

The Erasure of Virtual Blackness: An Ideation About Authentic Black Hairstyles in Speculative Digital Environments

Jennifer Williams
Loyola Marymount University
USA

Abstract

In contemporary video games and consoles, on social media apps, and - at a smaller scale - with emojis, users engage in a cyborgian modification process when they choose the physical and aesthetic traits of their digital representation. They customize their characters to fulfill real-life desires, attract certain social interactions, or embody aspects contrary to themselves. For Black people, the choice to authentically craft the phenotypic and cultural markers of their specific identity markers depends upon the game, and often their options are minimal or comical. Spherical afros, straight-back cornrows, cylinder ponytailed locs, and two to three brown skin tone options leave users with a sense of wearing ill-fitting clothes. Their characters often appear as if they were badly-colored compared to the default white characters.

This article explores the difficulty of a Black femme gamer to mirror their IRL hairstyle in digital spaces because of system designers' limited conceptions of Black hair, and the built-in limitations of game engine algorithms. Twist-outs and goddess braids are hardly found in the default settings for many virtual spaces. This lack of choice in digital representation leads to users' acquiescence to embodying certain traits in virtual spaces, and the inevitable erasure of the nuances of Blackness in virtual spaces. If character creation does not fully humanize Black people, the digital environments construct a pernicious digital divide. Once again, Black people are excluded from the mythological progress forward and find themselves playing catch-up to complete immersion into the expected virtuality of life. Their presence in virtual spaces remains managed by a futures industry that does not envision Black people as the primary users of technology.

Keywords: Black Hair Care, Black Women, Avatars, Video Games, Emojis, Digital Divide.

OASIS was the best thing that had ever happened to both women and people of color (Cline, 2018, p. 199).

Timothy Leary and other 1980s & 90s theorists who spoke on the social benefits of virtual reality proclaimed that the internet would be “the end of burdensome social identities.” (Nelson, 2002, p. 2). They hoped that race, gender, and other social identities would no longer hold power due to the lack of real-world constraints to users’ choices of constructing avatars and aliases. To the technocrats, those who have a historical and personal investment in non-white racial groups, non-cisgender masculine genders, and other nontraditional identities were technophobes resistant to the future of virtual world dominant identifiers because they wanted to hold onto primitive identity structures such as biology and culture (Noble, 2013). They are antagonists to an unstoppable future of anonymity and unlimited choice. The post-millennium claim of universal engagement, due to an internet saturated with corporate-based, user-generated digital content, all ‘within the palm of your hand,’ provokes the same false ideological divide that places free choice on the side of progress, and valuing IRL issues and identities as backward.

The typical internet user is not a white, English-speaking, capitalism from a colonizer nation; however, media broadly distributes this trope. The film, *Ready Player One*, imagines the future of the internet as a massive multiplayer online simulation called the Ontologically Anthropocentric Sensory Immersive Simulation or OASIS. This virtual world combines Web 2.0 activities with a virtual reality interface as experienced through Oculus headsets. The technologies that could build this platform (haptic technologies, virtual reality headsets, social media apps, and hyper-realistic video game graphics) are in their adolescence, which means an OASIS-like platform is possible within the next 20 years. Nevertheless, the film’s protagonists and saviors of the OASIS are predominately white Americans with avatars that have a white racial coding. The nostalgia-trip premise of the film, packs its environment with 1980s retro white Americana, referencing films such as *Back to the Future*, *the Terminator*, and *The Shining*, but diminishes other recent-past cultural references, except for small nods to Michael Jackson and Kung Fu films.

The film is a love-letter to gaming-culture and movies, but the severe absence of blackness demonstrates the incongruence of Black identity and culture with mainstream futurism. The single Black character of *Ready Player One*, Aech, has limited screen time as their queer Black femme self and spends most of the film as their avatar, a cybernetic ogre. It is, most likely, an unintentional thematic device; however, her on-screen duality alludes to the experiences of Black video gamers who engage virtual code-switching – aiming to mask their racial identities to assimilate to the preferred racial norms of the platform, bypass prejudices. Aech’s racial concealment as a minor subplot retains the premise that Black people are natural outsiders to geekdom and must take on a guise to feel included due to the gatekeeping of righteous white male players. Black people engage in an emotional and resource battle to pay to feel accepted in these virtual spaces. Aech hides their race, gender, and sexuality, while other Black people choose to opt-out because they cannot gather together enough digital markers of their identity to fully immerse themselves in certain virtual experiences. Their white counterparts, who rarely lack access to their cultural values and aesthetics, are left to assume they are the rightful heirs of the future and its geographies.

