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Article

Smart Homes and the New White Futurism

Adam Richard Rottinghaus[1,*]

[1]*Assistant Professor of Media, Journalism & Film, Miami University, Williams Hall, 208, 350 Oak Ave., Oxford, OH, 45056, USA*

Abstract

This article explores the consumer technology industry's discourse about emerging Internet of Things smart home devices and sketches an outline of a "new white futurism." New white futurism displaces prior consumer fantasies of labor-free living in smart homes and frames emerging smart home devices as tools for data-driven management of work/life balance in contemporary heteronormative, white, middle-class culture. The research draws on existing scholarly literature, archival documents, contemporary marketing discourses, and participant observation at CES in 2014 and 2018. The article concludes that it is crucial to reimagine cultural relationships to emerging technologies through Afro, Indigenous, and queer futuristic thought.

Keywords

Smart Homes, Emerging Technologies, Internet of Things, Futurism, Labor, Corporate Power

This article explores the consumer technology industry's discourse about emerging smart home devices and begins sketching the outlines of a "new white futurism." New white futurism is a discourse from companies that promotes emerging smart home technologies as tools for data-driven management of work/life balance in contemporary heteronormative, white, middle-class culture. Since 2008 the consumer technology industry has increasingly focused on the Internet of Things (IoT) and connected smart homes as the dominant retail application. IoT smart home devices have precipitated a shift away from promoting imaginative technological futures that bring about changes in labor or culture in everyday life toward one of logistics and management that reproduce the status quo.

New white futurism departs from prior visions of smart living by two distinct shifts in relation to culture, technology, and labor. First, smart home technologies are promoted as synchronization between, rather than emancipation from, domestic and waged labor. Second, smart homes devices are framed primarily as tools for more efficient management of work/life balance, rather than simply paths to consumer convenience. Both shifts reflect a move away from consumer fantasies of labor-free living and toward enhanced capacities for corporate control in the home. New white futurism frames IoT smart home devices in domestic life under the auspices of a neutral, binary-gendered discourse in which both women and men, married or single, can take advantage of new developments in data-based time management and domestic labor automation. As such, smart home devices are said to integrate into the harried and frantic daily lives of workers who, with the right data and strategic automation, can be unburdened from mundane tasks and anxieties to achieve a better work/life balance. Rather than celebrating a reduction in necessary waged and/or domestic labor through automation, new white futurism entrenches waged labor's encroachment into domestic spaces with promises of enhanced capabilities of time management.

Prior visions of futuristic homes that dominated the 20th century were consumer fantasies of labor-free living in a technologically automated world (Heckman, 2008). These "consumer fantasies" were embodied by media like the Jetsons and events like World's Fairs and Disney's EPCOT Village. Though proffered as universal, these visions—either explicitly or by omission—were essentially a white futurism. Brooks (2020) points out there are no Black characters in the Jetsons and the closest we get might be the sassy robotic maid. Discourses about futuristic

* *Corresponding author*.
E-mail addresses: rottinar@miamioh.edu (A. R. Rottinghaus).

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technologies specifically named white, heteronormative, suburban, middle-class life as the primary beneficiaries of technological progress.

Critical race, colonial, gender and sexuality scholars of technology have been identifying such omissions, forgotten histories, and structures of powers. They have painstakingly unearthed the ways in which supposedly "neutral" technologies and platforms reproduce structures of racialized and gendered power (Benjamin, 2019a, 2019b; Brock, 2020; Browne, 2015; Noble, 2018; Noble & Tynes, 2016). For example, in *Algorithms of Oppression* (Noble, 2018), Noble describes how search engine results reinforce discriminatory biases and stereotypes, at least in part, because the engineers who design them are not attuned to the issues. Noble's "algorithms of oppression" manifest when a simple search for "black girls" returns pornographic websites before anything else. Benjamin (2019a) points out that even photography perpetuates racial bias. Between the 1950s and 1990s, Kodak's Shirly Cards used white skin tones to create the film exposure standards, leaving the images of people of color underexposed and of poorer quality. When Kodak did develop exposure standards designed for Black skin, they did so to enable the South African apartheid government's creation of surveillance documents called "passbooks" that were used to police and control Black South Africans (pp. 104-106). Benjamin also identifies that as photography and film moved into the digital age these discriminatory legacies persisted: "In 2009, Hewlett Packard's MediaSmart webcam demonstrated how the camera would pan to follow a White face but would stop when individuals with dark skin entered the frame" (p. 108). So too have Afro, Indigenous, and queer futurist scholars have been pointing out the ways in which the elision of representation in futuristic media shapes the cultural imagination about the possibilities of where historically oppressed and marginalized people will go in the future and how they might get there (Anderson & Jones, 2016; Carrington, 2016; Jackson & Moody-Freeman, 2011). Such scholarship is essential to uncovering how prior futurism's promises of liberation from labor through technological automation was limited to those who were already represented in such visions of the future.

