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Race-ing Technology in Dance

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by

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ABSTRACT OF THE DISSERTATION

Race-ing Technology in Dance

by

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This dissertation interrogates the racial ideologies embedded in and deployed by technologies as they appear in concert dance, popular/social dance, dance video games and on screens, via music videos and commercials. In my first chapter I explore how queer white modern dance choreographer Merce Cunningham and predominantly Black hip hop DJs justified their own technological accomplishments by drawing on Cartesian language. Their own self-fashioning/self-representation has since been discussed by scholars who picked up on this Cartesian line, emphasizing the "mental" accomplishments of these artists, often at the cost of ignoring the role of embodiment within their creative processes. In my second chapter, I examine the dance video game Dance Central, which translates movement from physical bodies to virtual and back again via surveillance technologies. However, because these technologies were not designed to track all body parts and actions equally, the game rewards whitened movements and erases/fails to recognize the Africanist aesthetics of its original choreographers. My third chapter analyzes how filmic techniques have been used to represent bodies and

technologies through car commercials and music videos. While some of the commercials I examine engage in traditional conflations of Black bodies and machines, I also explore examples where Afrofuturism opens up alternative imaginings. By moving across these varied sites, I argue that ideologies of race and technology impact each other at every point where they intersect, from design, production, and practice to retrospective analyses of their significance.

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Introduction

On June 11, 2020, Amazon placed a one-year ban on the use of their facial recognition software, Rekognition, by the police. Claims of racial and gendered bias within Amazon's software had been circulating for years. In 2018, for example, computer scientist and founder of the Algorithmic Justice League Joy Boulamwini published early research noting racial bias in Rekognition. Buolamwini's study showed that Rekognition much more accurately identified white men than any other category tested and performed most poorly when tested on Black[1] women. The company refuted the results and kept offering the software, even after twenty-six researchers posted a blog in March of 2019 calling for the company to stop selling the software. It wasn't until the immediate aftermath of the huge number of Black Lives Matter Protests taking place in response to the murder of unarmed Black man George Floyd by the police that Amazon took action. The company framed the move as a cautionary step allowing for governmental regulation to catch up with the technologies being deployed without any admission of bias. As the BBC News reported, "Amazon said the suspension of law enforcement use of its Rekognition software was to give US lawmakers the opportunity to enact legislation to

[1] Following the recent shift made by the New York Times and Chicago Manual of Style I will capitalize Black when referring to people or culture. See Nancy Coleman's "Why We're Capitalizing Black".

regulate how the technology is employed."[2] A number of other companies suspended the use and development of facial recognition software at this same time.[3]

Boulamwini's study is just one in a growing body of literature interrogating technology in relationship to race, bringing greater visibility to the particularly complicated relationship between technology and Blackness. These studies range in focus from surveillance[4] and carceral technologies[5] to algorithms[6] and internet-based technologies.[7] In the past few years, these scholars have examined both the specific way that technologies impact Black users and the way ideologies about Blackness impact the design of technology. For example, Simone Browne's *Dark Matter: On the Surveillance of Blackness* demonstrates how many surveillance technologies have evolved based on concepts used to monitor Black people during enslavement and Ruha Benjamin's *Race After Technology: Abolitionist Tools for the New Jim Code* examines the ways that racial hierarchies are so deeply embedded into the technologies of the internet that often, even when users try to deploy these technologies with social justice aims, the results instead conform to existing hierarchies. By showing the connections between technologies and

[2] "George Floyd: Amazon Bans Police Use of Facial Recognition Tech," *BBC News*, June 11, 2020, sec. Business, https://www.bbc.com/news/business-52989128.

[3] Jay Peters, "IBM Will No Longer Offer, Develop, or Research Facial Recognition Technology," The Verge, June 8, 2020, https://www.theverge.com/2020/6/8/21284683/ibm-no-longer-general-purpose-facial-recognition-analysis-software; Jay Greene, "Microsoft Won't Sell Police Its Facial-Recognition Technology, Following Similar Moves by Amazon and IBM," *Washington Post*, accessed May 11, 2021, https://www.washingtonpost.com/technology/2020/06/11/microsoft-facial-recognition/.

[4] Simone Browne, *Dark Matters: On the Surveillance of Blackness* (Duke University Press, 2015).

[5] Ruha Benjamin, *Captivating Technology: Race, Carceral Technoscience, and Liberatory Imagination in Everyday Life* (Duke University Press, 2019).

[6] Safiya Umoja Noble, *Algorithms of Oppression: How Search Engines Reinforce Racism* (NYU Press, 2018).

[7] Ruha Benjamin, *Race After Technology: Abolitionist Tools for the New Jim Code* (John Wiley & Sons, 2019).

racialization with real-world examples these scholars demonstrate how the development of ideologies about race and technologies have been interdependent.

On March 26, 2021, TikTok celebrity Addison Rae Easterling appeared on the *Tonight Show Starring Jimmy Fallon* where she taught host Fallon a series of dances. The immensely popular white TikTok star failed to credit the dancers whose work she performed during the show, leaving ambiguity about whether or not the dances were in fact her own creations.[8] While a white artist appropriating the creations of predominantly Black artists is unfortunately neither new nor surprising, the performance resulted in an overwhelming backlash, which led Fallon to invite the dances' original creators onto his show.[9] A week after Rae's appearance on the show dance studies scholar Trevor Boffone published an article in the *Theatre Times* stating, "Although many people will dismiss something like TikTok dance credit as inconsequential, it can be a game-changer for artists. Receiving credit can lead to followers, media exposure, a network of other social media influencers, promotions and endorsement deals, and more. Institutions such as *The Tonight Show Starring Jimmy Fallon* have a responsibility to credit artists, not simply on YouTube."[10] Boffone's article, while one of the most detailed in articulating the problem and placing it within a larger historical context of appropriation, was not alone in addressing the issue. Media outlets including *Los Angles Times* and *USAToday* also ran

[8] Trevor Boffone, "Jimmy Fallon, Addison Rae, and the Issue of TikTok Dance Credit," *The Theatre Times* (blog), April 2, 2021, https://thetheatretimes.com/jimmy-fallon-addison-rae-and-the-issue-of-tiktok-dance-credit/.

[9] Nick Romano, "Jimmy Fallon Addresses Addison Rae TikTok Dance Controversy by Shining Spotlight on Creators," EW.com, accessed April 28, 2021, https://ew.com/tv/jimmy-fallon-addison-rae-tiktok-dance-controversy-creators-video/.

[10] Boffone, "Jimmy Fallon, Addison Rae, and the Issue of TikTok Dance Credit."

stories on the controversy.[11] In a span of less than two weeks, the appropriation was called out and the original creators were credited. As appropriation takes place almost instantaneously in the digital realm, the same digital platforms allow users to follow up and respond to that appropriation.

Boffone was able to respond quickly to the controversy because he has been studying the transmission of dances via the TikTok social media platform for years. His book, *Renegades: Digital Dance Cultures from Dubsmash to TikTok*, which discusses the relationship between the platforms Dubsmash, a site populated largely by users of color and TikTok, the much larger platform where social media users often reproduce Dubsmasher's creations without credit, will be released in June 2021. While the field of dance studies has long acknowledged that the way that bodies are read is dependent on race, the publication of a book about social media dances by the prestigious Oxford University Press is just one example of how the field is expanding where we focus our scholarly inquiries. Similarly, the fall 2020 issue of *Conversations in Dance Studies*: *Decolonizing Dance Discourses* highlighted the need for dance studies as a field to "interrupt any assumption about their [keywords' in the field] uniform or uncontested reception" and called for a reinvisioning of what the field could do to counter anti-

[11] Christi Carras, "Addison Rae Taught Jimmy Fallon TikTok Dances, but Twitter Remembers Who Created Them," Los Angeles Times, March 29, 2021, https://www.latimes.com/entertainment-arts/tv/story/2021-03-29/addison-rae-jimmy-fallon-tonight-show-tiktok-dances; Hannah Yasharoff, "TikTok: Addison Rae's Jimmy Fallon Clip Drew Backlash, Fallon Responds," accessed May 11, 2021, https://www.usatoday.com/story/entertainment/tv/2021/03/30/tiktok-dances-why-addison-rae-jimmy-fallon-clip-sparked-backlash/7058920002/.

blackness in response to the recent resurgence of BlackLivesMatter protests.[12] This series of articles asking scholars to reconsider how we are defining dance, technique, and training helps to expose the ways that dominant white ideologies about how and where bodies should move continue to impact our understanding of what dance is and how it travels.

My research integrates these two lines of thought. I bring together research on race and technology, with research that examines the way race impacts how moving bodies are read and valued, to examine the relationship between racial identity and how individuals experience and engage with technologies at the level of the body. Considering both the active construction of images and the role of representation, I argue that the racial biases built into technology are based not only on visual markers of race, like those examined in Buolamwini's study, but also on ideologies about the relationship between mind and body and how bodies move through the world. In particular, I trace the ongoing power of the Cartesian divide, an early modern European idea that posited that the mind can be separated from the body and that valued mind (figured as rationality, etc) over the body (figured as primitive, irrational etc). Ironically, this was then mapped back onto bodies so that certain bodies (generally white, male, cis) were assumed to align with the qualities of the mind, whereas other bodies (generally women, people of color, queer people) were imbued with the opposing qualities. This further impacted the way that people were understood as moving through the world, e.g., Black people depicted as

[12] Anurima Banerji and Royona Mitra, eds., *Decolonizing Dance Discourses, DSA*, Conversations Across the Field of Dance Studies, 2020, https://dancestudiesassociation.org/publications/conversations-across-the-field-of-dance-studies/decolonizing-dance-discourses. 4.

moving naturally vs trained. Digital technologies, created primarily by the group that figured themselves of the mind, brought their ideas about bodies and movement with them into the way that movement gets represented within various technologies.

My research interrogates the racial ideologies embedded in and deployed by the technologies themselves as they appear in concert dance, popular/social dance, dance video games and on screens, via music videos and commercials. In my first chapter I explore how queer white modern dance choreographer Merce Cunningham and predominantly Black hip hop DJs justified their own technological accomplishments by drawing on Cartesian language. Their own self-fashioning/self-representation has since been discussed by scholars who picked up on this Cartesian line, emphasizing the "mental" accomplishments of these artists, often at the cost of ignoring the role of embodiment within their creative processes. In my second chapter, I examine the dance video game Dance Central, which translates movement from physical bodies to virtual and back again via surveillance technologies. However, because these technologies were not designed to track all body parts and actions equally, the game rewards whitened movements and erases/fails to recognize the Africanist aesthetics of its original choreographers. My third chapter analyzes how filmic techniques have been used to represent bodies and technologies through car commercials and music videos. While some of the commercials I examine engage in traditional conflations of Black bodies and machines, I also explore examples where Afrofuturism opens up alternative imaginings. By moving across these varied sites, my research demonstrates that ideologies of race and

technology impact each other at every point where they intersect, from design, production, and practice to retrospective analyses of their significance.

To set up my analysis of these sites of dance-technology, the remainder of this Introduction first sets up my own entry into dance technology before providing an overview of the development of dance-technology as a practice and academic field. Then, I review the theoretical frameworks that ground my study, divided into three subgroups: dance studies and race, technology studies and race, and digital dance studies. I draw on the rich integration of critical race studies within dance studies and technology studies to not only argue that the integration of technology in dance is dependent upon racist hierarchies, but also that the ways that moving bodies and technology come together continues to impact the evolution of our understandings about both technology and race. Because ideologies about race and technology are interdependent and inextricably tied to ideologies about bodies, I discuss the growing body of literature examining the role of the digital within dance, which guides my own intervention. From here, I move into a discussion of my methods, arguing for a dance studies approach that deeply interrogates the relationship between race and technology through an analysis of where and how bodies are engaged or ignored. Finally, I share a chapter-by-chapter overview of the remaining chapters.

Entering Dance Technology as a white woman

I first became interested in "dance and technology" while pursing my master's degree in choreography at Trinity Laban Conservatoire of Music and Dance. A two-day film workshop offered me a new way to think about choreography and I began

integrating video into my dance making. I worked on drawing from film techniques such as the morphing, a digital technique for transitioning seamlessly from one scene/movement to another, in the development of choreography for the concert stage; then I added video projection to live performance. I attended several workshops on interactive technologies and began the Critical Dance Studies PhD program at UCR. I spent my first year in the program focusing on the work of white avant-garde film-maker Maya Deren, white modern dance choreographer Merce Cunningham and Troika Ranch, a predominantly white ensemble that interweaves interactive technologies into performance.

Early into my second year of graduate school I read *How We Became Posthuman* by N. Katherine Hayles and *National Abjection* by Karen Shimakawa simultaneously. Hayles asserts that cybernetics developed around ideas about embodiment held by white men, who assumed their understanding to be universal and overdetermined the direction of the field around their understandings. Shimakawa argues that because the U.S. legal system implicitly defines its "ideal" subject as white and male it does not support all people equally. Reading these two works at the same time helped me to see that the development of digital technologies hinging on white male ideals not only limited what types of technology were developed but limited which users the technologies would best support. Rewinding through my experiences over the last few years I saw a pattern. All of the artists I had focused on studying were white, the authors who wrote about them were white, the leaders of the workshops I had attended were white, and the majority of students in the workshops were also white.

How had I not realized this sooner? Because I was not supposed to. As a white woman, I was trained within this system that normalized whiteness. After a childhood in gymnastics and dabbling with ballet, I began modern dance at the suggestion of one of my ballet teachers, Diane Newman. I immediately fell in love and trained as a modern dancer at the University of Michigan. The program emphasized technical mastery, with a conservatory style schedule of technique classes five days a week in modern and ballet. I grew immensely as a dancer, but only within the limited styles that the university prioritized; and I did not question the system. During my master's program in London, I was able to dive into dance-technology without interrogating my positionality because it matched that of the field. However, in questioning the unspoken boundaries of the field I am now able to see how those boundaries are structured by race.

Historical Overview of Dance Technology

Dance technology evolved as both a practice and field of scholarship in the early 1990s. Initially, dance-technology practitioners optimistically envisioned a field that would create visionary works and uncover new knowledge through the combination of dance and technology. According to Harmony Bench, who describes herself as an interdisciplinary dance studies scholar, dance-technology or dance-tech:

> grew out of artistic experimentations with interactive technologies, especially motion sensing, tracking, and capturing tools, and has been an important site for the development of computational systems alongside choreographic research. It has, of late, also begun to advance a dance-based philosophy of mind…its research areas tend to emphasize making dance knowledge and choreographic

> thinking visible through partnerships with cognitive researchers and data scientist.[13]

As Bench suggests, dance technology is a field built around praxis, in which many of the field's scholars are also practitioners. Similar to the field of game studies, expertise in the field is supported by one's demonstrated ability to perform or execute the tools of the field. Furthermore, Bench's definition reveals the way that Cartesian dualism can infiltrate dance, a field that normally champions the contributions of the body. Here, it is choreographic thinking, rather than the entire process of both creating and embodying choreography, that is framed as a site of knowledge making.

In the 1990's scholars organized a series of academic conferences to share their thoughts on the potential of dance technology to change the way dance was documented, performed and created. The first Dance and Technology conference was held at University of Wisconsin, Madison in 1992, co-sponsored by the National Dance Association and University of Wisconsin's Dance Department. The majority of presentations listed in the conference proceedings fall within two categories of computer-based technologies.[14] The first and largest were papers that focused on tools generated to help document and spread knowledge about dance, such as programs using Labanotation and CD-ROMs that teach dance history. The second engaged with tools to generate choreography, either using a computer program to generate movement that could then be

[13] Harmony Bench, "Gestural Choreographies," *The Oxford Handbook of Mobile Music Studies, Volume 2*, March 1, 2014, https://doi.org/10.1093/oxfordhb/9780199913657.013.009.

[14] A. William (A. William Dean) Smith, *Dance and Technology I : Moving toward the Future, Proceedings of the First Annual Conference* (Westerville, OH: Fullhouse Publishing, 1992).

translated to live bodies, such as *Lifeforms*[15], or computer animation. Both of these areas of inquiry center the processes and values of concert dance.

Since then, dance technology has moved towards an emphasis on how knowledge drawn from dance making, or "choreographic thinking," can impact the development and understanding of knowledge in other fields. Scholars Susan Kozel[16] and Erin Manning[17] have shown how dance technology can be utilized to expand philosophic thinking in relation to phenomenology and process philosophy respectively. In *Closer*, Susan Kozel engages with theories of phenomenology drawn from the works of Maurice Merleau-Ponty to examine what she sees as the abandonment of the body to the era of computer via her own experiences with dance and technology. Erin Manning's *Always More Than One* draws heavily on analysis of the choreographic process of William Forsythe, particularly *One Flat Thing reproduced*, as she conjectures that choreography can be utilized by philosophy to demonstrate the importance of considering humans beyond their singular bodies. Stamatia Portanova's *Moving Without a Body* concentrates, as the title suggests, on the utilization of choreography as a way of rethinking and organizing information and how this might be applied to the digital world without any bodies present. Scholars Steve Dixon[18] and Chris Salter[19] focus on digital performance more

[15] Lifeforms is a computer program created in 1986 at Simon Frasier University and allows users to generate movement on digitized figures.

[16] Susan Kozel, *Closer: Performance, Technologies, Phenomenology*, Leonardo (Cambridge, Mass: MIT Press, 2007).

[17] Erin Manning, *Always More Than One: Individuation's Dance* (Duke University Press, 2013).

[18] Steve Dixon, *Digital Performance: A History of New Media in Theater, Dance, Performance Art, and Installation* (Mit Press, 2007).

[19] Chris Salter, *Entangled: Technology and the Transformation of Performance* (Cambridge, Mass: MIT Press, 2010).

broadly, looking at performances that are often collaborative, where dance is only one element in their overarching interrogation of the way in which live bodies engage with digital technologies. Both authors are concerned with presenting detailed accounts of the specific types of technologies that have been integrated into performance and the underlying motivation behind such integration, tracing the trajectory of digital technology's usage back to older analog technologies.

These projects argue that dance is a cerebral activity and deserves to be taken seriously in academic conversations and can even be a great potential aid to the development of further digital technologies. However, these arguments seem to adhere to a Cartesian model in which the mental processes are superior to the physical ones and dance must demonstrate its mental capacity in order to be taken seriously. Also, although many of these authors make note at some point about the potential role of race, gender and sexuality in how bodies are engaged and read, very rarely do they interrogate the role of identity in relation to specific examples. However, there are some scholars beginning to challenge this lack of awareness of the relationship between identity and the employment of dance-tech.

In a recent talk titled "(In)Visible Labor: Understanding Roles and Responsibilities in Dance," interdisciplinary scholar/practitioner Jessica Rajko takes the time to position dance technology as having a specific position and priorities rather than as universal. Rajko began by sharing some statistics from her recent study of intersections of dance and computing to visibilize the unspoken priorities within the field. For example, Rajko noted that in her study of 135 papers from the Association of Computing

Machinery Digital Library with keyword dance, the majority were published by authors at Western (European 50 or North American 49) institutions and, that of the 60% of papers that describe the form of dance, 59% use forms with "concert dance training" the term she uses to group together forms labeled as ballet, contemporary and modern. Rajko emphasizes that work on dance and computing is not universal, stating, "starting here, we begin to see already some of the implicit boundaries or subjects of common knowledge that define the work that we do."[20] Rajko's statistics back up the trends I was seeing in my early research in terms of the ways that dance technology, adhering to an engagement almost entirely with concert dance, has limited its own possibilities.[21]

Because the field of dance-technology has primarily focused on Western concert dance, my expanded consideration of which types of technology and dance to engage with offers the possibility of bringing new insight to the field as it continues to evolve. For this project, I define dance-technology as any instance of dance in which the theories of or engagement with technology are central to the development, practice and/or performance of the dance.

Theoretical Frameworks

Scholars of critical race theory working across multiple disciplines have shown that racialization systematically enacts a race-based hierarchy. As scholars have argued,

[20] Jessica Rajko, "Digital Culture Speaker Series:(In)Visible Labor: Understanding Roles and Responsibilities in Dance," 2021, https://www.youtube.com/watch?v=Ox4IBDUF5VE&t=921s.

[21] Rajko also notes that there are artists now working against these implicit boundaries. I see my dissertation as part of this recent effort to challenge the whiteness of dance-technology and will discuss possible sites for future research in the coda.

white supremacy has continued to hold power by shifting its definitions of whiteness as ideas about race have shifted in society, offering benefits to some populations in return for their continuing participation in racialization that excludes and denies rights to the majority of people of color. Michael Omi and Howard Winant coin the term *racial formation* "to refer to the process by which social economic and political forces determine the content and importance of racial categories, and by which they are in turn shaped by racial meanings", arguing that race is neither fixed, nor ephemeral but that racial formation is an ongoing struggle.[22] David Roediger traces the development of white supremacy and the role that race played in America from the early days of colonialism up through the Presidential campaign of Barack Obama, demonstrating how whiteness continually redefines itself to establish and maintain power.[23] Meanwhile, Sylvia Wynter, Alexander Weheliye and Zakiyyah Iman Jackson (whose scholarship will be reviewed in more detail in the third chapter) expose strategies that have been used to position Black people outside the boundary of humanity.[24] These works help ground my own scholarship with historical and political context. I move now into a discussion of the specific ways that race has been studied both in relation to dance and to technology

[22] Michael Omi and Howard Winant, "Racial Formation," in *Racial Formation in the United States: From the 1960s to the 1980*s. New York: Routledge, 1989, pg 61.
[23] David R. Roediger, *How Race Survived US History: From Settlement and Slavery to the Obama Phenomenon* (London ; New York: Verso, 2010).
[24] Sylvia Wynter, "Unsettling the Coloniality of Being/Power/Truth/Freedom: Towards the Human, After Man, Its Overrepresentation--An Argument," *CR: The New Centennial Review* 3, no. 3 (2003): 257–337, https://doi.org/10.1353/ncr.2004.0015; Alexander G. Weheliye, *Habeas Viscus: Racializing Assemblages, Biopolitics, and Black Feminist Theories of the Human* (Durham: Duke University Press, 2014); Zakiyyah Iman Jackson, *Becoming Human: Matter and Meaning in an Antiblack World*, Sexual Cultures (New York: New York University Press, 2020).

before moving to an engagement with scholarship that looks at bodies and technologies together.

Dance studies and race

While dance studies as an academic field initially grew out of dance criticism with similar problematic universalizing tendencies to those affecting technology, scholars have been addressing the impact that race, gender, sexuality and class have on the way moving bodies are read for decades. Susan Manning notes a shift from a singular universalizing idea of spectatorship in mid-twentieth century dance studies to the introduction of a variety of binary lenses considering race, gender and sexuality around 1970, with a growing awareness of the role that whiteness played in dances' positioning arising in the 1990s.[25] This growing awareness of the role of race has been accompanied by an ever broadening range of sites and styles of dance that receive academic attention, as noted in my discussion of the recent backlash against the failure to credit dance creators from TikTok. My literature review centers scholarship focusing on Blackness and whiteness in a U.S. context across a combination of concert, social and digital dance sites as these have been most directly influential on my own study.

To begin with, Brenda Dixon Gottschild's work has been formative to my understandings of the ways that bodies show characteristics of race that go beyond the visual. Her 1996 *Digging the Africanist Presence in American Performance* delineates a set of aesthetics that are central to African diasporic dance practices and that she argues

[25] See pages xix-xxi in Susan Manning, *Modern Dance, Negro Dance: Race in Motion* (Minneapolis: University of Minnesota Press, 2004).

have been integrated into all American dance practices, even those as seemingly white/European as ballet. Gottschild posits that while the Africanist presence in American culture is "a potent, vital force that plays a significant role in defining the American aesthetic," it has been invisibilized, obscured by segregation and discrimination.[26] Gottschild's detailed examination of the Africanist elements "invisibilized" within the ballets of George Balanchine galvanized my own close readings of *Dance Central* video game choreography.

In her 2004 *Modern Dance Negro Dance*, Susan Manning argues that "Negro dance" and modern dance in the United States from the 1930s to the 1960s "were mutually constitutive categories" despite marked differences in the way they were funded and critiqued.[27] Manning notes that the trajectory of appropriation shifted from the era of Blackface minstrelsy as white people pulled the movements from other bodies, without also attempting to bring the physical markers of race, into what she dubs metaphorical minstrelsy, "a convention whereby white dancers' bodies made reference to nonwhite subjects."[28] Manning's discussion of how Black content was appropriated and manipulated, without accompanying visual markers of race, informs my discussion of the relationship between minstrelsy and dance video games where similar dynamics exist decades later. Furthermore, Manning's side by side comparison of two genres that had not been examined together helped me design my own side by side comparison of the technological engagements of Merce Cunningham with hip hop DJs.

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[26] Brenda Dixon Gottschild, *Digging the Africanist Presence in American Performance: Dance and Other Contexts* (Greenwood Press, 1996). 1-2.

[27] Manning, *Modern Dance, Negro Dance*. xiv

[28] Manning. 10.

Published in 2004, "*Ghostcatching*: An Intersection of Technology, Labor, and Race" is the most well-known piece of scholarship to date looking at the intersections of dance, technology, and race. Author Danielle Goldman, both a dance practitioner and scholar herself, wrestles with the challenges choreographer Bill T. Jones faced in attempting to curate his own appearance within the structures of an existing technology. In Goldman's examination of how Jones worked to make his race visible within his collaboration with Paul Kaiser and Shelley Eshkar on the *Ghostcatching* installation, she focuses on the challenges Jones faced attempting to frame himself in a subjective way within "objective, universal" technology. Goldman effectively lays out the technological lineage behind motion capture and the ways this form complicates what is seen in the digital representation. Goldman's study was formative in my own study as I was initially questioning the whiteness of dance technology. She clearly illustrates how the tension between the technology's underlying ideologies and Jones's goals clashed. I build on her study to demonstrate that the issues Jones encountered were not a singular case but part of a larger systemic problem.

Thomas DeFrantz has written on a wide variety of Afrodiasporic dance practices, crossing boundaries to cover concert dance, popular culture and technology—as both a component of and mode of disseminating dances. For example, in his 2012 "Unchecked Popularity: Neoliberal Circulations of Black Social Dance" DeFrantz examines the way that neoliberal policies and rapidly growing internet technologies increase the spread of Black dances beyond the bounds of the communities that give them context. As he writes, "African American social dances circulate generously because their social and aesthetic

underpinnings fit neatly with neoliberal discourses of freedom—so neatly, in fact, that the proliferation of markets that characterize contemporary life cannot check their popularity."[29] DeFrantz's discussion of the ways that people feel free to try Black dances as well as the way the process of circulation via the internet transforms the dances, often evacuating their Africanist aesthetics, is central to my discussion of the transmission of dances via video games.

In her 2015 *Modern Moves: Dancing Race during the Ragtime and Jazz Eras* Danielle Robinson argues that social dancing within America is a hybridization of Black and white contributions and has been so since early in the twentieth century. She notes that as ballroom dance evolved into an industry "Cross-cultural borrowing was at the heart of this industry; it was a major source of innovation in social dancing. This period established the practice among European Americans of borrowing, stealing, and/or being influenced by dance forms thought to be black."[30] Particularly relevant to my examination of dance video games is Robinson's examination of how ragtime dancing was whitened to make it palatable for a white mass audience. Robinson notes that the dances had to be codified as set steps, shifting away from the improvisational structures of their origins. Furthermore, she argues that while ragtime was created from a conglomerate of influences, it was read as Black because of the "one drop" rule of the period. Thus, she details the specific ways that the dance was changed to remove markers

[29] Thomas F. DeFrantz, "Unchecked Popularity: Neoliberal Circulations of Black Social Dance," in *Neoliberalism and Global Theatres*, ed. Lara D. Nielsen and Patricia Ybarra (London: Palgrave Macmillan UK, 2012), 128–40, https://doi.org/10.1057/9781137035608_9. 128.

[30] Danielle Robinson, *Modern Moves: Dancing Race during the Ragtime and Jazz Eras* (Oxford ; New York, NY: Oxford University Press, 2015).

of Blackness such as "exuberant physicality and sexuality."[31] I follow a similar trajectory, looking at the specific ways that the dances get transformed through their technologically aided circulation.

Anthea Kraut's 2016 *Choreographing Copyright* has also deeply impacted the development of this project. Kraut argues that examining how cases where artists attempted to claim copyright played out demonstrates not only the way race, gender and class were implicated, but that these cases were sites in which race, gender and class were contested and transformed. For example, in her first chapter Kraut looks at the way that female dance artists attempted to claim property through whiteness, moving them from a marginalized position closer to white male property owners. Kraut states, "Attention to dancers' pursuit of copyright therefore helps us understand race as not only a "perceptual construct," a way of reading bodies, but also as a contest over cultural and economic capital."[32] Kraut focuses on the relationship between the ways bodies were categorized in the legal system and the rights they were afforded or denied because of these categorizations. This idea of co-constituency, of the law being a place that both defined identity and a tool that performers attempted to use to reposition their identities, is central to my own examination of how the ideologies built into technologies inhibit certain users and how users' choice to use them anyway and use them differently challenges the domination of whiteness in technology.

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[31] Robinson.

[32] Anthea Kraut, *Choreographing Copyright: Race, Gender, and Intellectual Property Rights in American Dance* (Oxford, UK ; New York, NY: Oxford University Press, 2016). 170.

My own study contributes to this body of scholarship in several ways. As a whole, my project demonstrates the value of looking across different sites of dance production, practice and performance. While many projects within dance studies examine concert dance, popular dance, music videos or commercials, most studies look at only one or two sites. By bridging these diverse sites my study demonstrates that ideologies of race and technology impact each other at every point where they intersect. For example, my project demonstrates that invisibilization can be amplified by technology and that attending to technology can reveal new layers about the way racialization works on dancing bodies.

Technology and race

Central to the development of my thinking about the relationship between race, technology and moving bodies was my participation in the Digital Humanities Summer Institute's 2017 Feminist Digital Humanities Course. On the first day, the scholars leading the course, Jessica Marie Johnson and Elizabeth Losh, introduced the following frameworks for the course, which resonated with what I had been seeing, but had not yet fully articulated:

Technology is material (although it is often presented as virtual)

Technology involves embodiment (although it is often presented as disembodied)

Technology solicits affect (although it is often presented as highly rational)

Technology requires labor (although it is often presented as labor-saving)

Technology is situated in particular contexts (although it is often presented as universal)

Technology promotes particular values (although it is often presented as neutral)

Technology assumes tacit knowledge practices (although it is often presented as transparent)

While these concerns were new to me as a scholar, they have a long history within studies on technology and race. In 2002, sociologist Alondra Nelson, who had been building conversations amongst scholars about how to address the problems in the rhetoric evolving around technology and race, edited a special edition of the journal *Social Text* on Afrofuturism. In "Future Texts", her introduction to the journal, she opens by arguing that within the rhetoric of technological progress espoused in the late 1990s and early 2000s, the primary discussions of Blackness and technology were demonstrated through two polarizing ideals: that of the "race-free future" where technology worked equally well for all users and identity based divides vanished, and that of the digital divide, a term meant to address the gaps in technological access but which Nelson argues "mostly bec[a]me a code word for the tech inequities that exist between blacks and whites."[33] She argues that despite the apparent difference in these two lines of thinking, the common factor is the "assumption that race is a liability in the twenty-first century."

Much of my preliminary research into race and technology counters this first line of thinking that Nelson delineates, identifying the positionality of technologies and their

[33] Alondra Nelson, "Introduction: Future Texts," *Social Text* 20, no. 2 (71) (June 1, 2002): 1–15, https://doi.org/10.1215/01642472-20-2_71-1. 1.

creators to argue that technology is not universal. In *Whose Global Village,* Ramesh Srinivasan states, "Ninety-nine percent of the world's population remains excluded from most decisions made around the future of the Internet and digital technology. Billions of people are therefore treated as passive users. Their creativity and agency is restricted to adapting, appropriating, or hacking technologies that already exist."[34] Srinivasan argues that digital technologies are socially constructed and, as such, contain the values of those who made them. Srinivasan's work helps to demonstrate how technologies are constantly shifting, creating hierarchies based on who creates and controls the technologies, with whiteness constantly working to maintain its dominance. My work builds on Srinivasan's focus on the constant changes taking place within technologies to demonstrate how these shifts impact users at the level of the body and how the movement of bodies impact how the technologies are shifted.