Safiya Umoja Noble argues that those who engage with the internet and its platforms, need to ask questions about the processes and structures that link hegemony, imperialism, and power to the material and psychological implications of the internet project. She positions the lack of diverse Black representation is related to the lack of intersectional analysis in virtual world design. She states, “The goal of theorizing an intersectional internet is to heighten the awareness and advocate for more critical engagements on how the internet is another mechanism of colonialism, white supremacy, exploitative capitalism, and patriarchal systems that aim to control or minimize Black agency and life” (Noble, 2016). To speculate on the digital futures where Black people have power

over the creation and maintenance of their cultural norms, there must be more discussion about what must be, so that there is an “imperative in the present to strive for a future that is inclusive now, and does not reproduce logics of marginalization and oppression” (Campt, 2017, p.17). In this article, I examine if virtual environments are a new arena of the digital divide and the Black struggle for recognition of their humanity. The ideological and manufacturing systems that develop digital everyday spaces derive from a white (male) user experience, and it tends to control what aspects are present in digital environs. When blackness is included, it is rendered from that perspective, often resulting in blackface or inauthentic cultural forms. I center my discussion on the generation and maintenance of avatars, as they are one of the central technologies needed for a sense of inclusion in a digital space. I examine the obstacles and solutions for a contemporary Black femme to have an authentic presence in current virtual platforms, by questioning the possibility of her creating a Black femme hairstyle that she could wear IRL. In addition, I challenge the call to increase the number of Black people in tech. Instead, I offer a strategy of cultural and political investment that transforms how Black people engage in the futures industry, without repeating a talented tenth tactic.

Black Femme with The Good Hair in Cyberspace

Q: Can a Black femme virtual world user choose a hairstyle for her avatar that she idealizes or actually wears on her head, or she must acquiesce to a style created from a system designer’s limited concept of Black hair, and the algorithmic possibilities of a game engine?

In the OASIS, as well as in current video games and consoles, on social media apps, and on a smaller scale, emojis, users engage in a cyborgian modification process when they construct graphical on-screen representations of themselves. “Offline, people use language, cosmetics, clothing choice, and behaviors to show their personality, physical features, interests, and affiliations. Online, users employ screen names, text, gaming style, and avatars” (Nowak, 2015, p.103 & 105). Avatar selection links the player to their on-screen persona, and it influences the players’ sense of self and relationship goals during gameplay (Lim, 2006, p.8; Nowak, 2015, p.103). “The choice of avatar has been shown to influence perceptions of others, self-presentation, and identity, as well as learning, memory, the sense of involvement with the interaction, and even future behavior... While users who personalize their avatar to represent them are more engaged, designers rarely provide a wide variety of choices” (Nowak, 2015, p.103-104). People adapt their self-presentation strategies based on the features available and the social norms of the system (Nowak, 2015, p.105). “Technological affordances, graphics resolution, capacities of the system, as well as the vision of the designers for the use of the system, determine what avatars are available. Each of these decisions has consequences for user experience and perception of the system.” (Nowak, 2015, p.90).

For Black people, selecting their specific phenotypic and cultural markers depends upon the game designers and corporations, and often, their choices are minimal or comical. Haircare and styling are significant to Black cultural identity and Black womanhood. Black women have used hair to express a sense of community, a pride in their culture, and radical politics (Rowe, 2015, 1). It was an indicator of class in Africa, and styling was a group activity that fostered bonding and intimacy. In the Western Hemisphere, enslaved women were forced to cut off their hair, wear headscarves, or their time was restricted so they could not perform elaborate braid styles. Black women cared for their hair despite these constraints. Post-emancipation, Madam C. J. Walker became wealthy by selling haircare products and tools, but her mission was to supply Black women with self-employment opportunities so they could free themselves from domestic servitude and work exclusively within the Black community to avoid exploitations and harassment. Haircare as a liberational occupation occurs in the many salons and barbershops that are Black-owned and serve as hubs for Black political and social discourse. In the 1960s, *the natural* became a political statement combatting the domination of European ideals of beauty. The doneness of one’s hair

often indicates the social status and health of a person. Black girls and women with unkempt hair are perceived to be physically and/or mentally unwellness. Criticisms of white adoptive parents of Black children sometimes center on the doneness of the child's hair. The reaction to uncombed coils or frizzy ponytails often has the same outcry as child abuse. In the digital worlds of social media and video games, Black women's hair has a history of being overly simplistic or poorly done.