Throughout the 20th century, these forms of futurism suggested that the gains of increased automation and efficiency would result in more leisure time as machines took on an increasing percentage of the socially necessary labor. Smart home research by Lynn Spigel (2005), Fiona Allon (2004), David Morley (2006) and Davin Heckman (2008) covers different aspects of these tensions between work and leisure within the smart home. Heckman argues in *A Small World* (2008) that smart houses primarily existed in the cultural imagination through the dream of the "Perfect Day—a technologically enhanced vision of everyday life freed from the obstacles and oriented toward the pursuit of consumer satisfaction" (p. 10). Post-WWII consumer culture was full of corporations like Westinghouse, Frigidaire, and even Monsanto promoting an automated home life in the future. Yet, marketing for smart home devices today has forgone any notions of labor free living in favor of reinforcing technological futures that subtly expand the capacity for corporate power in everyday life.

In the smart home of tomorrow (today!), individual devices, rather than pre-designed foundation-to-rafter homes, will incrementally sync specific practices to networked flows of information capitalism. IoT smart home devices are most often objects that already exist in the home but are outfitted with sensors, processors, and transmitters. By automating the domestic practices associated with objects like juicers, wine chillers, and children's toys consumers gain conveniences that help them manage work/life balance in the home. The discourse for such products—and the future they promote—is not one of emancipation from labor, but of managing work/life tensions that cedes power to a technocratic logic of efficiency in domestic life. While prior forms of white futurism and labor-free living still exist as a promotional strategy for individual devices, the new white futurism is a more holistic agenda for the consumer technology industry. Instead of a niche market for smart homes catered to by specific manufacturers and retail brands, today's smart homes are promoted systemically across the consumer tech industry—by everything from component to original equipment manufacturers, from networking companies to media networks, and from startups to industry leaders—as part of the push to connect the unconnected through the IoT.

The move away from liberatory labor discourses toward management of work/life balance is precipitated by the industry's totalizing vision that *all* companies are now tech companies (CTA, 2020). Since becoming globally ubiquitous, the tech industry no longer has a stake in cultural, labor, or otherwise emancipatory visions of the future. Their infrastructural vision of ubiquitous computing depicts a world in which every object is connected to every other object (Bell & Dourish, 2011). It is a vision fully invested in the preservation and management of today's status quo, rather than disrupting a key dimension of our cultural economic organization—such as labor's subservience to corporate power. Cultural politics centered on disrupting labor, patriarchal, or racialized capital have little place in a new white future premised on maintaining and managing the present ordering of everyday life.

This article analyzes promotional discourses for emerging smart home technologies and provides a preliminary sketch of how new white futurism departs from historical predecessors by replacing visions of consumer fantasy with that of data-driven management of work/life balance. It draws from existing scholarly literature, archival documents, contemporary marketing discourses, and participant observation at the Consumer Electronics Show (CES) in 2014 and 2018. The article begins with a brief outline of the emergence of new white futurism and describes examples of it while theorizing the implications for labor and visions of the future. The conclusion suggests that intervening in the cultural imagination through Afro, Indigenous, and queer futurisms can focus collective attention on the emancipatory potential of technology and help reimagine cultural relationships to IoT smart home devices.

From Consumer Fantasies to Data Management

Fantasies of consumer control over time have been a staple of smart home promotions since the mid-twentieth century. Heckman's "Perfect Day" describes a fantasy of technologically enhanced practices free from the imposition of either domestic or waged labor and attempts to "institutionalize everyday life as the ultimate consumer practice" (2008, p. 17). For example, in a 1956 promotional short film, "Design for Dreaming" a would-be housewife arrives in Frigidaire's "Kitchen of the Future" to bake a cake (Lautner, Charmoli, Breaux, & Gordon, 1956). As dancer and choreographer, Thelma "Tad" Tadlock, prances around the kitchen, an overdubbed narrator sings of its wonderful automation. The lyrics describe the pre-programmed automated cooking while robotic appliances are seen preparing to bake the cake. The narrator sings, "No need for the bride to feel tragic. The rest is push button magic. So whether you bake or broil or stew, the Frigidaire kitchen does it all for you. You don't have to be chained to the stove all day. Just set the timer and you're on your way." At that point, Tadlock's monologue voice takes over singing, "Tick, Tock, Tick, Tock. I'm free to have fun around the clock." Tadlock goes on to dance through a sequence of clothing and prop changes demonstrating examples of leisure activities that she now has time to do. She magically appears mimicking tennis, golf, and sunbathing by a pool, before exclaiming, "Jeepers! I'm exhausted." Her leisure time is interrupted with a ringing bell signaling that the cake is ready. Tadlock then dances back into the kitchen to find a fully baked cake waiting for her. The entire scene is less than two minutes long, but it encapsulates the logic of the implicitly white futurism of the 20th century. The white affluent couple enacts a heteronormative division of labor as the man literally vanishes before her eyes while she is left with domestic responsibilities to bake a cake. Her autonomy over her own time is the central politics of automating domestic duties: is her time for unwaged domestic labor or leisure? Frigidaire's automated kitchen freed Tadlock to pursue the "Perfect Day" and promised to release suburban housewives from the burdens of a life bound by unwaged domestic labor.

