 program in place, acquiring military-grade equipment and robot technology is a far cheaper alternative for law enforcement than purchasing them directly from companies or manufacturers. While the 1033 program does not permit the transfer of armed military robots to local or state law enforcement agencies, there are no legal obstacles in place that prevent the police from turning around and arming robots that are obtained through the 1033 program (Tucker 2016), or those which may be otherwise acquired by any other means.

One early example of the misuse of police robots occurred as early as 2016, when the Dallas Police used a bomb disposal robot to directly deliver and detonate an explosive device that killed Micah Xavier Johnson before he could be arrested, charged, and tried in criminal court (Sullivan, Jackman, and Fung 2016). During a BLM protest, Johnson, a former Army Reserve, shot and killed five Dallas police officers and subsequently engaged the police in a two-hour-long standoff (Sullivan, Jackman, and Fung 2016). As one of six incidents that intentionally targeted law enforcement with violence since Brown's fatal shooting in 2014, Johnson's shooting of Dallas police officers was used to bolster the Federal Bureau of Investigation's (FBI) surveillance and policing of what they called the "Black Identity Extremist" (BIE), now referred to as "Racially Motivated Violent Extremism" (Klippenstein 2019). In 2017, the FBI determined that it was "very likely incidents of alleged police abuse against African Americans since [2014] have continued to feed the resurgence in ideologically motivated, violent criminal activity within the BIE movement," which has "spurred an increase in premeditated, retaliatory lethal violence against law enforcement" (FBI Counterterrorism Division 2017: 2). However, the FBI's assessment of the BIE has also led to more aggressive surveillance and policing of the BLM movement (Winter and Weinberger 2017), evident with the sheer incidents and footage of police responding to many BLM protests and demonstrations with the use of rubber bullets, armored vehicles, tear gas and, in some cases, rounds of live ammunition (Hubler and Bosman 2021). Since police robots, including the use of drones, are becoming far more common with law enforcement across the globe, I argue that the inevitable adoption of police robots will perpetuate the technocapitalist conditions under which racist and discriminatory policing thrive.

The Influence of Technocapitalism on Race

According to Luis Suarez-Villa, technocapitalism is "a new form of capitalism that is heavily grounded on corporate power and its exploitation of technological creativity" (2009: 7). Through technocapitalism, the powerful influence of corporatism over technological agendas is used to exploit and commodify human creativity and innovation (Suarez-Villa 2009). Importantly, the approach that Suarez-Villa takes with technocapitalism is that it is neither entirely functionalist or culturalist, since "the values of corporatism are embedded in the research agendas and design of technology" (2009: 7). Instead, technological rationality is bound up in the "social, political, economic, and cultural, and it represents the power, the values, and interests of the dominant power: technocapitalist corporatism"

(Suarez-Villa 2009: 7). As a result, the technological rationality of technocapitalism "combines technique (the rational character of technology) with social domination (the ideological character of corporatism)" (Suarez-Villa 2009: 7). This combination is critically important in understanding how technocapitalism, particularly as a mode of social domination, reinforces notions and practices of inferiority and disposability as they pertain to race and technology.

The inseparability of both racial capitalism and technocapitalism from advancements in technology is certainly not a new phenomenon. As Cedric Robinson (1983) has argued, traditional Marxism informs us that the degradation of labor has always occurred alongside the acceleration of technological development. Yet, when we reframe this dynamic within the technocapitalist system of modern policing, a slightly different paradigm takes shape, one that makes racial injustice necessary features of both policing and technocapitalism. While Suarez-Villa's (2009) definition of technocapitalism encompasses a broad spectrum of networks under which corporate power exerts its influence over society, his analysis of technocapitalism does not address, in any significant detail, the long-standing relationship between the US government, corporations, the military, law enforcement and advancements in technology. By narrowing Suarez-Villa's view of technocapitalism, my framework situates the attributes of technocapital, social domination within law enforcement's use of technology and robots, and its connection to corporatism through the military as a way of illustrating how this form of social domination is invariably linked to racial violence and injustice.