Joel Dinerstein follows a similar line of thinking in "Technology and Its Discontents," arguing that white male techno-enthusiasts attempt to maintain their privilege by denying the subjectivity of their viewpoint and asserting it as universal. He argues that "New technologies help maintain two crucial Euro-American myths: (1) the myth of progress and (2) the myth of white, Western superiority."[35] Thinking through the role that not only the technologies themselves but also the narratives that people create about technologies play in the way they are viewed and utilized informed my approach to my first chapter, where I examine how the dominant rhetoric regarding technologies

[34] Ramesh Srinivasan, *Whose Global Village?: Rethinking How Technology Shapes Our World* (NYU Press, 2017). 1.

[35] Joel Dinerstein, "Technology and Its Discontents: On the Verge of the Posthuman.," *American Quarterly* 58, no. 3 (September 2006): 569–95. 572.

impacted how people spoke about and valued the dances associated with the technologies. In particular, Dinerstein's identification of the goal of the posthuman, mind "breaking free" from the restrictions of the body as a goal of a white technological elite, not shared by a majority of the population impacts my discussion of the role of Cartesian dualism with respect to Cunningham and hip hop DJs.

In her 2007 *Digitizing Race,* scholar of race and digital media Lisa Nakamura notes that rather than relishing the idea of freedom from their flesh, women and racial minorities have sought to create representations of their fleshy bodies in the digital world, pushing back against articulations of "cyberculture as white by default."[36] Nakamura argues that existing structures of the Internet are often designed to maintain current racial formations and that there is a danger of reinscribing existing stereotypes even as one attempts to push beyond them when working within the structures that created those stereotypes. Ruha Benjamin builds on this line of thinking in her 2019 *Race After Technology: Abolitionist Tools for the New Jim Code*. Benjamin's title references the work of scholar Michelle Alexander, who argues that Jim Crow policies have been reworked to operate more discretely under colorblind ideologies. Benjamin argues that coding follows a similar racist structure, in which the inequities within coding are so deeply embedded that often, even technologies designed with a social justice goal continue to perpetuate racist hierarchies. Because digital projects are built on systems with embedded inequities, she asserts that sometimes even well-intentioned projects end

[36] Danielle Robinson, *Modern Moves: Dancing Race during the Ragtime and Jazz Eras* (Oxford ; New York, NY: Oxford University Press, 2015). 86.

up doing more harm than good. My study expands on Nakamura and Benjamin's argument about the impact of embedded inequities within technologies to consider how these technologies impact the way bodies movements are read and valued.

Benjamin's work sits amongst a recent rise in literature specifically examining the relationship between technology and Blackness. For example, in her 2018 book *Algorithms of Oppression*, Safiya Nobles demonstrates that algorithms, often presented as objective, are built around the biases of the people who create them and therefore perpetuate existing racism. In the anthology *Captivating Race: Race, Carceral Technoscience, and Liberatory Imagination in Everyday Life e*ditor Ruha Benjamin brings together a diverse body of scholarship which examines both obvious and more hidden technologies evolving from the carceral state to expose discriminatory thinking built into design and implementation of technologies that get employed far beyond the bounds of prison walls. While these authors write about technologies that do not directly impact my study, their exploration of the ways in which digital technologies are built upon structures of inequity brings new insight to my reflection that dance technology evolved as a predominantly white field. Initially upon this realization, I expected that people writing about dance technology had simply overlooked more diverse users; in light of these texts, I now look back and wonder if those users were simply deterred from engaging with dance technology because its inherent whiteness did not align with their aesthetics, goals, or experiences.

My contribution to technology studies comes through extending the discussion of the ways that technologies racialize people to discussions of the entire body, and not

simply visual markers of race. My study shows how attending closely to the actions of bodies and the ways that they are represented in relation to technology has the potential to reveal further information about the racial ideologies implicitly included in many technologies.

Digital Dance studies

Digital technologies have changed the way that dances are created, performed, and circulated. I examine here several works from this growing body of scholarship that have impacted my own understanding of the evolving relationship between digital technologies and the ways we make, share and watch dance.

Dance studies scholar Harmony Bench bridges the dance technology/dance studies divide, engaging with digital technologies in a variety of ways in her scholarship, which is methodologically driven by dance studies. In a talk on November 1, 2017 she described herself as a scholar focused on "how movements move." Bench's work follows the shift dance technology has made from examining dance technology as an extension of analog dance to an interrogation of what dance knowledge can add to understandings of digital technologies. Yet, because she works from a dance studies methodology that emphasizes the role of the means of production in her enquiries, she brings a specificity to her consideration of which types of dance and technology she is speaking. Most relevant to my work, her 2017 "Gestural Choreographies: Embodied Disciplines and Mobile Media" examines the way the design of technologies influences how those of us who use digital technologies move our body. She opens with a description of a small

child making a swiping gesture on a smart phone and goes on to demonstrate how technologies choreograph the actions of their users. Bench argues that technologies require not just mental engagement but also physical, and that the physicality necessary to use a technology is often built upon culturally specific movements that the creators suggest are neutral. Therefore, the creators' thoughts about the relationship between mind and body are intricately connected to the way the technologies affect users of different races. Bench's examination of what technological designs both require of users' physicality and what they assume as common movement vocabulary helped me frame my own inquiry into *Dance Central*.

Like Bench's "Gestural Choreographies," much of video game and media studies scholar Derek Burrill's work critically examines the role of bodies and embodiment in non-dance settings such as video game play. For example, in his 2006 "Check Out My Moves" Burrill performs close readings of several popular video games to show how bringing a dance studies emphasis to video games helps reveal the layers of interaction and agency the player has in this media, different than passively watching a film. Particularly salient to my own project is his assertion that the gamer can participate in the act of creating culture through their game play. Additionally, Burrill's assertion that "dance on screen is itself a technology" and accompanying analysis of the way that moving bodies, moving camera, and editing work together to create a new perspective within the Matrix films is central to the methodology of my third chapter.[37]

[37] Derek A. Burrill, *"He's Doing His Superman Thing Again,"* ed. Melissa Blanco Borelli, vol. 1 (Oxford University Press, 2014), https://doi.org/10.1093/oxfordhb/9780199897827.013.016. 241.

Burrill's co-authored article on *Dance Central* with dance studies scholar Melissa Blanco Borelli provided critical insight into the game as I began my research and will be discussed in detail within the second chapter. Blanco Borelli's "Gadgets, Bodies, and Screens: Dance in Advertisements for New Technologies" had a strong impact on my project as I was establishing the boundaries of my third chapter and thinking about what might be gained by looking at the way technology was presented in relation to moving bodies on screen. She demonstrates how the movement of bodies on screen are tied to the capabilities of the technologies they are adverting, asserting, "[t]hese advertisements utilize dance as the embodied manifestation of the speed, prowess, and efficiency that new technologies provide."[38]

Dance studies scholar Alexandra Harlig expands the study of dance on screen to dances produced specifically to be shared via YouTube. In her 2019 dissertation, *Social Texts, Social Audiences, Social Worlds: The Circulation of Popular Dance on YouTube*, Harlig examines the development of what she dubs YouTube native video techniques and their continual shifting meanings as they circulate in sites ranging from local dance studios' productions to globalized commercials. Harlig argues that YouTube has changed the way dances are learned practiced and shared: "A cyclical exchange—between perpetuation and innovation, subculture and pop culture, amateur and professional, the subversive and the neoliberal—is what defines YouTube" (ii) Harlig's assertion that the shifts generated through the proliferation of YouTube videos are not one way, but that

[38] Melissa Blanco Borelli, "Gadgets, Bodies, and Screens: Dance in Advertisements for New Technologies," in *The Oxford Handbook of Screendance Studies*, by Melissa Blanco Borelli, ed. Douglas Rosenberg (Oxford University Press, 2016), 420–38, https://doi.org/10.1093/oxfordhb/9780199981601.013.20.

there is a continuous exchange is central to my examination of the after-life of *Dance Central* via YouTube posts.

In sum, these authors' detailed analyses demonstrate the centrality of embodiment to the ways that we engage with and understand technologies. Tying back to my discussion of the frameworks of the Feminist Digital Humanities course, these authors all counter the rhetoric of technology as disembodied. Reading their works and considering the methods they use to expose the centrality of embodiment and physical labor to our understanding of technologies helped me hone the methods for my study.

Methods

Dance studies, with its emphasis on how bodies make meaning, is an especially fruitful lens to bring to the study of race and technology because so many longstanding ideas about both race and technology are tied to ideologies of the body. Therefore, dance studies is not only a theoretical body of research that I engage with but also central to my methodology. I draw on my own history as a dancer, especially from my experiences using technology, to bring kinesthetic insights to my analysis.

My understanding of the technologies involved in my study is based on a combination of research, observation and my own practice. While I do not reconstruct any of the works in my study, I did spend time engaging with many of the technologies employed. Looking at examples such as Ann Cooper Albright's study of Loïe Fuller in *Traces of Light* helped me realize how valuable engaging with a technology myself could be in keeping an emphasis on the role of embodiment in relation to the technology. For example, Albright attempts to connect the importance of Fuller's embodiment within her

works to her legacy noting what she sees as an unnecessary dichotomy in performance, in which work gets categorized as either technical or expressive, but not both.[39]

My experience and insight into embodying technologically driven dances was aided greatly by my participation in Linda Tomko's dance reconstruction course, *Embodying Dances Past*. With the generous support of Troika Ranch directors Mark Coniglio and Dawn Stoppiello I attempted to recreate the process of technological transformation that they had used for their 2009 *Loopdiver*[40], but with my own choreography. Unlike many of my colleagues in the course, I was not seeking to bring to life a historical work. I was instead trying to discover what new insights I gained about the final product by actively participating in a similar process. What I found, central to my consideration of Cunningham's use of Lifeforms, was that the technological intervention that made it impossible for a body to exactly reproduce the movement on screen meant that the dancers performing the work were critical collaborators in determining how the choreography could be executed. While learning choreography from a video can be challenging, this was something else entirely. Like the phrases Cunningham built using Lifeforms, this movement had never been executed by human bodies and the limitations of those bodies often required the dancers and I to reinterpret what was present on the screen.

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[39] Ann Cooper Albright, *Traces of Light: Absence and Presence in the Work of Loie Fuller* (Middletown, Conn: Wesleyan University Press, 2007). 25.

[40] *Loopdiver* was created by taking a five-minute section of choreography and running it through a looping algorithm that generated a forty minute long "looped" version. For more details please visit: https://troikaranch.org/loopdiver.html For my recreation project, Coniglio ran a section of a dance I had choreographed through the company's original algorithm.

Alongside my theoretical research, I have choreographed dances that use the Microsoft Kinect to create interactive video performances and filmed and edited a series of dancefilms. These first-hand experiences with the limits of the Kinect's tracking and the way that action within a film shot is informed by choices of how to frame, whether the camera also moves, and the editing sequence enhance my close readings in chapters two and three.

My critical analyses of images and movement bring together my years of training watching movement with the theoretical frameworks I have discussed in the previous section to examine how bodies make meaning as well as the conditions of production of dancing bodies. I follow the examples of Donna Haraway[41], Judith Butler[42] and Richard Dyer[43] in examining how the ideologies built into a technology and the context that an observer brings with them is critical to what and how they see. This understanding of technology as always having a specific positionality aligns with dance studies emphasis on the impossibility of a universal reading and the necessity to ground any observation with cultural context. Deidre Sklar argues for an approach "that considers movement performance not just as visual spectacle but as kinesthetic, conceptual, and emotional experience that depends upon cultural learning. Since we all inevitably embody our own very particular cultural perspectives, we must do more than look at movement when we

[41] Donna J. Haraway, *Simians, Cyborgs, and Women: The Reinvention of Nature* (London: Free Association Books, 1991).

[42] Judith Butler, "Endangered/Endangering: Schematic Racism and White Paranoia | Taylor & Francis Group," in *Reading Rodney King*, 1993, https://www.taylorfrancis.com/https://www.taylorfrancis.com/chapters/mono/10.4324/9780203699997-7/endangered-endangering-schematic-racism-white-paranoia-robert-gooding-williams.

[43] Richard Dyer, *White* (London ; New York: Routledge, 1997).

write about dance."[44] As Sklar argues, movement is informed by culture; not only does our own cultural training impact how we read movement, but movement can bring with it the contributions of a culture or race even when visual markers are removed. Therefore, in my third chapter I attempt to read and counter-read images to consider how the positioning a viewer brings with them shifts what gets seen.

As I discussed previously, dance technology has limited itself as a field by focusing primarily on post-modern dance[45], which evolved alongside the technologies it champions and already upholds the same aesthetics as those technologies. This leaves unexamined the limitations of which bodies are presented as universal and which types of dance are aesthetically joined to technology. In order to avoid limiting my study by following this same pathway, I apply a dance studies lens to look at the way white and Black bodies and their movements are positioned differently in relation to technology at sites that most viewers would probably not consider dance. Whiteness, often through the site of concert dance, has historically overdetermined which type of dance matters—both in terms of what gets presented onstage and what gets written on the page. Afrodiasporic forms are far more likely to have musicians and dancers exchange roles or serve in both roles simultaneously but dance studies' academic foundation in concert dance often separates the study of dance from music.[46] Therefore, examining hip hop DJs through a

[44] Deidre Sklar, "Five Premises for a Culturally Sensitive Approach to Dance," in *Moving History/Dancing Cultures: A Dance History Reader*, ed. Ann Dils and Ann Cooper Albright (Middletown, Conn: Wesleyan University Press, 2013).

[45] I draw on Sally Banes original definition of post-modern dance from *Terpsichore in Sneakers*, as a term choreographers of the 1960s were applying to their own work to signal a departure from the priorities of modern dance's emotional and narrative priorities.

[46] Jonathan David Jackson, "Improvisation in African-American Vernacular Dancing," *Dance Research Journal* 33, no. 2 (2001): 40–53, https://doi.org/10.2307/1477803.

dance studies lens in my first chapter is an important intervention that enables us to better understand the role that movement played for the DJs and how this was implicated in the dancing. And in my third chapter, reading how bodies are positioned and read doing a seemingly mundane action like stepping behind the wheel of the car helps show how central embodiment is to the relationship between race and technology and supports my argument for further dance studies engagement in this realm.

Because my work is very much about bridging disciplines and bringing together examples of dance and technology not previously paired together, each chapter required a slightly different approach depending on the technologies and dance forms being interrogated. In my first chapter I primarily employ archival research, as I traverse the timeline from the initial development of Merce Cunningham's career and hip hop's development to recent scholarly rhetoric about these artists. In my second chapter, I draw on the archive of YouTube to closely examine video game players' execution of *Dance Central* routines. Following Kiri Miller's methodology of "playing alongside," I reference my own experiences using the Microsoft Kinect as the manufacturers intended, playing *Dance Central*, and appropriating the Kinect, viewing the movements the Kinect is "seeing" through the visual software Processing. In my final chapter, I focus primarily on choreographic analysis—looking not only at the choreography of bodies and technologies within the shot but also the choreography created through camera work and editing. Bringing together these elements, I perform close readings of commercials and music videos featuring both white and Black celebrities to show how ideologies about race and technology get enacted. Collectively, these methods allow me to demonstrate

that ideologies of race and technology impact each other at every point where they intersect, from design, production, and practice to retrospective analyses of their significance.

Chapter outline

The chapters that follow focus specifically on the relationship between Blackness and whiteness. This was a deliberate choice based on the fact that Blackness has been positioned in opposition to the white narrative of technological progress since its creation during the era of transatlantic slavery. As I discussed in the literature review, in the United States, discussions of race often hinge on an imagined binary between white and Black, which is especially prevalent within technological rhetoric. Blackness is not left out on accident, but purposefully positioned as other to help demonstrate the boundaries and limits of whiteness.[47] There are numerous ways technologies' overdetermination by whiteness impacts other BIPOC bodies, as well as differences in how these relationships play out beyond the borders of the United States that would be valuable to research. However, this project emphasizes sites where the intersections of moving bodies and technology engage primarily with the white/Black binary.

In Chapter One, Disembodied: Dance Technology's Devaluation of the Body, I examine the evolving relationship between dance and technology in modern dance as embodied by Merce Cunningham and hip hop with a focus on the role of DJs. Both Cunningham and early hip hop DJs brought together moving bodies and technologies,

[47] Wynter, "Unsettling the Coloniality of Being/Power/Truth/Freedom"; Weheliye, *Habeas Viscus*; Jackson, *Becoming Human*.

beginning with analog and later shifting to digital technologies. Both used the language of science to describe their accomplishments to those beyond their field, deploying language in a way that unintentionally reinscribed the ideology of mind/body dualism. By emphasizing their "mental" accomplishments, these artists and many scholars drawing on the artists' own words, have inadvertently deemphasized the role of the body. From his earliest engagements with technologies in the 1960s, Merce Cunningham validated his dance making as important by emphasizing the mental aspects of this work; this rhetoric was immediately picked up by press and scholars. Meanwhile, predominantly Black DJs were not initially recognized as technological innovators, but when scholars worked to draw them into this history later, they did it with strikingly similar language to that deployed by Cunningham. I demonstrate how the devaluing of the body through the Cartesian rhetoric also emphasized individual artists, often leaving out the dancers and other collaborators whose support played a critical role in the process.

Chapter Two, *Dance Central*: Failures of Technological Transformation, is a case study of the technology of the Microsoft Kinect (an add on to the Xbox that maps a player's skeleton, so they do not need a handheld controller) within the video game *Dance Central*. I show how the limitations designed into this "universal" technology eliminate racially significant movements to invisibilize Blackness through the layers of technological engagement in the game. While the game relies heavily on popular dance forms such as pop, hip-hop, dancehall and funk, these forms are not read accurately by the technology. I engage deeply with Brenda Dixon Gottschild's work on invisibilization to demonstrate how this particular technology fails to accurately capture Africanist

aesthetics and therefore contributes to a Europeanizing/whitening of the dances circulated through the game.

In Chapter Three, Mechanized Blackness, Superbodies and Afrofutures, I examine a series of short-form videos (commercials and music videos) in which Black people are positioned in relation to technology. Including a chapter that focuses on commercials and music videos, short form media that reaches a large audience, is one step towards addressing the dearth of research focusing on race within dance and technology. In contrast to dance-technology's focus on concert dance, a field still highly overdetermined by white dance forms and producers, commercials and music videos are populated by a wide variety of dance forms from a much broader range of aesthetic priorities, with a large social dance presence. First, I draw on Zakiyyah Jackson's theory of plasticity to look at how a series of commercials that show Black people as machines or machine-like fit into a larger cultural trend of positioning Black people as other. While the first section of the chapter examines how these commercials employ filmic techniques to implicitly tie the movement of human bodies with that of machines, my second section examines music videos that use filmic techniques to make transparent their own mediated nature. In the final section, I examine how the themes of Afrofuturism as a scholarly and artistic genre that centers Black technological creation and innovation can open up new readings of these examples.

Chapter 1

Disembodied: Dance Technology's Devaluation of the Body

I begin this chapter by considering two images. The first photo, taken by Hervé Gloaguen in 1966, shows choreographer Merce Cunningham's 1965 *Variations V* and can be seen on The Wire website at https://www.thewire.co.uk/news/26392/john-cage_s-variationsv-released-on-dvd. While *Variations V* was Cunningham's first piece generated using visible technology, over the next few decades he would progress to work with film, video, computer software and motion capture technology. The second photo was taken in 1984 by Henry Chalfont, a photographer who documented New York's graffiti scene and produced *Style Wars*; it shows "G Man and his crew DJ-ing at a park, Bronx," according to the caption in Charlie Ahearn and Jim Fricke's *Yes Yes Y'all*. It can be seen at http://www.hiphopweekmke.com/how-djing-ignited-the-hip-hop-revolution/. Hip hop encompasses a combination of art forms that evolved beginning with grafitti, DJing, MCing and breaking. By 1984, hip hop DJs had been rocking parties in parks and community centers for over a decade, shifting the use of the turntable from playback machine to musical instrument in a manner that would propel the developments of audio technology into the decades to come. Both photographs show a group of artists using technology. Both focus on men operating technology, as opposed to moving bodies. Yet, despite their common elements, Cunningham has been canonized as a major innovator of the genre known as dance technology, while hip hop has received no recognition in this genre. I began my research for this chapter asking why? What enabled people to see

Cunningham as a technological innovator without bringing similar attention to the developments of hip hop artists? Much of the rhetoric of dance technology is about expanding the possibilities of dance, yet the field has limited itself with an implicit restriction in the styles of dance included in its focus. How does expanding the dance styles considered in relation to technology transform the way we understand the relationship between dance and technology?

The simultaneous rise of Merce Cunningham's use of technology and the development of technologies within hip hop have not been written about together, despite the common elements of the photographs. In order to bring such varied examples of dance and technology into conversation with one another I draw on the work of American Studies scholar Tara McPherson and her 2012 essay "U.S. Operating Systems at Midcentury: the Intertwining of Race and Unix". In this opening chapter of the collection *Race After the Internet,* McPherson traces the interrelated histories of computing and racial formations within the United States to demonstrate how the logics of one relate to what happens in the other. She traces a shift in the field of coding from a focus on creating transparency in code to the development of UNIX and with it a logic that allowed sections to be partitioned off and segmented in work and design. She then relays the simultaneous historical shift from a cultural treatment of race transparently through Jim Crow racism to a less obvious form of racism centered around promoting a color-blind ideology. McPherson argues that the structures being developed in digital technology to segment sections of code function in the same way as the shift in racializing discourse towards ideas of colorblindness, which attempt to cordon off race. I

follow McPherson's lead by pairing two concurrent but seemingly disconnected fields of action and questioning how culture and technology, specifically dance and digital technologies, evolve alongside and influence one another. I use this tactic to examine what happens when we compare modern dance on the precipice of postmodern dance as generated by Merce Cunningham with the development of hip hop through the actions of the DJs.[48]

As I stated in this dissertation's introduction, the designers of digital technologies have embedded their own prejudices and ideologies into the technologies themselves, yet these technologies are often presented by the designers/media/society as neutral or passive. Digitizing something is a process of breaking information into smaller and smaller parts, until it can travel as a string of 0s and 1s. It is often assumed that nothing changes when that information is dismantled and then reassembled somewhere else. There is a logic, intertwined with Cartesian ideals, that suggests that mind and body are separate, that the content of the information can be separated from its physical form. And there is a hierarchization in which the content/mind are considered superior to the form/body. This logic is so pervasive that even when digital technologies are paired with dance, an art form dependent upon bodily movements and knowledges, the Cartesian standards of our society still put pressure on the form to justify the value of the dance in relation to the language of the mind. Following with the hierarchization of mind over

[48] McPherson also notes the relationship of the rise of modularity in computing and race relations to a trend in academia where greater degrees of specialization and department organization keep scholars and students in their individual pathways that do not cross, so that those studying computers don't learn about and understand the logic of racism and those studying racism don't learn about and understand the logic of computers. This academic modularity helps explain the missing link between Cunningham and hip hop DJs.

body lies the idea that some technologies are more valuable than others. For example, Samuel Delaney, science fiction author and literary critic, has posited that technologies are treated differently and hierarchized in relation to race. He refers to computing technologies designed by predominantly white men as "white box technologies" and notes that these technologies are often treated as superior to "black box technologies", which are sound technologies often designed and supported by Black men .[49] Therefore, how a technology tracks and stores information and who designed that technology are both critical elements of how it is valued within our society.

I consider how Delaney's assertion about the categorizations of technology and the major cultural shifts that McPherson discusses in relation to both technology and racial representation affected both Cunningham and hip hop DJs. Both Cunningham and hip hop DJs followed comparable trajectories in their implementation of different technologies. They both began in the era of analog technologies when cybernetics was still in its infancy. Yet, prior to their adoption of actual digital tools, both of these artistic practices shifted to a modular approach, or digital logic. Cunningham wanted to find new ways to choreograph by organizing space and bodies differently than the modern dance creators before him. He broke the body into segments, and worked to design dance for each segment separately, often giving each dancer their own choreography that did not directly relate to the other dancers in the space. Additionally, sections of dance could be rearranged and recombined at will, without necessitating a narrative logic to tie the movements together. Hip hop used modularity to break songs down into segments,

[49] Mark Dery, *Flame Wars: The Discourse of Cyberculture* (Duke University Press, 1994).

meaning that DJs no longer felt required to play songs from beginning to end; DJ Kool Herc began playing bits of songs that could be repeated and layered to create new music and Grandmaster Flash built on this trajectory, smoothing out the transitions between songs. The development of "the break" by Kool Herc and Grandmaster Flash as well as its role in the development of hip hop will be discussed in further detail below. While hip hop developed as a highly communal form, I focus on the role of Grandmaster Flash as I argue that his innovations and the rhetoric he used to describe those innovations were central in framing hip hop as a site of technological innovation.

Just as digital technologies break information down into strings of 0s and 1s, Cunningham and Grandmaster Flash broke movement and sound down into smaller units to reassemble differently later. Cunningham and Grandmaster Flash used these methods to create new options and opportunities for dancing bodies. However, rather than emphasizing their goals or final products —dancing bodies—scholars of technology have emphasized how similar the processes are to digital processes to emphasize that these artists' contributions should be as valued as digital technologies are within our society. Aligning these artists with the ideologies of digital, which prioritize information over form, led to an emphasis on the mental accomplishments of the artists without a supporting conversation about the central role of the body.

When I began looking at the way scholars were discussing Cunningham and the postmodern dance field he inspired in comparison to the way scholars were writing about DJs in relation to technology, I expected to find a stark contrast in how scholars framed the artists. Returning to the photographs from the start of the chapter, I placed the caption

of the DJ photograph in quotes to note the disparity between the amount of information provided about each photograph. The Cunningham photograph is included in multiple books on Merce Cunningham, as well as Chris Salter's *Entangled: Technology and the Transformation of Performance*. Dancers, choreographers, musicians, critics and scholars from the fields of music, dance, and technology have all written about *Variations V*, using this photograph as a visual representation. The Merce Cunningham Dance Company archive contains detailed information not only about who each person in the photograph is, but also about their roles in the development and performance of the piece. In contrast, I have not found any information about the specific performance taking place in the DJ photograph, which is included in Charlie Ahearn and Jim Fricke's *Yes Yes Y'all,* a compilation of oral histories from early hip hop artists. In addition to the disparity in the amount of information available about Cunningham versus hip hop, I saw an imbalance in the type of discourse around breaking, one of the primary dance forms associated with hip hop, when compared to the work of Cunningham. For example, dance scholar Sally Banes wrote about both Cunningham and hip hop in the late 1970s and early 1980s. She noted that Cunningham utilized a "dance-technical system,"[50] while she described breaking as a physical feat of youth: "a ritual combat that transmutes aggression into art."[51] I expected similar language to continue throughout later discussions of hip hop.

[50] Sally Banes, "Merce Cunningham 101: An Introductory Course," *The Soho Weekly News*, September 28, 1978.

[51] Sally Banes, "Physical Graffiti: Breaking Is Hard to Do," *Village Voice*, 1981.

To my surprise, what I found instead was an alarming similarity in how the rigor of both forms has been described and defined at the expense of the body. In both cases, the scholars seeking to validate the contributions of Cunningham and hip hop DJs focused on explaining the mental accomplishments of these artists. For example, dance scholar Roger Copeland noted that Cunningham used "rigorously impersonal *methods* of scientific inquiry"[52] creating work without the personal bias of artists who utilize their own instincts. Copeland describes the shift Cunningham made from previous modern choreographers, to reclaim dance from the over-emphasis on the body that Copeland saw in the work.[53] Meanwhile, musicologist Mark Katz describes the critical role the music and burgeoning technology played in the development of hip hop dance, without noting the significance of the reciprocal impact the dancing and DJs' embodied knowledge/physical responses placed on the development of the music.

In this chapter I show how the Cartesian hierarchization of mind over body has been integrated into the discussion of Cunningham's and hip hop DJs' use of technology. Both artists and scholars discussing dance and technology have focused on aligning the artists' accomplishments with the priorities of white masculine technology, emphasizing mental labor and the use of modularity or digital logic. I juxtapose the discourse around Merce Cunningham with discourse relating to the growth of hip hop, particularly the role of DJs in creating new technologies to be utilized with dance. Through these two cases I

[52] Roger Copeland, *Merce Cunningham: The Modernizing of Modern Dance* (New York: Routledge, 2004). 6, emphasis original.

[53] For further discussion of Cunningham's methods as "rigorous" see Copeland, pages 5-6; and Chris Salter, *Entangled: Technology and the Transformation of Performance* (Cambridge, Mass: MIT Press, 2010) pages 239-241.

show that while there are initially many obvious differences in the ways both scholars and the general public treated these artists, the overwhelming similarities in their discourse demonstrate the powerful pull of dominant ideologies that accompany digital technologies.

I argue that in order to gain recognition for their use of technology, Cunningham, a white gay man, and pioneering hip hop DJs, who were predominantly Black men, have both spoken about themselves and been written about in relationship to technology in a manner that aligns them with the white, masculine standards of technology. My understanding of "alignment" draws on Sara Ahmed's work in *Queer Phenomenology,* where Ahmed suggests that alignments come from our orientations, and that in order to orient yourself spatially, you need to have a landmark that you position yourself in relation to. For example, Ahmed argues that the Orient has been constructed as a distant Other, in part, by setting its relation to whiteness, which is assumed to be close. In other words, Ahmed uses phenomenology to demonstrate that much of the cultural understanding of the relationship between our bodies and world around us is based on assumptions about where this measurement starts from. Because digital technologies have been built primarily by white straight men, the logic embedded in digital technologies is oriented by the ideals and understandings of these creators. These logics include two important frameworks: the freedom to separate information from the form that contains it, and the idea that technologies are universal—working equally well for all users. So, when people outside the paradigm of white male heteronormativity use technology, they are aligned, either by themselves or by those writing about them, into

this logic. In the case of Cunningham and hip hop DJs, this alignment leads to an emphasis on individual achievement and acknowledgement only of the use of technologies that fit with this paradigm.

While I am interested in exposing the less recognized similarities between Cunningham and hip hop, I do not want to lose sight of their many distinctions. Cunningham worked from within a framework that aligned with white technologies from the beginning of his career. Not only did his white skin allow him the privilege of claiming that his movement vocabulary was "pure" dance, but he used these technologies in ways that correlated with their creators' intended uses and logics. In contrast, hip hop artists were initially represented as kids making the best of tough situations, or even criminals.[54] These artists used what scholar Mark Katz dubs "vernacular" technologies, taking machines intended to play back music and refiguring and reworking them to become musical instruments in their own right. While recent scholarship has focused on the skill and ingenuity behind these moves, initial responses to DJs' use of technology dismissed their contributions as kids making the best of poor circumstances.

Despite these differences, I believe that considering the discourse around Cunningham and hip hop together provides an important opportunity to move beyond the narrow focus of either field individually and see what broader connections are visible when bodies and technologies come together. In this chapter, I consider: what happens when we refuse to see information as disembodied and instead focus on the way that the

[54] For example, in 1980 photographer Martha Cooper was sent to cover a riot. When she reported back that it was not a riot but a group of kids dancing, *the Post* dropped the story. See Martha Cooper, *Hip Hop Files.*

bodies storing and presenting the information (the forms) are inextricably linked to the information? What happens when we reconfigure ourselves to value the labor necessary to make that information travel? What new elements about Cunningham's work and hip hop can be seen when we consider the body itself as a technology?

