

**Mediating the Marginal: A Computational Analysis
of Representational Hierarchies, Aesthetic Tourism,
and Queer Imagination on Instagram**

by

Garrett Souza

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Abstract

Images are world-building technologies, engendering futurity through collective imagination. An ontological trace of visual culture positions media technologies as sites of both regulation of and resistance to racial, sexual, and gender norms.. The rise of computational media and neoliberal sociopolitics has paradoxically both destabilized and bolstered visual hegemony, expanding Black and queer representation and visibility through a new vanguard of empowered visual creators, while also facilitating old traditions of oppression and co-option with an unprecedented precision, surveillance, and opacity. This project leverages a computational analysis of algorithmically curated imagery to situate Instagram within a lineage of technologies used to visually mediate marginality, particularly focusing on how race, gender, and sexuality are structured within hypersegregated queer spaces on Instagram. Analysis of skin tone presentations, emoji usage, and engagement metrics within the #gay search feed reveal a continued erasure of Blackness within mediated content, in tandem with widespread co-option of Black aesthetics. A coupled differential reading of dominant representational paradigms, hashtag usage, and normative generative modeling within the Explore feed of a gay-coded user further exposes the co-option of Black and queer aesthetics, as well as an overwhelming promotion of hypermasculine and homonormative content. These results suggest that, while contemporary visual power has certainly diffused to previously marginalized positionalities, this reallocation is contingent on market capital, assimilation to normative ideals, and continued marginality. Results are directed towards a discussion of how imagery, image-making, digital media technologies, and computation might be used in service of liberatory praxis.

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Contents

1	Introduction	25
2	Background	29
2.1	The Power and Possession of Media	30
2.1.1	The Controlling Image	32
2.2	Reclaiming the Image, Recasting the Future	40
2.2.1	Afrofuturism and Queer Imagination	41
2.2.2	The Visual Vanguard	44
2.3	New Media, Instagram, and the Episteme of the Photo	46
2.3.1	Instagram and Its Functions	47
2.3.2	Photography and the Instagram Eye	50
2.4	Normative Engagement With the Marginal	56
2.4.1	Structural Intersectionality and Black Feminism	57
2.4.2	Beauty, Race, and Power	58
2.4.3	Fungibility, Co-option, and Assimilation on Instagram	60
2.5	Computational Approaches to Cultural Studies	67
2.5.1	Analyzing Digital Culture	67
2.5.2	Differential Reading	68
2.5.3	A Structural Intersectional Approach to Technology Studies	68
3	Methodology	71
3.0.1	Research Questions	71

3.0.2	Methodological Overview	73
3.1	Data Collection	73
3.1.1	#gay Search Feed	74
3.1.2	Explore Feed	74
3.1.3	Feed Subsets and Sample Sizes	74
3.1.4	Considerations and Constraints	76
3.2	Analyzing Race Within #gay Spaces	79
3.2.1	Color Spaces	79
3.2.2	Derivation of Skin Tone Presentations	79
3.2.3	Fenty Skin Tone Analysis	85
3.2.4	Emoji Analysis	87
3.2.5	Engagement Analysis	90
3.3	Analyzing the Explore Feed	91
3.3.1	Feature Extraction	91
3.3.2	Hashtag Analysis	92
3.3.3	Generative Adversarial Networks	93
4	Results	97
4.1	Skin Tone Analysis	97
4.2	Emoji Analysis	103
4.3	Engagement Analysis	103
4.4	Feature Extraction	105
4.5	Generative Modeling	110
5	Discussion	113
5.1	Race and Aesthetic Hierarchy Within Promoted Content	114
5.1.1	Blackness on the Explore Feed	116
5.2	Blackfishing, Queerbaiting, and Aesthetic Tourism	116
5.2.1	Co-opting Blackness on Instagram	117
5.2.2	Co-opting Queer Instagram	119
5.2.3	Aesthetic Tourism	120

5.3	Visibility vs. Co-Option	123
5.3.1	GANs as Assimilationist Tools	125
5.4	Assessing the Liberatory Potential of Instagram	127
5.4.1	Digital Media For Visual Empowerment	129
6	Conclusion	135

List of Figures

- 2-1 Depictions of the Mammy stereotype in media. (a) Aunt Jemima, the character associated with the popular brand of pancake mix, shown as a jovial and subservient house maid. (b) Mammy, the housekeeper from film *Gone with the Wind* (1940), played by Hattie McDaniel. (c) Madea, a elderly mother-figure portrayed by Tyler Perry within the *Madea* movie franchise (shown here in the 2011 film *Madea's Big Happy Family*). 34
- 2-2 Depictions of the Matriarch, or Sapphire, stereotype in media. (a) Aunt Ester, from the 1970s TV show *Sanford and Son*, played by LaWanda Page, shown here with a scowl and incisive gaze. (b) Sapphire, a character played by Ernestine Wade on the sitcom "*Amos 'n' Andy*" in the 1950s, shown here reprimanding her husband. (c) A 2008 *New Yorker* cartoon by Barry Blitt, depicting Michelle and Barack Obama, with a militant Michelle fist-bumping her husband while he sheepishly looks to the audience. An American flag burns in the background. Blitt satirized the right-wing portrayals of Michelle as a radical militant emasculating her husband. 35