The 1033 program allows us to take note of how it facilitates a process by which surplus military equipment is sent from the military to different police agencies across the US. However, it also creates a perpetual deficit of military equipment and technology for the military that is, in turn, replenished through additional government funding and corporate partnerships. The Pentagon and the Defense Advanced Research Projects Agency (DARPA) have actively participated and funded numerous military projects, which have found their way from overseas battlefields into urban spaces, including the development and use of robotic and autonomous vehicles by law enforcement (Graham 2011). These projects have also involved universities and corporations, seen, for instance, with DARPA's Urban Challenge, a robotized vehicle competition that brought together Carnegie Mellon University and General Motors in what Stephen Graham describes as "the take-over of engineering science in the university and the local economy by military-robotics research in the service of the military-industrial-academic complex" (2011: 369). Since these corporate, military, and university partnerships lead to the development of weapons, technologies, and autonomous robotic systems that cross over into urban environments through police organizations, it is not merely a question of who bears moral responsibility, as Graham (2011) poses, but, more importantly, who is targeted by the use of these systems and technologies?

From Marx to Amazon to the Police: The Rise of the Robot

In the Grundrisse: Foundations of the Critique of Political Economy, Karl Marx's (1973) essay on "The Fragments on Machines" describes how many of the conditions of technocapitalist exploitation were set long ago. For Marx, one of the main sites of critique of machinery was that which was often touted by economists as a benefit to human labor; namely, the capacity of machinery to "leap to the aid of the individual worker" (1973: 567). Rather than view machines as replacing labor-power where labor-power was lacking, machines were seen as a means of "reduc[ing] massively available labour power to its necessary measure" (Marx 1973: 567), thereby reinforcing the capitalist narrative that the fundamental purpose of machines was to ease or emancipate the labor of the worker. In order to foster this narrative and facilitate the conditions under which human labor became replaceable by machines, it was first imperative for big industry and science to collaborate and create mechanical labor that machines could more easily replace (Marx 1973).

In Inhuman Power: Artificial Intelligence and the Future of Capitalism, Nick Dyer-Witherford, Atle M. Kjøsen, and James Steinhoff (2019) bring Marx's essay to life, perhaps most notably with their critique of Amazon. As they note, "Marx's thesis that capital's machinery intensifies rather than diminishes exploitation" (Dyer-Witherford, Kjøsen, and Steinhof 2019: 84) is brought to light through Amazon's deployment of automated robots in many of its fulfillment centers. Despite their operational limitations, the use of computer-driven and motion sensor-based robots have reduced order times, increased warehouse space that has allowed for fifty percent more inventory in the areas in which robots are used, and has saved Amazon additional power costs by working in the dark and without air

conditioning (Dyer-Witherford, Kjøsen, and Steinhof 2019). In these ways, robots have replaced the mechanical and routinized labor that was previously taken on by human labor-power, doing so in ways that are deemed to be more cost-effective and efficient.

The exploitative and precarious conditions that have been brought about by Amazon's warehouse automation are also spilling outside of the warehouse. Ever since Amazon's first drone delivery in the United Kingdom in 2016, the Prime Air drone program has picked up momentum, making its foray into autonomous robot delivery service an inevitable reality. On August 29, 2020, Amazon received approval from the Federal Aviation Administration to operate its drones in US airspace (De León 2020). As with the robotization of its warehouses, the Prime Air program will result in the loss of jobs for human delivery drivers. The program is expected to save Amazon billions of dollars in costs by reducing the number of delivery vehicles, drivers, and use of fuel (Bowman 2020). The future precarity of their labor comes amidst working conditions that are already precarious, including a lack of overtime pay, missing wages, and strict time constraints, which force drivers to miss meals and bathroom breaks (Peterson 2020).

Law enforcement agencies have also turned to drones as a means of further increasing their already expansive powers of automated surveillance while decreasing the associated costs. Like Amazon, the use of police drones saves cities and police departments money, particularly as more cost-effective alternatives for aerial surveillance, providing cheaper, quieter, and more expansive forms of surveillance than police helicopters (Sexton 2016; Berkowitz 2018). Recent evidence of their use by the US Department of Homeland Security (DHS) for aerial surveillance was seen with the monitoring of BLM demonstrators during the Floyd protests in 2020, in which police drones were deployed in "over 15 cities…logging at least 270 hours of surveillance" (Kanno-Youngs 2020). The use of these drones to provide surveillance of demonstrators who protested the grave police injustices committed against Floyd and other unarmed Black people demonstrates the tendency of both racial capitalism and technocapitalism "not to homogenize but to differentiate" (Robinson 1983: 26).