Even as such promotional discourses succeeded in selling a new array of consumer products in post-WWII suburban culture, the emancipatory labor claims not only never came to pass, many devices that automated housework actually increased labor for homemakers (Cowan, 1983). It wasn't until the 1980s when these futurist visualizations of high-tech living intersected with discourses about smart machines from the emerging consumer electronics industry (Heckman, 2008, p. 95). Yet, Heckman argues that spectacular futurism failed as a mechanism to sustain the consumption of new technologies in everyday life. The claims were too grandiose to secure the kinds of repetitive consumption demanded by planned obsolescence for individual devices. It is a point made all the more potent when considering earlier smart home promotions were premised on foundation-to-rafter smart homes, built and designed explicitly for automated living.

A key difference of new white futurism is the move away from fully built environments to individually purchased devices. Today's IoT smart home devices are promoted as individual technologies that can be networked together in order to automate domestic chores, fulfill desires of remote control, and offer technical solutions to homeowner anxieties. An app that alerts a hectic commuter that they forgot to close the garage door, or a smart fridge that reminds a time-crunched parent that the milk is about to expire, integrate into middle-class life without the intimidating technological leap demanded by the futuristic homes described by Spigel (2005), or the lavishly wealthy home of Bill Gates described by Allon (2004). IoT smart homes transform mundane domestic objects—such as juicers, toys, and light bulbs—into data-gathering devices by including sensors, computers, and networking capabilities. Recent research has highlighted how such IoT devices are new forms of communication (Bunz & Meikle, 2017), enable algorithmic control (Beer, 2017), and facilitate "platform capitalism" (Srnicek, 2017).

IoT smart home devices capture everyday habits and transform domestic life into a data mine and its residents into "data producing subjects" that expand corporate technocratic control over everyday life (Kember, 2016). For example, eating, drinking, and exercise habits are sites where workers already willingly comply with corporate "suggestions" to create and submit personal health data through voluntary screenings and initiatives. Pressure has been mounting from insurance companies for years to gather personal health data through smart technologies. In the fall of 2016, Apple unveiled its partnership with Aetna—one of the US's largest health insurance providers—to subsidize Apple Watches if consumers gave their data to their insurance providers (Hinchcliffe, 2016, October 1). Other convenient devices—such as Samsung's smart fridge "Family Hub'(Samsung, 2017)—contain rich data on the health, nutrition, and daily habits of the household that are incredibly valuable to health insurance companies. As IoT smart homes connect the domestic ecology from grocery purchasing to urinalysis and track everything from sleeping habits to hygiene routines, consumers gain convenience at the expense of domestic autonomy from work. Connected smart homes have long promised greater freedoms at the cost of surveillance and control (Allon, 2004, p. 255), but the IoT smart home's piecemeal construction promises specific freedoms and anxiety relief one device at a time.

The Internet of Things

The promotion of IoT smart home devices, rather than pre-built environments, marks an important shift in more integrated, industry-wide promotions instead of specific companies or limited sectors of the industry. At CES 2014 and 2018, networking and component companies such as Qualcomm, Intel, and Cisco promoted the IoT's goal "to connect the unconnected" through networking individual consumer devices and previously unconnected objects. Industrial brands pushed to expand the market for their technologies by creating platforms to grow international consumer branded smart home products from companies such as Samsung Hisense, Haier, and Panasonic. When combined with centralized home control devices by Apple, Google, and Amazon, IoT smart home technologies amplify the industry's prior attempt to fully integrate domestic habits into the information networks of global capitalism by collaborating with a broad spectrum of the industry's supply chains and sectors (Greengard, 2015).

The IoT aims to connect the unconnected in all aspects of home, work, and civic life. Industry analyst McKinsey & Company offers a detailed definition of the IoT as, "sensors and actuators connected by networks to computing systems. These systems can monitor or manage the health and actions of connected objects and machines. Connected sensors can also monitor the natural world, people, and animals" (Manyika et al., 2015). Through the IoT, "the smart-ness" of the smart home is diffused through a myriad of discrete devices and objects, which capture and direct data into the flows of global information capitalism. Industry analysts estimate that between $2 trillion and $19 trillion of wealth can be generated by the mid-2020s through connecting the unconnected in all aspects of work, domestic life, and healthcare among other social institutions and economic sectors (Chambers, 2014; Gartner, 2014; Press, 2014).