Many virtual spaces include hairstyles meant for curly and kinky textured hair such as a 70's style afros, a basic straight-back cornrow/canerow hairstyle, close-cropped hair, and cylinder ponytailed locs. Some avatar generator allow for characters with brown skin tones to wear hairstyles designed with lighter hue characters in mind. In others, if a user adjusts the nose shape, or lip size, their avatar appears less aesthetically pleasing, resembling a blackface caricature, rather than having natural human appearance.¹ On some social media platforms and video games, there is a prescribed set of avatar choices. To obtain more options, users must go through a paywall or a waiting period. The gaming industry claims they cannot accommodate a large variation in their avatar designs because of the significant expense and technological limitations. "Every possible avatar choice must be created by a designer and rendered by a computer, requiring higher networking speeds, longer download and rendering times, and more computer and programming times" (Nowak, 2015, p.104). For game companies to expand the number of avatar options, they would increase the cost, which in turn would decrease the number of people who could access the platform. To increase profits and lessen work hours, designers cater to a target population. If developers do add more features, they can pass the cost of production to users. Players can pay for avatar modifications, or they can play longer to engage in time-restricted lottery-like systems or loot-boxes, where the prizes are character design variations. While the target population has few barriers to entry with concern to their ideal avatar customizations, women, people of color and other non-targeted groups submit to a second-rate experience, where they must conform, feel excluded, or have cognitive dissonance towards the virtual environment. Developer choice, paywalls, and waiting periods prevent certain people from immersing themselves into the experience and becoming early adaptors who tend to push the values and morals to which developers respond. These activities disenfranchise non-targeted populations such as Black people, and in the process, they are kept systematically from being harbingers of the future.

Hair is relevant to these discussions about cultural development, and representation because "it has been a characteristic of Black people that continues to be defined by, for, and often against them" (Grayson, 1995, p.13). Since 2014, military branches have been reviewing their hairstyling policies which were restrictive to African American soldiers and appeared to privilege relaxed and straightened styles over braids, twists and locs. Many public and private schools have policies that restrict styles such as extensions, braids (especially for boys), and locs and provide a rationale that these styles are unprofessional and distracting to the learning environment. "The lack of a digital hair diversity is akin to other IRL policies where Black women are told to unbraid their hair, cut off their locs, straighten their kinks, or cover their hair with a wig to be allowed to exist in certain spaces. This sends the message, 'you don't belong here as you are...'" (Rowe, 2015, p.20). African Americans still seek locations where they can wear their culture, unabashedly and assuredly. Despite the external debates about where and when Black women can express their authentic selves through their hair, they actively imagine and innovate new styles and processes. From pompadours to Jheri Curls, to finger waves, to braids, to weaves, to fades, and so on, Black hairstyling is dynamic and is a fair representation of the culture at large.

Avatar creation centers are prime locations where blackness is generated through a white technologist frame and show how Black people are dependent upon corporations for a significant aspect of their self-definition and self-representation potential. Blackness in virtual environments retains an afterthought, othered, contained, or brown crayon quality in some digital media formats. For example, if worn by a Black character, an afro is often rendered as a slightly textured sphere.

While many Black people do wear their curls out, afros today do not resemble the 1970s halo that pictures of Angela Davis popularized. Paris Martineau (2018) says, “Video games have not succeeded in depicting type 4c hair – the tightly coiled, natural texture that’s common among Black women.” Camp Santo, an independent video game studio, made it a mission of their work to depict their character’s hair accurately. They were “committed to giving Zora the hair she loves, the way she chooses to wear it, with all the care and effort we can” (Jones, 2018). This level of dedication is noteworthy, especially with larger studios having a history of cutting character choice due to production woes -- as was the case with Ubisoft in 2014 that sparked the Twitter hashtag #womenaretoohardtoanimate (Farokhmanesh, 2014).