The materials used to support my argument in this chapter come from archival research, as well as many secondary sources on Cunningham and hip hop, through which I examine the way these artists and art forms have been framed in relation to technology. Cunningham has an extensive archive, much of which was compiled during his lifetime by a paid, full time archivist, David Vaughan. Press clippings, programs, photographs, and Cunningham's own notes made during the development of his choreography are organized and catalogued in the New York Public Library of the Performing Arts Special Collections, and much information about his work is available digitally through the Cunningham Trust.[55] There are also ample secondary sources on Cunningham; dance studies and performance technology scholars have written about him and his use of technology in performance prolifically. Scholars studying dance technology saw Cunningham as central to the development of their field. For example, works by Steve Dixon and Chris Salter, cataloguing large numbers of artists as a survey/overview of performance technology, both devote a lengthy section to Cunningham's impact. Within weeks of the first performance of *Variations V*, one of his earliest engagements with technology in performance, reviews of the piece appeared in numerous publications, and

[55] "Home - Merce Cunningham Trust," accessed September 29, 2019, https://www.mercecunningham.org/.

Cunningham himself published notes regarding the unusual creative process for the piece. In my own section on Cunningham, in addition to the materials at the New York Public Library and online through the Cunningham Trust, I draw on the writings of Cunningham scholars in combination with scholars who focus on technology in performance, including Chris Salter[56], Steve Dixon[57], Harmony Bench[58], Statiata Portanova[59] and Cunningham scholars Roger Copeland[60], David Vaughan[61], Jacqueline Lesschaeve[62] and Carrie Noland.[63]

In contrast, the material records on early hip hop artists are far thinner. Initially, hip hop practitioners did not have the means to hire photographers, film crews, or journalists. The white photographers and writers, who had access and power within media representations, did not "discover" hip hop and deem it worthy of study until several years after its incubation, creating many myths and misconceptions. For this reason, the record on hip hop often pulls from non-academic sources. Because of its collaborative nature, with many people deeply invested in the scene, there are rich oral history and ephemera collections. I draw on Charlie Ahearn's *Yes Yes Y'all* and Brewster and Brougton's *Last Night a DJ Saved My Life* and *The Record Players*. Grandmaster

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[56] Salter, *Entangled*.

[57] Steve Dixon, *Digital Performance: A History of New Media in Theater, Dance, Performance Art, and Installation* (Mit Press, 2007).

[58] Harmony Bench, "Choreographing Bodies in Dance-Media" (2009).

[59] Stamatia Portanova, *Moving without a Body: Digital Philosophy and Choreographic Thought*, Technologies of Lived Abstraction (Cambridge, Massachusetts: The MIT Press, 2013).

[60] Copeland, *Merce Cunningham*.

[61] Merce Cunningham, *Merce Cunningham: Fifty Years*, ed. David Vaughan and Melissa Harris, 1st edition (New York, NY: Aperture, 2005).

[62] Merce Cunningham and Jacqueline Lesschaeve, *The Dancer and the Dance* (New York: M. Boyars : Distributed in the USA by the Scribner Book Companies, 1985).

[63] Carrie Noland, *Merce Cunningham: After the Arbitrary* (Chicago ; London: The University of Chicago Press, 2019).

Flash's autobiography *The Adventures of Grandmaster Flash* was an incredibly valuable resource. I also draw on archival material from Cornell University's Hip Hop Archive as well as the writing of Mark Katz[64], Joseph Schloss[65] and Andre Sirois.[66] Because early hip hop was not recorded or given the immediate recognition Cunningham received, many hip hop scholars had to track down artists years after the events took place. In retrospect, DJs standing behind a table in photographs are much easier to name and locate than dancers packed together in the crowd. All four elements of hip hop could be seen as having a technological component, but I am focusing on the growth of the technologies in hip hop's earliest period. Therefore, even though there are excellent sources of scholarship on hip hop dance,[67] the scholarly sources I draw from write primarily in the field of musicology, centering the DJs, and not the dancers they collaborated with. This focus on the role of the DJ is not only pragmatic but can help to show how embodiment and technology come together even when the bodies in question are not "dancing bodies." Therefore, I add to existing scholarship on hip hop dance by bringing a dance studies focus to the not-explicitly dancing bodies in hip hop.

The remainder of the chapter is split into two large sections, one on Merce Cunningham and a second on hip hop, analyzing the implications of the parallels in both

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[64] Mark Katz, *Groove Music: The Art and Culture of the Hip-Hop DJ* (Oxford University Press, USA, 2012).

[65] Joseph Glenn Schloss, *Making Beats: The Art of Sample-Based Hip-Hop*, Music/Culture (Middletown, Connecticut: Wesleyan University Press, 2014).

[66] André Sirois, *Hip Hop DJs and the Evolution of Technology: Cultural Exchange, Innovation, and Democratization*, Popular Culture and Everyday Life, v. 27 (New York: Peter Lang, 2016).

[67] See for example Imani Kai Johnson's overview of hip hop dances in *The Cambridge Companion to Hip Hop*, a conversation between dancers in "Umum Dance Cipha" from *the Global Cipha*, Tricia Rose's *Black Noise*, the documentary *The Freshest Kids* and Schloss's *Foundation: B-boys, B-girls and Hip-Hop Culture in New York*

their self-fashioning in relation to technology and how others took up those representations and amplified them. The section on Merce Cunningham covers his work with technology from 1965 until his death in 2009. I begin with an overview of Merce Cunningham's career as well as an overview of the scholarship around Cunningham's identity. While his white privilege allowed him to avoid discussion of his sexuality and to present his dance making as "universal," this focus on pure structure operated in a similar mode to the way that the white straight men developing computing assumed their viewpoint to be universal. This opening is followed by a section discussing the role Cunningham's own writing and speaking played in his presentation as technological innovator, as well as how scholars elaborated on this representation, focusing on the elements that helped shape a narrative of Cunningham as a "technological innovator." From here, I note how the emphasis on Cunningham's mental accomplishments in scholarship focused on his use of technology was accompanied by a focus on the primarily male visual artists, musicians, and engineers with whom he collaborated. By asking what happens when we consider the body as a technology in Cunningham's work, I incorporate a discussion of the critical role many of his long-time dancers, mostly women, played in shaping his work.

The section on hip hop begins with a brief overview of the initial development of the "break" as central to the creation of hip hop in the 1970s and early representations of hip hop in the press moving into the 1980s. I want to acknowledge that hip hop began foremost as a community-based collaborative form. However, focusing on the narrative presented by and about two key pioneering DJs, DJ Kool Herc and Grandmaster Flash,

helps me to show what the scholarly discourse around the use of technology in hip hop emphasizes and what it ignores. I begin by discussing the analogy of DJ as scientist that Grandmaster Flash built. The way he used this rhetoric to represent himself illustrates the focus on the mental accomplishments of the individual genius, aligning with ideals of white masculine technology. I follow the section on Flash with an overview on how scholars have applied this scientist analogy, and its emphasis on mental labor, to other hip hop DJs. From here I move into a discussion of hip hop by asking how technologies of the body, and other labor not traditionally recognized as "technological," were critical to the development of the genre. In this section I revisit the origin story of hip hop that emphasizes Kool Herc's role in its birth, centering a lone genius model often applied to Cunningham. Here, I show how the role of women organizers as well as the collaborative contributions of dancers' embodied knowledge were critical to hip hop's development.

Merce Cunningham: More Than His Mind

Overview

Merce Cunningham first began choreographing in the 1940s and continued up until his death in 2009. According to the website maintained by the Merce Cunningham Trust,[68] he produced 180 repertory pieces over seven decades. In this time, he developed new choreographic methods, such as using chance procedures[69] to make decisions within his choreography and developing music, dance, and visual scenery separately from one

[68] "Home - Merce Cunningham Trust."
[69] For example, Cunningham often would flip a coin, or roll a dice.

another, only to come together in the moment of performance. As mentioned in the introduction to this chapter, Cunningham utilized modularity within his choreographic process, breaking apart and reassembling the movements of bodies, the order of steps and the organization of dancers in space, without following any narrative structures within his work.

Cunningham began using technology as a central component to the development and performance of dance with the interactive sound and projection project *Variations V* in 1965. He moved to film and video in the 1970s and 1980s. In 1989, he began working with the computer software LifeForms and in the late nineties completed a series of collaborations with motion capture artists Paul Kaiser and Shelley Eshkar. In addition to the visible technologies Cunningham integrated, he drew on ideas about technology conceptually. For example, Cunningham stated that the title of his 1968 dance *Walkaround Time* "comes from computer information,"[70] and that 'walkaround time' was a phrase used by computer engineers to denote the time they spent waiting for the computer to process information. Similarly, his 1993 CRWDSPCR referenced the idea that technologies affect human interaction for its title, which "can be read as a condensation of the words 'crowd spacer' or 'crowds pacer,' a twin reference to the way in which technology has both crowded space and quickened its pace."[71]

As mentioned above, scholars focused on Cunningham's use of technology often emphasize the connection between his reliance on ideas of modularity in his

[70] Merce Cunningham, *Changes: Notes on Choreography* (Something Else Press, 1968).
[71] Copeland, *Merce Cunningham*. 19.

choreographic methods and the modularity which underlies the digital technologies he adapted later in his career. For example, dance scholar Harmony Bench states, "As a choreographer who has incorporated computational aesthetics into his work, Merce Cunningham has often evidenced a modular approach to his choreography. His work generally consists of independent movement phrases that can be arranged, recycled, rearranged and overlapped."[72] While Bench notes that modularity is often associated with digital technologies, she emphasizes the fact that Cunningham worked this way prior to his engagement with digital technology through the use of chance procedures and the construction of Events, where he broke down and rearranged previous repertoire to fill a time frame.

Meanwhile, dance scholars have debated whether or not Cunningham's formal/abstract orientation was a tactic to avoid directly dealing with and outing himself within his choreography.[73] As a gay man who began producing work in collaboration with his romantic partner from the early 1940s onward, his sexuality presented a potential problem in his choreographic career. Dance scholar Susan Leigh Foster focuses on the ways modularity, which results in a lack of visible narrative or reference to Cunningham's own personal experiences, supports keeping his identity as homosexual

[72] Bench, *Choreographing Bodies in Dance-Media.* Central to Bench's work is the assertion that the digital is not new in the sense that digital technologies utilize the same treatment of bodies and methodologies represented prior to advent of the digital by analog technologies. Her discussion of Cunningham sits within this larger project.

[73] Copeland argues against bringing identity politics in an assessment of Cunningham's work. "Cunningham's work is about the beauty and pleasure of *escaping* one's identity and personality." (257 emp original)

private.[74] Foster argues that the way Cunningham's choreography emphasized the design of movement of limbs, torso and head, often as discrete elements that could potentially be transferred from one dancer to another, could be seen as a strategic move to shift the emphasis away from the identity of the dancer in terms of race, gender, sexuality. She argues that "Cunningham's closet… fractured bodies into parts of equal significance and value so that individuality could only be defined by the activities, all of equal value, in which the dancer was at each moment engaged."[75] Her argument suggests that Cunningham's pursuit of modular methods was an attempt to avoid scrutiny during the McCarthy era.[76]

Ramsay Burt, on the other hand, suggests that Cunningham's work offers the possibility to see gender, sexuality, and whiteness in new ways. He draws on Jonathon Katz's queer studies approach to reading Cunningham's lack of overt identity representation within his work. Katz argues that the extreme homophobia of the McCarthy era made it impossible for artists such as Cunningham to be open about their sexuality and that Cunningham's presentation of a different kind of masculinity, one that did not require extreme machismo, was itself a stance. Burt counters Jill Johnston, Moira Roth, and Foster's disappointment about what Cunningham did *not* do in terms of representations of gender and sexuality with an assertion that Cunningham made way for

[74] Susan Leigh Foster, "Confluences of Race, Gender, and Sexuality in American Modern Dance Part 2," 1997. 54.

[75] Foster. 71.

[76] See Burt, *Male Dancer* page 113 for a concise overview of the impact of Senator McCarthy's Unamerican Activities Committee on LGBTQ dance communities and a survey of other scholars who have written about its' impact on how artists presented themselves.

future choreographers to create "alternative ways of thinking and being."[77] While Burt expands on the ways that Cunningham's methods create new opportunities for representing gender and sexuality, he does not return to any discussion of race after the opening remark.

Did Cunningham choose his methods to keep his sexual identity private? Was his choice of methods a calculated move to align himself with technology? Was he simply naturally drawn to these methods? While his intent may never be fully agreed upon, I argue that emphasizing the mind in discussions of his work further aligned Cunningham with white male technological ideologies, centered around a Cartesian decoupling of mind from body. Dance scholars discussing Cunningham's identity have already argued that his ability to position himself as a creator of abstract, "pure" movement without detrimental pushback from critics or audience was because of his position as a white man. Susan Foster notes the "whiteness of Cunningham's approach" was highly visible to one of the few dancers of color to work with Cunningham, Gus Solomons Jr., who stated that, "The very project of locating identity in a physicality that denied racial difference could only be supported by a tradition that presumed its own universality."[78] Much like computing has been presented as neutral, or universal, Cunningham emphasized the creative process in discussions of his work without situating how this process came from his own specific positioning.[79] Whether or not he acted strategically to shift the emphasis

[77] Ramsay Burt, *The Male Dancer: Bodies, Spectacle, Sexualities*, Second Edition (London ; New York: Routledge, Taylor & Francis Group, 2007). 130.

[78] Foster, "Confluences of Race, Gender, and Sexuality in American Modern Dance Part 2." 72.

[79] For a discussion of how Cunningham drew on Chinese and Japanese imagery without giving credit see Yutian Wong's "Towards a new Asian American dance theory: locating the dancing Asian American body", *Discourses in Dance*, 1(1): 69-90. (2002).

away from his own body, I will demonstrate in the following section that the result is that technology scholars have downplayed the emphasis on bodies within his dance-making as well.

Cunningham as self-promoter

Throughout his career, Cunningham produced books, articles, video/documentaries, and appeared on television to make his choreographic process visible. His efforts to document the ethereal process of making dances shows how well Cunningham understood that to gain recognition/funding/prestige, he had to be able to justify his non-narrative choices and process of dance-making into language. Cunningham frequently expressed his interest only in dancing,[80] allowing audience's experiences to guide them towards any larger meaning. However, he put a lot of effort into marketing/explaining himself. I argue that the work he did publishing on himself, creating documentaries, etc., were ways to translate and make legible the unseen labor behind his dances. While I believe that Cunningham was working from a desire to demonstrate the labor behind a physical form in a world where embodied knowledge is not seen automatically as a form of intelligence, Cunningham's own words have often been repurposed by scholars focused almost exclusively on his mental accomplishments.

[80] See Ramsay Burt, *The Male Dancer: Bodies, Spectacle, Sexualities*, Second Edition (London ; New York: Routledge, Taylor & Francis Group, 2007), page 122, "The 'official' view is that there are no right or wrong ways of looking at Cunningham's work: it is up to spectators to devise their own. 'There are no symbols, relax and enjoy' Cunningham says at the end of a short talk about his work during the 1976 film *Event for Television*."

In other words, these efforts either wittingly or unwittingly directed attention primarily to the intellectual/mental labor rather than physical labor.

In 1968, Cunningham published *Changes: Notes on Choreography*. *Changes* includes reflections that appear to have been written for the purpose of publication, as well as sketches, photographs, and choreographic notes from Cunningham's first few decades as a choreographer. The book presents this material in a collage, with photographs often overlapping with sketches or text passages and no consistent formatting. I identify this publication as an attempt by Cunningham to demonstrate the potential of dance to be intellectually rigorous. While watching his pieces onstage would not necessarily clue a viewer into the strategic and often intricate procedures Cunningham went through to develop the work, the written text gave him an opportunity to demonstrate the layers of effort and thought behind the lightning-quick movement often seen on the stage.

Through *Changes,* Cunningham was strategically building the literacy of patrons, critics, and scholars who encountered his work about his methods. Richard Kostelanetz notes that Cunningham's "self-book" fit in a tradition of 1960s artists including John Cage, publishing about their "work and esthetic position."[81] In a note on *Variations V*, Cunningham wrote primarily about the technological aspects of the work, discussing the movement only as it related to the implementation of the technology.

[81] For full text see pages 92-94 of Richard Kostelanetz, ed., *Merce Cunningham: Dancing in Space and Time* (New York: Da Capo Press, 1998). Kostelanetz argues that *Changes* not only describes Cunningham's work, but looks like Cunningham's work with its lack of chronology, pagination and consistent formatting.

> Cage[82] decided to find out if there might not be ways that the sound could be affected by movement… only two of which finally worked out for use in the piece... The first was a series of poles. Twelve in all, like antenna, placed over the stage each to have a sound-radius sphere-shaped of four feet. When a dancer came into this radius a sound could be triggered… The second sound source was a series of photoelectric cells which were to sit on the floor along the sides of the stage. The stage lights would be focused in such a way to hit them, and when a dancer passed between the cell and the light, sound could be triggered. This didn't work out exactly… so at the last minute the cells were put at the base of the twelve poles throughout the area and this seemed to function. The general principle as far as I was concerned was like the doors opening when you enter the supermarket.[83]

Cunningham went on to detail the projections created by Stan VanDerBeek and Nam Jun Paik, as well as non-dance movements that the dancers performed to trigger microphones in props on the stage space. Note the contrast between the detailed information about the number of antenna and their radius and the vague, almost non-existent language about the dancers' movements. Cunningham used specific technical terms regarding the technology such as photoelectric cells but mentioned the dancers without any technical description of their steps. By giving the details about how the other elements came together, but not the

[82] Musician John Cage was an early artistic influence on Merce Cunningham, as well as a longtime collaborator and life partner.

[83] For full text see *Changes: Notes on Choreography,* 1962. No page number, also reprinted in *Merce Cunningham: Common Time* page 192.

choreography itself, Cunningham himself drew the focus away from the movement. While obviously, as a lifelong dancer and choreographer, Cunningham cared about movement, the lack of description of any movement in his writing ensured that those who followed him would attend primarily to the technological aspects of the piece. As a result, the emphasis on the mental (technological) aspects of the work overshadows any discussion of the physical. This is demonstrated by the photograph discussed at opening of chapter, where the technology, rather than the dancers is front and center in the image.

By emphasizing the technological components of *Variations V* in *Changes* Cunningham set up future scholars to do the same. Two additional entries in *Changes* discussing technology are frequently cited by scholars when discussing Cunningham's predisposition for digital technology: a memo entitled "notation" and a note about the meaning behind the title of his 1968 *Walkaround Time*. "Notation" discusses the problems Cunningham saw with existing dance notation, suggesting that computers might present better options in the future and that they might also be used to choreograph. "It seems clear," he writes, "that electronic technology has given us a new way to look. Dances can be made on computers, pictures can be punched out on them, why not dxxxxxx [*sic*] a notation for dance that is immediately visual?"[84] He then went on in detail to describe the visual display such a computer program could utilize and how this could bring together the benefits of providing a detailed visual image, a roll currently filled by film, and the nuance about the way the choreographer wants the movement performed. In a five-page overview of computing research's intersections with

[84] Cunningham, *Changes*.

choreography dance and technology scholar Thecla Schiphorst devotes two pages to performing a close reading of Cunningham's insights delivered through this note.[85] Schiphorst shows how well-acquainted Cunningham was with technological developments of the times, as well as indicating that suggestions within his "notation" anticipated future technological developments. Similarly, *Walkaround Time* has been referenced by technology scholars not because of the work itself, but because of the ways the work apparently supported and pointed to the field of computing.[86]

As Cunningham's success and reputation grew, so too did his opportunities to promote and contextualize his work. In 1982 he appeared in two consecutive episodes of the television series *Eye On Dance*, which launched in 1981 to help "propel dance literacy" and aired over 300 episodes on PBS.[87] In Cunningham's episodes, entitled "The Development of Videodance" and "Collaborating on Videodance", host Celia Ipiotis introduced him as "one of the most unaverage dancers of the century." Cunningham discussed how each dancefilm built upon the previous, and how his work with resident film-maker Charles Atlas developed as series of steps, accumulating knowledge on how to integrate dance and film with each new work.

Cunningham's strategic visibilization of his own interest in and awareness of computers and visual representations of dance meant that when the technology did catch up with his ideas a few decades later, he would be at the forefront of the movement. In her master's thesis, Schiphorst, a member of the Graphics and Multimedia Research Lab

[85] Thecla Schiphorst, "A Case Study of Merce Cunningham's Use of the Lifeforms Computer Choreographic System in the Making of Trackers" (1986). 25-26.

[86] Copeland, *Merce Cunningham,* 185; Salter, *Entangled* 239.

[87] "Eye on Dance and the Arts," accessed September 2, 2019, http://www.eyeondance.org/dance/.

at Simon Frasier University, which developed the Lifeforms software, recounts her experience teaching Merce Cunningham how to use the software. While Schiphorst notes that Cunningham was aware of some of the previous computer software systems designed for dance she does not detail when or how the Lifeforms team came in contact with Cunningham.[88] Her description begins from an early meeting between Cunningham, Michael Bloom and Dr. Tom Calvert discussing plans to install the Lifeforms software on a computer in Cunningham's studio in 1989. Schiphorst details her extensive period of tutoring Cunningham on the software and notes the major role his experimentation with the software had on its further development. She notes that he integrated the use of chance procedures into his experiments with Lifeforms, making the shift to using a computer a fairly minor shift in the approach and methods that Cunningham employed. In other words, Cunningham was already thinking and working using the same sorts of logic that lent themselves to the creation of choreographic software. Yet, I would argue that while he already appeared to be "aligned" with its aesthetics, Cunningham's priority was the way using these processes could serve the final moving body. Scholars reviewing his work have gotten caught discussing the similarities in the underlying logic of computers and the logic that Cunningham used in the modulation of bodies, without returning their attention to the final embodied product. Dixon draws on Schiphorst's account of Cunningham's integration of Lifeforms into his creative process, noting that "[h]is interest in digital methodologies were therefore rooted in their support of his own

[88] Schiphorst, "A Case Study of Merce Cunningham's Use of the Lifeforms Computer Choreographic System in the Making of Trackers." 25, Appendix 1.

existing systems and approaches."[89] Dixon also supports Scott DeLahunta's claim that Lifeforms would not be as useful for many other choreographers, whose methods did not already match up with the mode of creating made possible by the software.

Cunningham capitalized on the early 90s' energy for computing, gaining a large amount of attention for his use of the Lifeforms program. In the program for his first piece developed with the aid of the software he noted, "The choreography of *Trackers* was developed, in part, with the use of Life Forms, a three-dimensional human animation system." He put so much energy into publicizing the project that a *New Yorker* article from March 25, 1991 included the joke, "There may be some dance fans in New York who still aren't aware that Merce Cunningham will be bringing to City Center his new work "Trackers" whose choreography he generated with the aid of a computer. There may also be a Loch Ness monster in Scotland." His recognition went well beyond dance press, with CNN presenting a segment on him during their Science and Technology Week.[90]

Cunningham continued to use program notes to share with the audiences his focus on technology with his 1993 CRWDSPCR and generated a documentary about the creation of the piece as well. In a discussion of the work's development, Cunningham stated that "the computer opens the eye to detail in the way that often photographs have

[89] Dixon, *Digital Performance*. 185-186.

[90] See Schiphorst, chapter 5 for additional reviews to Cunningham's choreography using the Lifeforms software.

done."[91] Once again, almost thirty years after *Variations V,* Cunningham's focus when discussing his work was the technology.

Published in 1997, longtime company archivist David Vaughan's book *Merce Cunningham: Fifty Years* includes a short piece written by Cunningham on September 19, 1994, entitled "Four Events that Have Led to Large Discoveries."[92] Cunningham names his four events as separation of music and dance, use of chance procedures, working with video and film, and use of a computer in choreographic process. By using the term "discovery," Cunningham is already using the language of science and technology, setting himself up to be read as an innovator. Cunningham concluded his note by presenting a through line in his own shifting choreographic methodologies: "[B]ut as happened first with the rhythmic structure, then with the use of chance operations, followed by the use of the camera on film and video and now with the dance computer, I am aware once more of the new possibilities with which to work."[93] Within this final passage, Cunningham threaded together his separation of music from dance and use of chance procedures with his use of digital technology. This statement supports and perhaps even inspired the narrative often presented by scholars focused on Cunningham's use of technology — that he worked with digital logic even before actually working with digital technology.

While the connection between his use of varying technologies need not inherently abandon the body, because scholars have emphasized the similarity in thought processes

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[91] Elliot Caplan et al., *CRWDSPCR : A Film* ([New York, N.Y.] : Cunningham Dance Foundation, 1996), https://trove.nla.gov.au/version/32802092.

[92] See page 276 of Cunningham, *Merce Cunningham* for full text.

[93] Ibid. 276

he used when working with these differing technologies, the result has been that the body got left out of the conversation. This lack of bodily analysis was solidified in discussions about his technological prowess, because the implications of the Cartesian divide were that if you had talked about the mind and the mental processes, those were the elements that truly mattered. Through this narrative about Cunningham's digital logic the emphasis of the story becomes the relationship between his thought process and the technologies he employed, rather than the impacts of these processes on moving bodies. For example, Bench says that his collaboration with digital artists using motion capture "fit into a trajectory" he had followed throughout his career, making his style "uniquely suited" to motion capture. [94] Salter, Dixon and Copeland all also emphasize the connection between Cunningham's interest in chance procedures and the separation of music from dance and his engagement with digital technologies.[95] Copeland calls the move to Lifeforms "a logical, perhaps inevitable *next step.*"[96] By centering the similarities between the varying tools and methods without discussing how these tools played out at the level of the body we lose the opportunity to see how each of these distinct methods impacted the physicality of the correlating dances and how that physicality in turn, impacted his continuing engagement with a technology. Cunningham was working to make his work legible to an audience that did not understand his lack of narrative, but the emphasis he himself placed on contextualizing technology and explaining the "mental" processes shaped overall impressions of his work.

[94] Bench, "Choreographing Bodies in Dance-Media." 45.
[95] See Salter page 236, Dixon pages 184-187 and Copeland 184-187.
[96] Copeland, *Merce Cunningham*. 187, Emphasis original.

Body as Technology within Cunningham's Work

While the body has dropped out of the descriptions of Cunningham's work with technology, I believe that embodied knowledge played a critical role in his engagements with technology. The value of embodied knowledge can be seen through his collaboration with his dancers and a consideration of the body as a technology. For one, his approach to modularity, his ability to segment and consider the body, his own and the training he developed for dancers to do the same, demonstrates the conditioning of the body itself as a technology critical to the performance of Cunningham work. If we consider the body as a technology, we also see the important role not only of Cunningham's body but of his dancers in the development of his work.

When discussing the importance of collaboration to Cunningham, scholars focused on his use of technology highlight his work with the musicians and visual artists. Fitting with the model of white technological genius as individual creator, these viewpoints on Cunningham demonstrate how he was primarily working individually, developing dance separate from music and/or visuals. However, his work with his dancers cannot be separated out as easily, showing both the collective effort behind the work and the central role of embodied knowledge in that process.

While the Cunningham Trust website lists his dancers as collaborators, most scholars focused on his use of technology do not include dancers as collaborators.[97] Copeland speaks primarily about Cunningham's collaboration with Cage and argues that

[97] "Merce Cunningham - Merce Cunningham Trust," accessed December 17, 2019, https://www.mercecunningham.org/about/merce-cunningham/.

it be called collaboration despite their separate work to build things.[98] Salter also emphasizes Cunningham's relationship with Cage: "It was Cunningham's collaboration with Cage and their mutual influences on each other that set the stage… for Cunningham's development of technologically enveloped stagecraft."[99] Dixon, who focuses on digital performance, speaks only of the role of Paul Kaiser and Shelley Eshkar, the digital artists behind *BIPED* and *Hand-drawn Spaces* as Cunningham collaborators. *Merce Cunningham: Common Time*, is a collection of writings on Cunningham gathered in connection with the Walker Art Center and Museum of Contemporary Art, Chicago's exhibition of the same name. In the foreword Olga Viso notes that Cunningham collaborated with "dozens of visual artists, musicians, filmmakers, and a fashion designer."[100] The book includes short sections on a dozen Cunningham collaborators: musicians, artists and even Black Mountain College, but no dancers.

Not crediting dancers as collaborators fits with the mid-twentieth century model of dance company with choreographer visible at the helm and dancers merely following directions to learn steps, but it does not fully acknowledge the complexity of this relationship and the central role that some of Cunningham's longtime dancers played in his creative process. In her book *Dancing Lives: Five Female Dancers from the Ballet d'Action to Merce Cunningham,* former Cunningham dancer Karen Eliot emphasizes the role that key Cunningham dancers such as Carolyn Brown and Catherine Kerr played in

[98] Copeland, *Merce Cunningham*. 270-271.
[99] Salter, *Entangled*. 238
[100] Fionn Meade, Joan Rothfuss, and Walker Art Center, eds., *Merce Cunningham: Common Time*, First edition (Minneapolis: Walker Art Center, 2017). 12.

the development of his choreographic work and production choices. Eliot notes that for two years after longtime dancer Brown departed from the company, no new repertoire was produced.[101] Eliot asserts that "Cunningham could rely on her [Kerr] to throw herself into any movement he cared to try out on her."[102] She argues that Kerr's strong commitment to Cunningham's aesthetic allowed him to depend on her, utilizing her as his own movement partner frequently in duets and knowing that she would take movement to the edge, giving him the freedom to experiment when working with her.[103]

Cunningham scholar Carrie Noland also makes a strong case for seeing Cunningham's dancers as collaborators, emphasizing the critical roles of Viola Farber and Carolyn Brown. After noting that *Crises*, which was initially choreographed on Farber, was removed from the repertoire after her departure, Noland asks if Cunningham's style was truly his own, "Or did Viola Farber and Carolyn Brown both play crucial roles in its inception?"[104] Noland argues that Farber and Brown, who both danced with Cunningham for over a decade early in his career and had a common ballet lineage, may have shaped Cunningham's expectations about what dancing bodies should be able to achieve as he was solidifying his technique.

Especially when considering his use of technology, much of the work of translating the impossible compositions in Lifeforms to movement that could be performed onstage fell to the dancers. As Cunningham reported, "I will ask two dancers

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[101] Karen Eliot, *Dancing Lives: Five Female Dancers from the Ballet d'Action to Merce Cunningham* (Urbana: University of Illinois Press, 2007). 123-124.
[102] Eliot. 129.
[103] ibid. 138.
[104] Noland, *Merce Cunningham*. 139.

to try something based on the computer results, and the two of them do it together and all of a sudden something happens that we hadn't even ever thought of. And I'll say, "Oh, keep it!"[105] Here Cunningham indicates that his priority was not for the dancers to do the movement as closely to his computer programmed designs as possible, but to find new movement opportunities. While many scholars read his "Four Events that Led to Large Discoveries" as evidence of the connection between his digital logic and later use of digital tools, in this quote, from a conversation between Brooklyn Academy of Music executive producer Joseph Melillo, Cunningham and several key collaborators, Cunningham emphasizes instead that the connection between each of his four events was the way they provided him a new vantage point from which to engage with *movement*.

As his body was able to do less, and he relied on the computer to design movement, he also had to rely on the dancers more deeply to embody the movement without seeing it on his own body first. While the Lifeforms program allowed for many detailed articulations of body parts, choreography designed in the software was completely hypothetical. Cunningham elaborates, "When it comes together, you have not only the chance continuity of these events but also the sequences in relation to each other. Now these are not simply figures on the screen; these are people who move around and who don't want to run into each other."[106] Therefore, the dancers would have to adapt any movements that would put them on a collision course or that were not anatomically

[105] Carolyn Brown et al., "Four Key Discoveries: Merce Cunningham Dance Company at Fifty," *Theater* 34, no. 2 (2004): 104–11.

[106] Brown et al. 110.

possible and fill in the gaps between programmed poses. Learning choreography from Lifeforms is not a direct one to one translation but requires a degree of interpretation.