Part of new white futurism's fixation on management stems from the mechanisms of commodifying and applying consumer data to purchasing behavior and supply chain logistics. IoT technologies generate value by producing data that companies use to increase production, distribution, and consumption efficiencies, as well as anticipate future market conditions and behaviors. The IoT discourse frames the inefficiencies of domestic life as inhibitors to the smooth flow of capital. Any inefficiencies in consumption are conceptualized in the same manner as inefficiencies in production or distribution. The inefficiency is solved by applying consumer behavior data to supply chain logistics and fostering interoperability with existing smart infrastructure—like apps on smartphones. Interoperability between devices is seen as the key to capturing the data necessary to streamline domestic practices, and the saved time can be more valuable when allocated elsewhere. In 2015, McKinsey & Company predicted that interoperability and data application would be the two largest drivers in IoT value production, and that the smart home market alone can generate $200-350 billion by the year 2025 (Manyika et al., 2015). In the new white futurism the forms and values of domestic "inefficiencies" are indistinguishable from the logistical management of global supply chains. IoT smart home devices aim to eliminate the inefficiencies of domestic life and valorize the data in the process.

Juicero, a high profile flop in the IoT smart appliance market, demonstrates the logic. Now defunct, Juicero received nearly $120 million dollars in start-up capital from some of Silicon Valley's top venture capital funds to revolutionize at-home juicing (Watson, 2017, April 20). The product was billed as the "Keurig Cup" for juice and

would ship bags of pre-prepared vegetables and fruits out of which their $400 proprietary juicer known as "the Press" would squeeze a fresh cup of juice in about two minutes with virtually no clean up. The Wi-Fi-enabled system's big "value add" was to scan QR codes on bags enabling three key benefits: automatically prevent juicing contaminated or expired bags, ensure consistent flavor, and more efficiently manage the company's supply chain (Dunn, 2017). By generating data about juicing habits, Juicero would plug the otherwise unconnected practice of juicing into the flows of information capitalism and produce value through a more efficient supply chain and proprietary juice bag purchasing.

In April 2017, Bloomberg published an article revealing that the bags could be squeezed by hand with nearly identical results to the expensive press (Huet & Zaleski, 2017). The exposé ultimately sank the company. In the social media maelstrom, Juicero CEO, Jeff Dunn doubled down that the value to consumers was that "the Press" would enable a "busy professional who needs more greens in her life" to get an app notification that the bag of produce was about to expire, or "a frazzled dad to do something good for himself while getting the kids ready for school, without having to prep ingredients and clean a juicer" (Dunn, 2017). Juicero framing its product's value in terms of the time-crunched worker indicates that corporate control is both cause and cure in the IoT smart home. Unlike Frigidaire's kitchen that reduced domestic labor, Juicero is emblematic of new white futurism's data-driven management of work/life balance through smart devices.

Visions of the New White Future

The early 2010s saw several videos by global companies like Corning, Microsoft, and Google depicting a near future full of new networked technologies. For example, Corning's 2010 promotional video, "A Day Made of Glass" was set in the "near future" and as of late 2020 had been viewed over 26 million times (Corning, 2010). The video featured a nuclear family of four with a fully integrated work/life that links messaging, calendars, navigation, photo albums, and other "essentials" of everyday living. The video is designed to represent a typical day—if not a "new perfect day"—for a suburban family of four. Though the video makes representational gestures otherwise, with a multi-ethnic family and a dad who helps with housework, it nonetheless represents the same structure as white, heteronormative, suburban, middle-class life. Over the course of their day, Corning's advanced touchscreens help mom, dad, and their two daughters more efficiently manage the various demands of work, school, and domestic life.

From a corporate perspective of value production, IoT smart home technologies will incrementally transform the home into a diffused office of waged labor, in addition to a site of consumer-driven IoT value production. Despite that consumers/workers-at-home willingly adopt the devices under the auspices of convenience, they nonetheless act as a vector of power for multiple forms of corporate and managerial control. Spigel (2005) writes, "the ultimate paradox, then, is that the postmodern luxury home has become the ultimate work terminal – a place where the resident is in a perpetually interactive state of preparedness – never allowed to simply 'waste time'" (p. 415). But, for Spigel power is primarily exerted over workers through surveillance. A smart home subjects its residents to a variety of surveillance technologies through which they are forced to act as if they are working at all times. She identifies actions within this surveillance network as "performative communication." She writes, "performative communication allows people to demonstrate their labor value as social actors in a networked world. The important point is that we need an audience in physical space for our communicative acts in cyber space" (Spigel, 2005, p. 416). Spigel's idea of performative communication rests on a schism between action (work at home) and visibility of action as a form of information production (corporate surveillance). However my tour of Qualcomm's SmartHome exhibit at the 2014 CES revealed that corporate control in the IoT smart home comes from the elimination of barriers to productivity, rather than surveillance, per se.