Not resembling the labor and exploitation of Amazon's unskilled workers in any significant way, the police have long used their power and technology to exploit those outside its institution and workforce. The institution of policing largely evolved out of the more informal slave patrols in the American South during the late seventeenth century, in which these patrols controlled and regulated the movement of slaves according to plantation boundaries (Wilder-Bonner 2014). One of the first formal state policing apparatuses was established by the Fugitive Slave Act of 1850, where a federal police organization was created to capture and return runaway enslaved people to slaveowners and plantations (Campbell 1970; Maynard 2017). By the 1880s, following the abolition of slavery, Black people migrated across cities in the South in search of paid work; however, by the early 1900s, police departments had expanded across the US and were used to primarily enforce Jim Crow laws (Bass 2001). As Sandra Bass argues, although police organizations "were responsible for upholding the formal and informal social order" (2001: 161) embedded in Jim Crow, white supremacist ideology was also upheld by ordinary citizens, where "every white person was expected to participate in policing the racial lines" (2001: 161). In these ways, the police and the policing of race have always been integral components of racial capitalism, seen through the plantation system and the constantly evolving spectrum of technocapitalism, where weapon technologies that were harnessed by the police were used to enforce the system of racial capitalism.

The Racial Violence of Technocapitalism

Unlike the exploitation of workers evident in Amazon warehouses, the exploitative dynamics involved in robotic policing are reversed. In other words, it is not so much the worker who is exploited but, rather, the citizen. Beginning with the enforcement of a system that facilitated the buying, trading, and selling of slaves as commodities (Browne 2015), the police have used the full scope of the technocapitalist system to continue to reinforce racial capitalism through an increasingly automated policing system that is "disproportionately harmful to the most vulnerable and the least powerful" (Noble 2018: 65). In the US, we can clearly observe how racial capitalism is ingrained in technocapitalism with law enforcement's use of drones and other technology to police and monitor racialized groups and activists. In fact, since law enforcement has always targeted people and communities of color with and without

technology (Browne 2015; Maynard 2017; Eubanks 2019), the use of many police technologies including robots renders these populations more superfluous than others. In the relationship between policing, race, and disposability, human lives that are subjected to increased forms of policing and surveillance are lives that are likely to become more expendable than others (Shaw 2016). The logic of disposability that is anchored to technocapitalism is also anchored to the policing of race, in which the police continue to be seen by many Black people and communities "as agents of a repressive social order" (Wilder-Bonner 2014: 128).

Understanding the police as a repressive social order does not dissipate with emergent technology. While the technology itself may not be subjected to claims of classic racism, since, as Didier Bigo has argued, technology lacks "the human defect of classifying some rather than others according to the color of their skin" (2006: 60), the use of technology by the police attempts to disassociate technocapitalism from claims of racial discrimination by concealing them behind misguided notions of technical neutrality. For instance, we know that police technology, databases and algorithms are not race-neutral (Gandy 2011; Joh 2017; Ferguson 2017; Noble 2018; Eubanks 2019). They require that police engage in acts of policing, surveillance, and data collection methods that make visible the types of people and crimes they want to see, especially those which tend to flag people of color (Joh 2017). As Oscar H. Gandy (2011) has shown, information technologies that make use of statistical analysis are often not subjected to any form of critical assessment or regulatory control, which police make repeated use of in order to justify further acts of racial discrimination. This mode of technology and information-based policing ensures "an endless surveillance loop" (Joh 2016: 136), which, as Elizabeth E. Joh explains, constitutes "monitoring that results in data that justifies even more monitoring" (2016: 136).

The type of watching and surveillance that police technologies harness go far beyond more conventional approaches to surveillance. The deployment of these technologies and others creates an expansive form of watching that includes both the surveillance of bodies and their data doubles. As Kevin D. Haggerty and Richard V. Ericson contend, the data double creates "a new type of body, a form of becoming which transcends human corporeality and reduces flesh to pure information" (2000: 613). This form of disembodied, data-based surveillance allows for a type of discriminatory pragmatics that provides various institutions, including the police, with information to discriminate against certain groups in different ways (Haggerty and Ericson 2000; Lyon 2003). For example, we have seen Black people and communities targeted by a range of new and automated police technologies such as ShotSpotter, an acoustics gun detection technology used by multiple cities across the US in an attempt to reduce gun violence. However, because street-level crimes like gun violence are perceived by police as Black (Tanovich 2004), technologies like ShotSpotter are often placed in non-white neighborhoods. The same can be said for a data-driven police technology known as risk terrain modeling (RTM), used in cities affected by gun violence like Newark, Kansas City, Glendale, and Chicago (Ferguson 2017). In these cities, police use RTM to predict the likelihood of future shooting locations by isolating different sets of geographical-based data, which are obtained from narcotics arrests, gas stations, liquor stores, schools, and bars (Ferguson 2017). These data are fed into predictive computer software that is used to create a risk terrain map, pointing to geographic locations where shootings may more likely occur in the future (Ferguson 2017).