2-3 Depictions of the Jezebel stereotype in media. (a) Cover art for the vinyl release of *Please Warm My Weiner (Old Time Hokum Blues)* (1974), showing two men gleefully leering at a Black woman in a short dress and heels. (b) A 1810 caricature by William Heath titled *A Pair of Broad Bottoms*. The text reads, "Well I never expected Broad Bottoms from Africa, but one should never despair! Mind Sherry, don't let your Fiery Nose touch the Venus for if there's any Combustibles around here we shall be Blown Up!", followed by, "I shall be Careful Your Lordship! But such a spanker, it beats your Lordships Hollow!!!". The caricature is one of many depicting Sarah Baartman, a South African woman consigned to performances in European "freak shows" under the stage name "Hottentot Venus" due to her naturally large buttocks. A more detailed rendering of Sarah Baartman's story and the colonialist exploitation of the "Hottentot Venus" can be found in the references [113, 161]. (c) a portrayal of *Foxy Brown* (1974) star Pam Grier, shown in a revealing top with gold hoops and a shotgun. . 36

2-4 Depictions of the Welfare Queen stereotype in media. (a) Linda Taylor, the woman first accused of being a "welfare queen" by Ronald Reagan and other members of the media, shown here with a bejeweled cowboy hat and fur-lined coat. Image courtesy of Corbis. (b) Kimberly "Sweet Brown" Wilkens, made famous by a television interview with Oklahoma City NBC affiliate KFOR-TV in 2012 after escaping a fire in her apartment building. (c) the infamous Obama Phone woman, unidentified to the best of my knowledge, shown as part of a video extolling the benefits of welfare programs under the Obama presidency. Originally posted to Youtube by user *RealFreedom1776* in 2012. Both (b) and (c) are examples of how the welfare queen archetype undermines the Black woman's competence and worth, even when these women are experiencing explicit poverty and social harm. 37

2-5 Depictions of Black male controlling images in media. (a) the Sambo archetype, showing a small, jovial Black boy on the cover of the *Little Black Sambo* children’s book. Photograph of front cover of a first edition pop-up book published in 1934 by the Blue Ribbon Company, illustrations by C. Carey Cloud. (b) *How Sleeps the Beast*, a 1950 book by Don Tracy, telling the tale of a Black man that is lynched after sleeping with a white woman. (c) An image from photographer Robert Mapplethorpe’s *Black Book*, showing a Black man in a suit with his large penis extruding. Mapplethorpe filled the photo book with hypersexualized, hypermasculine, and dehumanizing depictions of Black men, leaning into the Mandingo image. (d) Fictional character Uncle Ruckus, from the 2005-2014 *Boondocks* cartoon series. Uncle Ruckus is notoriously and comically anti-Black, and praises whiteness and white values throughout the show, as an intentional allusion to the Uncle Tom stereotype. 39

2-6 Depictions of gay male heartbreak and heterosexual resolution in popular cinema. (a) *My Own Private Idaho* (1991), a film that follows Mike (River Phoenix) and his friend Scott (Keanu Reeves), both male prostitutes, on a coming of age story. Mike confesses his love to Scott, who asserts he only sleeps with men for pay, and is ultimately abandoned as Scott inherits wealth and status within a straight lifestyle. (b) The 2005 film *Brokeback Mountain* similarly depicts homosexuality as deviant desires which threaten the stable heterosexual norm. Ennis (Heath Ledger) and Jack (Jake Gyllenhaal) engage in a discrete sexual affair before going off to live married heterosexual lives. Their relationship lingers through crumbling personal lives, though the queer love is seen as dangerous and impossible. (c) *Call Me By Your Name* (2017) follows Elio (Timothée Chalamet) and Oliver (Armie Hammer) on a queer summer fling in Italy, before Oliver returns to the US and marries a woman. The movie ends with Elio heartbroken, learning of the marriage. (d) *Moonlight* (2016) explores similar coming-of-age themes, with the main character engaging with his homosexuality before "growing up" and ultimately rejecting the danger, stigma, and instability of queer life. 40

2-7 Example of self-fashioned Black American images in the 19th and early 20th centuries, which countered established representational paradigms. (a) Daguerrotype of Fredrick Douglas, shown with a stern face and polished demeanor, taken by Stephen J. Miller in 1852. (b) *Young Girl with Dog* by James Van Der Zee in 1921, highlighting the glamour of the Harlem Renaissance (c) *Four Women* by Thomas E. Askew in 1899, depicting four African-American women resting on steps at Atlanta University 42