Qualcomm's SmartHome exhibit was an open floor plan approximately ten-feet wide by twenty-five-feet long and included a full-size kitchen at one end and a living room at the other. The kitchen featured brushed stainless-steel appliances, sleek cabinetry, granite (looking) countertops, and a wine chiller built into the kitchen island. The living room featured a large flat screen TV, a full-size sofa, and surround sound speakers. The whole open floor plan featured track lighting. It felt upper middle-class, techno-savvy, and very Crate & Barrel, all of which signaled the cultural position of Qualcomm's ideal consumer/worker. The Qualcomm pitchman extolled the benefits of a connected home that fused data and lifestyle while a second guide distributed tchotchke pens with the Qualcomm logo. He bragged that anything that could be electronically controlled was connected through a smart device.

Personal presets could be programmed so that when the door unlocked through a biometric thumbprint, the occupant's preprogrammed settings for ambiance would automatically engage.

In exchange for sharing biometric data and information with the involved companies, homeowners would benefit by returning home after a long day at the office to perfectly preset levels of lighting, music, temperature, and a glass of properly chilled wine. We are told that automating tasks such as sweeping the floor and closing the blinds creates a better experience at home after work. If one were traveling for work, the smart devices could monitor the home or even control the lighting to appear as if the occupants were still in the house. The conveniences were framed as enabling recovery from work or facilitating a smoother negotiation with work requirements. Far from yesteryear's fantastical homes of tomorrow promising labor-free living, Qualcomm's SmartHome was built for an always-connected, perpetually-working, corporate employee.

Although Qualcomm extolled the novelty of their ground-breaking networking capabilities, smart home systems in the 1980s promoted many of the same functionalities promised today—the ability to sync and remotely control lights, appliances, HVAC, and media entertainment systems (Giovannini, 1988). A 1989 advertisement in *Electric Home Magazine* for a home automation platform called "Home Manager," by Unity Systems, promoted the ease with which consumers could control individual room temperature, security, lighting, and appliances from a single touchscreen interface (UnitySystems, 1989). However, the automated home systems promoted in the 1980s never found widespread market appeal. For example, Unity Systems, the leading home automation platform in the late 1980s and 1990s, only has about 7,500 systems still in operation today (UnitySystems, 2020). Building a wired house was a logistical problem that required coordination between the construction industry and the rapidly expanding consumer electronics industry. The primary difference is that smart home systems of the 1980s were not plugged into a meaningful surveillance and information exchange network. The 1980's home automation systems were an island of glorified consumer controls. Amplified by wireless communication infrastructure, IoT smart home technologies allow for step-by-step integration and are considerably less expensive upfront for consumers than the home automation systems of the 1980s. Even home offices were not the tele-work stations of today and integrating networked computer technologies into the 1980s home offices was a source of confusion for many consumers (Gilmore, 1981). Unity System's Home Manager afforded no special technological status for the home office and neither did Qualcomm's SmartHome exhibit. Instead, Qualcomm's workspace is diffused throughout the home via email alerts which appear on any screen or notifications over any speaker, which expands corporate control over employees while at home.

Qualcomm's SmartHome exhibit demonstrated that logistics, efficiency, and control displace the utopian consumer imaginary. Qualcomm touted its great achievement as a multi-product connection interface. Their market research had identified that homes typically contain an array of products from disparate manufacturers and production years. The pitchman claimed that, if homes only contained a single brand, networking individual devices together would be easy, but the real world is different. He boasted that Qualcomm's achievement was to combine efforts with other companies and manufacturers to create a standardized networking platform called "AllJoyn" through which these various devices could easily interface.

AllJoyn is an open source framework developed by the AllSeen Alliance that is capable of connecting Linux, Android, IOS, and Windows based devices (AllSeen, 2017). Launched in December of 2013—just weeks before CES—AllJoyn development was led by Qualcomm in concert with other AllSeen Alliance companies such as LG, Sharp, and Microsoft. Premised on the idea that "the IoT will not be built by a single brand or company," AllJoyn is a wireless "Rosetta Stone" that allows a homeowner to simultaneously turn up the volume of the TV, while turning down the temperature of the wine chiller (AllSeen, 2017). While Qualcomm has been pushing into new markets, such as mobile microprocessor chips, the company is best known for pioneering cellular network technologies. Qualcomm has had much success networking a complex infrastructure of disparate components. Multiple companies compete and collaborate in the markets for automated lighting, home security, and energy management, most with proprietary technical standards and an array of different partnerships. Qualcomm was attempting to build a platform for consumer branded devices by creating an open-source networking language so that participating companies will have a considerably smoother path to home integration while making Qualcomm an essential corporate partner in the process. The Qualcomm spokespeople continually emphasized the newness of AllJoyn and rehashed the IoT connection imperative touting the consumer benefits of networking previously unconnected devices.