The use of police robots to conduct everyday policing activities will likely draw on similar police databases and software. Since the police already rely on a technological infrastructure that draws on racialized knowledge production for the purpose of watching, surveilling, and policing, the deployment of police robots will also likely draw on these same knowledge and information systems. So, although robot technology itself may not be biased, that does not eliminate the racial bias that can be built into the technology itself or the way in which racially biased police officers can deploy the technology. For instance, if police robots are used to conduct traffic stops in ways that are deemed safer, "enabling the officer and the motorist to communicate with one another without leaving their vehicles" (Jeffrey-Wilensky and Freeman 2019), then how does this alter the deep-seated issues of racial bias and discrimination that are involved in the disproportionate number of traffic stops that single out Black people (Willingham 2019)?

Fundamentally, the main objective of police robots is to reduce the exposure of officers to potentially dangerous situations (Sharkey 2008). According to Noel Sharkey, current trends in police robots signal a future in which different

types of robots will work in unison to not only share "information and images using swarm intelligence techniques" (2008: 2), but will also "have access to totally integrated databases of all information about citizens including bank accounts, tax, motoring, shopping, criminal records and movements" (2008: 2). While current iterations of police robots are certainly not close to that stage of technological development, Sharkey (2008) contends that robots will make police work safer. As we saw when the Dallas police used a bomb disposal robot to kill Johnson in 2016, the robot accomplished just that: it made the work of police officers safer by sending in a machine to kill the suspect, rather than placing the lives of human police officers in additional risk (Berreby 2020). While the lives of the responding police officers were certainly made safer in the process, the life of the suspect was not; instead, his life was deemed to be far less worthy and more expendable than those of the police officers involved. In fact, the police robot killing of Johnson resonates profoundly with Giorgio Agamben's (1998) description of the bandit. For Agamben (1998), the bandit exists outside the legal boundaries and parameters of the law, and so killing the bandit did not constitute an act of murder as defined by the law. Effectively, in breaking the law, the bandit loses any protections afforded by the law. In the case of Johnson, this act of dehumanization was further magnified. His life was not only deemed to be so unworthy that the law no longer applied but his life was deemed so unworthy that a machine was used to take it away.

The use of police robots must be understood in the same context as other police technology, including weapons technology, even if the robots themselves are not technically weaponized. Police technology is designed with the intention to protect the lives of police officers, whether we consider police armor, non-lethal weapons such as tasers and pepper spray, or lethal weapons like firearms. These are technologies that make the lives of police officers safer, as well as some members of the community, while, at the same time, making the mere occupation of public space for Black people extremely precarious (Hogarth and Fletcher 2018) in the presence of police officers equipped with these technologies. In fact, police killings have become the sixth leading cause of death for young Black men in the US (Khan 2019). Robot technology will intensify the police's reliance on technology to buttress what David M. Tanovich calls the "self-fulfilling prophecy" (Tanovich 2004: 916). For Tanovich, "[t]he more that a group is targeted, the greater the likelihood that criminality will be discovered" (2004: 916). In other words, if police robots are used in the same way that other police technology is used, including predictive policing technology like ShotSpotter, which prioritizes the policing of marginalized or working-class communities over more affluent ones, then the likely outcome is that police will find what they keep looking for with robot technology, however biased and subjective their methods may be. The inhuman and continuous means of watching and monitoring that is enabled through robot technology, will only magnify the racial disparity involved in both how and who the police choose to aggressively watch, investigate, and police.