Cunningham's engagement with technology always relied on a feedback loop between the technology in question and the actions of moving bodies. Noland argues that too many scholars have engaged with Cunningham's work by focusing exclusively on his own words without also interrogating his actions.[107] I add to this argument, noting that, specifically when discussing his works with a heavy technological component, both Cunningham's and subsequent scholars' discussion of the technology and mental processes behind incorporating it have often eclipsed a discussion of the role of the dancing body. In contrast, shifting the focus to the relationship between bodies and technologies within his work not only shows how impossible it is to split the role of mind from body but also brings to light the critical support that his dancers had as collaborators within this process.

Hip Hop: Making Black Innovation Invisible

The break: beginnings

Despite the lack of coverage of the early years of hip hop, recent scholarship on hip hop has worked to correct the implicit racism that long overlooked hip hop entirely or neglected to view it as a deliberate artform. Scholars such as Jeff Chang and Tricia Rose paved the way for hip hop studies within academia with research that touched on a variety of aspects of hip hop art and production. The next generation of hip hop scholars

[107] Noland, *Merce Cunningham: After the Arbitrary*. 3.

began focusing their research more narrowly. Yet even as these scholars broached different aspects of hip hop culture, they shared a common focus on validating the study of hip hop within academia more broadly. In this vein, I draw heavily from the works of Mark Katz, Joseph Schloss and Andre Sirois, who write specifically about the history of the hip hop DJ in relation to the developing technologies that DJs influenced and created. These scholars have focused on framing DJs' accomplishments in language that makes them visible in relation to the white technological world. However, one of the unintended consequences of the mobilization of this technological language is a reproduction of some of its limiting logics and ideologies. Similar to the case of Cunningham, this framing of the DJs' contributions in relation to their mental energies eclipses any acknowledgement of the value that embodied knowledge played in these developments. The following discussion of the break will help clarify both the history that led to the current framing of DJs' interventions in technology and the need to give more emphasis to embodiment in relation to these accomplishments.

The inter-related development of DJing, MCing and breaking took place as DJs realized that there was a certain segment of music that seemed to maximize dancers' responses. This segment was usually a percussive segment of the music, where the lyrics in the song faded out and the music "broke" away from the organization of the rest of the song. As musicologist Mark Katz states, "A break is a brief percussion solo, typically found toward the end of a funk song…It lays bare a short stretch of unadultered rhythm as the singer and other instruments abruptly drop out."[108] Sally Banes noted that when

[108] Katz, *Groove Music*. 14-15

she asked him about breaking, Fab Five Freddy said, "They start going wild when the music gets real funky, when the drummer's beat takes over."[109] Realizing that these sections were the most anticipated and that dancers would hurry to the floor to flesh out their moves during these short segments, DJs began working on techniques to extend the length of the break, playing just the break section of a song over and over.

Katz argues that DJs' use of technological creativity is apparent in the way they reworked technologies intended for one purpose for a new purpose. According to Katz, DJs turned the turntable, designed as a playback device, into a musical instrument in its own right through their innovations. As the length of the break grew, the dancers were able to take more time to get down and back up from the ground, further developing their dance vocabularies. Rather than having only ten seconds to dance, the dancers were able to generate much longer sequences and the DJs responded by lengthening these moments further, also working to create smoother transitions between the break of one song and another, so that the beat never got dropped. As these extended sections of music became popular, the DJs began working with MCs, who call out over the microphone to get the crowd energized and keep them moving.

It was the collaborative efforts of DJs with b-boys and b-girls expanding the length and potential of the break that made room for hip hop to grow into what it is today. Katz, explaining the importance of the break to the development of breaking, argues, "This new exciting style of dance could not have flourished without the intervention of

[109] Banes, "Physical Graffiti: Breaking Is Hard to Do."

the disc jockey."[110] While Katz notes that the DJ's job was to keep the dancer going as long as possible, he doesn't reflect back how critical the dancer was to the music. Similar to Cunningham's work with technology, when scholars discuss the DJ's role in developing technology, even though they are talking about the technological developments directly in relation to dance, the focus on bodies and their movements falls out. In the case of hip hop, because history has not tracked the early dancers in the same way the DJs have been recorded, and because the value and input of embodied knowledge in the development of the technology have been dismissed or ignored completely, the role of dance in relation to the technologies of hip hop has not been fully explored. Because white supremacy has overdetermined the discourse around technology and worked to keep Black people out by associating them with body rather than mind, hip hop studies scholar Joseph Schloss argues that there is "a hesitancy to focus on the body in discussions of the arts of the African diaspora, for fear of implying that the activity is not intellectual."[111] While Schloss's first book, *Making Beats* centers DJs, in *Foundation: B-boys, B-girls, and Hip-hop Culture in New York*, Schloss focuses on b-boy and b-girls role in the development of hip hop and insists that a connection between mind-body is central to all forms of hip hop. While Schloss sites concerns over fear of not being seen as intellectual as one primary reason dance has received less scholarly attention than other hip hop elements, there are additional factors. The dance was built by many as a community, and the crowd of dancers on the floor is not as easy to single out for

[110] Katz, *Groove Music*. 15

[111] Joseph G. Schloss, *Foundation: B-Boys, B-Girls and Hip-Hop Culture in New York* (Oxford University Press, USA, 2009).

discussion as the DJ, visible behind the turntable. This ties back to the Western standards that present technological narratives of invention as driven by individuals rather than communities.

In the section that follows I will argue that both the pioneering DJ Grandmaster Flash and hip hop scholars have attempted to demonstrate the value of hip hop's artistic and technological innovations by using the analogy of scientist. In what was a rhetorical move to defend the value of hip hop artists' contributions regarding technology, these scholars have brought hip hop's early developers into alignment with white masculine technology. Additionally, because our culture has placed a distinct value on computing technologies and hierarchized them as superior to analog technologies, much scholarship has worked to align hip hop with cybernetics by demonstrating how hip hop worked with modular (digital) logic, even before becoming digital. As with Cunningham, the modular element of DJs' artistry has been heavily emphasized by scholars seeking to align hip hop artists with technological innovators. As in Cunningham's case, too, this emphasis on modularity as a mental process has often left out the role of bodies—both the DJs performing the modulation and the dancers for whom all these changes were made.

Grandmaster Flash: "Scientist of the Mix"[112]

DJ Grandmaster Flash, born Joseph Saddler, aligned himself with white male technological standards from early in his career by using the analogy of scientist to

[112] Bill Brewster and Frank Broughton, eds., *The Record Players: DJ Revolutionaries* (New York: Black Cat, 2010).

describe his labor in developing new ways of using record players. As early as 1984, Rolling Stone described Flash as the "Einstein of Rap"[113] and, when interviewed about his role in the creation of hip hop, he stated that "I was mostly in my room being a scientist."[114] By analogizing the time and effort Flash spent experimenting with turntables to that of a scientist, Flash shifts the narrative away from the story of a kid just playing around. Similar to the energy Cunningham put into explaining and translating his labor to those outside the field of dance, Flash explains the work he put into DJing by aligning himself with a figure whose mental accomplishments and labor were already valued within Western society.

Flash is widely credited with taking the innovation of DJ Kool Herc, often labeled the father of hip hop, and building upon it. While Herc was the first DJ recognized for playing segments of songs rather than the entire track, he did not have a method of shifting between tracks seamlessly. Flash smoothed out the transitions. Flash calls Herc's mode of playing synchronized disychronization: "Whatever Herc was doing, he wasn't doing it on time. One song dropped out, but it wasn't on the right beat with the next one."[115] His own autobiography, as well as many other narratives of the early developments of hip hop, recount Flash spending hours locked in his bedroom working to address this flaw he saw in Herc's playing by creating a precise transition from one record to the next. Flash describes the steps he took to invent his "quik mix theory" in

[113] Crazy Legs Papers, #8489. Division of Rare and Manuscript Collections, Cornell University Library.

[114] Brewster and Broughton, *The Record Players*. 177.

[115] Grandmaster Flash and David Ritz, *The Adventures of Grandmaster Flash: My Life, My Beats*, 1st ed (New York: Broadway Books, 2008). 54

detail in his autobiography: "I took a grease pencil and drew a big line on the label of the record, pointing right to the first beat in the break."[116] By walking us through his process step by step, Flash highlights the methodical nature of his process. "[N]ow I knew exactly where the break started and ended. Now I had a formula."[117] Flash continuously returns to the language of science in his descriptions.

When Flash first performed his perfected transition between songs, people didn't react enthusiastically. "I was hoping to get, 'Whoa yes, I love it!' But it was like, no reaction, no movement…They were just trying to understand."[118] Initial audiences had no context to reference the way in which Flash's techniques were allowing him to connect songs seamlessly. Flash notes in his autobiography and other narratives how demoralized he was by the lack of recognition for what he had accomplished with his "quik mix theory." Like Cunningham, Flash followed up on this poor initial reception by taking the time to explain his process to the audience to whom he wanted to be legible, conducting interviews in magazines and performing on MTV and radio stations. In 1983, Grandmaster Flash appeared on the MTV program "The Cutting Edge," demonstrating his techniques and discussing how to DJ. He gave specific terms for the different cuts that he made, such as "punch phase," "scratch phase" and "silent phase." He explained what each term meant as he executed them, so that the nimble movements of his hands were visible to the camera.

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[116] Grandmaster Flash and Ritz. 78

[117] Grandmaster Flash and Ritz. 79

[118] Jeff Chang, *Can't Stop, Won't Stop: A History of the Hip-Hop Generation*, 1st ed (New York: St. Martin's Press, 2005). 113

In preparation for the release of a new album in 1985, his record label Elektra described him as "a true scientist of sound and rhythm." In his 2001 "Hey DJ," David Crowley quotes Flash: "I came up with a formula to manually edit tracks together."[119] He also uses the term "theory" to detail his process. Later in the same article Flash noted, "what I learned is that you have to self-promote." Part of this self-promotion was using the analogy of scientist to help contextualize what he had been doing all those hours in his bedroom, and explaining that the flawless transition audiences heard between songs, the connection of the downbeat from song to the next that allowed the dancer to continue undisrupted, was actually far from effortless on the part of the DJ.

When scholars such as Mark Katz and Andre Sirois suggest that all DJs should be considered innovators and inventors, they draw heavily on the words of Flash to back up their claims. Katz included a section in *Groove Music* titled "DJs as Inventors and Innovators," in which he argues that the DJs' own words support his framing of them in this light: "Listen to the words of the DJs themselves. Grandmaster Flash calls his approach to mixing the clock theory, and recently remarked, "I'm a scientist before I'm anything."[120] Sirois notes that "Flash set the tone for DJ as innovator" by "naming his techniques."[121] Within his book *Hip Hop DJs and the Evolution of Technology*, Sirois credits Flash with considering how a DJ could work scientifically and pulls from Jeff Chang's history of hip hop, *Can't Stop Won't Stop*, as evidence. Chang's section on Flash

[119] "'Hey DJ' - Cornell University Library Digital Collections," accessed March 28, 2019, http://digital.library.cornell.edu.

[120] Katz, *Groove Music*. 69

[121] "Andre Sirois, 'Hip-Hop DJs and the Evolution of Technology: Cultural Exchange, Innovation, and Democratization' (Peter Lang, 2016)," June 13, 2017, https://newbooksnetwork.com/andre-sirois-hip-hop-djs-and-the-evolution-of-technology-cultural-exchange-innovation-and-democratization-peter-lang-2016/.

is titled "DJing: Style as Science", and states, "Back in his room with his screwdriver, soldering iron and insatiable curiosity, the kid who would be named Grandmaster Flash was theorizing the turntable and mixer, pondering the presentation of the party, trying to figure out how to turn beat-making and crowd-rocking into a science."[122]

His own 2008 autobiography uses frequent reference to his desire to be specific and scientific and, like Cunningham's "Four Discoveries", numbers off and labels the rules Flash made for DJing along the way. Flash's universal DJ rules include, "*Don't stop the beat; DJ's got the power; Without a big library, a DJ is dead; Gotta Get Paid before you get played"* and "*A DJ is always listening for what's next.*" Like Cunningham, Flash uses the dispersal of these rules throughout his autobiography to tie together seemingly disparate events within his life. As Chang notes, Flash's science was performed with the goal of "crowd-rocking", but this connection between movement and music falls out of the picture when scholars focus on Flash as an individual rather than part of the community. While the goal of these scholars is to bring hip hop into narratives of innovation, the unintended consequence is a downplaying of the role of moving bodies, bodies focused—according to Flash—on keeping the beat.

Complicating or Complicit with the White Lineage of Technology

Whether Flash was the first or merely the most outspoken in his invocation of science to frame his labor, many other DJs contributed to this trend as well. Katz uses the DJs' own words to back up his argument about viewing DJs as innovators. He begins by

[122] Chang, *Can't Stop, Won't Stop*. 111

quoting how Grand Wizard Theodore, commonly credited with creating scratching, "tells of testing and reworking his scratch technique until he "got [it] down to a science." He then draws together little snippets from several other DJs: "'Doc' Rodriguez boasts that his technological fixes were innovative. DJ Steve Dee describes beat juggling, a complex mixing technique he introduced in the late 1980s, in terms of formulas and equations, and calls the Harlem apartment bedroom where he developed it his lab."[123] As in Cunningham's case, much of the scholarly argument uses the language of the artists themselves as building blocks.

Katz sought out the references to science and used them to sculpt his argument, much as Dixon, Copeland and Bench pulled from Cunningham's own words when framing his trajectory as an innovator. However, the stakes for DJs, predominantly Black men, were different than for Cunningham. As I noted in the section on Cunningham, he was able to make certain claims for universality immediately because of his whiteness. Katz emphasizes the words of the DJs in his argument, noting that common definitions of innovators and inventors often are framed so narrowly that they leave African American people out. I draw on Ahmed once again, to show the conceptual distance necessary to bring DJs into alignment with technology was much larger than it was for Cunningham. "[R]acial others become associated with the 'other side of the world.' They come to *embody distance*. This embodiment of distance is what makes whiteness 'proximate,' as the 'starting point' for orientation. Whiteness becomes what is 'here,' a line from which

[123] Katz, *Groove Music*. 69

the world unfolds, which also makes what is 'there' on 'the other side'."[124] Black men scratching on turntables in Bronx may have technically been in the same city as Cunningham, but conceptually they were posited as living in a wild crime-ridden land of desperation, based on media depictions in films such as *Fort Apache: the Bronx*. In order to draw DJs into a conversation about technology, Scholss, Katz and Sirois emphasized the characteristics within DJs' practices that could most easily be seen as proximate to hegemonic (white) technological standards.

While this work is valuable as it repositions DJs in the same framework as white technological innovators, it also reinscribes the assumptions and problems of those hegemonic standards. For example, Katz opens his book stating, "I am telling this as an American story not simply because hip-hop is American-born, but because the development of the hip-hop DJ helps tell the story of the United States. It's a story of technological innovation and do-it-yourself entrepreneurship."[125] Katz's integration of predominantly Black hip hop DJs into the narrative of the US as land of technological innovation disrupts the pattern noted by Joel Dinerstein, in which white people keep their control through a narrative that casts themselves as the primary innovators within America.[126] However, while the addition of Black men to the narrative is significant, Katz does not attempt to shift the overall narrative of technology as the primary tool for exploration and discovery within America. For example, Katz notes that hip hop artists themselves see the 1973 house party thrown by Kool Herc as the origin of hip hop and

[124] Sara Ahmed, *Queer Phenomenology: Orientations, Objects, Others* (Durham: Duke University Press, 2006). 121, emphasis original

[125] Katz, *Groove Music*. 7

[126] Dinerstein, "Technology and Its Discontents: On the Verge of the Posthuman."

that an origin story is important. "Their significance lies not in the facts they disclose but in the values they reveal. And what this origin story reveals is the veneration of the pioneer, the visionary who forges a new path." By calling Herc a visionary, even as Katz is recounting what he calls the opinion and information of hip hop artists themselves, he is setting the stage to use the same language often applied to white men in the field of technology. Bill Gates, Steve Jobs — visionaries. Katz adds Kool Herc to the list.

Similarly, one of the ways that Sirois brings DJs into proximity with digital technologies, and therefore whiteness, is by comparing the theorization behind DJs work with analog technologies to new media, often seen as the domain of white men:[127]

> Hip hop culture (specifically hip-hop DJ culture) is a new media culture… Their mentality of diggin' for records, finding breaks, and sampling them manually with two turntables to create new music should be considered a revolutionary and evolutionary act. From my perspective, what these South Bronx DJs started was the foundation of the new media ideology present in popular culture today: sample, mix, burn, share, and repeat.[128]

Sirois suggests that DJs' innovations were precursors to new media, not based on the actual technological steps they took, but because of the logic of modularity behind those steps. Similar to Katz in my previous example, Sirois writes DJs into the conversation on new media practices without questioning why the new media practices dominated by white men have become so highly valued in the first place.

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[127] McPherson notes that the study of new media in the 90s was often "cyberstructuralist", focused on form while omitting any consideration of the relationship between subjective role of creator and the way a technology operated.

[128] Sirois, *Hip Hop DJs and the Evolution of Technology*. xvii

The alignment of hip hop technology with science has been used to draw hip hop artists into conversations about technological developments, which creates the valuable possibility of challenging technological innovation as the territory of solely white men. However, aligning with these technologies reproduces some of the problems of white male technological logic, a narrow focus on the role of the "lone inventor/genius innovator" within the development of the technologies and a Cartesian decoupling of the mental component from the physical work of building the technology. Below I consider how the discussion could be shifted beyond these limitations to reveal contributions that do not fit easily into alignment with white male technological logic, particularly through the contributions of embodied knowledge and the gendered representation of hip hop.

Body as Technology in Hip Hop

Dance scholar J.D. Jackson argues that dance studies often struggles to fully represent African diasporic forms because it operates from the logic of European arts that separate the making of music from the making of dance instead of seeing how they are intricately intertwined. Scholars writing about hip hop DJs on the other hand, often acknowledge that DJing is tied to dancing, but concentrate their analysis on the aural aspects of the music as opposed to the role of embodied knowledge. This isolation of discussions of hip hop technologies' developments to music compounds the problem of a Cartesian logic that prioritizes mind over body. I seek to add to the growing body of hip

hop dance studies scholarship that counters this hierarchization and seeks to center movement within discussions of hip hop.[129]

Hip Hop scholar Jeff Chang notes that at his first party, Herc had to change his approach from playing the music he desired to learning how to read the crowd to play the music that would excite people.[130] Kool Herc noted that his experience dancing and hearing other people complain about when the 'wrong' music was played informed his choices when he became a DJ. "I had heard a lot of gripe on the dance floor…And I was agreeing with them. So I took that attitude behind the turntable, giving the people on the floor what they were supposed to be hearing."[131] He valued the desires of the dancers and shifted his playing according to their responses.

Herc's ability to move a crowd inspired many other future DJs to pursue music and to build on the start Herc had already made in shifting from simply playing records to using turntables and samples of records to create their own music. Many of the choices that DJs make and skills they develop are generated specifically to propel the dancing body. While they may develop these skills in a variety of ways, many DJs gained some of their knowledge from their own dance experiences. In conversation with dancer Frosty Freeze, Charlie Ahearn, director of the 1982 hip hop movie *WildStyle*, noted "I've interviewed all the great MCs from *Wildstyle*. They were all b-boying first. They were all

[129] See Imani Kai Johnson, "Hip-Hop Dance," in *The Cambridge Companion to Hip-Hop*, for an overview of scholars currently working to center and expand the discussion of movement within hip hop scholarship.

[130] Chang, *Can't Stop, Won't Stop*. 70

[131] Chang. 25-26

into dancing first before they were into MCing."[132] The DJs' reputation was built upon their ability to translate the desires of the dancing bodies into the sound that would best fuel and inspire those dancing bodies. Schloss notes that the songs that continue to get played at breaking events decade after decade became "canonical breaking songs" because of the dancers. The DJs played the songs that the dancers "certified", and this helped shape hip hop.[133]

In addition to maintaining an awareness of and communicating with the bodies dancing in space, the DJ must be dexterous to operate their equipment. The DJs' hands dance between turntable and mixer with great agility. Sirois differentiates two types of innovations. The first, technical innovations, involve changes to equipment such as the addition of buttons, levers or discs. He defines the second category, technique innovations, as "advancement in the human skill of using the technical objects."[134] Sirois's definitions rely on an understanding that techniques of the body function as a type of technology. He notes that the technique innovations almost always came first, with the changes to equipment, or technical changes, made later to help support the new ways in which DJs were using turntables. Similar to Cunningham, who worked on segmenting movements for different body parts before the computer aided him in doing so, the DJs cut from one record to another with the dexterity of their hands before digital technology was designed that could support them. As Brewster and Broughton note, "[s]ampling would become especially important…making records this way is nothing

[132] Charlie Ahearn Hip Hop Archive, #8078. Division of Rare and Manuscript Collections, Cornell University Library.

[133] Schloss, *Foundation*.

[134] Sirois, *Hip Hop DJs and the Evolution of Technology*. xiv

more than using clever studio electronics to exaggerate what a good DJ can do on his turntables." [135]

The importance of DJs' embodied knowledge becomes apparent when analyzing visual examples of DJs in action. For example, a 1983 MTV clip of Flash, mentioned earlier, shows him engaging his full body, demonstrating that part of the science he worked out was the choreography of his movements between mixer and turntables. As he introduces the "first phase" of breakmixing, Flash leans over the table, his right hand executing four staccato slides of a knob on the mixer as his left hand moves the record on the turntable in time. His head nods left as he completes the simultaneous precise movements of hands. He stands tall and explains to the audience that he's warming up as he makes a few subtle adjustments to knobs with his right hand and places a second record on the far turntable with his left. As the clip continues, he does less narrating as he moves more quickly between the two turntables and mixer. He no longer stands upright between actions, but stays bent over his equipment, bouncing and nodding as he moves from side to side. Just over five minutes into the clip, the camera moves in closer to a shot of just Flash's head and shoulders. Although we can see him looking down as he shifts the equipment, his hand actions are not visible, bringing my focus to the way he rocks his entire body from side to side. This demonstration of the complex interplay between Flash's "science" and its implementation through the body contradicts an easy disassociation of body from mind.

[135] Bill Brewster, *Last Night a DJ Saved My Life: The History of the Disc Jockey*, Revised, Updated edition (New York: Grove Press, 2014). 245

DJs' technological accomplishments were not only reliant on the DJs' bodies, but on the support of their community in building an artform. Similar to Cunningham's work, the lack of women in many discussions of hip hop is not a sign of their complete absence, but a devaluing of their roles in the creation of technologies through the emphasis on what white masculine technological ideologies consider valuable. For example, most stories focus on the party that DJ Kool Herc played at in 1973 as the birth of hip hop, naming him the father of hip hop. However, this party would never have taken place without another key figure, Cindy Campbell.[136] Kool Herc's younger sister is often written about for her industrious nature, planning the party as a means of gaining money to buy new school clothes. Without the organizational work and planning of Campbell, the party would not have happened, and the development of hip hop might have taken a different path. Campbell continued to help promote Herc's playing and used her position in student body government to secure additional performance opportunities.[137] The example of Campbell helps demonstrate the way that some labor has been devalued within the development and implementations of technology.

In *How We Became Posthuman*, Katherine Hayles demonstrates how the stories of technological development are driven by male standards. She notes that men were able to think of information as disembodied because they never had to do the work of putting it into a material form. For example, if a man wants to disseminate notes from a meeting:

[136] Chang, *Can't Stop, Won't Stop*. 68
[137] Chang. 78

> He speaks, giving commands or dictating words, and things happen. A woman comes in, marks are inscribed onto paper, letters appear, conferences are arranged, books are published. *Taken out of context*, his words fly, by themselves, into books. The full burden of the labor that makes these things happen is for him only an abstraction, a resource diverted from other possible uses, because he is not the one performing the labor.[138]

Like Hayles's hypothetical man, whose words seem to fly but are actually carried by a woman's labor transmitting them, Herc's music was able to spark a movement because of the labor Campbell performed the behind the scenes organizing and publicizing.

Campbell is not the only woman who contributed to the development of hip hop in a way that has not been categorized as part of the process of innovation but was critical in facilitating that innovation. Flash notes that Miss Rose, a neighborhood organizer and role model, made a critical introduction between him and DJ Pete Jones, who helped him begin to make income from his deejaying.[139] Flash's ability to provide for his family with his artistry meant that he wouldn't have to cut into the time he spent experimenting and further developing his ideas by working a paying job to support himself and his child. As Ahmed noted, a scholar is able to sit down at a table and write, because his attention is not being diverted elsewhere. The scholar is not expected to care for children, or to do the domestic work of cleaning and clearing the table.[140] Similarly, Flash's girlfriend caring

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[138] Katherine Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics* (Chicago, Ill: University of Chicago Press, 1999). 83. Emphasis Original.

[139] Grandmaster Flash and Ritz, *The Adventures of Grandmaster Flash*. 87

[140] Ahmed, *Queer Phenomenology*. 30-31

for their child is not recognized for the contributions that made the official labor of technological innovation possible. This arrangement follows the logic of whitebox technologies in general where we know the names like Steve Jobs, etc. who designed the technology but not the many individual laborers who were critical in facilitating the construction of the technology. Scholars of technology have focused on the mental side of its development, design and not the physical side, the actual construction of the technology.

Hip hop scholar Jennifer Stoever works to expand the understanding of the role of women in the creation of hip hop with her 2018 article, "Crate Digging Begins at Home." Stoever notes that much of the musical training that the famous "founding Father" DJs and their lesser-known peers received came from their mothers. The initial exposure to different types of music, the value placed on music and access to music to explore, came primarily through mothers as well as sisters and their record collections. Stoever unpacks the discourse, started by white male journalists reporting on hip hop, that discounted the role of mothers and set up a "lone male genius historiography" with narratives of men digging through the graveyard, picking through the bones of the collections in their homes, rather than acknowledging the careful curation that women performed by choosing the records for these collections in the first place.[141]

[141] Similarly, in "'There Were Females That Danced Too': Uncovering the Role of Women in Breaking History" hip hop scholar Serouj Aprahamian counters early reports of breaking as predominantly male, noting that many journalists borrowed from Sally Banes' early articles descriptions of the activity as masculine without seeking out firsthand information. Aprahamian uses interviews with practitioners to recover a history of women as central to the development of the battling aspect of the form.

Stoever's call to move beyond the "lone male genius historiography" in relation to the choosing of records could be applied to hip hop DJing more broadly. While the DJ may have been the lone man visible behind the turntable, hip hop did not grow based on a singular person, but on how that person interacted with the world around them. In oral histories conducted by Charlie Ahearn, many future MCs and DJs recalled the communal nature of early hip hop events and the necessity for support from their community beyond the turntable. Melle Mel recalls that Flash would have dancers strategically placed in the crowd to challenge other dancers and get the energy up.[142] A consideration of the intertwining roles of community support and embodied knowledge in the developments of hip hop technologies gives a richer, more nuanced view of these technologies' evolution, as well as a more diverse picture of the people involved in the process. Without the women who performed critical roles in building and curating record collections that would later become the starting point of DJs' experimentations, and without the women who organized and connected artists to an audience, hip hop might be completely different today.

Conclusion

As I stated in the introduction to this chapter, the ideologies behind discourses that accompany technologies rely on an unstated belief in the Cartesian divide. I have argued that, to demonstrate the value of their artistry, both Cunningham and DJs aligned

[142] Charlie Ahearn Hip Hop Archive, #8078. Division of Rare and Manuscript Collections, Cornell University Library.

themselves with the white, masculine paradigm of technology, which prioritizes mind over body. Therefore, even though bodies and the movement of bodies were central to both Cunningham's and DJs' work, those bodies seem to vanish from narratives that align themselves with the ideologies behind these technologies. I have traced through the case studies of Merce Cunningham's work with technology and hip hop DJs' development of the genre how this alignment helped the artists position themselves and be positioned as part of a broader field of technological innovations. This narrow alignment has only allowed a few individuals to be seen as innovators, leaving out the role of the women who served as key collaborators in Cunningham's dancemaking and the organizers who facilitated hip hop's growth. Additionally, in both cases, dance forms that are of the body have been reduced and rearticulated based on the "intellectual" aspect of their production rather than considering how the knowledge of the body contributed to the technology's uses and innovations.

In the next chapter, I examine how the Cartesian logic that values mind over body impacts the continual development and functionality of technologies today. Through a case study of the Microsoft Kinect as employed by the video game *Dance Central* I examine how the designers of the technology integrated values and understandings of bodies into the technology, which impede its ability to track many genres of dance.

Chapter 2

Dance Central: Failures of Technological Translation

While the previous chapter examined how bodies fell out of the discourse about white artist Merce Cunningham and predominantly Black DJs work with technology, in this chapter I examine the Microsoft Kinect,[143] as a technology employed within dance video games. I argue that the Kinect extends two practices with roots in US racism: technologies of surveillance and the history and legacy of blackface minstrelsy. The game I focus on is *Dance Central* by Harmonix.[144] The Kinect, marketed with the slogan "you be the controller," tracks the movement of gamers and allows them to interact with the system without the aid of a handheld controller. However, the gaming technology could be considered a biased spectator, prioritizing white/Europeanist aesthetics. While the game relies heavily on popular dance forms (for example, the back cover of the first version of the game boasts "30+ of the best pop, hip-hop, dancehall and funk dance songs ever"), these forms are not read well by the technology. I argue that the parameters built into the technology regarding which body parts it tracks and how it tracks them contribute to the invisibilization of the contributions and values of Black and brown dance forms.

My understanding of invisibilization is indebted to the work of dance scholar Brenda Dixon Gottschild, who coined the word to "show that [Eurpeanist phenomena]

[143] I am referring specifically to the first-generation Kinect, released in 2010. Later iterations of the Kinect have different technological specifications than those noted in this chapter.

[144] *Dance Central* was designed for the Kinect, unlike its competitor *Just Dance,* which was first designed for the Wii and then later adopted to other platforms.

are dependent upon [Africanisms], and that, overtly and subliminally, these invisibilized influences significantly shape European American experience."[145] In order to analyze the invisibilization within *Dance Central*, I draw on scholarship on both blackface minstrelsy, the performance form that originated in the 1800s and depicts African Americans, through racist stereotypes, as well as on its legacy.[146] I also utilize scholarship on technologies of seeing, engaging most deeply with Simone Browne's studies of how technologies of surveillance can simultaneously target and fail to see Blackness.[147] I consider how this failure to see plays out in relation to the tracking of bodies in *Dance Central*. As a technology of surveillance, *Dance Central*'s mode of watching is built around racial blind spots that allow the game to circulate ideas of Blackness while simultaneously whitening Black dance forms. Like minstrelsy, *Dance Central* gives non-Black people an opportunity to inhabit and distort Black culture.

Music and digital media scholar Kiri Miller's work also helps provide context for my analysis. In *Playable Bodies* Miller presents an in-depth analysis of dance video games, focusing primarily on *Dance Central* but also discussing *Just Dance* for Wii. Miller's work draws on her own game play, as well as on a myriad of observations and

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[145] Brenda Dixon Gottschild, *Digging the Africanist Presence in American Performance: Dance and Other Contexts* (Greenwood Press, 1996). 2.

[146] Brenda Dixon Gottschild, *Digging the Africanist Presence in American Performance: Dance and Other Contexts* (Greenwood Press, 1996); Eric Lott, *Love and Theft: Blackface Minstrelsy and the American Working Class*, Race and American Culture (New York: Oxford University Press, 1993); Lynne Fauley Emery and Katherine Dunham, *Black Dance: From 1619 to Today*, Second Edition, Second edition (Hightstown, NJ: Princeton Book Company, 1989); Susan Manning, *Modern Dance, Negro Dance: Race in Motion* (Minneapolis: University of Minnesota Press, 2004); Stephen Johnson, ed., *Burnt Cork: Traditions and Legacies of Blackface Minstrelsy*, First Edition (Amherst ; Boston: University of Massachusetts Press, 2012); Lauren Michele Jackson, *White Negroes: When Cornrows Were in Vogue and and Other Thoughts on Cultural Appropriation* (Beacon Press, 2019); David Leonard, "High Tech Blackface: Race, Sports, Video Games and Becoming the Other," vol. 4, 2004, 1.