Such connections are important in the IoT smart home assemblage because, as companies become accustomed

to employees using digital devices to work from home, they may similarly become reliant on the data produced by smart homes and the control enabled over employees. Andre Spicer argues that as emerging technologies are adopted within organizational contexts, the adopted technologies are inscribed into the conditions of future organizational actions (Spicer, 2005, p. 885). In other words, once organizations incorporate emerging technologies into their structural practices, the newly embedded technologies limit the possibilities of future technological change. Thus, the work cultures of any given organization become reliant on their employees' technological patterns, uses, and habits—even when those habits involve working from home.

In *Work's Intimacy* (2011), Gregg describes employees' willing adoption and use of digital communication technologies for work in domestic spaces as "presence bleed." Gregg's study shows that middle-class, white-collar professionals willingly internalize managerial power as an investment in their sense of self, as a strategy to cope with precarious labor conditions, manage excessive workloads, and comply with corporate culture. She demonstrates that when consumer electronics are central features of work cultures, they dissolve boundaries protecting the autonomy of home life from the encroachment of work. Gregg describes the subjects sleeping with their laptops and smartphones by their bed and checking email before doing anything else. Qualcomm's SmartHome furthers the presence bleed by diffusing work and technocratic time management throughout the home.

The home plays two primary roles in Gregg's (2011) study. First, the home operates culturally as a symbolic space ostensibly distinct from the office or workplace, but where work practices encroach via digital communication technologies. Gregg portrays workers in this condition as struggling with employment, stress, and mental health: "Workers in mid-level roles showed a particular willingness to engage in extensive regimes of preparation and recovery before and after hours spent in the office. The anticipatory practices were an effort to smooth the way for the priorities of the formal working day" (Gregg, 2011, p. 47). In short, the workers she describes seem justified in their decisions to allow presence bleed into their homes.

Second, the home is a physical space for activity. The home has architectural, technical, and material bearings that shape the possibilities of work-related practices at home. Home offices, dinner tables, and even bedrooms operate as liminal spaces between work and domestic life. Under the material conception of the home, Gregg characterizes technology as devices that are semi-permanent additions to the physicality of the home. Many of the subjects described the problematic negotiations of integrating digital communication technologies into a domestic space not previously designed to accommodate such additions—like turning dining rooms into de facto offices. The types of struggles and negotiations over space, time, and habits that Gregg describes are many of the very problems that IoT smart home marketing claims to alleviate. Yet, the IoT smart homes devices are not "foreign" devices that the material architectures of the home were not built to accommodate. Instead, IoT companies want to simply replace unconnected devices with connected ones. The Juicero blender was supposed to make access to fresh juice in the morning more convenient, but by the company's own admissions, the goal was to automate in order not to disrupt the schedule of an already overworked employee. What bleeds into the home is not simply the mundane tasks of answering emails and preparing for meetings, but the corporate power which organizers and prioritizes work over domestic life—even when making fresh juice in the morning. As a discourse, new white futurism entrenches a sense making strategy that these devices make work/life balance easier and domestic spaces more efficient. It is a vision made all the more impactful because of longstanding ideologies that technologies are neutral tools for the exercise of human will and consumer choice the dominant mechanism of agency.

The Qualcomm tour's second room was a young child's bedroom and a spokeswoman assumed control over the tour. Though the child's room contained a boyish aesthetic with light blue walls and dinosaur illustrations, its most prominent feature was surveillance. From the talking stuffed bear that seemed right out of the nightmarish sci-fi fantasy film *AI*, to the Wi-Fi monitoring software, the child's room was an exercise in tele-parenting. The talking teddy bear could tell the child, "I Love You" or "Good Night" if the parents were working or watching TV. Through the bear, a parent could virtually tuck their child into bed. Such Wi-Fi enabled smart toys are becoming increasingly common. The Wi-Fi router in the child's room would alert parents if the child was watching YouTube (or other predetermined websites) instead of sleeping. The tele-parenting apparatus of Qualcomm's SmartHome prioritized surveillance over embodied care so that the parent's work schedules would remain unabated by "the hassles" of child-rearing. According to the spokeswoman, if mom or dad were away on a work trip, she or he could still perform parental duties. The discourse by Qualcomm spokespeople prioritized work requirements over domestic and familial responsibilities. Not only are laptops and smartphones conduits of corporate control, but in the IoT smart home, so too are teddy bears and wine chillers.