Despite claims that contend robots will by some means reduce or eliminate racial bias in policing, these technologies will exacerbate racial bias in more intrusive and dangerous ways. Unlike human operators, robot technology possesses the capacity to engage in forms of pervasive monitoring that include facial and voice recognition to constantly scan, record, and process information of individuals (Calo 2012). As Ryan M. Calo suggests, this "may even violate the First Amendment's prohibition on the interference with speech and assembly" (2012: 190). Moreover, their different sizes, enhanced mobility, "and sheer, inhuman patience" (Calo 2012: 191), permits robots to perform techniques of surveillance, monitoring, and policing that are simply not achievable by human bodies, including working for longer hours and without breaks (Calo 2012). At the current moment, there are no laws in the US that prohibit the police from flying drones over public spaces or private residences without violating one's privacy under the fourth amendment, a legal provision that protects people's right to privacy and freedom from unreasonable intrusions by the government (Feeney 2016). The potential use of robot technology by the police raises a number of questions: what are the legal and ethical consequences when police robots are deployed in ways that can endanger the lives of humans? What is at stake when police technology and robots can dictate the legal or even fatal outcomes of human lives? What are the effects of sharing sidewalks and roads with police robots, knowing they are not only extensions of the policing apparatus, but that their mere presence in public space, particularly as technologies of police surveillance, will continue to have chilling effects on certain groups and individuals (Maynard 2017; Lyon 2018)? While the full scope of how police robots will further enhance the excessive powers that are already granted to law enforcement remains to be seen, one thing is abundantly clear: police surveillance technology is a multi-billion dollar industry that shows no signs of slowing down (Newcombe 2019).

The Technocapitalist Triumvirate: Corporations, the Military, and the Police

Although policing expenditures vary from city to city, most law enforcement agencies have increased their spending in technology, despite its high costs (Newcombe 2019). That which will continue to permit law enforcement to procure more government funding for their increased technology expenditures, regardless of their costs, is the results that any given police technology produces, even if they are self-fulfilling in nature. There is some evidence to suggest that technology has helped reduce overall crime rates over the last twenty-five years (Newcombe 2019). Proof of this can be seen with the use of closed-circuit television (CCTV) and the reduction in some narcotics, vehicle, and property-related crimes (Piza 2019). Yet, this form of surveillance is also bound up in racial bias. As Clive Norris and Gary Armstrong demonstrate in their study of CCTV control rooms in London, England, Black youth "were systematically and disproportionately targeted, not because of their involvement in crime or disorder, but for 'no obvious reason' and on the basis of categorical suspicion alone" (2006: 163). Furthermore, technology like CCTV has not resulted in any significant reduction of violent crime (Piza 2019), which has in fact become more prevalent across some cities in recent years (Newcombe 2019). Scholarly research on other technologies like police body-worn cameras (BWCs) has shown that this technology has not had any significant deterrent effect on police behavior or misconduct (Ariel et al. 2017), nor has it reduced the exorbitant police killings of unarmed Black people.

Any notion that police robots will by some means rectify these deeply embedded issues of racial bias and discriminatory policing is misguided. The result of using police technology to monitor people through CCTV or BWCs, or by concentrating the use of police technologies on street-level crimes rather than on sexual offenders or domestic terrorists, both of which are crimes that are overwhelmingly committed by white males (Ackerman 2011; Swan 2020), is that police technology tends to inflate the arrest metrics of certain crimes and groups over others. These biased and inflated metrics are not simply used to justify more surveillance and policing of racially targeted people and communities; they are also used to justify the procurement of more funds for additional police technology.

Despite Boston Dynamics' repeated claims that assert their robots will not harm people or be used against them in any way (Bonnard 2019), the company leased Spot to the Massachusetts State Police's (MSP) bomb squad in 2019, becoming the first law enforcement agency to put Spot to use on two different but unspecified occasions (Holley 2019). Spot was also used more recently during military exercises that were carried out at the École Spéciale Militaire de Saint-Cyr, France's most prominent military school (Vincent 2021), as well as the New York Police Department, who deployed Spot to the scene of a home invasion (Stephen 2021). During their ninety-day lease, the MSP tested Spot's situational capabilities, which, according to MSP spokesperson Dave Procopio, involved using Spot as a tool of "mobile remote observation…to provide situational awareness of potentially dangerous environments" (Houser 2019). In the brief video footage made public by the MSP, Spot is also equipped with an extendable arm that is used to breach a door (Figure 2) and provide the police with 360 degree situational awareness through a mounted camera (Figure 2).

The American Civil Liberties Union (ACLU) has voiced concerns with the MSP's lease of the robot. In an email to the MSP submitted by Kade Crockford (2019), the Technology for Liberty Program Director at the ACLU of Massachusetts, Crockford makes numerous requests, including copies of internal and external communications, documents, and materials that pertain to any product or service related to robots. As Crockford points out, one of the central issues with police robots is that they will be deployed "faster than our social, political, or legal systems react" (Heater 2019), compromising statewide regulations that are required "to protect civil liberties, civil rights, and racial justice in the age of artificial intelligence" (Heater 2019).