[147] Simone Browne, *Dark Matters: On the Surveillance of Blackness* (Duke University Press, 2015).

interviews with game players, software creators, choreographers, and influential players on social media.[148] Miller notes that she chose a performance studies framework in order to take into consideration how players' bodies are affected by past performance, and experiences built over time. This framework is central to her methodology, which she calls "DIY/DIA ethnography: do-it-yourself, do-it-again."[149] When she asks people why they play games, Miller asserts that because the answer is often a variation of "because of *how it feels*… I have to do it to find out." [150]

Like Miller, my own experiences with the Kinect inform my analysis. In addition to playing *Dance Central* I use the visual software Processing, which I will discuss further in the following sections, to aid my investigation. Miller uses her game play to contextualize her interaction with gamers and performs "analysis of game-related web materials," using the conversations generated in Amazon reviews and YouTube comments coded by keyword to build her argument.[151] I expand upon the contextual information Miller has gathered about the choreographers and dancers of the game as I watch moving bodies. While Miller relies on her game play to facilitate her understanding of how players experience the game, she does not focus on how the choreography is performed. In contrast, my primary method is choreographic analysis, based on hours of watching YouTube recordings of gamers as well as watching my own game play as recorded through Processing.

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[148] Kiri Miller, *Playable Bodies: Dance Games and Intimate Media* (New York, NY: Oxford University Press, 2017). 16-17.
[149] Miller. 20.
[150] Miller. 20.
[151] Miller. 16.

My own experiences dancing with the Kinect coupled with choreographic analysis of *Dance Central* avatars and gamers lead me to my central argument: the technologies employed in *Dance Central* play a significant role in invisibilizing the Africanist aesthetics within the game. While my intervention is focused on race, I draw on Miller's analysis of gender to help demonstrate that gamers can and do "read" movement in relation to identity. Miller shows that gamers experience and understand dance movement as gendered. I posit that despite their ability to "read" gender, one of the legacies of minstrelsy, where white people freely borrowed from and transformed Black cultural practices, is that gamers do not have the knowledge to "read" markers of race in the same way. In *Dance Central*, I see multiple layers of invisibilization occurring and will detail how the technologies of the game exacerbate the problem. As I will show, invisibilization takes place twice within *Dance Central*: first, when dance forms are modified to fit the narrow specifications regarding which movements the Kinect will be able to track, and second, when the scoring system rewards players primarily based on limb movement rather than full bodied dancing.

In my first section, I complete a literature review of the inequities built into technologies of surveillance before bringing the Kinect, and with it *Dance Central,* into the conversation. I then relay a brief history of minstrelsy, leading into a discussion of how US culture continues to employ elements of minstrelsy today. I note that *Dance Central*, like minstrelsy, relies on a trope of authenticity, circulating images of Blackness for the entertainment of non-black populations. From here I move into a deeper examination of the role of the technologies, discussing what I call the visceral-virtual-

visceral-virtual loop through which movement is translated in the production and dissemination of the game. I conclude with a close reading of one of the game's choreographers, Frenchy Hernandez, performing a dance alongside a gamer, Laura223, exposing how the gamer can "game" the system and score 100% while whitening/Europeanizing the choreography.

Dance Central as a Technology of Surveillance

As numerous scholars across multiple fields have established, the field of vision is overdetermined by race and yet technologies oriented around vision often contain racial blindspots. Franz Fanon used the repeated refrain of "Look! A Negro!" in *Black Skin, White Masks* to demonstrate how he was always positioned first and foremost as Black in the eyes of his white contemporaries, with any action he undertook read through this filter that emphasized first and foremost his Blackness that blinded them to his humanity. Nicole Fleetwood builds upon Fanon's understanding of the hypervisibility of Blackness, arguing in her 2011 *Troubling Vision: Performance, Visuality, and Blackness* that "the visible black body is always already troubling to the dominant visual field."[152] Yet, despite the overemphasis on Blackness as a visual marker, technologies oriented around

[152] For further discussion of how the field of vision itself is overdetermined by race see: Butler, Judith. "Endangered/Endangering: Schematic Racism and White Paranoia." Gooding-Williams, Robert. *Reading Rodney King/Reading Urban Uprising*. Edited by Robert Gooding-Williams. Psychology Press, 1993; Fanon, Frantz. *Black Skin, White Masks*. Grove/Atlantic, Inc., 2008; Fleetwood, Nicole R. *Troubling Vision: Performance, Visuality, and Blackness*. Illustrated Edition. Chicago: University of Chicago Press, 2011; Scott, Anna Beatrice. "Spectacle and Dancing Bodies that Matter: Or If It Don't Fit, Don't Force It." Desmond. pp. 259-268; Wiegman, Robyn. *American Anatomies: Theorizing Race and Gender*. Durham: Duke University Press Books, 1995.

vision often fail to "see" Blackness. For example, Richard Dyer studying the role that race has played in the development of film noted that, "Innovation in the photographic media has generally taken the human face as its touchstone, and the white face as the norm of that."[153] To understand the role that technology plays in the invisibilization of Africanist aesthetics within *Dance Central* it is necessary to consider the ways in which the Kinect depends on technologies of seeing that are structured around Eurocentric aesthetics.

There is no universal body. When technologies are created by predominantly white users who fail to consider their positionality, the end result is technological inequity, as has been demonstrated in recent years through facial recognition technologies. For example, when the iPhone X was first released in 2017, it could not distinguish between Asian faces. A woman named Yan in China made headlines upon discovering that the phone's new facial recognition software also allowed her colleague to unlock her phone.[154] Assuming the camera in that specific phone was faulty, Yan purchased another iPhone X only to experience the same problem. Joy Buolamwini and Timnit Gebru demonstrate through their research that the problem with facial recognition technologies goes well beyond the anecdotal evidence of Yan's case.[155] Buoloamwini and Gebru created *Gender Shades,* a website exposing the discrepancies in facial recognition technologies, after testing IBM, Microsoft and Face++'s gender classification products

[153] Dyer, *White*. 90.

[154] Christina Zhau, "Is the IPhone X's Facial Recognition Racist?," Newsweek, December 18, 2017, https://www.newsweek.com/iphone-x-racist-apple-refunds-device-cant-tell-chinese-people-apart-woman-751263.

[155] See The Gender Shades website at http://gendershades.org/index.html for a full explanation of the parameters and methods of the project. The site also includes a link to the accompanying research paper.

on a sample of 1270 photographs from European and African countries. The authors found that all three products were more accurate at assessing the gender of males than females and more accurate on light subjects than dark ones. For example, IBM was 34% more accurate at evaluating the gender of light male faces than dark female faces, and "93.6% of faces misgendered by Microsoft were those of darker subjects".

Surveillance studies scholar Simone Browne narrates an incident in 2009 in which a Hewlett Packard MediaSmart computer did not "see" a Black man. When Desi Cryer and Wanda Zamen uploaded a video to YouTube calling on HP to explain why their technology did not work for Black Cryer as it did for white Zamen, HP responded by:

> clarifying that it wasn't that their cameras 'can't see black people,' as one CNN news report stated; it was that the technology 'is built on standard algorithms that measure the difference in intensity of contrast between the eyes and the upper cheek and nose' and that 'the camera might have difficulty 'seeing' contrast in conditions where there is insufficient foreground lighting.' What Black Desi needed, according to HP, given their standard algorithms, was better lighting.[156]

This technology deploys what Browne dubs "prototypical whiteness." She asserts that "biometric information technologies are sometimes inscribed in racializing schemas that see particular biometric systems privileging whiteness, or lightness, in the ways in which certain bodies are measured for enrollment."[157] As another example, Browne notes that an early model iris-scanning technology relied on a greyscale image that clumped all dark

[156] Browne, *Dark Matters*. 161.
[157] Browne. 110-111.

irises together at one end of the spectrum, resulting in a much greater degree of precision when scanning lighter eyes.[158] Browne's intervention into the field of surveillance studies brings to light the damaging potential of applying technologies whose designs are opaque to users as if they respond to all people equally. She argues for a more sustained engagement with the relationship between Blackness and surveillance.

This push for greater critical inquiry into surveillance technologies by scholars such as Browne, Buoloamwini and Gebru has been answered by recent shifts made by the companies that create and disseminate these technologies. After major protests in 2020 against the unequitable and dehumanizing treatment of Black and brown people sparked by the murder of a Black man, George Floyd, several companies made large-scale changes to their policies on facial recognition technology. On June 8, 2020, IBM CEO Arvind Krishna released a letter to Congress declaring that the company "no longer offers general purpose IBM facial recognition or analysis software."[159] Then, as noted in the opening of this dissertation, on June 10, 2020, Amazon put a one year pause on the use of the company's facial recognition software by police.[160] Under pressure of the political moment, IBM and Amazon pulled their facial recognition products from use, demonstrating their acknowledgement of the racial blind spots woven into their technologies.

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[158] Browne. 114.

[159] Arvind Krishna, "IBM CEO's Letter to Congress on Racial Justice Reform," accessed September 8, 2020, https://www.ibm.com/blogs/policy/facial-recognition-sunset-racial-justice-reforms/.

[160] Karen Weise and Natasha Singer, "Amazon Pauses Police Use of Its Facial Recognition Software," *The New York Times*, June 10, 2020, sec. Technology, https://www.nytimes.com/2020/06/10/technology/amazon-facial-recognition-backlash.html.

While this discussion is centered around visual markers of Blackness, Dance Studies demonstrates that bodies can also be and are read based on their movements. I contend that the ways that technologies see or do not see bodies goes beyond the face and extends to the whole body. In Browne's terms, the Kinect exemplifies prototypical whiteness based on the need for the torso to remain fully extended vertically for legibility. As I will elaborate on in my close reading, while a static, vertical spine is a marker of Europeanist (white) dance traditions, African diasporic forms employ a mobile spine, often tilted significantly away from the vertical axis.

The Kinect's ability to detect a skeleton using the infra-red camera and lights built into the hardware of the system depends on the internal software's reliance on verticality and lack of movement in the spine. The first-generation Microsoft Kinect has three small circles on the front. One shines an infra-red light out into the space. The second is an infra-red camera and the third is a regular camera, also known as an RBG (red blue green) camera.[161] The infra-red camera reads how long it takes for the light to travel out, bounce off a surface and reflect back to the Kinect to create a depth map of the space in front of the camera. The image below is the visual representation of what the Kinect "sees" when aimed at a person as translated through the visual programming language Processing.[162]

[161] For a more detailed explanation, see: The Coding Train, *12.1: What Is the Kinect? - Kinect and Processing Tutorial*, accessed March 21, 2020, https://www.youtube.com/watch?v=QmVNgdapJJM.

[162] According to their website, https://processing.org/, "Processing is a flexible software sketchbook and a language for learning how to code within the context of the visual arts".

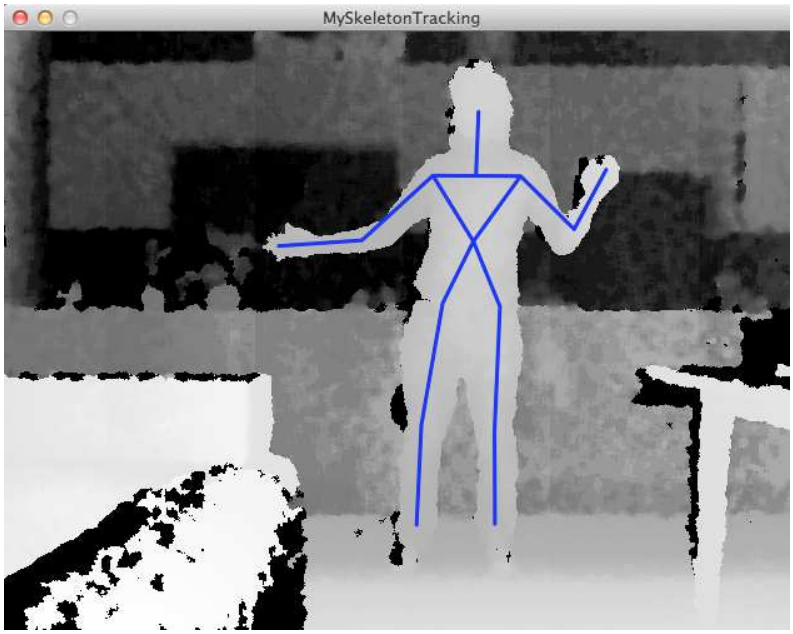

Image 2.1 Processing Skeleton image on greyscale depth map[163]

This photo shows both the depth map created by the infra-red data and the resulting skeleton that gets mapped by the technology, overlaying the figure. Distance from the camera is demonstrated by the greyscale coloring, with white being closest to camera and black furthest away. For example, the white table to the dancer's right is closer to the camera than the dancer, who in turn is lighter grey than the ledge, showing that the ledge is behind them. The bright blue stick figure overlaying the silhouette demonstrates that the Kinect has detected a body and shows us the major landmarks that the Kinect is "finding" and "tracking."

[163] "Processing and Kinect: Resources | Michael Kipp's Blog," accessed October 1, 2020, http://michaelkipp.de/blog/processing-and-kinect-resources/.

Image 2.2 Avatar Taye performing the "Lay It Out" in *Dance Central's* "Dip It Low"[164]

The image above shows how the screen appears to a gamer when they are playing *Dance Central.* For clarity I will use the term "avatar" to describe the main character on-screen in the dance game, "gamer" to describe any person performing movement in the dance game, and "dancer" to describe any moving body that is using Processing. In the center of the screen, the largest image is an avatar. Unlike most video games where the avatar responds to and represents the choices of the gamer, the *Dance Central* avatar is more like a dance teacher standing in front of the class demonstrating the movement. The position of this avatar's body does not change in relation to the live gamer's actions. Because of the many levels of translation between visceral body and virtual representations, which I will discuss in detail later, *Dance Central* shows the gamer's

[164] gamerkev, *Dance Central: Dip It Low (Hard)*, accessed September 24, 2020, https://www.youtube.com/watch?v=zJEt8dMKSTY.

action only through the small box on the far right of the screen, where the gamer's silhouette is visible in white.

When gamers play, they rely on the visual image of the avatar to guide them and simultaneously assess how faithfully they are recreating the movement on screen. This self-assessment is guided by the feedback they receive from the game in the form of score and evaluative feedback. Notice the word "flawless!!!" behind the avatar's feet, along the edge of a circle. This circle increases in size based on the strength of a gamer's performance from a small circle with "nice" to a medium "awesome" to the largest circle for "flawless".

Like the creators of facial recognition technologies meant to work for all users, the *Dance Central* programmers made strategic choices, attempting to design their dance game for a fictional universal player.[165] However, Miller demonstrates that gamers did not see the movement as universal but as coded based on ideas about gender. Although an in-depth analysis of gender is outside the parameters of this chapter, establishing how readily people were able to name and label differences in movement based on gender helps highlight the contrasting lack of awareness/naming of differences of movement based on racialized histories of movement. The programmers' discussion of gender demonstrates that despite their attempt to create a universal body they were aware that an understanding of gender, and the apparent gendering of specific movements, would be a

[165] See Project lead Matt Boch explain his reasoning for choosing to present a single iteration of the dance rather than gender distinct versions in "Gender Assumptions in Mocap," insights from the greatest minds in video games., accessed September 8, 2020, https://www.criticalpathproject.com/video/matt-boch-gender-assumptions-in-mocap/.

factor in the way people reacted to the dance steps. Their discussions do not show a similar degree of awareness regarding race.

In an interview with *Dance Central* project lead Kasson Crooker and lead producer Naoko Takamoto, journalist Alexander Sliwinski probed into the creation of dances and how gamers responded to them.[166] Answering Sliwinski's question, "Has the conversation come up to have a masculine dance routine and a feminine dance routine for the same song?" Crooker stated

> Yeah, the genderizing — we've thrown out so many words, like, 'it's a feminine move,' and we're like, 'Wow, that's a horrible concept.' And then we're like, 'it's a sexualized move,' and that feels weird, too. I've gone back to: Does it feel feminine, or does it feel masculine, or does it feel sorta 'gender neutral'? This has been a huge topic.

Takamoto notes that they wanted to make the routines approachable for men and women: "there are a lot of guys who are uncomfortable about shaking their hips, or popping their chest, or doing things like that — things they don't feel comfortable doing. And so, figuring out how to make most of the game feel 'good' to both sexes has been super important." These conversations establish a strong awareness that certain movement would be coded as female no matter the gender of the avatar demonstrating the movement, and further, that the creators did not want their "universal" body to be solely

[166] Alexander Sliwinski, "Interview: Dance Central Producers on Balancing Gender and Keeping It 'Fresh,'" Engadget, accessed June 2, 2020, https://www.engadget.com/2010-06-29-interview-dance-central-producers-on-balancing-gender-and-keepi.html.

female. Furthermore, this discussion shows the intersection of race and gender in privileging Europeanist aesthetics as men's hesitancy to shake their hips is not universal.

Miller notes that despite many calls for *Dance Central* to release a gendered version of each song, they did not; lead designer Matt Boch stated that he did not want people to have to make a binary decision at the beginning of song.[167] The result is that in the game you can now choose an avatar that represents a stereotypically masculine or feminine body but it's going to do the same motion-captured choreography. This choice follows the genealogy set about by Merce Cunningham. When working with digital artists Shelley Eshkar and Paul Kaiser on the installation *Hand Drawn Spaces,* Cunningham brought both a male and female dancer into the motion-capture studio, but when collaborating with the artists to produce the choreographic sequences on the computer screen Cunningham chose to intermingle the data from the two dancers in the final product, creating "universal" dancing bodies.[168]

In the dance game, as much as the creators had attempted to devise a universal body, the gamers playing *Dance Central* responded by reading specific movements as gendered. Miller sums up her analysis of close to 900 Amazon reviews of *Just Dance* and *Dance Central* observing that "[a]cross all my research channels, players remarked on gendered choreography that felt unfamiliar in their own bodies; in these circumstances, they seemed to pay more attention to the gender of the screen dancer, asking themselves whether these moves were a better match for that body than for their own."[169] Miller

[167] Miller, *Playable Bodies*. 80.
[168] Paul Kaiser, "Steps," accessed August 17, 2020, http://openendedgroup.com/writings/steps.html.
[169] Miller, *Playable Bodies*. 73.

spends an entire chapter unraveling gamer comments regarding gender, but because her focus is on how people experience the game and the commenters did not focus on race, neither does she. Miller mentions the disparity between their awareness of gender and race and offers a potential explanation: "…relatively few players seemed to experience such a dissonance or discomfort with respect to racial masquerade—perhaps because it is so normalized in contemporary global popular culture, which still routinely trades on the appropriation, commodification, and 'mainstreaming' of African American popular culture and artistic practice."[170] Miller does not pursue the discussion about racial masquerade further or offer any critique of this normalization. I agree with Miller that gamers' ability to read movement as gendered, but not raced, demonstrates how deeply reliant American culture is on the uncredited contributions of Black people, a lasting impact of minstrelsy in the present day. However, I believe that it is important to push back against this invisibilization and acknowledge how the dance game profits from Black cultural forms.

Dance Central and/as Minstrelsy

Minstrelsy was a form of performance that began in the 1800s and was carried through the early part of the 20th century. While the form began with white performers creating imitations of Black people, later, Black performers also entered the minstrel stage. Brenda Dixon Gottschild defines minstrelsy as "the popular nineteenth-century American entertainment form in which the performers, black or white, used burnt cork to

[170] Miller. 73

blacken faces and hands"[171] Then, performers would execute song, dance and comedy routines that drew on and deepened racial stereotypes.

While the use of burnt cork and the blackening of faces have predominantly been done away with,[172] the traditions created by the form have had a lasting impact on performance in the United States, as well as understandings of race.[173] Within dance studies, Susan Manning identifies the rise of what she dubs "metaphorical minstrelsy" in the 1930's, when "white dancers bodies made reference to non-white subjects." Lauren Michele Jackson demonstrates that this form of appropriation continues to the present with *White Negroes*, emphasizing how white media icons such as Kim Kardashian, Christina Aguilera and Paula Deen have benefited monetarily from their use of Black culture.

Another place where traces of minstrelsy linger is in the digital realm. As mentioned previously, digitizing something is a process of breaking information into smaller and smaller parts, until it can travel as a string of 0's and 1's. This separating into smaller bits and then reassembling suggests that the content of the information can be separated from its physical form, intertwined with the Cartesian logic that aligns the content/mind as superior to the form/body. This logic has led to the proliferation of digital technologies that separate creative ideas and movements from the bodies that generate them. For example, ethnic studies scholar David Leonard posits in "High Tech

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[171] Gottschild, *Digging the Africanist Presence in American Performance*. 125.

[172]See Stephen Johnson's introduction to *Burnt Cork: Traditions and Legacies of Blackface Minstrelsy*, for a discussion of the resurgence of blackface.

[173] For a detailed history of the growth of minstrel stereotypes and their continual impact on the lives of Black Americans, see Marlon Riggs, *Ethnic Notions (1986) - IMDb*, accessed September 28, 2020, http://www.imdb.com/title/tt0091018/.

Blackface" that sports video games serve as a site where white players can dominate and win games in the digital realm that are dominated by Black players in the real games: "these games elicit pleasure, playing on white fantasies as they simultaneously affirm white privilege through virtual play."[174] Leonard notes that within these games, much of the play is presented as happening carefree, in a setting of urban decay, presenting the Black community enjoying themselves in their squalor instead of working to improve their situation, much as blackface minstrelsy portrayed images of the happy carefree slave, who didn't need or want anything more. Consistent with the logic of the Cartesian mind/body split, Leonard notes that eight of out ten Black video game characters are in sports games, depicted through shallow images where their "God-given talents" shine and allow them to succeed. Similar to the minstrel stage, Blackness is circulated and given meaning through the white players who control its dispersal. Leonard asserts that this leads many people who do not have first-hand knowledge of the people and communities depicted in the game to take what is portrayed as an authentic image.

Like Leonard, Miller also notes the relationship between video game portrayals of Blackness and minstrelsy. She states that "by compiling collections of gestures and sounds that already circulate in popular culture as signs of gender, race, and sexuality, dance games give players the tools to stage domestic song-and-dance variety shows"[175] similar to both blackface minstrelsy and drag shows. Furthermore, she notes that while "[i]n popular and scholarly writing about digital games, invoking blackface typically

[174] Leonard, "High Tech Blackface: Race, Sports, Video Games and Becoming the Other."
[175] Miller, *Playable Bodies*. 64.

signals a devastating critique,"[176] her aim is simply to "plac[e] dance gameplay in this performance lineage."[177] I see Miller's points as necessary but not sufficient. Placing *Dance Central* in the lineage of minstrelsy does not do enough to address the way the programming of the game refuses to see Africanist aesthetics, while simultaneously appropriating Black culture. My study extends Miller's statement by showing how when these dances are decontextualized within the game, the dances themselves get changed and whitened.

Dance scholar Lynne Emery suggests that the dances within minstrel shows may not have been as thoroughly transformed as some of the other elements, such as songs and speech, leading audiences to read the dances as authentic in comparison to the pieces with more extreme alterations.[178] Meanwhile, cultural historian Eric Lott proposes that minstrel dances were often written about or discussed as if they were accurate portrayals of an authentic Black source dance, whereas it was obvious to people that the lyrics to songs and other features were hybridizations, because of the audiences' greater literary fluency.[179] Whether the dances were less altered, or simply less well understood, minstrel dancing was also a hybridization, yet it was considered authentically Black by audiences. Similarly, *Dance Central* gets praised as authentic in commentary from the game's creators, press and gamers alike, in part because of its ability to track a greater number of body parts than its competitor *Just Dance*.

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[176] Miller. 65.
[177] Miller. 65.
[178] Emery and Dunham, *Black Dance*. 189.
[179] Lott, *Love and Theft*.

Because *Just Dance* and *Dance Central* came out within a year of one another, there are numerous blogs, articles and reviews of how the programs compare. Consider, for example, the following statements posted between June 29, 2010 and October 17, 2012:

> "If you're serious about learning new dance moves and want to have fun while you're doing it, buy *Dance Central 2*."
>
> "if you're looking for the true dancing experience this holiday season, and own an Xbox, 'Dance Central 3' is the boogie machine for you."
>
> "They can do it in their living room and learn a real skill. And now, when I go to my next wedding — where I used to sit out — I can actually do a few things."[180]

While comments like the these are written comparing the relative ease with which one can succeed in *Just Dance* by simply waving their Wii remote arm wildly, as opposed to the requirement in *Dance Central* to actually stand and execute movement, the resulting language promotes an idea of *Dance Central* as an "authentic" dancing experience. These authors inform us that *Dance Central* gives a "true" or "real" dance experience for someone "serious" about the dancing itself.

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[180] FP Tech Desk, "Just Dance 3 vs. Dance Central 2: Which Game Should You Buy? | Financial Post," November 3, 2011, https://financialpost.com/technology/video-game-dance-battle-just-dance-3-vs-dance-central-2; Robert Workman and TechNewsDaily Gaming Contributor, "Throwdown: 'Dance Central 3' vs. 'Just Dance 4,'" msnbc.com, October 17, 2012, http://www.nbcnews.com/id/49444884/ns/technology_and_science-tech_and_gadgets/t/throwdown-dance-central-vs-just-dance/; Alexander Sliwinski, "Interview: Dance Central Producers on Balancing Gender and Keeping It 'Fresh,'" Engadget, accessed June 2, 2020, https://www.engadget.com/2010-06-29-interview-dance-central-producers-on-balancing-gender-and-keepi.html.

While Miller presents a detailed analysis of many elements of *Dance Central*, she states, "[t]he Kinect's innovative potential lay in its capacity to track torso, hip, and shoulder movements, as well as the simultaneous, coordinated motion of different parts of the body—affordances that made it an excellent match for contemporary hip-hop, Latin dance, and related club dance styles."[181] My choreographic analysis will demonstrate that this is not an accurate statement. The Kinect is far more detailed than the Wii at tracking movement, following numerous body parts rather than just one. But when Miller states that "*Dance Central* promises that it can teach you to dance well" without questioning or qualifying this claim from the game, she contributes to the false sense of authenticity that has been built up around the game.[182] My examination of the layers of translation the dance movements go through between human bodies and technologies, followed by my close reading of two iterations of the same dance side by side, demonstrate that *Dance Central* does not teach you to dance well, but to dance white.

Visceral-Virtual-Visceral-Virtual Loop

Dance Central uses motion-capture to translate dances performed by a choreographer to data that can be animated on an avatar. This avatar then demonstrates the dance to game players, whose movements will be tracked by the Kinect as they perform the game in their living rooms. The dance moves from visceral (choreographer) to virtual (avatar) to visceral (gamer) back to virtual (score/recording of game play). I

[181] Miller, *Playable Bodies*. 13.
[182] Miller. 54.

investigate what survives so many shifts between flesh and bone and pixels and what gets lost in translation.

In "Dancing with Myself: Dance Central, Choreography and Embodiment" scholars Melissa Blanco Borelli and Derek Burrill articulate their concerns about how movements get translated and travel. They point out that while dance has often been translated from one body to another, such as teacher to student and parent to child, the unique situation in this game is how the movement shifts from visceral body to virtual and then back to visceral. Blanco Borelli and Burrill introduce the dance game as a site to examine the relationship between technology and bodies, asking "What does it mean when the labor of a proper flesh-encased choreographer of color is morphed into and onto a white avatar? Is this a version of cyber-racial-appropriation?"[183] Blanco Borelli and Burrill's article focuses on the first steps of this visceral-virtual-visceral process, the development of the choreography and its dissemination via game play.

I add another layer to their analysis, a return to virtual. When gamers play *Dance Central* their movement is tracked and scored by the Kinect. This return to virtual matters; gamers often note the score they achieved in *Dance Central* in their Youtube posts and a huge part of the transmission of this game comes through the large community of players and former players sharing their game videos, commenting, and interacting via Youtube. I refer to these layers of translation as a loop because the choreographers design their dances with the Kinect in mind, working under a high degree

[183] Derek A Burrill and Melissa Blanco Borelli, "Dancing with Myself," in *The Oxford Handbook of Dance and the Popular Screen*, 2014. 439.

of restriction to create choreography that the Kinect will be able to follow. Therefore, the first visceral step of the loop is impacted by its eventual ending virtual destination.

The final move of choreographer Frenchy Hernandez's "Dip It Low," the song I will do a close reading of in the next section, is an ideal site to examine the restrictions of the Kinect on *Dance Central's* choreography. While the majority of *Dance Central* choreography is very frontally oriented, so that the gamer can see the screen, I can see the ingenuity in Hernandez's choice to perform this move profile to the camera. If she kept her body facing the Kinect and performed the rocking movement, bringing one leg up in front of the body, the gesture would not be readable to the Kinect. When one skeletal marker/body part blocks the Kinect's view of another skeletal marker, the Kinect can no longer track the blocked body part. When the Kinect loses too many skeletal markers, the entire skeletal tracking system fails. If the "Merge Back" had been presented facing the camera, the leg lifted in front of the pelvis would confuse the camera, possibly to the point that it might lose the entire skeleton. Hernandez was able to avoid that pitfall by turning her body profile. This example gives a glimpse into how the specifications of the Kinect's ability to eventually translate choreography back, as a gamer performs it, informed the choices made in designing the initial choreography.

The first translation from visceral to virtual comes when the choreographer steps into the motion capture studio. The choreographer puts on a suit with 40 LED light markers and performs on a stage that has 24 cameras spaced around them from all

sides.[184] 40 markers and 24 cameras are a significant increase from the final single camera and 20 skeletal points which the Kinect approximates based on the depth image. However, the motion capture process still integrates a level of technological intervention in terms of the game designers' choices of where to position markers on the choreographer's body and how to animate the resulting data.[185]

Choreographer and dancer Bill T. Jones expressed skepticism about the ability of motion capture to track his movement when working with digital artists Shelley Eshkar and Paul Kaiser.[186] He suggested that because his movement was not as angular as that of Cunningham, who the digital artists had previously collaborated with, it would not be possible to capture accurately. While Jones used the term angular, I would note that Cunningham's style features a very stiff, torso and although this torso does occasionally flex, twist or extend, it does so within a limited range on a body that primarily remains vertically oriented in space. Jones, on the other hand, dances with a stronger African aesthetic influence, demonstrating a greater degree of mobility both through his torso and a greater degree of shifting away from a vertically oriented spine; he described this style to Kaiser and Eshkar as "the undulation and quivering of liquid muscle."[187] As Jones

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[184] *Making Gangnam: Behind The Scenes With Dance Central 3*, accessed June 2, 2020, https://www.youtube.com/watch?v=jfQ-Qgmq_M0.

[185] For further discussion of the role of motion capture in separating movement from a raced body see Danielle Goldman, "Ghostcatching: An Intersection of Technology, Labor, and Race," *Dance Research Journal* 35/36, no. ArticleType: research-article / Issue Title: Vol. 35, 2-Vol. 36, 1 / Full publication date: Winter, 2003-Summer, 2004 / Copyright © 2003 Congress on Research in Dance (December 1, 2003): 68–87, https://doi.org/10.2307/30045070; Tanine Allison, "Blackface, Happy Feet: The Politics of Race in Motion Capture and Animation," *Special Effects: New Histories, Theories, Contexts (BFI, Forthcoming), Edited by Dan North, Bob Rehak, and Michael Duffy*, accessed October 1, 2020, https://www.academia.edu/6440824/Blackface_Happy_Feet_The_Politics_of_Race_in_Motion_Capture_and_Animation.

[186] Kaiser, "Steps."