It is odd that avatar designers who have little investment in Black desires for their cultural markers in fantastical locations can independently construct virtual Black identity just because they have technological expertise. According Evan Narcisse (2017), “[Game developers] don’t understand why it’s important that my particular kind of Black hair is pretty much missing from video games.” In the 1990s, Afrofuturist Ann Everett experienced a lack of cultural or racial awareness in her computing experience. Every time she turned on her computer, the startup screen displayed the words, “*Pri. Master Disk, Pri. Slave Disk, Sec. Master, Sec. Slave,*” a stark reminder of enslavement and the historical dynamics of power. Everett wondered about the intent and cultural location of the person or group of people who generated her computer’s outputs. She notes, “Even though I do not assume a racial affront or intentionality in this peculiar deployment of the slave and master coupling, its appearance each time I turn on my computer nonetheless causes me concern” (2002, p.133). Everett does not claim that the operating system manufacturer’s objective was to memorialize racial hierarchies; however, the data outputs signify the influence of a culture that supports ideologies of domination. If Black people rely on game designers, then digital blackness will derive from whatever filters through mainstream media, or the video game studio considered relevant, continuing the trend of game and social media developers holding a monopoly on what blackness could look like in the future.

This lack of choice in digital representation leads to limitations of a user’s psychological embodiment to their character and continues an erasure of nuances of blackness in virtual spaces. “Throughout history, Black people have been excluded from full citizenship because of their physical appearance” (Grayson, 1995, p.25). Jim Crow laws, racial profiling, and other discriminatory actions are dependent upon people reading race on a person, and then assigning privilege or discrimination based on their assumption. Colorism within the African American community, due to the prevailing ideologies of white supremacy, also denied darker-skinned and kinkier hair African Americans from middle-class networks. Higher education, religious, and social institutions used the brown paper bag, blue vein, and comb tests to divide those with lighter-skin, and straighter hair (which presumed white heritage) from those without.

It is the combination of visual markers of body type, skin color, and hairstyle that gatekeepers use to prevent Black people from accessing spaces they want to enter. In print and electronic media, historically and presently, Black women (and men) have functioned within specific limits due to racial norms of society by learning to adapt themselves and their appearance. As clinical psychologist Julia Boyd argues, for Black women in particular ‘learning to comply publicly with white standards has not been as much a choice as it has been a dictate necessary for survival.’ (Grayson, 1995, p.25)

Our exemplar Black femme user may don goddess braids with gold accessories or short purple afro with shaved sides a cut-in design, but in the virtual world, she must defer to an ill-fitting approximation that the avatar designer was aware of or could render. If Black women in digital spaces cannot do their hair in a culturally and individually relevant fashion, if their engagement

is constrained by the lack of interest in crafting markers of blackness, if their online identity performance is dependent upon external forces, then they are denied access to self and communal development, and vital social resources and experiences. Black peoples' difficulties in experiencing complete immersion or authentic performance in an almost compulsory digital world is another instance of exclusion and control. "The virtual world has become our constant companion" (Perry, 2018, p.129). It dictates how humanity frame itself and its communities and will likely continue to be a very present force in how it defines itself. As time moves onward and humanity embraces simulacra as an indispensable component of being human, restricting Black people's aesthetic creativity online will be akin to dehumanization.

The few virtual environments with the most options to represent blackness are sports games, TV show supplements, and Bitmojis. NBA Live and Madden NFL copy the styles, tones, and shapes of real-life players to obtain their repository of blackness.² Cartoons such as *The Powerpuff Girls*, *South Park*, and *The Simpsons* have had avatar creation apps where users manipulate the cartoon's style to create a likeness of themselves.³ The most comprehensive avatar generator is Bitstrips' application, the Bitmoji Avatar Designer.⁴ It allows users to customize avatars that can be imported or pasted into other social media platforms such as text messengers, Facebook, Gmail, and Snapchat. Its newest offering is a software developer kit (SDK) where gamers can "open up their favorite game, regardless of what device it's on, and easily 'scan and play' to bring their Bitmoji directly into the game" (Khalid, 2019).⁵ This will enable Bitmoji's extensive user designs to be ported to other games. While this is a significant development, it relies on developers recognizing the need for this service and implementing it in their products. Over the last five years, Video game consoles and emojis have increased their offerings, but they leave much to be desired. When messaging application's emojis expanded from yellow to five skin-tone shades based on the Fitzpatrick scale (Light Skin Tone, Medium-Light Skin Tone, Medium Skin Tone, Medium-Dark Skin Tone, Dark Skin Tone) in 2016, the browner feminine faces had the same shoulder-length straight hair or side ponytail as their yellow and peach hue counterparts. In 2018, they offered a shoulder-length curly hair and bald options. The Xbox Avatar Editor and the Wii Mii Creator also have a broader spectrum of choices than the many of the video games that play on their systems.