Indeed, Crockford is correct in flagging the need to preempt the development and implementation of police robots with the necessary and appropriate laws, policies, and regulatory controls to safeguard people against law enforcement. Still, if we understand police robots not as mere technologies that require oversight, transparency, and regulatory controls, but as weapons that are meant to safeguard police officers rather than the people and communities they are sworn to serve and protect, then how effective will any precautionary measures be? Given the sheer number of fatal police shootings involving unarmed Black people, how compelling are any current police protocols and regulatory controls that deal with police use of force or technology? More importantly, will these much-needed controls and oversight measures fundamentally alter the ways that policing is conducted, or will they simply implement limits as to how robot technology will be used by police without rethinking policing itself?

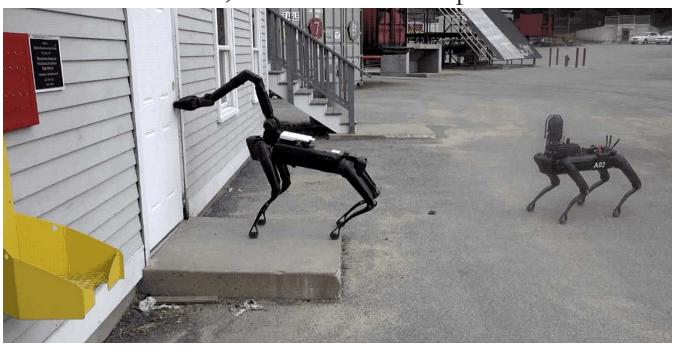

Figure 2: Massachusetts State Police Lease Spot (Boston Dynamics)

While Boston Dynamics is home to a wide range of robotic quadrupeds and humanoids, including Spot, Wildcat, and BigDog, Spot is the company's first commercial product that will be made available in 2021. When considering Boston Dynamics' history and previous partnership with DARPA—one that no longer exists—it is impossible not to consider Spot or any of the company's other commercially available robots as technologies of violence, despite Boston Dynamics' terms and conditions of sale, which can void the product's warranty and prevent the robot from being updated, serviced, repaired, or replaced if it is not used in compliance with the law, or if it is used to harm or intimidate people. Although Boston Dynamics no longer receives funding from DARPA, they did receive funding from DARPA as recently as 2005 to develop one of their first quadruped robots known as BigDog. This robot was initially designed as a "robotic pack mule to assist soldiers in terrain too tough for vehicles" (Hambling 2006). Since then, Boston Dynamics has developed other quadrupeds that have ultimately led to the development of Spot. In spite of efforts to distance themselves from DARPA, which receives its funding from the DoD, Boston Dynamics has benefited from their previous relationship with DARPA.

Both DARPA and the DoD operate according to mission statements that are premised on national security. Logically, the majority of their funding in robots is geared toward technology that is meant to improve national defense and security. It would, therefore, be unreasonable to expect either DARPA or the DoD to invest any significant funds in developing robot technology that is not military-based or security-oriented. As a company that has grown largely due to its development of military-based robots with DARPA, including the ways in which Spot has evolved from previous iterations of military quadruped robots like BigDog and WildCat, this configuration of technocapitalism is rooted within the military-industrial complex. The brutality of this form of technocapitalism is not simply tied to the preservation of national security outside the US; it is intimately connected to the preservation of national security within its own borders. While this is at times upheld by the military, as we saw when former President Donald Trump ordered military personnel and vehicles to "dominate the streets" (Johnson et al. 2020) in response to the Floyd protests in Washington, DC, national security is also enforced by various law enforcement organizations.

With drones already used by the DHS, the US Customs and Border Protection, and local police departments to monitor the BLM movement, the question is not if police robots will be used but when? With anti-Blackness so ingrained in policing, the current and future use of police robots must be framed within the racist and discriminatory system that is further enabled by technocapitalism. It is a system in which police robot technology—and police technologies, in general—reinforce the imbalance of power that racial exploitation thrives on. But unlike other police surveillance technology that makes use of more affordable technology like cameras, which are also used by ordinary citizens in the form of mobile phone cameras as sousveillance, a type of bottom-up surveillance to observe those in power (Mann, Nolan, and Wellman 2003), the use of police robots will create a new class of policing technology that will remain largely inaccessible to the vast majority of individuals. Also important to note is that the ownership of police robots and the ways that these robots may be deployed, gestures toward a different understanding of

alienation or objectification than what Marx described as one of the "fundamental conditions of the bourgeois mode of production" (1973: 677). Rather than view alienation or objectification through a strictly Marxian lens, the conditions of alienation or objectification that emerge with police robots rests not in "the ownership of living labour by objectified labour" (Marx 1973: 677), but in the ownership of robot technology by those in authoritative power.