[187] Kaiser.

predicted, his movement was more challenging to capture, with markers popping off his body as he grew sweaty in the studio. Jones' experience demonstrates that even the more comprehensive motion-capture technology must be recalibrated to follow Africanist aesthetics, and it still might not succeed.

In *Dance Central*, once a choreographer performs in the motion-capture studio, an animator comes in to transpose the choreographer's movements onto an avatar. While each *Dance Central* song has a designated default avatar, gamers can choose to change the avatar performing a given song, meaning that the movement of the original choreographer is not tied to the identity of the character performing those movements onscreen.

Colin Sandel, a tester for Harmonix, explains how the data from the original motion captured movements relates to the final score a gamer will see on the screen:

> When we record one of our choreographers doing a dance in a motion capture studio it produces a really accurate, really precise version of the dance. The Kinect obviously is not working with the same kind of complexity, so if the grading was based on what the dancer was actually doing, nobody would ever be able to score because the Kinect's estimation of your movements is not going to look the same. So, what happens is that the filter testing team, which is a bunch of dancers, both professional and non, learns the dance as well as possible and then we make a bunch of recordings, send them over to the filter authors, who then integrate them into the scoring system.[188]

[188] *Making Gangnam*.

Within this statement, Sandel's "obviously" indicates that he takes for granted that the viewer will understand the difference between the Kinect's technological capabilities and that of motion capture. He notes that the Kinect "is not working with the same kind of complexity" without pointing out that the Kinect's limitations are products of choices made in the process of creating the technology. Would it be reasonable to ask people to place 24 cameras around themselves in their home to play a dance video game? No, yet the logistical choice to restrict the dancers' movements to what can be viewed through one frontal camera has repercussions on the parameters of the dancing. Similarly, the Kinect's designers chose to include 20 skeletal landmarks, not more, not less. And the designers chose how to distribute those twenty landmarks across the body. Sandel goes on to say, "The Kinect will get confused. So, our filter system has to account for the various ways in which your skeleton is likely to break for any given dance. That is something our authors have honed to a science." When Sandel says the "various ways in which your skeleton is likely to break" he refers to moments like the one I mentioned in the hypothetical forward facing "Merge Back" where the Kinect is not getting data about enough body parts to estimate the placement of the skeleton. Sandel notes that this happens within the dances and discusses the need for the computer programmers creating the scoring system to keep these moments in mind when generating the parameters for scoring a given dance.

Miller also mentions this discrepancy between the motion capture system's surveilling capability and that of the Kinect, explaining the technological reason why the avatar is not based on the performer's actions in the moment. She writes that "the motion-

capture process for the animated dance performances is a world away from what happens during game-play, with technical requirements far exceeding the Kinect's capabilities…The Kinect collects comparatively limited data about the player's performance—far too little data to support high-quality animation."[189] Miller reveals that some gamers see the inability of the gamer to control the movement of the avatar as a flaw in the design of the game, rather than as a limitation of the technology. She quotes one gamer who complains that "without a controller can we still call ourselves gamers?" and another who remarks, "just trying to mimic an avatar? Lame."[190] While Sandel labels the lesser complexity of the Kinect compared to motion capture "obvious," the commentary from these gamers makes it clear that not all users recognize or understand these limitations.

As previously stated, the Kinect's limited ability to track the live body of a gamer impacts not only the end of the process of translation, with the creation of a score based on the gamer's actions, but also the beginning. I've described the shift from visceral to virtual to visceral to virtual as a loop because the final virtual iteration impacts the movements the choreographers perform in the first visceral version of the dance. Miller's interviews with two of Harmonix's choreographers show that the choreographers spent a lot of time getting to know the restrictions of what the Kinect would be able to track and that this had a major impact on the generation of the dances. One of the two full time choreographers hired by Harmonix in the production of *Dance Central*, Marcos Aguirre,

[189] Miller, *Playable Bodies*. 44.
[190] Miller. 45.

noted that the Kinect did not accurately portray hip movement, but because he really loved hip movement he would often add an accompanying arm gesture in order to make the overall movement 'trackable/legible' to the game system.[191] This comment by Aguirre illustrates both the severity of the limitations of the Kinect and the mismatch between its capabilities and the parameters of the dance forms that *Dance Central* included in their games.

While Aguirre expresses his love of hip movements as an individual choice, I return to Brenda Dixon Gottschild to show that an inability to portray hip movement is not simply an impediment to personal preference but one of the ways in which the Kinect whitens dances. While Gottschild notes a number of points that differ between European and Africanist aesthetics, one of the key differences is the use of the torso. "In traditional European dance aesthetics," she writes, "the torso must be held upright for correct, classic form; the erect spine is the center – the hierarchical ruler – from which all movement is generated. It functions as a single unit."[192] In contrast, the Africanist dancing body "privileges flexible, bent-legged postures that reaffirm contact with the earth" and "[t]he component auxiliary parts of the torso – shoulders, chest, rib cage, waist, pelvis – can be independently moved or articulated in different directions."[193]

Gottschild's argument that most American dance forms are a combination of both European and Africanist aesthetics, in which the Africanist aesthetics often get

[191] Miller. 164.
[192] Gottschild, *Digging the Africanist Presence in American Performance*. 8.
[193] Gottschild. 8.

invisibilized,[194] leading to a lack of recognition of the contributions of people of African descent, is critical to understanding why it matters that *Dance Central* draws on dance forms much more strongly related to and reliant on the mobile Africanist torso than the stable/upright Europeanist one. The use of the Kinect, with its adherence to the standards/aesthetics of a Europeanist posture, invisibilizes the Africanist influences by requiring the hip hop, Latin, pop and funk dances of *Dance Central's* repertoire to conform to this upright posture to score well. Furthermore, because the technology tracks only one spinal point, a dancer can receive a high score for performing the limb movement with great accuracy in terms of timing, while failing to complete almost any movement of the spinal column, hips and shoulders.

As a student at dance technology pioneer Troika Ranch's Live-I workshop[195] in 2015[196], I learned how to use the visual programming software Processing to project the data from the Kinect to my computer screen. In my recent experimentations performing choreography from various *Dance Central* songs in front of Processing, I noticed that the singular spinal marker on the Kinect skeleton is always created equidistantly from the two shoulder points. This means that even when I bend my spine to one side in lateral flexion, the triangle of data points on the computer screen, created based on the Kinect's

[194] For an examination of invisibilization and the whitening of other dance forms see: Juliet McMains, "Brownface: Representations of Latin-Ness in Dancesport," *Dance Research Journal* 33, no. 2 (2001): 54–71, https://doi.org/10.2307/1477804; Danielle Robinson, "The Ugly Duckling: The Refinement of Ragtime Dancing and the Mass Production and Marketing of Modern Social Dance," *Dance Research: The Journal of the Society for Dance Research* 28, no. 2 (2010): 179–99.

[195] See the Troika Ranch website, https://troikaranch.org/about.html, for further details about the history of the company and the various technologies they have both employed and created.

[196] For several years, Troika Ranch offered weeklong summer intensive workshops, called Live-I workshops to guide artists in adopting technology into their work. The 2015 workshop, held in Portland, OR, focused on using the Microsoft Kinect to create live, interactive video projections utilizing the Kinect in conjunction with the Isadora software designed by company founder Mark Coniglio.

tracking, shows the shoulders staying level. In other words, the technology refuses to accurately depict my curved spine and instead straightens me. The Kinect imposes a skeleton over my figure, rather than following the full range of movement of my actual body.

Failures of Transmission

In order to address the gaps and blind spots, the failures of transmission and erasures of Africanisms, that I see taking place within the game, I now turn to a close reading of two performances of the *Dance Central* choreography for "Dip It Low" by Christina Milian. Many *Dance Central* gamers post videos of themselves performing the dances on YouTube, often in the form of a split screen video where the audience can see the *Dance Central* avatar and scoreboard on one side of the screen and the dancing/gaming body performing the movement on the other side of the screen. Miller notes that people post these videos for a variety of reasons, and that there is a community of active creators of such content that often interact with, encourage, and respond to one another. I chose to look at "Dip It Low" because there was a split screen posted of the choreographer herself, Frenchy Hernandez, and a split screen posted by avid gamer Laura223.[197] Hernandez was a full-time employee of the Harmonix game development company and she generated the choreography for about 30 tracks, second only to her colleague Marcos Aguirre in the number of dances she produced for *Dance Central*.[198]

[197] Full videos available at: Laura223, *Dance Central 3 | Dip It Low | Splitscreen*, accessed October 2, 2020, https://www.youtube.com/watch?v=dafTnqaUJYU; IGN, *Kinect: Dance Central Gameplay - "Dip It Low" on Expert*, accessed September 24, 2020, https://www.youtube.com/watch?v=y6Lqv4AEJeU.

[198] Miller. 153.

Laura223 is an active Youtube poster, with dozens of *Dance Central* video game posts and over two thousand subscribers to her channel.

In the description of her "Dip It Low" video Laura223 states, "This time I'm gonna show you how to get 100% in Dip It Low on Dance Central 3, because normally when you do "Wipe 'n' Dip" move 2nd time, the game counts as a miss or almost, even if you did the move right." Looking at how Laura223, a self-established authority on *Dance Central,* performs the dance next to the choreographer herself is not meant to be a critique of Laura223's performance but rather of the Kinect's ability to track the dancers' movements. I want to show that Laura223 is able to achieve markers of success according to the game despite not completing many movements fully because of the limitations in the Kinect's ability to track shoulder, spinal and hip movements. While I cannot offer a direct score comparison since Hernandez played the original *Dance Central* while Laura223 played the song through *Dance Central 3*, in watching the two dance alongside one another it is very clear that Laura223's "100%" final score comes based on the accuracy of the timing of her limb movements.

The dance is just under two and a half minutes long, opening with a movement identified as "Hula"[199] by the flashcard on the screen. The step uses both arms sweeping left in coordination with the hips, right arm across the torso, left arm high. This movement gets repeated to the right and then twice left. For this step Hernandez uses a deep bend of the knees to facilitate the range of motion with which she can shift her hips

[199] See Imada, on the imagined intimacy created between Hawaii and America which circulated hula in the United States in the 19302-1940s, prior to Hawaiian statehood, in an attempt to connect the two countries. The integration of a hula step into the dance game shows the success of this process, that a Hula step could be considered part of an American popular dance vocabulary.

from side to side. While the avatar executes a similar degree of hip shift to Hernandez, she loses the pronounced get-down stance. Meanwhile Laura223 has almost no knee bend; her reaching arm movements with a minimal shift of pelvis to either side are almost unrecognizable as stemming from the movement demonstrated by Hernandez.

Image 2.3 Pictured above from left to right: Hernandez, Avatar Taye[200], and Laura223 all perform the "Hula."

Further key examples of the discrepancy in the degree of movement of Hernandez's and Laura223's torsos arise as the song continues. After the "Hula", Hernandez moves on to the "Whisper." Following the stretch of her arms, Hernandez opens her hands to the left, then right, with a complementary movement in her upper torso and head—looking and leaning towards the hands as they stretch towards the side

[200] Screen shots of the avatar were drawn from the YouTube post of gamerkev, *Dance Central*.

of the room. Laura223 does not shift her upper body beyond her pelvis, nor does she turn her head. During the next movement, “Open and Close,” Hernandez steps forward as she extends her arms open beyond 180 degrees; the extreme extension at the shoulder joint shifts her chest forward. As she draws her arm back, she moves through a neutral position of the sternum before, again, jutting her chest out as her bent arms arrive, hands near armpits before a final stretch forward. In contrast, Laura223 performs the opening and closing of the arms without any response in her torso, holding a stiff, erect spine throughout.

The next three steps, “Waterfall”, “Perly” and “Smooth,” utilize a series of arm gestures accompanied by shifting hip movements. For “Waterfall,” Hernandez shifts her hips fluidly from side to side, using the circling of her wrists to gradually unfurl her arms. Laura223 mirrors the unfurling of the arms, but her wrist and hip movements are minimized. Then, Laura223 catches the hip shift in time to sync up the tapping of her right wrist by her left hand with the pulse into the right hip on “Perly,” but she loses the hip action once again on “Smooth,” emphasizing the slow peeling of the arm. In contrast, Hernandez uses the continuous shifting of her hips across the three movements to tie them smoothly together.

Just twenty seconds into the dancing, the difference between the two dancers’ execution is already pronounced. Three steps later, on the “Cowgirl” and the “Pop that Thing” steps, the difference between the two dancers’ performances becomes more extreme. On the “Cowgirl” Hernandez circles her left arm overhead, as if swinging a lasso, while performing concentric circles with her chest. The movement in her torso

reverberates down through the hips, which move in concert with her chest and the stomping of her right leg. Laura223, in contrast, circles her arm overhead and performs the stomping movement with her right leg with no movement in the torso. On the next move, the "Pop that Thing," Laura223 is all elbows, quickly popping her hands up in front of her chest, then back down to the height of her waist. She appears to initiate the step primarily from the rotator cuff. Meanwhile, Hernandez opens her arms forward more than up and thrusts her chest forward at the same time. In Laura223's version, the pop is in the arms, while Hernandez's pop takes place in the chest and is supported by the movement of the arms. In this case, the translation of movement from the choreographer to avatar plays a major role in the failure to transmit Africanist aesthetics; Laura223 appears to be faithfully recreating the avatar's performance of "Pop that Thing."

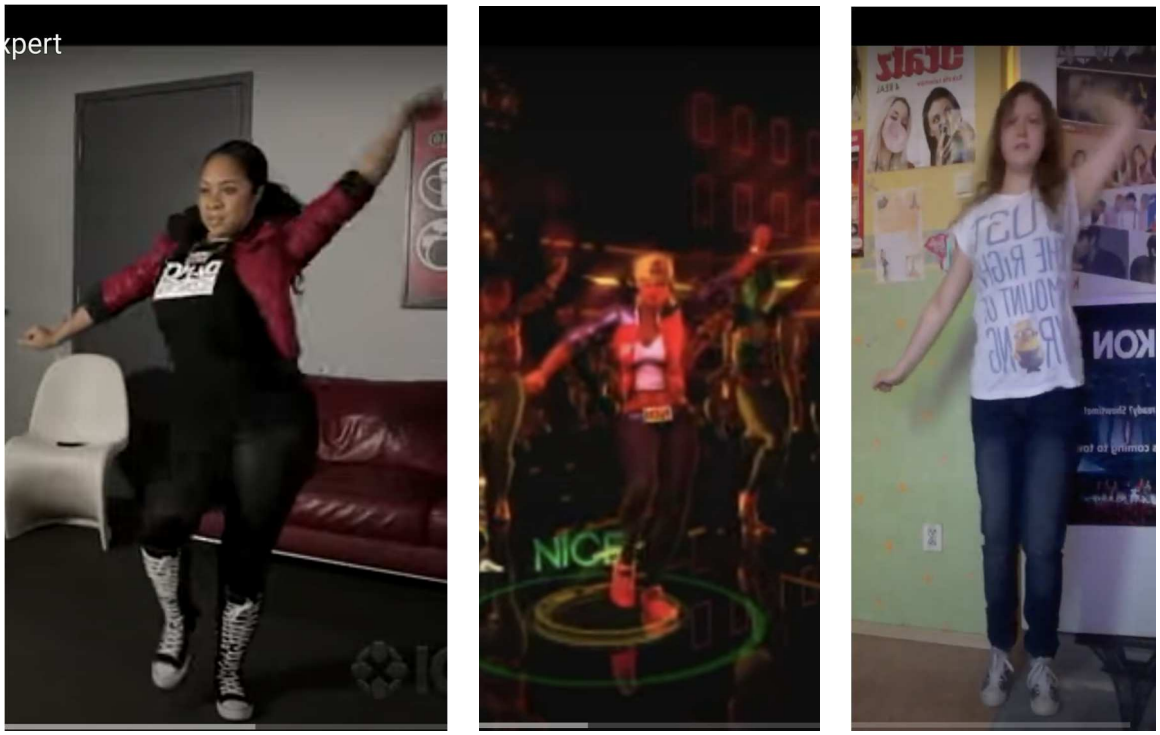

Image 2.4 From left to right: Hernandez, Avatar Taye and Laura223 all perform the "Cowgirl". Note the jutting out of Hernandez's hip to right and chest to left versus the symmetry of Laura223's posture.

After "Pop that Thing", the dancers move on to the "Beckon," a series of arm circles. Hernandez does one large circle of the arms across the transverse plane in front of her where her body responds with hips jutting out in the opposite direction from the arms circling. In the second smaller circle of arms, Hernandez allows the movement to ripple across her sternum before returning to the hip action in conjunction with another large circle of the arms. Like Hernandez, the avatar's hips do shift, creating a "get down" stance in the words of Gottschild. Laura223 keeps her spine much more vertical, isolating her first and third circle to arm movements without any accompanying shift of the pelvis. While her second smaller arm circle does include a slight ripple of the torso, it is not nearly as pronounced as Hernandez's.

Several movements later, after another "Cowgirl", comes the "Back Broke." As the name of the move suggests, there is a large quantity of spinal articulation involved when Hernandez performs the move. Hernandez includes an energetic thrust similar to that of the "Pop that Thing" but with an even greater degree of spinal extension. The avatar appears to initiate the movement from the sternum and does not achieve the same degree of spinal extension as Hernandez. Meanwhile, Laura223's performance of the movement once again appears to emulate from the elbow/shoulder, with minimal response in her spine.

The way the mobile torso of Hernandez gets minimized by the avatar and ignored by Laura223 is visible on the "Merge Back." Hernandez turns her body profile towards the Kinect, shifts her weight onto her left leg, and lifts her right leg in front of her body as she leans her torso back. The deep bend of her left knee allows Hernandez to hinge her torso so that her shoulders shift a significant degree behind her pelvis. She then uses this shift of her torso to generate momentum, rocking forward onto her right leg then back to the lifted left leg again. While the avatar follows the same basic mechanics, bending deeply onto her left leg to allow the right leg to lift and the torso to lean, the lean is far less extreme than Hernandez's. Laura223 maintains a straight standing leg and vertical torso. Because Laura223 does not gain the momentum from the lean, her steps following the lean are much more subdued, stepping underneath herself. Laura223's version appears more like a march than Hernandez's rocking action.

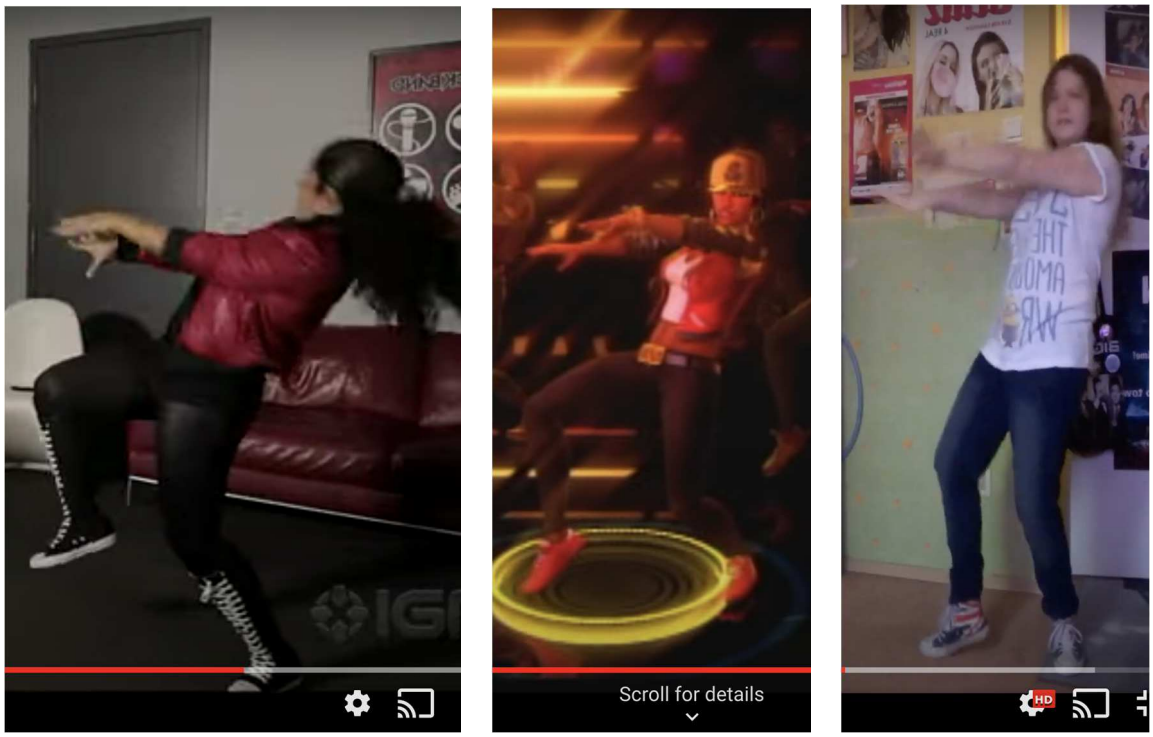

Image 2.5 From left to right, Hernandez, Avatar Taye and Laura223 all perform the "Merge Back". Note the shift towards a more vertical spine from choreographer to avatar to gamer.

Looking at the video footage of the living bodies of Hernandez and Laura223 alongside the virtual body of avatar Taye illuminates the diminishing of Africanist aesthetics that takes place in the visceral-virtual-visceral-virtual loop. Laura223 is Europeanizing the dance, de-emphasizing the movement of hips and maintaining a more static and upright torso than that of the original choreography, thus invisibilizing the Africanist elements. Although it could be argued that of course the person who created the choreography is going to perform it most accurately and fully, what I want to emphasize here is *how different* the two performances are and how significant the *racial implications* of those differences are; the major difference in the performance comes from a lack of movement in Laura223's center—reducing the hip and spinal movements from

those performed by both Hernandez and the avatar. Furthermore, the reduction of hip and spinal movements are not arbitrary changes; they are racially meaningful zones of movement.

While Microsoft is no longer producing the Kinect, the circulation of *Dance Central* songs on YouTube persists. Laura223 has continued posting new videos up to and throughout 2021. Even as *Dance Central's* reliance on Black and brown dance forms is central to the popularity of the game, the game divorces those same dances from the aesthetic priorities of their creators and the context and history in which they were created, following the larger trend noted by dance scholar Thomas DeFrantz: "Contemporary neoliberal currents of exchange push African American social dance forms to global audiences with a forcefulness that evacuates their aesthetic imperatives of regularized, community-based physical expression, toward terms of engagement that allow it to absorb participants who have no sustained contact with the corporeal fact of black people in the world." In the case of *Dance Central* it is not simply the rate of exchange but the technology itself which "evacuates aesthetics", pointing toward a broader need to approach the technologies we employ in our movement practices with more critical awareness.

While my first two chapters centered the way Black bodies and movements have been obscured or even eliminated by technology, in the next chapter, I examine the circulation of Black movement through visibly Black bodies. Looking at a series of car commercials and music videos, I examine how the hegemonic whiteness of technology is

both confirmed and complicated through these contradicting images of Blackness and technology.

Chapter 3

Mechanized Blackness, Superbodies and Afrofutures

A commercial opens with sunshine pouring through a fence. A man ties his boot, zips his jacket and then steps outside, revealing his identity as rock star Steven Tyler. An overhead shot reveals he is walking onto a track, before shifting to a shot of Tyler approaching a bright red car at the starting line. Another driver stands in front of a second silver car and watches as Tyler circles the car, opening the driver's side door. The camera jumps to a shot of the interior of the vehicle as Tyler fastens his seat belt. A close up reveals his hand pressing the car's start button, and then back to the mid shot of Tyler—both hands on steering wheel, eyes fixed on the road. The camera zooms in on a frontal shot of Tyler's rugged face, then a tight side shot follows Tyler's gaze as he looks down toward the gear selector, a close up on his hand as he throws the car into reverse. We see him looking back over his shoulder, as he begins to move away from the other car and driver, visible behind him through the windshield. Short shots reveal the outside of the car from behind and then directly in front as it peels out backward, dust shrouding the wheels. Tyler's viewpoint is shown, with a shot of the other man being left behind in the dust. Then, from a shot of Tyler, who is now gazing forward, the ad cuts to a close up of the rear-view camera screen. The logic of these shots connects Tyler's gaze to the screen, no longer having to crane his neck back to safely back up. A series of wider shots show

the maneuverability of the car as it peels around the track backwards. Finally, the car screeches to a halt and a young Tyler steps out.[201]

Images 3.1-3.4, Steven Tyler behind the wheel of the Kia Stinger, before and after it travels back in time. Screenshots of 2018 Kia Stinger ad "Feel Something Again"

According to the American Association of Advertising Agencies, car commercials cost more than those for any other product, in a large part due to the challenge of shooting the vehicle.[202] Because all of these commercials are produced with the same goal—demonstrating enough about the vehicle to entice consumers to purchase—there is a common set of tropes that most car commercials utilize. The commercial described in the previous paragraph was a 2018 Super Bowl spot for the Kia Stinger, and while the gimmick of having Steven Tyler travel backwards so fast that he reverses time is unique, many of the elements of the commercial are standard to the genre. As viewers we are

[201] "2018 Kia Stinger | Steven Tyler Big Game Ad – Feel Something Again - YouTube," accessed April 17, 2018, https://www.youtube.com/embed/0YVbVXOjJv4.

[202] Marty Bernstein, "MARKETING: Why TV Commercials Are so Costly," Automotive News, May 10, 2004, https://www.autonews.com/article/20040510/SUB/405100715/marketing-why-tv-commercials-are-so-costly.

introduced to the car through the actions of the star, revealing both the exterior and interior as he experiences these elements. There is a balance between wide shots that reveal the car in its entirety, demonstrating its technical capabilities, and close-up shots of the interior that focus our attention on the newest technological features of a particular vehicle. In Tyler's case the push button starter and rear-view camera are emphasized.

The Kia commercial, drawing on the star power of Tyler, not only fits the tropes of the genre, but can also be placed in a much larger conversation about representation. If, as Sherrill Dodds states in the concluding chapter of the *Oxford Handbook of Dance and the Popular Screen*, "The popular-screen dance body…constitutes a site through which social values are played out,"[203] then bringing a dance studies approach to the examination of car commercials is an ideal way to examine how relationships between technology and identity are being constructed. For example, within the Kia Tyler commercial, Tyler is positioned as the technological subject; he employs the technology of time travel via the Kia to present a younger version of himself to his adoring fans. A white man uses technology in a way that is immediately legible to the audience, because he is the user we are trained to expect to see controlling technology.

While many of the commercials I consider in this chapter do not feature movement that would generally be categorized as dance, these commercials are highly choreographed, from the movement of cars and bodies within shots, to the movement of

[203] Sherril Dodds, *Values in Motion*, ed. Melissa Blanco Borelli, vol. 1 (Oxford University Press, 2014), https://doi.org/10.1093/oxfordhb/9780199897827.013.028., 245.

the camera itself and finally through the editing.[204] In other words, car commercials utilize the technology of film to showcase the technology of automobiles and, in the process, reveal assumptions about the relationships between identity, embodiment and technology.

For example, in 1985 French car maker Citroën released a commercial featuring actress/ singer/ supermodel Grace Jones.[205] The spot, directed by Jean-Paul Goude, opens with a large replica of Jones's head rising out an otherwise barren desert landscape. The giant head emphasizes the unique androgynous features Jones is famous for – her strong cheekbones, chiseled jawline along with her signature flat top haircut. As the head rises, the eyes click open with a metallic clang to reveal shiny metal, no pupil or iris visible. As the head begins to turn to the right, the commercial cuts to a close up shot of the mouth, which opens to reveal metal slats along the side between the two lips. We see a close up of the shine of the metal slats, then a shift out takes us back to a full view of the head—just in time to see a car drive out of the mouth. Quite different from the Kia commercial featuring Tyler, the first image of this commercial is neither the car nor the celebrity, but a strange, mechanized version of the star. While Tyler's weird backward driving may be quirky, it also contributes to a message about the technological capability of the car. What does positioning Jones as a machine, separate from the car intend to sell us?

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[204] For a discussion focused on dance within advertisements see Colleen T. Dunagan, *Consuming Dance: Choreography and Advertising* (New York, NY, United States of America: Oxford University Press, 2018); Carla Stalling Huntington, *Black Social Dance in Television Advertising: An Analytical History* (McFarland, 2011).

[205] Jean-Paul Goude, *Grace Jones for Citroën*, 2016, https://www.youtube.com/watch?v=57OO9EGgdtg.

Image 3.5, 3.6 Screenshots from Citroen commercial featuring Grace Jones show the large mechanical head with metal slats for eyes and car exiting metal slats of mouth.

Once the car exits the giant mechanized Jones's mouth, the commercial does follow the traditional formula of shifting between views of exterior and interior of the car to reveal its capabilities. After shooting across the desert the car screeches to a halt and the camera transits around the car to focus on the front of the vehicle. A whistle blows. Jones's human face is finally shown in the driver's seat, but only through the side-view mirror as part of a montage. Within the commercial, Jones's human body is only shown inside of the automobile, enclosed within the machine that the mechanical Jones will come full circle to consume again at the commercial's end.

Images 3.7, 3.8 Screenshots from Citroen commercial featuring Grace Jones show Jones human face via the rear-view mirror and the mechanical head covering its mouth after burping.

The commercial closes with Jones driving back into the garage/mouth of the giant Jones head. Another close up of the lips follows as the head spins and the mouth closes. The eyes shut with a click, then a giant hand comes up as the mechanical Jones hiccups before dropping back down beneath the horizon. This very normal human gesture from the giant head provides a strange contrast with the attention placed up until this point on showing the head as mechanical. How does spending so much of the limited commercial time on Jones as a mechanical garage — the giant head is visible for approximately a third of the commercial—support selling vehicles?

Considering how differently Jones is positioned with this commercial than Tyler leads me to the central argument of my chapter. Rather than consider this commercial an isolated, bizarre piece of advertising, I argue that the positioning of Black people within car commercials as themselves mechanical/part of the technology is an example of a much larger trend of positioning Black people as outside the bounds of humanity, with a long history stretching back at least to Enlightenment era thinking. By looking at where commercials both adhere to and diverge from the traditional tropes of the genre, I will demonstrate that these commercials demonstrate the ways that ideologies about technology are not only related to those about race, but that the two continue to inform our reading and understanding of both.

Historicizing "the human"

The ways that society has positioned Black bodies in relation to technology is intricately intertwined with the treatment of Black people more broadly. There is a large

body of scholarship examining how white supremacist structures have positioned Blackness as either outside the bounds of the human or at the bottom of a hierarchal scale of humanity.[206] In "Unsettling the Coloniality of Being" Jamaican philosopher Sylvia Wynter traces the shifting ways that "Man" has been defined to justify racial discrimination beginning with the growth of humanism as part of the enlightenment era. Wynter argues that these shifts, beginning with the growth of humanism, were used to continue and expand upon the oppressions put in place by previous racial formations.[207] Wynter posits that humanism, under the guise of science, created a secular break from previous religious thinking as a way to justify and expand exploitation of non-European peoples. In the earlier Christian construction of humanity, non-Christians could gain access to humanity by accepting Christian doctrine. On the other hand, if a secular biological construction of Man were to be followed, then those outside its borders were not considered equal, and never could become equal. Thus, the growth of the natural sciences hinged on the development of racial discrimination.

Building on Wynter's work, Alexander Weheliye asks, "what different modalities of the human come to light if we do not take the liberal humanist figure of Man as the master-subject but focus on how humanity has been imagined and lived by those subjects excluded from this domain?"[208] He argues that just as Black people were beginning to

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[206] See for example: Hortense J. Spillers, *Black, White, and in Color: Essays on American Literature and Culture* (University of Chicago Press, 2003); Cary Wolfe, *What Is Posthumanism?*, 1 edition (Minneapolis: Univ Of Minnesota Press, 2009); Winthrop D. Jordan, *White Over Black: American Attitudes toward the Negro, 1550-1812* (UNC Press Books, 2013); Achille Mbembe, *Necropolitics* (Duke University Press, 2019).