The smart devices in the child's bedroom eliminated the temporal and spatial constraints of middle-class workers' domestic responsibilities in order to reduce potential challenges to the demands of work. These tele-parenting technologies project the fantasy of technological control onto the child-as-object and disarticulate the family into discrete consuming units "independently" capable of exercising their power of choice. For Fortunati (2007), such smart gadgetry would only be the latest ways in which unwaged labor is transformed by communication media technologies: "think, for instance, of children's fairy stories, read to send them off to sleep, or toys that serve to sustain their games. These, like other supports, have become increasingly technological devices, by means of which reproductive immaterial labor has been largely "mechanized" and industrialized" (p. 140). The difference between Fortunati's example of the bedtime story and Qualcomm's talking teddy bear is a difference in degree rather than kind. Both are consumer goods mediating parental interactions with children. The difference is that the tele-parenting apparatuses in Qualcomm's SmartHome reconfigure temporal and spatial patterns and extend corporate control by reducing time constraints which might inhibit productivity at home in addition to mechanizing affective care.

One way to think through this contingent intersection of gender, technology, and power is that not only will IoT smart homes entrench the unacknowledged value of domestic labor which patriarchal capitalism has historically allocated to women, but IoT smart homes will create new avenues through which corporate control is exercised on the domestic sphere by transforming the home into both a diffused office space of waged labor *and* consumer value production in line with post-Fordist information capital. IoT smart homes articulate into the mode of production, not as an unwaged space that indirectly supports waged labor, but rather as an employee-subsidized, highly-surveilled, and *voluntary* site of waged labor. New white futurism invites such voluntary investment into technocratic efficiency and value production in domestic life.

Even companies whose IoT smart home promotions project consumer fantasy still frame the devices through the lens of time management and value. For example, Google Home and Amazon Echo offer voice-activation interfaces with GE appliances. With GE voice activation, homeowners can set the oven's temperature and timer, inquire if the dishes are clean, or instruct it to create hot water (Wong, 2017). The 2016 promotional video, "A Day with WiFi Connect from GE Appliances," continues the trend from Corning, Google, and Microsoft that depicts normative family life with smart living technologies. It claims that the ultimate value to the consumer is the accumulation of little chunks of time which would be otherwise occupied by manually turning on the stove or boiling a pot of water for tea. The two-minute video follows a professional, upper middle-class, white mother and father of a 14-month-old child. Their idyllic day together opens with the family at the park playing on the slide and walking their dog and ends with both parents participating in bathing the toddler. Between the leisurely morning in the park and the nighttime bath, the parent's best friends and next-door neighbors—a similar looking white, professional, upper middle-class, heterosexual, couple with a slightly older baby—join them for a home-cooked dinner party. GE and Amazon signal their normative affluent target market through the characters, home décor, attire, and cooking with wine—nearly identical imagery to Qualcomm's SmartHome. Throughout the video, the parents narrate their feelings and muse on their love for their child, how fast time passes, and how these smart gadgets help them value the little moments which pass all-to-quickly. Where the Frigidaire promotion from the 1950s projected time as freedom through automation, GE and Amazon's smart home promotion projected time as a scarce resource that automated devices will make more affectively and economically valuable.

GE's focus on the family contrasts the work-centric Qualcomm exhibit, but it still shares the same goals of connectivity, efficiency, and time management in the home. While smart homes may automate some domestic chores, Ruth Cowan's (1983) landmark study *More Work for Mother* shows that many consumer electronics designed to reduce domestic workloads actually reconfigured household duties and expectations in ways that often resulted in more work for homemakers. In that regard, the "efficiencies" gained by smart home technologies are unlikely to create more widespread leisure as domestic routines are reconfigured. Home automation is equally as useful as devices that reduce domestic labor as they are devices that reduce obstacles to worker productivity. New white futurism offers a vision that articulates the home into the logistics of the IoT connection imperative whereby domestic spaces reflect technocratic-corporate control over time and energy. Given existing pressures by management and corporate cultures for employees to always be available for work, smart homes, like smartphones, will continue to erode worker autonomy and further subject the domestic sphere to corporate control.

Reimagining Technological Futures

Though new white futurism is largely a discourse created by the consumer technology industry, it is sustained by consumer behavior. Between 2016 and 2019 smart home device sales in the USA jumped from $1.3 billion to $4.5 billion. Nearly 30 million devices were shipped in 2019 alone (Statista, 2020). Interoperability is on the rise as well. A 2018 survey found that 89% of respondents control their smart home devices through smartphones and 41% used voice assistants like Google Home and Amazon Echo—an interface that did not yet exist when they conducted the same survey in 2015. Smart devices are already in people's homes and the trend is going upward with revenue from smart home devices expected to double by 2025 (Statista, 2020). The IoT smart home devices, which are the avatars of new white futurism, contain no vision for change in white, heteronormative, middle-class, suburban life—only new technologies to more efficiently manage and sustain the present cultural economic order. In its drive for connectivity and data-driven management of everyday life, new white futurism eviscerates the emancipatory dimension of the technological imagination. In short, there is no liberatory project that suggests the future will be appreciably different from the present. Technologies will enable more efficient data-driven management of everyday life without facilitating new cultural habits and practices. Within new white futurism, emerging IoT smart home devices simply reproduce the status quo while entrenching technocratic corporate power in domestic spaces.