In this context, alienation does not occur as a result of the appropriation of labor by capital (Marx 1973), or by those who own the means of production. Instead of trying to maximize the surplus-value of the worker, owning the means of robotization in an age of technocapitalism will allow the police, companies, and corporations to maximize the summation of their powers in public spaces. These are not powers that are restricted to ways of seeing, surveilling, and policing in the traditional sense. These are powers that will magnify the racist, exploitative and oppressive conditions under which surveillance and policing already occur. In addition to the production, commodification, and exploitation of the surplus value that is generated through police surveillance technology, robots will further destabilize social relations between the police and communities, resorting to a form of alienation in which the policing of human bodies is taken on by race-less and faceless, non-human operators. Owning the means of robotization will lead to a paradigm shift, not so much in the discriminatory ways that policing is conducted but, rather, in how certain human lives are objectified and devalued. Giving police robots the power to respond to or assist officers with every day or potentially fatal or life-altering decisions that affect human lives and, more specifically, Black lives, demonstrates precisely which lives are worth preserving and which are not.

Conclusion

This article intervenes at a time in which police robots have yet to make a considerable imprint on everyday surveillance and policing in the US. In addition to some of the original insights that this article hopefully offers, it also serves as a preemptive call for more critical research in the intersecting fields of Marxism, critical race theory, policing, surveillance and robotics. With the health crisis brought on by the COVID-19 pandemic, we are witnessing a global acceleration of robot development. As early as April 2020, Wing, the autonomous drone delivery system owned by Google's Alphabet Inc., reported more than a doubling of drone deliveries in the US and Australia (Levin 2020). Even Boston Dynamics' Spot was used in April 2020 at a Boston hospital to reduce the exposure of healthcare workers to the novel coronavirus, equipping the robot with an iPad and a two-way radio that transmitted a real-time feed from doctors to patients (Statt 2020).

In terms of strict surveillance technology, David Lyon (2018) notes that not all surveillance is inherently sinister. He points to the many ways in which surveillance technologies are used to monitor the health of patients both inside and outside the hospital setting, especially for those who require constant monitoring of their vital signs (Lyon 2018). Likewise, one can argue that not all robot technology is inherently evil. For example, surgical robots or robot-assisted surgery have been used by doctors to improve the outcomes of their patients with minimally invasive surgery techniques that only robots can provide. In addition to reducing the unnecessary exposure of healthcare workers to the COVID-19 virus, robots have also been used to sanitize hospitals (Murray 2020). As is the case with many issues, context often matters. This could not be more evident with the use of robots, which, on one hand, can aid in the survival of humans in a healthcare setting while, on the other hand, lead to the detriment of certain groups in a surveillance or policing setting.

Simply because some robots can be used for good does not mean that extreme caution with robots should not be exercised. The emphasis here in terms of robot policing is quite simple: we need to view and respond to the hyper-surveillance and hyper-policing of people of color as a health crisis with serious social, cultural and psychological implications, particularly because anti-Blackness is so ingrained in policing that it both represents and constitutes violence (Maynard 2017; After Globalism Writing Group 2018). The mere act of allowing police robots access to public spaces is itself a form of violence, where sharing a sidewalk with police robots can pose immense risk and uncertainty for people who have long suffered at the hands of law enforcement.

It is not a crisis that will be resolved with the introduction of police robots or other police technologies. If we view the disproportionate deaths of Black people at the hands of police officers as a health crisis, then the cure for such a crisis surely does not rest in the development and procurement of additional policing technologies that include robots. Avoiding technological determinism is key in understanding how the cure for issues of systemic racism, inequality, and injustice are woven into the fabric of the institution of policing. The fight against the accelerated emergence and potential cultural normalization of robots is fundamental to dismantling the technocapitalist and oppressive regimes, which may promote the expansion of police robot technology as the panacea to both issues of security and racial injustice.

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