[207] Wynter, "Unsettling the Coloniality of Being/Power/Truth/Freedom." 325.

[208] Weheliye, *Habeas Viscus*. 8.

have the freedoms from slavery and access to education to begin to position themselves as intellectual subjects, through the rise of natural and social sciences, white society continued to relegate them to a category of less than human. He posits that academia's role in this positioning has continued up through the present with the work of Black scholarship positioned as applying only to a particular subset of academic thinking, as opposed to white authors whose theories could be applied universally.

In her 2020 book *Becoming Human*, Zakiyyah Iman Jackson pushes Weheliye's and Wynter's arguments about how white supremacist structures have developed tracks of thought to separate and hierarchize Black people further. She insists that the positioning of Black people as separate is no accident, or shortcoming, but a purposeful framing, in which the proper white human and its limits were defined by contrasting a Black other. She states that "…Eurocentric humanism needs blackness as a prop in order to erect whiteness: to define its own limits and to designate humanity as an achievement."[209] She deploys the term plasticity to theorize this process of positioning Blackness in contrast with white humanity, arguing that "Plasticity is a mode of transmogrification whereby the fleshy being of blackness is experimented with as if it were infinitely malleable lexical and biological matter, such that blackness is produced as sub/super/human at once, a form where form shall not hold: potentially 'everything and nothing' at the register of ontology."[210]

[209] Jackson, *Becoming Human*. 4.
[210] Jackson. 3.

Jackson's explanation of how Black people have been positioned through plasticity helps articulate the different layers of representation within the Grace Jones commercial's strange contrasting elements. With plasticity, Blackness does not have to be lesser or different in only one way but, as in Jones's case, can show her positioned first as machine with the emphasis on the metal components of the giant garage head, then as human subject driving the car and then reverting to garage head, but strangely modified through the human gesture of the burp. Jones's shifting form follows this malleability Jackson describes with Jones positioned as "form where form shall not hold".

To examine the particular applications of plasticity that connect Black people with machines I turn to Luis Chude-Sokei's "The Uncanny History of Minstrels and Machines." Chude-Sokei explores shifting understandings of the role of both race and technology within America society from the 1830s-1920s, during the end of enslavement through the growth of industrialization and urbanization that followed. He argues that slavery and technology were the defining issues of the 19th century, and that because of the simultaneous anxieties emerging in society about the two subjects they became interwoven, "establish[ing] links between 'race' and that other significant twentieth-century sign of otherness, 'the machine.'"[211] On the one hand, the depersonalizing technology of industrialization was creating systems such as Taylorism and Fordism that moderated the movement of workers, regulating ways in which workers performed every

[211] Jean-Paul Goude, *Grace Jones for Citroën*, 2016, https://www.youtube.com/watch?v=57OO9EGgdtg. 111.

action in the name of efficiency.[212] At the same time, white people saw a greater degree of humanity being granted to African Americans in the post-enslavement era. Chude-Sokei argues that the swift changes in both race and technology became interconnected in people's minds.[213]

Chude-Sokei supports his claims about the entanglement of technology and race with the specific example of showman P.T. Barnum's presentation of Black woman Joice Heth as a human oddity. Heth was initially advertised to be over one hundred years old, but after being displayed alongside an automaton a newspaper article appeared claiming that Heth was also a machine. Chude-Sokei argues that the ease with which people accepted this claim and flocked to see her demonstrates the lack of humanity attributed to Black people. While Chude-Sokei's study is far removed from my own temporally, I would argue that the connection he exposed has continued to the present. Not only does his study focus on the period during which the technologies of both the film and automobile were developed, but he posits that the terms technology, race and culture became solidified as the signifiers for abstract processes in this period as well.[214]

While the terms technology, race and culture may have been solidified, the types of technology and racial formations that have impacted one another have continued to evolve. Wynter's theorizations of the development of Man note a distinction between the

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[212] For a detailed overview of the way anxieties about the intermingling of human and machine through industrialization were represented through dance see Felicia M. McCarren, *Dancing Machines: Choreographies of the Age of Mechanical Reproduction* (Stanford, Calif: Stanford University Press, 2003); Kate Elswit, *Watching Weimar Dance* (Oxford ; New York: Oxford University Press, 2014); Ramsay Burt, *Alien Bodies: Representations of Modernity, "Race," and Nation in Early Modern Dance* (London ; New York: Routledge, 1998).

[213] Chude-Sokei, "The Uncanny History of Minstrels and Machines, 1835-1923." 113.

[214] Chude-Sokei. 113.

Man1 constructed through Enlightenment era thinking using the language of natural sciences to show Black people as "deselected by evolution" to Man2, an economic framing of poor, homeless and jobless as the lowest class in a natural order, rather than based on systemic oppressions.[215] Dance scholar Judith Hamera's *Unfinished Business* explores the unease between bodies, race and technology created by de-industrialization in the later part of the 20th century. Hamera draws on Lott and Roediger to say that the white male image was built through this period in contrast to ideas and concern about African Americans, arguing that "the deindustrial also relies on figurations of African Americans to ease white anxieties around, and provide scapegoats for, industrial decline; to maintain the racial status quo; and to provide 'fetishistic escape' from its structures."[216] Hamera notes de-industrialization was portrayed as a white problem when it actually had a much greater impact on people of color and Black communities and particularly Black men who, according to Wynter, were then positioned outside the category of Man2 for their lack of employment. While my study is focused on race and not gender, I do think it is significant to note that my central two case studies that will be discussed in the following pages are men. Does positioning Black men in relation to machines ease the white imaginary's concern about our increasingly digitalized world?[217]

Dance studies scholar Naomi Bragin argues that even when people of color manage to produce their own images, as the Turf Feinz did in YAK FILMs production of

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[215] Wynter, "Unsettling the Coloniality of Being/Power/Truth/Freedom." 325.

[216] Judith Hamera, *Unfinished Business: Michael Jackson, Detroit, and the Figural Economy of American Deindustrialization* (New York, NY: Oxford University Press, 2017). 8.

[217] Jackson notes the Black woman was often limit case for animal vs human. This leads me to speculate about whether or not there is a relationship between the limit case of the Black woman as animal and Black man as machine.

RIP Rich D, they are often misread according to white aesthetics, disappearing the Blackness.[218] She suggests this erasure of Blackness can be seen within the filmic techniques deployed in its production:

> The jump cut fragments and jolts the dancers' bodies out of their fluid execution of movement, exposing the technology of capturing the body on film/ onscreen. The technique visualizes the body's restricted freedom of movement at the same time that it makes bodies disappear. Drawing attention to the camera as editing tool, the jump cut provides a metacommentary on the monitoring and control of black movement.[219]

Bragin's observations about how the film purposefully exposes the technological mediation inspires my methodology in this chapter. In my close readings, I consider not only how the technology of cars and bodies are positioned together on the screen, but also how the filmic techniques involved expose or obscure these positionings.

The remainder of the chapter is divided into three sections. In the first, I examine two car commercials where the plasticity that Jackson theorizes is demonstrated through the filmic techniques employed to align the car and body together within the spot. Building on the rhetoric of anti-blackness Chude-Sokei noted, in which a Black person could readily be compared to machine, I examine how the combination of camera work and editing within these commercials aid in the presentation of the Cartesian stereotype

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[218] See Marcus R. White, "Narrative Shifts: Race, Culture, and the Production of Screendance," for a discussion of how the artist attempts to counter the problematic spectacularization of Black and brown bodies by creating a platform from which artists could create "equitable and inclusive storytelling" in racially informed geopolitically specific works.

[219] Naomi Bragin, "Shot and Captured: Turf Dance, YAK Films, and the Oakland, California, R.I.P. Project," *TDR: The Drama Review* 58, no. 2 (2014), 106.

where the Black man is of the body. Both commercials were created by Lexus, for the 2017 and 2018 Super Bowl advertisements, and both emphasize the relationship between a Black man and a car. These examples demonstrate the power a dance studies lens has to reveal further insights into the relationship between us and our technology. I examine how the choreography of car as well as that of the human and the choreography of the film that connects the two work together to position Black men as simultaneously super/sub/human.

In the second section, I examine a series of music videos to note how filmic techniques can also serve to rupture the simple presentation of Black plasticity. In these cases, there is still a relationship to machine taking place, but the music videos frame these "othering" moments in such a way that they become transparent. The videos' structures help to keep reminding us that what we are watching are mediated/manipulated images. Though music videos and car commercials fulfill different functions, they share many similarities in aesthetics. Both use quick editing to maximize visual impact in the shortest amount of time. All four directors from the case studies I examine, moreover, have produced both music videos and car commercials, showing the cross-over between forms.

In the third section I draw on theories of Afrofuturism, a genre of scholarship and artistry that attempts to center Black voices and experiences in relation to technology and visions of the future, to revisit several of the previous examples. In this section I suggest that, regardless of filmic techniques, there are strategies for arriving at different understandings of the relationship between Black bodies and technology. I demonstrate

how Afrofuturist theory makes it possible for even white viewers like myself to see other configurations and possibilities.

Positioning Blackness as Technology

Visual Echoing in Lexus's Black Panther commercial

The Black Panther is a comic book and movie character from the Marvel Universe. In 2018 a full-length film was released featuring actor Chadwick Boseman as the title character. Journalist Christian Sylt notes that Lexus pursued a unique advertising partnership with Marvel to promote their LC 500 both within the film and in a series of advertisements. The Lexus appears as a central element in a five-minute car chase within the film and Lexus released several commercials which utilize characters from the film. In January of 2018, Lexus released a one minute extended commercial titled "Long Live the King."[220]

I am focusing my close reading here on this one-minute spot, but as my previous paragraph demonstrates, it is intertwined with the larger presentation of Lexus via Black Panther. Boseman, in his role as Black Panther/T'Challa within the commercial, is shown as super-human, subhuman and human, sometimes simultaneously, demonstrating the plasticity that Jackson theorizes. For clarity I will refer to him as Black Panther when in his superhero costume and T'Challa when dressed in his Wakandan wardrobe—a black suit with a scarf draped across one shoulder. On one hand, T'Challa/Black Panther is

[220] Samuel Bayer, *Lexus LS 500 F SPORT | Marvel Studios' Black Panther TV Commercial.*, 2018, https://www.youtube.com/watch?v=jQhsXd9qnA8.

positioned as a character, with a storyline, that accounts for his actions throughout. He is shown as King of Wakanda, a political subject. However, despite the moments that encourage the viewer to relate to him as a human, there are at least an equal number of moments that show him as machine-like. The commercial uses visual echoing to emphasize Black Panther's physical performance in a sequence that shifts back and forth between Black Panther running and the car speeding along. The superhero/superbody is taken to the extreme by aligning the two, suggesting the viewer read them in comparison with one another. Through this comparison of man to machine, Boseman exhibits the plasticity Jackson describes as "infinitely mutable;"[221] through his superhuman feats, he also becomes subhuman, possibly more machine-like than manlike.

From the opening comparison of man to car, the advertisement uses a combination of framing man and machine together within shots, or through editing in shots that appear to be related to create a visual echo. In other words, through camera work and editing the car and Black Panther are shown to be equivalent. This becomes apparent from the opening three shots. The first shot is a close up of the front of the car with Lexus logo centered and only a glimpse of headlights visible to either side. In the next shot, we see the Black Panther's head, arms extended to either side in a medium shot; he is in his superhero costume, shrouded in black, his mask leaves only his eyes visible and his arm muscles are accentuated both by his superhero suit and his pose. Deltoids and triceps bulging, Boseman does appear panther like, crouched and ready to pounce. From here a wide shot reveals that the Black Panther is riding atop the car,

[221] Jackson, *Becoming Human*. 11.

echoing a scene from the film. Why is Boseman on top of, rather than inside, the car? By opening with Black Panther on top of the car, we are directed toward his athletic prowess and how this prowess connects to the capabilities of the car from the very first glimpse. As viewers, we have been trained to see a person behind the wheel as a subject, as in the Kia Tyler example, where perhaps we too can relive our glory days if we drive the Kia Stinger. By breaking from this standard presentation and having the Black Panther on top, we are not asked to relate to him as another person but rather to attach the physical prowess and "cool" that he represents to our idea of the car we might want to own.

Within seconds Black Panther leaps off the car, tackles a few bad guys in an underpass, taking the technological wonder resource of Wakanda "vibranium" from them and placing it into the trunk. From his initial pose riding atop the car to his quick work with the vibranium thieves, Black Panther is shown as superhero/superhuman, or, using Sherrill Dodds's term, a "superbody." Dodds notes in "Values in Motion: Reflections on Popular Screen Dance" that popular screendance often features superbodies, bodies that "exceed the physical capacities of the live human body."[222] This presentation of Black Panther as superbody within the commercial could be argued as fitting within a broader history in which the actions of bodies together with the technology of camera and editing create something not possible in real life. Yet, the examples Dodds employs, such as the beyond-human movement created through digital technologies within the Matrix films, show bodies becoming super in relation to the limitations of live human bodies. In Black

[222] Dodds, Sherril. "Values in Motion: Reflections on Popular Screen Dance." The Oxford Handbook of Dance and the Popular Screen. Ed. M. Blanco Borelli. Oxford: Oxford University Press, 2014. 448.

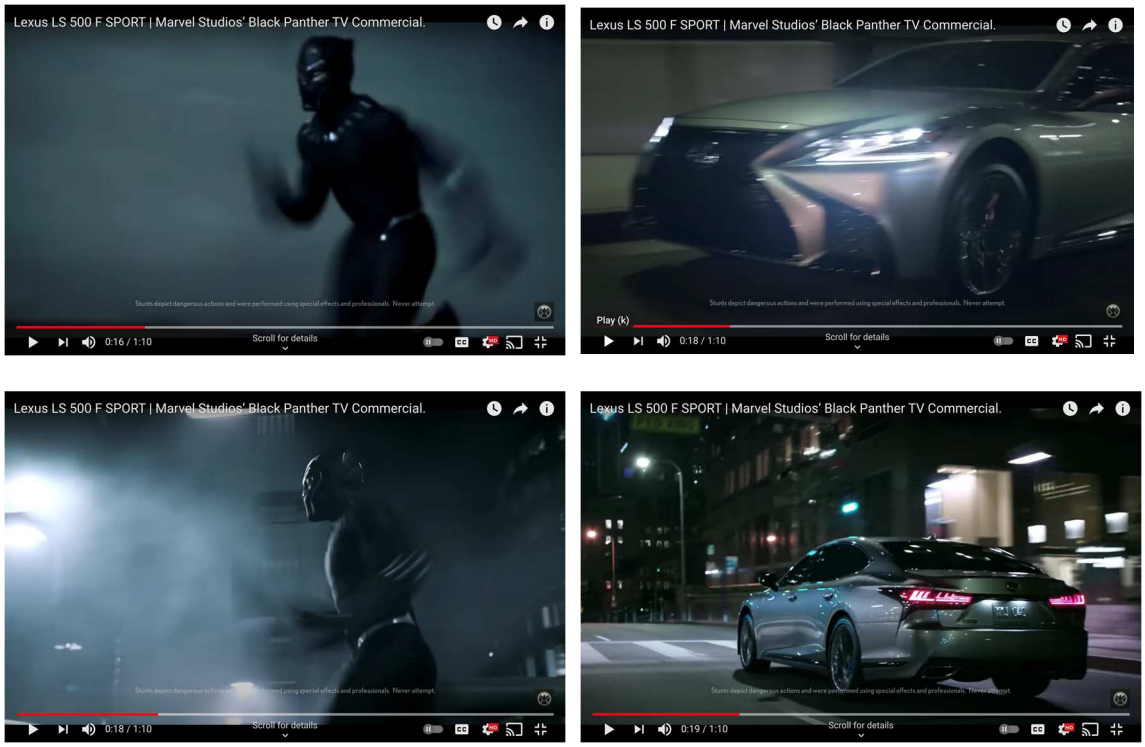
Panther's case within the commercial, he is shown as super primarily through the comparison between his physicality and that of the car.

Therefore, while Dodds points out the ways that different genres of dance are often used to depict a broader culture or are given some sort of metaphorical meaning, (for example she notes the many dance films that draw on ballet as a counterpoint to the social dance of the film), she fails to examine how the racial identity of particular dancers impacts how they are positioned and read. For instance, Dodds's example of how the character Baby from *Dirty Dancing* demonstrates her sexual awakening through her gradual mastery of the dance could be complicated by considering how our willingness as an audience to accept Baby's initial naivete/purity is intertwined with her whiteness. Chude-Sokei, on the other hand, notes that the ability to tie a Black person so readily to a machine in Heth's case was enabled by the long racist history of our country. Therefore, I believe that the commercial must be read in the context of this history, in which myths such as that of John Henry[223] have infused our collective consciousness with the machine-like capabilities of Black bodies.

As the commercial continues, we see how well-equipped Black Panther is physically to match the prowess of the vehicle. After Black Panther sends the guard on her way with vibranium safely in the trunk, he asks if his ride is ready. From this point the timing and sequencing of shots sets up a continuity between the actions of the car and

[223] John Henry is an American myth that has been recounted in blues songs, books and movies since the 1870s. In the story, the African American Henry was a steel driver for the railroad. When the steam drill was invented, Henry entered into a competition against the machine, winning but then dying of exhaustion. For a more detailed account of the legend see: "The Legend of John Henry: Talcott, WV," https://www.nps.gov/neri/planyourvisit/the-legend-of-john-henry-talcott-wv.htm.

those of Black Panther. Through a series of quick edits, we see Black Panther, then the car, shrouded in fog and moving from right to left across the screen. Black Panther is shown in partial profile, and as he exits the shot on the left the movement within the screen continues with the car. With only one headlight visible, the car travels in the same direction through the same section of the screen that Black Panther occupied a moment prior. From here a new camera angle shows the car, traveling from right to left across the screen before shifting back to the Black Panther, sprinting in the same direction. This visual echoing, from human to car, car, human and back to car, all takes place within two seconds. When watching at full speed what keeps me focused is the continuity of movement across my screen – a continuity maintained between car and "superbody."



Images 3.9, 3.10, 3.11, 3.12 Screenshots of Lexus's "Long Live the King." Note the timestamps, demonstrating how quickly the commercial shifts between images of moving man and vehicle.

After a few shots of the interior features of the car, the emphasis on Black Panther's physicality in relation to the car continues with another sequence of visual echoing. Black Panther's torso comes into view, arms pumping forcefully as the camera pulls back to reveal his extended stride. In the next shot, the car also moves from partial to full profile as it travels through the shot in the same direction. Black Panther sprints straight towards the camera, first in a long shot and then a mid-shot, as if he has caught up with us in a fraction of a second. The continuity of action is maintained as if Black Panther had arrived in line with the camera as the car zooms away from the camera in the following shot. From here, Black Panther pulls himself up onto a railing similar to the one the car has just passed. As with the previous sequence, all of this takes place in a matter of seconds. Returning to Dodds, here the "superbody" is created in part by showing us the car speeding by in between shots of the Black Panther sprinting. As a viewer, I understand them to be traveling at the same pace.

The next sequence of shots continues to emphasize the "superbody" of Black Panther, but there is a shift from his direct comparison to the car itself to the creation of a new relationship between him and the car in space. Again, through a quick back and forth between man and car, we see Black Panther drop off an overpass, through the moonroof of the car and into the driver's seat. In this sequence, we see the Black Panther crouching, ready to leap onto his prey, the car. Then, a close up of the moonroof is followed by a shot from behind the car as it zips towards the ledge where the following shot shows Black Panther standing, tall and ominous against the dark foggy sky behind him. With his knees bent, arms out, he looks ready for action, timing his attack on the car. After a shot

of the front of the car, we see Black Panther, now leaping up off the ledge; he floats buoyantly for a moment before descending into the car. The next shot comes from inside the car, looking up as the Black Panther drops, feet passing just to the side of the camera. This sequence finishes with a close up of Black Panther, profile on his mask as he lands in the driver's seat. A purple light shimmers across the mask and it melts away to reveal T'Challa.

As the mask reveals Boseman shifting from superhero to King, his relationship to the car also shifts. Not only is he now a being presented as a political leader, but his role within the commercial is updated to match what we often see within the genre—a figure we aspire to be like behind the wheel. T'Challa's brow furrows as he focuses on the road. A shot of the car zooming along is followed by a close up of T'Challa, as he shifts his hand from steering wheel to a nearby knob which he adjusts. Following the movement of his hand, we see the response in the shifting display on the dashboard. T'Challa is now operator of the technology. There are several shots of the outside of the car before returning to T'Challa's profile as he gives a subtle nod. He could be nodding along to the strong beat of the commercial's soundtrack, but in keeping with the earlier back and forth between him and the car, he now seems to be nodding in approval of the car's response to his driving. There are a few more shots of the car before we see him once again, leaning back in his seat, calm expression on his face. A voiceover begins in concert with the background noise of a crowd as T'Challa arrives at his destination: "Experience luxury performance that takes the crown. Presenting the all new LS 500. Long live the King". Camera bulbs flash in the background as T'Challa steps out of the car and a Dora Milaje

guard closes the door behind him. He finishes buttoning his suit jacket and begins to walk away from the car, with his two female guardswomen falling in step immediately behind him. Signs in the background read, "World Leaders Conference."

While the commercial concludes with Boseman positioned as T'Challa, operator of the technology we want to own, the first half of the commercial, emphasizing the capabilities of the car through its similarity to superhero, still resonates with me—as the advertisers intended. In a press release made in advance of the commercial's debut, Lexus vice president of marketing Cooper Ericksen stated: "There is an authentic match between the duality of both the Black Panther and the LS. The spot utilizes the Black Panther's life as a Super Hero and as royalty to show the two sides of the LS: performance and luxury."[224] Lexus attempts to sell us not just the advanced technology that Black Panther uses but also the advanced technology that performs like a Super Hero.

The contrast between Lexus's use of Black Panther's "super" abilities in how he is positioned in relation to the car and that of a white superhero can be seen in a commercial from just one year earlier, featuring Spider-Man. Spider-Man, played by white actor Tom Holland, is shown primarily in his alter ego as Peter Parker, a somewhat nerdy teenage boy nervously taking his driving test.[225] Like the Lexus commercial, this Audi commercial references the world of the superhero, with Parker (Holland) noting that

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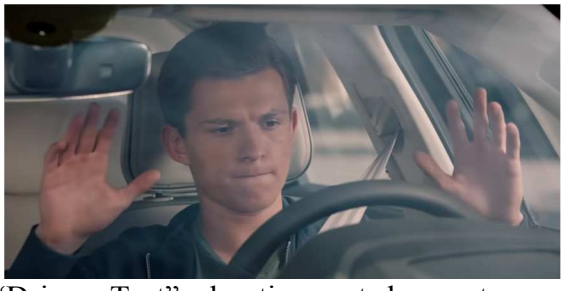
[224] "Lexus Releases Extended Version of Super Bowl Spot with Marvel Studios' 'Black Panther' | Toyota USA Newsroom," accessed May 17, 2018, http://pressroom.lexus.com/releases/lexus+releases+extended+version+super+bowl+spot+with+marvel+studios+black+panther.htm.

[225] Jody Hill, *Spider-Man: Homecoming: Driver's Test Audi Commercial - Tom Holland | ScreenSlam*, 2017, https://www.youtube.com/watch?v=bGuHgRQSEuk.

he's borrowing his friend Tony's car. Viewers familiar with the Marvel franchise will know that Tony Stark is the alter ego of Iron Man, a character whose superpowers rely on his technological creations.

Similar to the Black Panther commercial, both advertisements tie the characters' access to advanced technology to the promotion of their vehicle. For example, Parker is able to ace the dreaded parallel parking portion of his driver's test with the hands-free parallel parking feature of the Audi. However, one major difference is the positioning of Holland's physical prowess. For the majority of the commercial we see him behind the wheel, following the directions of the man supervising his driving test. Only at the end, while his driving instructor is tallying his score does Spider-Man dash from the vehicle to take on "bad guys" attempting to rob a bank. While Spider-Man's superhuman abilities are demonstrated— we see him swinging through the shot to stop said bad guys and then on his feet punching and restraining them—his physicality is never compared to the capabilities of the car. He is shown as an operator of advanced technology, not himself as said technology.

Images 3.13, 3.14 Screenshots from Audi's "Drivers Test" advertisement show actor Holland, playing Peter Parker, behind the wheel

Image 3.15 Screenshot from Audi's "Drivers Test"

Fragmenting Lil Buck in Lexus's "Man as Machine"

In 2017, Lexus released a commercial even more extreme in comparison of man to machine than the Black Panther example. While the visual echoing within the Black Panther commercial still features a full intact body, Lil Buck is broken down into parts to compare to the car through a combination of close-up shots, quick editing and splicing together of images. And when his full body is present, he does not fit the mold of the usual celebrity car driver. The spot opens with several quick shots: the hooded top of Lil Buck's head; then, the front of the car with headlights beginning to glow; next, a closeup of Lil Buck's face as he opens his eyes. The glow of the headlights still lingers in the viewer's gaze as the whites of Lil Buck's eyes appear, beginning the direct one-to-one comparison between the dancer's body parts and pieces of the machine. While the spot is titled "Man and Machine", man *as* machine might be a more accurate depiction of the action.[226]

Street dancer Lil Buck, born Charlies Riley, was raised in Memphis where he became involved in the dance form known as jookin'. In 2011, director Spike Jonze

[226] Jonas Akerlund, *Lexus LC "Man and Machine" – Extended Cut*, 2017, https://www.youtube.com/watch?v=DD7kOXgBQx8.

posted a video to YouTube of Lil Buck dancing to the Dying Swan performed by world famous cellist Yo-Yo Ma, which went viral, catapulting his career.[227] From that point, he was named one of 25 to watch by Dance Magazine in 2012 and has since performed in high profile events such as Madonna's Super Bowl halftime show in 2012, acted as a guest judge on the popular television show *So You Think You Can Dance* and appeared alongside world famous ballet dancer Mikhail Baryshnikov in an extended commercial for rag and bones.

The pairing of Lil Buck alongside famous ballet dancer Baryshnikov not only demonstrates the level of recognition Lil Buck had achieved before being sought out by Lexus, but the commercial also demonstrates many of the key points Colleen Dunagan makes in her 2018 *Consuming Dance: Choreography and Advertising* about the role of dance within commercials.[228] Dunagan's extensive overview of 840 commercials focuses on the unique intertextual screen space of advertisement and the major role that dance plays within advertising today. Dunagan notes the way that commercials function as assemblages, following the theories of Deleuze and Guattari, to bring together varying elements. In the rag and bones short film the featured dancers move amongst a series of stationary models, shifting between showing off the clothing and showing off their dance moves. The advertisement sits not in the zone of dance, but a combination of fashion, dance, acting and film, with extremely prominent digital editing emphasizing the timing

[227] Spike Jonze, *Opening Ceremony Blog Exclusive - Spike Jonze Presents: Lil Buck and Yo-Yo Ma*, 2011, https://www.youtube.com/watch?v=C9jghLeYufQ. As of May 10, 2021 the video has 3,539,721 views.

[228] rag & bone films, *Rag & Bone Men's Fall/Winter 2015 Film Feat. Baryshnikov and Lil Buck*, n.d., https://www.youtube.com/watch?v=2rFRTyfwBH8. "In celebration of the FW15 menswear collection, rag & bone debuts a short film as a study of movement featuring Mikhail Baryshnikov and Lil Buck"

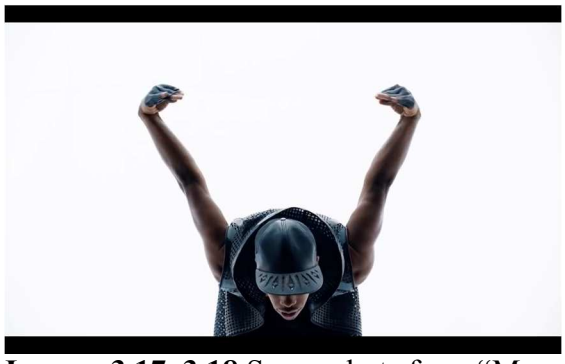
of the accompanying music. Dunagan also draws on Guy Debord's work on spectacle, arguing that "commercials employ dance as a vehicle for the amplification of consumption-as-spectacle."[229] Through numerous examples Dunagan demonstrates a variety of ways in which spectacle is employed to generate nostalgia and bring the viewer into a sense of connection with the dancers, and through the dancers, the product at hand. For example, within the rag and bones commercial, audience members are asked to connect their knowledge of Baryshnikov as a dance icon to the new dance king, Lil Buck, who shows his dominance by beating Baryshnikov at chess just before the end of the advertisement. In contrast, rather than connect us to Lil Buck, the Lexus commercial splits and segments his body in such a way that creates further distance between the viewer's whole body and Lil Buck's fragmented one.

For example, the opening series of shots show either an extreme close up on one of Lil Buck's body parts, or a mid-shot in which he isolates a body part through his dancing. Then, the first shot featuring both Lil Buck and the car positions them together not in one single shot but by splicing two shots together on the screen. On the left side, Lil Buck is facing away from the camera and unfurling his arm. On the right side, a car engine hovers in isolation, giving the appearance that the engine has replaced the right side of Lil Buck's body.

[229] Dunagan, *Consuming Dance*. 7.

Image 3.16 Screenshot of split screen image of Lil Buck and engine in "Man and Machine"

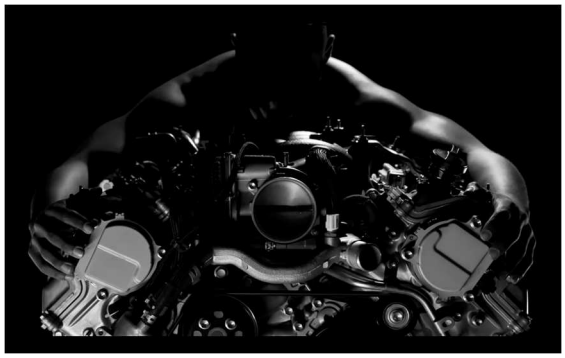
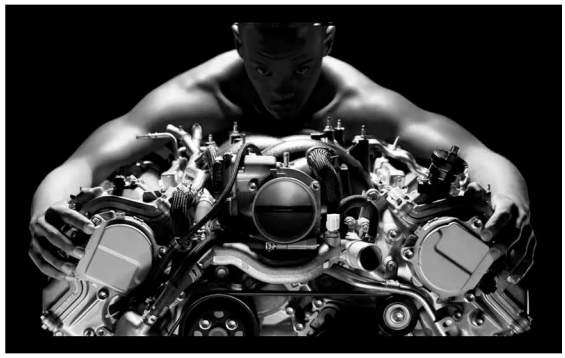
From here the quick sequence of shots of Lil Buck isolating movement to a single body part is interspersed with shots of the car. Like the visual echoing of the Black Panther commercial the quick cuts between car and man lead me to connect the two. For example, a shot of Lil Buck bending forward and extending one arm upward is followed by a shot of the front drivers-side headlight. From here, a shot of Lil Buck extending both arms upward is followed by a shot of the car's break lights. These visual echoes differ from the Black Panther commercial; rather than compare the movement of the entire body to the car, the commercial shows segments of Lil Buck's body molding themselves to match specific pieces of the car (such as the lights in the example described above).



Images 3.17, 3.18 Screenshots from "Man and Machine" advertisement show Lil Buck matching the lines of the vehicle with his actions.

Within the first half of the commercial, the only movement in shots of car is created by light, with the lights in the space gradually rising to reveal the car. The first

time Lil Buck and the car appear together not as a split screen, but in the same shot, a similar reveal of car through increasing light is executed as Lil Buck gradually lifts his head. By using the same lighting reveal that has been used up until now exclusively on the car, the advertisement is signaling to us that in this shot, Lil Buck is part of the car. This is the first of three such shots. Each takes place against a black backdrop, with low light so that the distinction between human and machine is minimized, and a portion of Lil Buck's body appears melded to the engine.