While there is an effort to increase choice in video games and social media, many virtual spaces lag behind the creativity of Black people IRL. The reclamation and ingenuity that occurs in hair shops, shows, and YouTube videos are removed when translated into a curated virtual experiences similar to *Ready Player One's* the OASIS; Black women are left without the agential choice to adapt, adopt, or speak about their boundaries of *acceptable* virtual hair.

If You Can't Beat Them...

The gaming and social media industry have numerous barriers that hinder Black people from complete immersion into virtual environments; In recognizing these challenges, there are a few directions to influence how Black people relate to this segment of the futures industry.

One solution to consider is altering virtual spaces. Mods, or modifications, are changes fans and/or players make to a game. Aech is a model for this possibility. She was top-rated on the mod boards in the OASIS for designing custom vehicles --with a fondness for spaceships such as the USSC Nostromo from *Alien*, The Battlestar Galactica, and The Swordfish II from *Cowboy Bebop*. Mod creators improve and/or add background, avatars, some game mechanics, and other in-game features building on game designers' intentions, while deliberately misusing the application to further their own agendas. The mod community that champions inserting Black cultural markers in *The Sims* is very robust. They generate popular styles, including laid edges, varying cuts and shapes of 'fros, complex braid styles, and thick curly beards. A disgruntled player of the game "who was frustrated by the lack of diversity," created "The Black Simmer forum" and learned how to fashion

their own aesthetic to better fit with their play style.⁶ This approach to taking control of the means of representation mirrors the natural hair community cultivating a plethora of haircare entrepreneurs who compete with larger corporations' such as Revlon and L'Oréal. Unlike haircare, a small number of social media and video games allow for independent users to alter their codes; Most games companies are strict about what they consider tampering and have their code locked under copyright claims and corporate secrecy. Because Black femmes cannot alter the proprietor code, they cannot engage in improvisational procedures to create new styles that reflect their existence. I argue that while mod creators are influential, Black people should not rely on these creatives to accurately depict their humanity (or cyborg-humanity) within these multi-million-dollar productions that have a wide-reach and tremendous social impact.

Another more widely stated solution to the lack of representation calls for more Black technologists who would bring about change from the inside, working as computer programmers and application designers. While this strategy appears feasible, it assumes that a talented tenth of our exceptionally educated men and women can to subvert the system. Noble (2016) posits that a Black public trusting its collective futuring to the morality and expertise of a technologically-oriented few is a critical component in the neoliberal project, which privileges individualism and meritocracy. Social change that improves the life chances for whole the community is discarded for a strategy where "Black representatives break down glass ceilings and steel doors through their performance of palatable blackness and remarkable skills in the hopes that they will advance in previously closed industries – for the benefit of their race"(Davis, 2017, p.124-125). In exchange, the business gains the diverseness of the Black individual's to prove they have a progressive politics; all the while, the Black individual remains silent about social ills such as the lack of equity, protections, and resources for people of color. Even if this strategy provides a few individuals with wealth and experience, Narcisse (2017) mentions that the industry has little desire to be inclusive. "There is a stripe of player and creator who wants games to be apolitical and ahistorical." Diversifying the gaming industry is almost an impossibility because of industrial culture gatekeeping and lack of financial backing. The social media/gaming industry has no compelling reason or external push to radically transform its ideology or structure. "The pipelines that feed talent into the game-making ecosystem - where, as elsewhere, people hire in their own image and or within social proximity - seem fated to remain homogenous. The would-be Black creators never start out in corporate careers that they would then leave to go indie and create more personal visions" (Narcisse, 2017).

Despite these criticisms and challenges, I continue to support the idea that Black people should learn and develop technologies. However, as the industry stands, I have little faith that mod creation or corporate insiders who are Black will drastically influence the cultural make-up of virtual spaces. While Black people may be empowering themselves, the structures remain unphased.

I conclude this thought experiment without a definite answer as to how to ensure that Black people will have 'good hair' in virtual spaces. I worry that my online descendants and I will have to either wear the digital black mask corporations with white capitalist ideologies provide us (at least until Black people have a movement fighting for digital Black power); or have an isolationist view and reject the digital worlds that inspire imaginations until there is a collective cultural change. Both choices feel like accepting defeat and passing responsibility to unnamed generations.