IoT smart home device promotions frame time as that which escapes one's control without the technologies. The imagery reinforces gendered and racialized assumptions about work schedules, home ownership, familial and friend relations with comparable lifestyles, as target market consumer profiles. Despite not being marketed to working-class people of color, these discourses nonetheless populate the cultural imagination with such visions as the inevitable direction that technological change will take upwardly mobile cultural life. New white futurism is the discursive and affective space in which the consumer technology industry maintains status quo relations of power via the process of technological change. It ensures that the process of technological change is not envisioned as an emancipatory project and that emerging smart home technologies are tools of reproduction instead of transformation.

One important step is to shift how people imagine their relationship to these devices. In *Race After Technology* (Benjamin, 2019a), Benjamin argues that it is crucial that people reimagine their relationships in everyday technocultural life by challenging notions that technologies are objective, neutral actors with universal and equal effects. To demonstrate, Benjamin describes the "New Jim Code" as an insidious combination of coded bias and imagined objectivity that reinforces discriminatory practices through emerging technologies (2019a). Through the work of scholars like Benjamin, we can ask questions about forms of racialized and gendered power both apparent and opaque embedded in the cultural contexts of emerging technologies.

Such a perspective is then linked to speculative thought through Afro, Indigenous, and queer futurisms, which are important intellectual and artistic projects still premised in emancipatory politics of technological futures. Eshun (2007) argues that the crucial turn occurs in the post-WWII context when futurism became a mechanism whereby influential industries, companies, and people began to "draw power from the futures they endorse" (p. 289). Indeed new white futurism continues to secure its authority in the cultural imagination and its profitability for the industry through events like CES which offer a "sneak peek" into the future as a way to fulfill the prophecy when the products hit retail shelves eighteen to twenty-four months later. Afrofuturism in particular is an important counter narrative to the new white futurism because it is rooted in a project of imagination, liberation, and the belief that other futures are still possible. Brooks (2020) explains that "Afrofuturism combines science fiction and fantasy to re-examine how the future is imagined and to envision alternative futures based on the Black experience" (Long now). From this perspective, the continued development of both Afrofuturistic theory and cultural works such as art, literature, music, and film are essential to the goal of ensuring that "long oppressed racial minority and diverse voices can articulate themselves in the futures imagined in the practices of long-term thinking and in the professional areas of foresight celebrating the Black imagination" (Brooks, 2020).

Another central premise of Afrofuturistic scholarship is identifying the ways in which Black people have been systematically denied representation in and emancipation through technologically-driven discourses of the future (Carrington, 2016). At times, new white futurism superficially engages in representational inclusion through corporate PR diversity requirements deploying tokenized inclusiveness, but it denies that technofutures should be anything other than a more efficient management of present circumstances. Larrieux (2011) argues that there is no essential link between black, or non-white, actor/actresses and that person of color's cultural life. The cultural life

represented in these discourses is characteristic of white, heteronormative, middle-class suburban family life—which is itself premised on exclusionary economic, political, and cultural practices that have prevented Black and Brown communities from sharing in the prosperity created by escalating land value in suburbia. Today's new white futurism is a project of management and preservation of the current global technocratic economic order in which infinite growth, quantification, and an endless stream of consumer technologies is the expected norm in perpetuity. This is an unsustainable future.

In conclusion, those concerned with the cultural power of futurism should listen, read, and engage Afro, Indigenous, and queer futurist thought where the speculative imagination about the future of technology is thriving. Brooks (2020) points to several examples where one can engage in Afrofuturistic thought and practice: The Black Speculative Arts Movements, a growing international hub of creative and artistic thinking that springboards Afrofuturistic projects such as using augmented reality to re-envision community relations; media resources like the Afrofuturist Podcast, which examines, speculates, and imagines the Black future from a global point of view; and a forthcoming Community Futures School aimed at increasing the literacy of futures thinking by starting with the Black experience. Afrofuturists do not aim to create technological futures that serve corporate power, but rather to imagine and envision transformative futures through speculative thought grounded in the protentional of today's technocultural contexts. Though promising consumer convenience, new white futurism entrenches corporate power over domestic life. Consumers must not buy into such discourses and practices for simple conveniences. The vision proffered by today's tech industry lacks any meaningful engagement with imaginative futures that might be liberating or otherwise transformative—especially when it comes to labor. For that one must look elsewhere, and Afro, Indigenous, and queer futurist thought are good starting places.

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