Images 3.19, 3.20 Screenshots from "Man and Machine" as the lights come up on Lil Buck and engine.

Like the Jones commercial, there is far more time spent showing Lil Buck as machine than as operator of machine. While he does "pour" himself into the car and place hands on steering wheel midway through the commercial, he is then shown once again dancing outside the vehicle, moving alongside the car as it peels out of the white box into a larger industrial looking space. The commercial cuts rapidly from Lil Buck's finger pressing the start button to the engine revving under the hood. This quick sequence continues with a close up of the tachometer's glowing display, then Lil Buck's elbows rising to either side of the engine, before returning to the tachometer. In this moment, Lil

Buck has been integrated into the workings of the machine—the engine appears to have become his torso and his head is not visible.

Unlike the Kia commercial that hints at the limitless potential of driving the car that Stephen Tyler drives, this commercial emphasizes the potential of driving a car that moves as nimbly as Lil Buck. It is not until twenty seconds into the one-minute spot that Lil Buck appears as a full figure alongside the car. Once he is shown next to the car, however, the same visual echoing used in the Black Panther commercial becomes prevalent. The car zooms out of the white box in which the first half of the commercial was set into a larger industrial looking space. Then, Lil Buck lunges forward with his spine rippling in response, as if he has received whiplash from the sudden movement. Next, a shot of the car from behind as it continues onward. We see the car completing a tight turn around Lil Buck as he spins on one foot. Lil Buck's arms are pushed back and his free leg is extended behind him. Then, Lil Buck is shown alone in the white box space spiraling upward. Finally, the car is once again circling the turning dancer in the industrial space. Both Lil Buck and the car are demonstrating the range of their movement potential.

Images 3.21, 3.22 Screenshots from "Man and Machine" Split screen images of segments of both Lil Buck's body and the car.

Drawing on Jackson's term once again, the plasticity of Lil Buck's body is extreme. Throughout the commercial, he is compared both whole and in segments to a variety of different parts of the car. His hand can be both the side view mirror and the bottom of the tail-light. His torso can be the curve of the car's exterior and the engine within. Furthermore, even after Lil Buck is shown as a full-bodied dancing figure in the second half of the commercial there are still returns to the split screen presentation. His hands gesture quickly as they extend out from a spinning wheel forty-five seconds in. His feet pump up and down in time with a series of pistons at fifty-three seconds. Plasticity applies not only to Lil Buck's physical appearance but to the context given to his movements. His feet can pump like pistons or glide along smoothly, like the speeding car.

Images 3.23, 3.24 Screenshots from "Man and Machine" show Lil Buck matching the lines of the car with his actions.

In the rapid-fire editing of the commercial there are ninety-six shots in just under a minute. Eight of these show Lil Buck in split screen with the car, four with him melding into the engine itself and only one shot with him behind the wheel as driver. He continues

dancing right through his entrance into the car to arrive for a brief, blurry moment behind the wheel, before once again being shown outside the car, dancing along with it.


Images 3.25, 3.26 Screenshots of "Man and Machine" Lil Buck slide/dances his way into the car and his face remains a blur when behind the wheel.

Lexus's attempt to capitalize on the cultural capital of street dance, featuring Lil Buck as a machine—reproducing ideologies of race and using Black culture as if it can be isolated from history and politics—fits into a trend that Dunagan notes regarding the role of race in dance advertising. Dunagan argues that "mass media's transmission of black social dances beyond their communities of origin reproduces ideologies of race in America even as it seemingly embraces Africanist aesthetics."[230] It might be argued that using street dance in comparison to luxury vehicle is a compliment and a recognition of the technical virtuosity that Lil Buck deploys. However, following Dunagan's argument, there is no context for the dance as he is literally dancing in an empty box and the only context we are given to understand and interpret him is the plasticity with which his body is molded and shifted to represent different parts of the car.

[230] Dunagan. 124.

Music Videos that Rupture

I move now to an examination of the music videos "Slave to the Rhythm"[231] and "Crazy, Classic, Life."[232] Like car commercials, these videos which both center cars, show the relationship between a person and a technology through a series of quick action shots. Music videos and commercials share a similar aesthetic, and both are created to sell something—whether it be a product or an artist's music. However, while the Black Panther and Lil Buck examples show how filmic techniques can enable problematic readings of Black people, these examples do the opposite. Through the editing organization as well as effects employed within the music videos both "Slave to the Rhythm" and "Crazy, Classic, Life" show the mediated nature of the relationship being presented between Blackness and technology. I draw on these particular examples not only because they utilize cars as a key site of technological interaction, but also for the relationship they share with Afrofuturism, which I will expand upon in the next section.

The Citroen commercial featuring Grace Jones that I described at the beginning of the chapter is included, almost in its entirety, in her 1985 music video "Slave to the Rhythm."[233] Within the music video the strange garage head is one of a many possible representations of Jones. While her image is subjected to an extreme degree of plasticity within the music video there is also a degree of transparency regarding that plasticity.

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[231] Jean-Paul Goude, *Grace Jones Slave To The Rhythm*, 2017, https://www.youtube.com/watch?v=8Mp1t-26bKk.

[232] Alan Ferguson, *Janelle Monáe - Crazy, Classic, Life [Official Music Video]*, 2018, https://www.youtube.com/watch?v=cx30_oXJDaY.

[233] Jones's representation in both this commercial and music video is certainly complicated. For a discussion of how much choice Jones had in the crafting of her image, see scholars Kara Keeling and Francesca Royster.

From the very opening shot, the video is framed not as the "real" Jones, but as a series of manipulated images of Grace Jones.

While the commercial opens with the garage head of Jones rising out of the desert with no explanation or context, the music video opens with an image of an image, framing the rest of the video as part of a larger manipulation. In the opening shot a view of white fingers holding something in place on a drawing board are visible before a tool slices across the screen. The second shot reveals that the image being sliced is a photo of Grace Jones. The white fingers slowly pull the pieces apart and because of where the image was sliced it appears her mouth is gradually opening far beyond a reasonable degree. Then, through a series of quick jump cuts, we see Jones's mouth fill in the expanse as copies of the same photo are assembled together to increase the size of her hair and mouth. In the era before photoshop, we see Jones's image being altered through analog means. Opening with this image of Jones's alteration by a white set of hands establishes that what follows is an alteration made with white interference.

Whereas there is no context to understand the giant garage head in the commercial, within the music video many other altered versions of Jones are presented both before and after the commercial, setting the garage head's arrival up as one in a series of modified images of Jones. In addition to the surrounding images, the sound that accompanies the garage head's rise out of the desert strongly impacts how I experience the image. The commercial opens with a series of clanging noises as the garage head emerges, with a loud click as the metal slat eyes pop open and an even louder series of clangs as the metal slots alongside the mouth appear, allowing the mouth to expand and

let the car exit. Within the music video, this mechanical soundtrack is not present. Instead, Jones begins singing a verse just as the head rises, so that we hear the line "man, machine, power line" just as Jones's human face appears gazing at the viewer through the side-view mirror of the car. Without the mechanized soundtrack drawing my focus, I am reminded as the garage mouth expands to release the car of the earlier manipulation to Jones's mouth with the splicing of the photographs.

Within the frame of the video, the garage head is just one more example of the way technology has been used to alter Jones. The video could even be read as a commentary on that technological manipulation—so many Joneses, do we ever see the real Jones, or is everything a technological illusion?

A more recent example of filmic techniques emphasizing the mediated nature of an image comes through singer Janelle Monáe's "Crazy Classic Life." In line with the theme of this chapter, the music video features Monáe behind the wheel of a car, following many of the tropes of celebrity car commercials. While the role of the car as technology within the video will be discussed in detail in the next section, here I focus on how the filmic techniques within the video emphasize its' mediated nature.

"Crazy, Classic Life" is part of Monáe's 2018 'emotion picture' *Dirty Computer.*[234] Within the trajectory of the larger film, "Crazy, Classic, Life" is a memory that the white men who are removing Jane's memories (Monáe's character in the film is introduced as

[234] See Carol Vernallis et al., "Janelle Monáe's Dirty Computer Music Video/Film: A Collective Reading," *Journal of the Society for American Music* 13, no. 2 (2019): 250–71, https://doi.org/10.1017/S1752196319000154; Marlo D. David, "On Dirty Computers and Dissemblance," *Signs: Journal of Women in Culture and Society* 45, no. 3 (March 1, 2020): 541–46, https://doi.org/10.1086/706517. for a discussion of the entire film.

Jane 57821) come across as they are "cleaning" her. Whether watched as part of this larger film, or as a music video in its own right, the effects used within the film – little blips that break the continuity of a scene – remind the viewer that we are watching something, on the outside, separated by the technology of the screen. Similar to the Jones video's use of white fingers slicing Jones image in the first shot, Monáe's video reminds the viewer that the images we're seeing are manipulated. If considered within the context of *Dirty Computer*, both videos show Blackness technologically manipulated within a white supremacist framework, as the characters shown directing the removal of Jane 57821's memories are all white. In the longer film, a series of lightning quick shots of a party Jane and her friends attend demonstrate the external white interference into Jane's memories. The final shot from Jane's memories of the party is blurred; Jane places her finger on the cheek of another person and interference, almost like a bad TV signal or bad VHS tape, transitions us to an image of Jane behind the wheel, music blasting.


Images 3.27, 3.28 Screenshots of "Crazy Classic Life" show the transition from blurred initial image to clear image of Monáe behind the wheel.

I would argue that whether considered within the larger film or not, there is enough further manipulation within this video to cue the viewer to the digital alteration of the images throughout. For example, within a few seconds of Jane's appearance in the car there is another moment of distortion. A line through the middle of the shot shifts bits of the image

out of place. The break from the way our human eye sees, with what is more reminiscent of a moment of digital disturbance, a "bug" in the scene, emphasizes the materiality of the film itself, able to be distorted and changed.

Image 3.29 Screenshot of "Crazy Classic Life" shows the digital disturbance to the image.

These visual bugs, rupturing the images onscreen, serve as transitions between scenes and continual reminders of the layers of mediation these images are being subjected to. The first bug comes just six seconds into the video, as a transition from the foreshadowing of the party to the car scene. The next arrives almost a minute into the video. After being pulled over and then released, the two women in the car get out and go open the trunk. As Jane smiles down, and we see someone begin to climb out of the trunk, a blip mars the image for a moment. The blip is a major enough distortion that it catches my eye, but small enough that it does not limit my understanding of the action within the shot. Three women climb out of the trunk and are moving around the car to get in the vehicle as passengers when a larger moment of distortion breaks up the image and white noise accompanies the shift to a new scene. This twenty second interlude concludes with another moment of distortion as the scene of the five women, now all seated in the moving car, continues.

There are two more moments of digital disturbance within the video. Both take place during the chorus of the song. The first time Monáe arrives at the chorus as she sings "crazy" and stretches her arms out the video pulses, almost as if the energy of Monáe's gesture was too much to be contained by the video.[235] The same pulsing action takes place as Monáe sings "crazy" a second time, about ten seconds later.

Image 3.30 Screenshot of "Crazy, Classic Life" as Monáe throws her arms up and the screen pulses.

On Monáe's second time singing the chorus the disturbance becomes much more extreme and no longer appears as if she is initiating it. While the earlier "bugs" all served as transition moments that resolved within a second or two at most, this series of ruptures does not serve as transition between scenes and with four blips spaced out over twelve seconds, creates a sustained period of disturbance. Each blip on its own is minor, not fully marring the image on screen, but the continual deployment of these manipulations once again brings to my attention the mediated nature of what I am viewing. These digital manipulations are interconnected with the narrative of Monáe's video. In order to say

[235] For a discussion of the central role that gesture has played within Monaés previous music videos see: Aleksandra Szaniawska, "Gestural Refusals, Embodied Flights: Janelle Monáe's Vision of Black Queer Futurity," *The Black Scholar* 49, no. 4 (October 2, 2019): 35–50, https://doi.org/10.1080/00064246.2019.1655371.

more about how the filmic techniques work alongside that narrative, I move briefly first a discussion of Afrofuturism, the genre Monáe works within.

Centering Blackness in Technology: Afrofuturism

Science fiction often takes place in a "colorblind" future where race is not mentioned. However, context demonstrates the "universal" viewpoint of these worlds is in fact white, much like the technologies themselves that get posited as universal. Afrofuturism, on the other hand, centers Blackness. The term Afrofuturism was coined by cybertheorist and author Mark Dery in 1994 to describe "[s]peculative fiction that treats African-American themes and addresses African-American concerns in the context of twentieth-century technoculture—and, more generally, African-American signification that appropriates images of technology and a prosthetically enhanced future."[236] Dery argues that, while the production of science fiction writing by African American authors has been limited, there are many other sites from which African American voices theorize about the future. He cites the existence of Afrofuturism in the art of Jean-Michel Basquiat, the music of Jimi Hendrix, Sun Ra, Parliament-Funkadelic, Milestone Media's Hardware comics and the grafitti and performance of b-boy Rammellzee.[237]

In the late nineties and early 2000s sociologist Alondra Nelson developed Afrofuturism into "a coherent mode of critical inquiry"[238] editing a volume of the journal

[236] Dery, *Flame Wars*. 180.
[237] Dery. 182-187.
[238] Lisa Yaszek, "Afrofuturism, Science Fiction, and the History of the Future," *Socialism and Democracy* 20, no. 3 (November 1, 2006): 41–60, https://doi.org/10.1080/08854300600950236.

Social Text centered around Afrofuturism. In the Introduction to the volume Nelson presents Afrofuturism as a counterargument to the dominant societal image of Blackness as either absent from technology or unskilled in creating and deploying technologies. Nelson looks to Black cultural productions that "turn the reified binary between blackness and technology on its head" and defines Afrofuturism within her collective as "African American voices" with "other stories to tell about culture, technology and things to come."[239]

In the 21st century, Afrofuturism has continued to grow within both popular culture and scholarship.[240] For example, the blockbuster success of the film *Black Panther* in 2018 brought the term into wider circulation as popular news outlets published articles about the genre.[241] The film also sparked an abundance of critical examination.[242]

In my dissertation up to this point, I have primarily focused on how the dominant white views and creations within technology have limited the visibility of Black people and their contributions. Even within this chapter, where Black bodies are visible on

[239] Nelson, "Introduction: Future Texts."

[240] Philip Butler provides a detailed survey of the growth of Afrofuturism as a scholarly field and its relationship to critical Black studies in *Critical Black Futures: Speculative Theories and Explorations*.

[241] See for example: Alexander Fitzpatrick, "It's Not Just 'Black Panther.' Afrofuturism Is Having a Moment," *Time*, accessed May 13, 2021, https://time.com/5246675/black-panther-afrofuturism/; Hope Reese, "How the Afrofuturism behind Black Panther and Get Out Combines Social Justice and Sci-Fi," *Vox* (blog), February 26, 2018, https://www.vox.com/conversations/2018/2/26/17040674/black-panther-afrofuturism-get-out.

[242] The *Cambridge Postcolonial Literary Inquiry, Journal of Future Studies* and journal *Image & Text* all published special editions responding to the film. Adélékè Adéẹ̀kọ́, "Introduction," *Cambridge Journal of Postcolonial Literary Inquiry* 7, no. 2 (April 2020): 103–6, https://doi.org/10.1017/pli.2020.2; Lonny Brooks et al., "Introduction to the Special Issue When Is Wakanda: Afrofuturism and Dark Speculative Fiction," *Journal of Future Studies* 24, no. 2 (2019): 1–4; Beschara Karam and Mark Kirby-Hirst, "Guest Editorial for Themed Section Black Panther and Afrofuturism: Theoretical Discourse and Review," *Image & Text*, 2019, 1–15.

screen, as Bragin states, they are still framed by dominant antiblack rhetoric and, as Dunagan notes, are often shown without cultural or historic context. Yet, as the music videos of Grace Jones and Monáe demonstrate, rather than shying away from the positioning of Blackness as "other," some artists have chosen to highlight these comparisons. I return to Jackson to consider this layer of complexity in the alignment of Blackness and technology. One of Jackson's central arguments is that rather than arguing for "recognition as human as the solution to the bestialization of blackness", Black expressive culture offers theorizations with the potential to overturn the category Man.[243] She notes that her case studies are not always framed as explicit critique but "instead, they often just get on with upending and inventing at the edge of legibility."[244] In the following close reading, I revisit Monaés "Crazy, Classic Life" to argue that she pursues an agenda similar to that of the artists Jackson theorizes about.

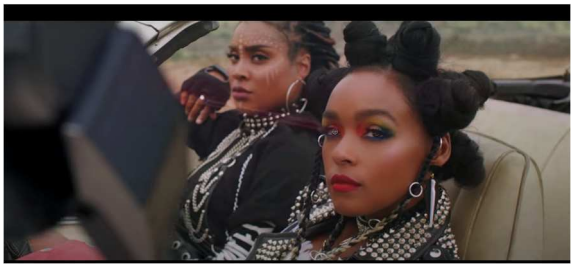
As mentioned previously, the music video begins with a familiar trope from the car commercial genre—a celebrity behind the wheel. The camera travels along with Monáe, keeping her framed from shoulders to head in her position in the driver's seat as she and her friend, another Black woman, bounce along to the music on the car's radio.

What my above discussion did not mention was that within a few seconds of the women cruising down the road, the sounds of a siren disrupt them. In the next shot the car is shown from behind as Monáe's friend rises out of her seat slightly to look over her

[243] Beschara Karam and Mark Kirby-Hirst, "Guest Editorial for Themed Section Black Panther and Afrofuturism: Theoretical Discourse and Review," *Image & Text*, 2019, 1–15; Lonny Brooks et al., "Introduction to the Special Issue When Is Wakanda: Afrofuturism and Dark Speculative Fiction," *Journal of Future Studies* 24, no. 2 (2019): 1–4; Adélékè Adéẹ̀kọ́, "Introduction," *Cambridge Journal of Postcolonial Literary Inquiry* 7, no. 2 (April 2020): 103–6, https://doi.org/10.1017/pli.2020.2. 4.

[244] Jackson. 4.

shoulder. Returning to the side shot, Monáe mouths the word "fuck" as she pulls over. A Black person being pulled over for no obvious reason is a familiar scenario,[245] but as Monáe pulls over it becomes clear there is something unique about this encounter. She's not being pulled over by a police officer, but a floating orb that almost looks like a mini-Death Star. Furthermore, as the camera zooms out to show the orb approaching, the entire car becomes visible hovering above the road with no wheels. As the orb pulls up alongside the car, the familiar (surveilling and over policing of Black bodies) continues to intermingle with the novel (the modes of technology employed). Monáe and her passenger both pull out colorful triangle ID badges. "Prepare for retinal scan" the orb announces before shining a bright light in Monáe's eye and identifying her as Jane 57821. With this brief opening encounter, Monáe's video makes clear that, contrary to the enthusiastic rhetoric of technological growth, greater technology does not equal greater freedom—at least for Black bodies.

Images 3.31, 3.32 Screenshots of "Crazy, Classic Life" as the surveillance technology pulls up alongside the car and scans Monaé's eye

In combination with the surveillance of Black bodies, we also see their resistance. Jane and her passenger watch the orb fly away after identifying her and then smile,

[245] In "Shot and Captured" dance scholar Naomi Bragin argues that the unscripted presence of a police vehicle in first few seconds of Yak Films *R.I.P. Rich D* is evidence of the ongoing over policing of Black communities. 100.

getting out of the car. Jane opens the trunk to release another three women. Deploying what Simone Browne dubs "dark sousveillance" the video shows us an example of the creative responses that Black people have fashioned in response to technologies designed to surveil them. Unlike the car commercials that prioritize showing us a technology being put to its prescribed usage, Monáe highlights the role of innovation through technological appropriation: using the car to conceal.

Monáe continues to put the future hypothetical world of the video in conversation with the history and politics of the US at present, breaking from the jovial movement of the women shifting into seats in the car with a flickering video that shows close up shots of a series of faces, mostly Black, but a few white, staring solemnly into the camera as the words of Martin Luther King Jr. belt out, "You told us, we hold these truths to be self-evident, that all men and women are created equal, that they are endowed by their creator with certain unalienable rights, among these, life, liberty, and the pursuit of happiness." As King's voice fades, we see the women continuing on their way, all five now seated in the car. Monáe is both showing Black bodies front and center, as present and part of a highly technological future, and referencing present and past mistreatments. In this way, she both gestures to the possibility of a future that breaks from current ideologies regarding technology and demonstrates why it is so critical to make this break.

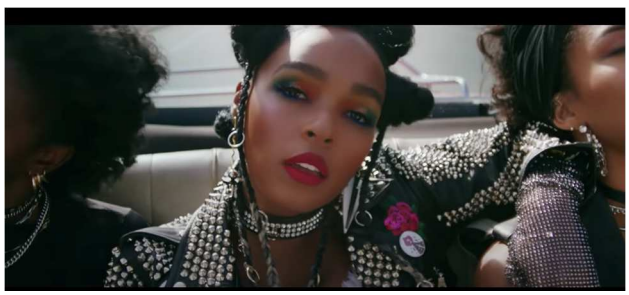


Image 3.33 Screenshot of "Crazy, Classic Life" Monaé sits in the center of backseat.

From here, the video continues with all five women now seated as passengers in a car and initially appears to follow some common music video tropes. The title song begins in earnest with Monáe, now seated in the middle seat in the back singing directly to the camera (what we heard as she was driving was actually another song from the same album). For the next minute the editing and camera movement seems to be directed by the action taking place within the shots. Shifting between close ups of Monáe singing into the camera, wider shots of all five women enjoying their ride and mid-shots where the camera interacts with the people dancing freely at the party, there are no further technological interventions until the chorus of the song. However, within the shots of Monáe and her friends in the car, there are four very brief shots in which the women's faces are obscured by animal masks. The first of these takes place at 1:38, just over thirty seconds into the sequence. These moments are so brief, I did not even notice them on my first viewing of the video. Are we meant to read these moments as yet another distortion to the video? As the problematic way the women are viewed by white society?


Images 3.34, 3.35 Screenshot of "Crazy, Classic Life" In a series of quick edits the women are shown stretching upwards in the car, and again with a continuity of movement, but now wearing animal masks.

While these moments could be read in a variety of ways, one thing that stands out to me is the contrast between the overt technological intervention being shown against the women at the beginning and again in the conclusion of the music video and the

inclusion of these almost imperceptible moments of othering through the animal masks. In the final minute of the video, the party scene is violently broken up by the arrival of the police. Beginning with the sound of a helicopter, smoke fills the air and loud bangs sound off intermingled with shrieking, as a voice over a loudspeaker announces the illegality of the gathering. The camera angle confirms the surveillance of the party. While the majority of shots have been on the same level as the party goers, at this point a wide shot aims downward at the gathering as police completely covered in riot gear—bulky vests with masks over faces, making it impossible to see anything about the identity of individual officers—chase and grab party participants out of the crowd. Both opening and closing surveillance and oppression are performed by an inhuman/unidentifiable force through the mini Death Star and heavily armored officers. In both opening and closing scenes, the digetic sound of the technologies at hand accompanies the visual as opposed to the moments when the animal masks appear, with no change in either the sound or the video quality. What does it mean that within this video whose filmic techniques clearly emphasize the mediated nature of the video itself, these animal appearances come across as unmediated, a natural part of the action?

Rather than put forward a definitive reading of what I see these moments doing, I return to Jackson's comment about "inventing at the edge of legibility." By inserting these blips Monáe counters an easy or singular reading of her video. Instead, it seems there are multiple pathways that both align Blackness with technology and continue to problematize this connection.

These questions and layers within Monáe's work lead me to question my initial reading of the Lexus commercials and consider the contradictions within these works as well. For example, while the visual echoing within the Black Panther Lexus commercial perpetuates the problematic equation of Black man aligned through his physicality with machine, it also references the *Black Panther* film within the commercial to demonstrate that the character Black Panther is not only technologically savvy himself but part of a culture that creates and utilizes technology beyond anything the rest of the world knows or is capable of. Does this depiction of Black characters, working with technology with a "level of immediacy" scholar Lisa Nakamura notes has historically been shown as the domain of white characters,[246] revise the narrative of Blackness as always on the failing side of the digital divide?

Within the Lil Buck commercial, his dancing also creates an immediacy between his technical dancing and the technological capabilities of the car. In fact, through the ordering of shots, the car often appears to be following Lil Buck's lead. The car is only shown stationary until the moment Lil Buck slides inside, pushes the start button, and wraps his arms around the engine, bringing it to life. Does our understanding of the relationship between car and man change if it's the man leading the visual echoing?

Even when Black people have access and are represented in relation to technology, they still must combat the hegemonic framings that negotiate these encounters. I begin my coda with an example of an artist attempting to move beyond this

[246] Nakamura, *Digitizing Race*. 95.

framing and a consideration of how these sites of contestation might inform my future research.

Coda

Realizing that most existing motion capture databases did not have examples of the body types or information about the sources of movement that they wanted to use within their work, digital artist LaJune McMillian created their own. McMillian states on their website that the Black Movement Project is "a tool for activists, performers & artists to create diverse XR projects, a space to research how and why we move, and an archive of Black existence." When asked about their choice to prioritize bodies, gestures and movements as a site to represent Black culture, McMillian noted the discrepancy they found between their own childhood figure skating training and the way judges reacted to their body in these incredibly white spaces: "I have a Black body that once wanted more than anything to move in ways that uphold white supremacy. How can I dismantle that? What is left of my movement once this happens? What will I discover?"[247] McMillian's questioning of how movement can uphold white supremacy and how they can make work that insists on the presence of Black bodies and movements is part of the exciting growing body of work currently expanding the boundaries of dance technology.

Their work's focus on demanding that Black movement not be erased continues the trend I suggested with my opening examples of the pulled facial recognition software and belated recognition of dance creators by the media. While historically, digital technologies have predominantly been built by white men who positioned their viewpoint as universal, the world of technology is slowly changing and in all of these examples, it

[247] Lucia Longhi, "An Interview with LaJuné McMillian," *Berlin Art Link* (blog), August 21, 2020, https://www.berlinartlink.com/2020/08/21/the-black-movement-project-an-interview-with-lajune-mcmillian/.

was the growing awareness that technology is not universal and does not support all bodies equally that prompted a change. From the DJs who appropriated one technology and then led the way to build new technologies based on their uses to the Afrofuturists who use speculative creations to demonstrate the potential of Black technological mastery, my dissertation has demonstrated that diverse modes of embodiment get obscured by racist ideologies.

While I began envisioning the dissertation as an ethnography that would look at how artists of color were engaging with dance technology, what I came to see through my preliminary research was that if I continued to approach dance technology through the framework of digital technologies employed in live concert dance, this would still leave only a narrow range of sources for my study. Instead, I began to question the underlying structures that had allowed dance technology to emerge as such a narrow field and decided to instead bring a cultural studies approach to the framework itself.

What I have come to see through my current project is that the aesthetic choices artists make are often very difficult to unravel from the logistic limitations of the technologies they employ. When the aesthetic choices of someone trying to make art align with the goals of those who designed the technology/the hegemonic use/plan for a technology, there is very little friction. For example, Merce Cunningham came to employ digital technologies that served his existing agenda of finding ways to isolate elements — such as arm movements created separately from torso and legs— and then to recombine them differently. Meanwhile it was only when digital technology had caught up with what DJs were doing through analog processes that scholars began aligning hip hop

artists with technological innovation in their narratives. In both Cunningham and the DJs' cases, the alignments scholars have drawn between the artists' digital thinking, or modular logic, emphasized their thought processes at the expense of a discussion of how that modular logic was employed in collaboration with the innovations of moving bodies—both those on the dance floor and the ones behind turntables.

As my second chapter showed, when artists' ideologies about bodies do not align with that of a technology's creator, the logistic requirements of the technology often dictate the legibility of the aesthetics. Returning to Simone Browne's term, the technology behind the Kinect was created as a form of "prototypical whiteness" that contradicted the aesthetic requirements of the Africanist elements of the dance forms portrayed in *Dance Central*. The body that is legible to the Kinect tracking system is a vertical body, meaning that the mobile spine and get down stance of an Africanist aesthetic are not. As I note, this limits the potential movement range that can be captured by Kinect, impacting both the choices the choreographers working for *Dance Central* made in designing the dances for the game and the way those dances get scored. My close reading demonstrates that the dances get whitened, evacuating the Africanist elements from the choreography, which itself is already a highly curated version of the form to accommodate the technology.

While Black bodies and their movements were displaced or erased within the case studies of my first and second chapter, my third chapter demonstrates that their mere presence is not the solution. Exemplifying the ways that white supremacy positions Blackness as plastic, in Zakiyyah Jackson's terminology, commercials such as the Lil

Buck and Black Panther Lexus spots follow a continuation of the mind/body split, in which, the mind is equated with the design of technology and whiteness, while the body is equated with the mechanics or labor that makes a technology go and Blackness. Yet, even as these examples demonstrate the ongoing influence of Cartesian ideology and its associations with race in how technology is framed, the presence of Blackness in/through technology contradicts the unstated whiteness of technology. Artists such as Grace Jones and Janelle Monáe highlight this contradiction, emphasizing the mediated nature of how technologies are used to frame and position Black people.

My third chapter's open ending and the questions that remain lead me back to my earlier methodological pull towards ethnography. In my next project, I seek to integrate the voices of the artists involved to help contextualize the choices they made in how to interact with technology.

Returning to McMillian's work, an interview with the artist demonstrates that they made strategic choices to go against the traditional "best practices" in their work with motion capture. Rather than spend days capturing a simple gesture as fully as possible, McMillian had the performers tell stories through "oral and movement dialogue." McMillian continues, "If I treated it as a motion capture session, I would have stopped them mid-performance, because of the break in the data. I was not interested in this though. So when I went through the process of 'cleaning' the data and attaching it to their avatars, I also included machines breaking in my performance because they normally do."[248] A viewer without this insight into McMillian's goals might see these

[248] Lucia Longhi, "An Interview with LaJuné McMillian."

strange moments when body's burst apart as a failure—of the technology, or the performer. This leads me to question how artists continue to push beyond the limits of white aesthetics when their work is so often judged within these contexts.

Another future line of inquiry would be to expand my interrogation of the visceral-virtual-visceral-virtual loop created within *Dance Central* to include its extension through the afterlife of the game as exemplified by the many former players who carry the movements they learned from the games in their body. Even though the original Kinect is no longer being sold, the choreography designed and animated with the Kinect in mind still circulates in more recent iterations of the game. There is now a VR version of the game, and dances also continue to travel through the bodies of former game players. Many people on TikTok refer to the game with nostalgia, posting videos of them either still playing the game, or performing choreography they learned from the game from memory. These circulations are complicated by the further technologies they employ. While TikTok has served as a space for dance appropriation, it also relies on the interaction amongst users, and these users give different feedback on the dances than the tracking of the Kinect. One video posted of a screen capture of game play received a lot of feedback about how off tempo the dancer was, based only on the small silhouette of their movement that was visible. TikTokers deploy their own evaluation of dancers, not relying on the scoring system on the screen to legitimize their assessment of movement. As I noted in the opening Addison Rae example, TikTok has become notorious as a site of appropriation, but it is also a site where artists are beginning to credit dance creators and where people have the platform through comments to push back when artists don't.

How are the inherent designs of the technology itself supporting and/or limiting these efforts?

As I continue to think through these future lines of research — the centering of artists' voices and the extension of the visceral-virtual-visceral-virtual loop — I realize that they are interconnected. While I did not describe the actions of the first chapter in terms of visceral-virtual loop, my argument to not ignore the visceral steps when considering the virtual ones is contingent upon understanding that the two are interdependent. How are individual gamers shifting the visceral-virtual-visceral-virtual loop when they perform the choreography of the game for themselves rather than for the Kinect? What might directly questioning artists about the benefits and limits they find/found in the technologies they deploy reveal? What might following an artist through the visceral-virtual loops within their creative process bring to light?

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