I do offer three esoteric solutions – two radical, and one humble that harken to Black Power era philosophies.

1. Protest. Have hashtag campaigns, boycotts, and rallies that demand game developers who minimize a Black presence in virtual worlds to put resources into developing cultural competency and digital markers of blackness.⁷
2. Hack. Rather than pushing tech-savvy Black people to join corporations, they can form groups which culture jam virtual worlds with flash mobs, graphics alterations, political signage,

humorous animations, or other deliberate misuses of the platform to bring attention to the ideologies and institutional structures that restrict who/what goes into virtual worlds.

3. Change/ Reclaim how Black people engage with technologies. There has been a loss of tinkering with electronics and an increase of technological mysticism within the African American community. Consumer electronics like stereos, Televisions, record players, toasters, and computers were often fixed, remixed, and resold, representing a collaboration between humans and machines. Mark Dery (1994), in his quintessential essay about Afrofuturism, notes this practice of misusing technocommodities signifies African Americans version of a cyberpunk praxis – as Black people act subversively to mainstream missives of progressive, their innovation on corporate products would be interpreted as antagonistic (p.185). To increase their profits, tech industries repackaged their products to appear futuristic with slick and simple chassis, and minimalistic user interfaces but, the design change came with complex configurations, non-moveable pieces, and proprietary parts. This trend of inaccessibility to modify tech could be reversed with the increase of demand for change so that companies would start to invest in user customization instead. I propose everyone should become coders and designers and have the ability, even if basic, to maintain their digital hair, and have the option to go to the virtual salon or barbershop if they want a self-care day or some complex algorithm that takes months to master. This skill may manifest as simply fan-art, or other more comprehensive intervention such as the current practice of mod creations or hacking avatars. Social media/video game technology should become like hairstyling; Just like the growth of the online hair communities, one would learn how to design new styles from forums, YouTubers, and zines.

In the future, I want Black salons and barbershops to exist in digital environment because Black people put them there. “Video games, as well as social media, are sites of cultural resistance and empowerment” (Everett, 2002, p.159). Black people must use these spaces to challenge the flattening that occurs when their identity is programmed and recognize that authorial unfamiliarity and hostility leads to the loss of dynamic Black cultural markers. They must become invested in owning avatar development to protect their virtual humanity and renounce an apocalyptic future where those apathetic to Black cultural continuity will standardize blackness out of existence.

Acknowledgements

Jennifer Williams is in the Department of African American Studies at Loyola Marymount University. Her research and teaching interests include African American women’s history, Black Queer Studies, Black Nerd Culture, and Afrofuturism. Her current research interrogates Black women’s experiences with social media.

Correspondence

Jennifer Williams
African American Studies, Loyola Marymount University
1 LMU Drive, Los Angeles, CA 90045
USA
E-mail: jennifer.williams@lmu.edu

Notes

1. “a type of makeup, costume, and performance used in minstrel shows, vaudeville, and other forms of theatrical entertainment worn predominantly by non-Black actors to portray a degrading image of Black people as aesthetically undesirable and foolish” (Williams, J., & Harris, C., 2018,

p.659).

2. I hope someone uses *Black Mirror*'s "Black Museum" episode to theorize about the replication and dismemberment of blackness for entertainment in sports games, as well as how the widest selection of physical markers of blackness in a virtual environment is restricted to primarily Black masculine folk playing sports games (NBA Live 19 by EA Sports do have a female player option, and NBA 2k20 plans to have a female player option as well when its released in September 2019).
3. "Powerpuff yourself," <https://powerpuffyourself.com/#!/en/my-powerpuff/create>; "South Park Avatar Creator," <http://southpark.cc.com/avatar>; The Simpson's character maker, "Simpsonizeme" was a promotional gimmick sponsored by Burger King for the Simpson's Movie released in 2007; the site was taken down around 2013.
4. Bitstrips was bought by Snap (the same company who owns Snapchat) in July 2016.
5. <https://www.bitmoji.com/games.html>.
6. <https://theblacksimmer.tumblr.com>; Other widely played games that can be modded are Skyrim, Mass Effect, Knights of the Old Republic, and Fallout.
7. For good measure, I would suggest demanding Bitmoji SDK to be adopted by a wider range of applications, which could set a precedent for virtual spaces to include a wide range of avatar options.

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