2-8	Images of male homosexual romance, joy, and normalcy in the late 19th and early 20th centuries. (a) A snapshot of two men lovingly touching, taken in a photo booth in the mid-20th century. Photo booths were a common space for imaging queer love, as it did not require public exposure of the relationship. (b) a Black gay couple in military outfits, with the image dated 1951. (c) two formally dressed men holding hands, one sitting on the other’s lap. The image has been dated to about 1880. All photos courtesy of the Nina-Treadwell Collection [150]	42
2-9	Examples of Black and queer prevalence within mainstream culture, particularly in traditionally exclusive institutions. (a) still image from Louis Vuitton’s Fall/Winter 2021 Menswear fashion show, showing the back of Black queer artist Saul Williams walking into a room of men dressed in Louis Vuitton apparel. Virgil Abloh is Louis Vuitton’s first Black artistic director and has incorporated Black culture and imagery into much of the brand’s content. This show included prominent Black creators such as Saul Williams, Yasin Bey, Kai Isaiah Jamal, and Alton Mason. (b) Beyoncé, photographed for the September 2018 issue of <i>Vogue</i> by Tyler Mitchell. This shoot made Mitchell the first Black photographer to shoot a <i>Vogue</i> cover image. (c) Angel Evangelista, played by actress and Black trans non-binary activist Indya Moore in the television show <i>Pose</i> . <i>Pose</i> is one of the first mainstream television shows to highlight Black queer ballroom culture.	45
2-10	Screen capture of Instagram interface for the profile page of MIT Media Lab (@mitmedialab) and a post from the account. The profile picture, bio, posts, and associated metrics all function to structure the profile’s digital presentation.	48
2-11	Screen capture of Instagram interface for hashtag search (a search for #gay is shown). Content using the searched hashtag is divided between Top Posts and Recent Posts, both displayed in a grid-like feed	50

2-12 Screen capture of the Instagram Explore Feed. Content is uniquely curated for the user based on Instagram’s understanding of the user’s interests, communities, and preferences. Faces are blurred to respect the privacy of the individuals. 51

2-13 Contemporary Black photography reimagining artistic practices for imaging Blackness. (a) Tyler Mitchell, *I Can Make You Feel Good*, 2020. Mitchell centers Black joy and leisure as radical rituals within his imagery. (b) Carrie Mae Weems, *Untitled: Man Reading Newspaper* (1994), Jack Shainman Gallery. Weems intentionally uses shadows to subvert the historical invisibility of Blackness, playing with darkness instead as a protected space, free from the imposition of the viewer’s gaze. (c) Campbell Addy for *i-D UK* November, 2018. (d) Micaiah Carter for *Emmazed* January, 2019 (e) Micaiah Carter photographing Pharrell Williams for *GQ* October, 2019. Addy and Carter display a tenderness and expansive Black masculinity within their work. 54

2-14 Agra, from the series *Photo Opportunities* by artist Corinne Vionnet. Photos of mass tourism destinations were gathered from digital photo-sharing sites and layered together, visualizing the homogeneity of the "tourist gaze". 55

2-15	Examples of Blackfishing, adoption of Black aesthetics, and racially ambiguous styling by prominent white celebrities. (a) Justin Bieber, of Canadian descent, appears shirtless with several chains and sagging pants, reminiscent of styles popularized by Hip-Hop culture in the 1990s and 2000s. Image sourced from <i>FilmMagic/TMZ</i> .(b) Kim Kardashian West, of Armenian descent, appears on the Winter 2020 cover of <i>7Hollywood Magazine</i> , in a curly bob wig and a tan complexion. Lensed by Alix Malka. (c) Rita Ora, of Albanian descent, is seen with long braids, a hairstyle with origins in Afro-Caribbean cultures. Original image source unknown. (d) Ariana Grande, of Italian descent, performs at the 2016 Video Music Awards with a noticeably darkened complexion.	63
3-1	Sets and subsets of feeds this project sampled from. Dashed lines indicate that the feed is curated, and therefore ambiguously defined. For example, here it is assumed that the "top" #gay feed is a subset of the "recent" gay feed, since most "top" posts were recently posted, though this cannot be guaranteed. In contrast, the set of #gay posts is explicitly defined as all posts with #gay in the caption. The "top" #gay feed is a subset of "recent" #gay posts, with both being a subset of all #gay posts. The Explore feed intersects with all #gay sets and subsets.	75
3-2	Geometries of prominent color spaces used in this project. The RGB color space (left) is defined as a cube, with red, green, and blue values defining the three axes. HSV (center) and HSL (right) color spaces are cylindrical, with hue being an angular dimension. The HSV space is meant to represent how colors appear under light, with the value axis indicating varying degrees of light exposure. The HSL space is meant to represent how colors mix, with the lightness axis ranging from pure white to pure black through various hue and saturation values.	80

3-3 Workflow for derivation of skin tone presentation from Instagram posts. The face is de-identified to protect the privacy of the individual. A red bar is used to distinguish from the black peripheral skin segmentations in Stage III. Stage I indicates the original image, scraped from the Instagram platform. A multi-task cascaded convolutional network (MTCNN) was used to detect and isolate faces in stage II. The cropped face image was then semantically segmented in stage III to mask non-face pixels, such as background pixels, glasses, or abundant facial hair. In stage IV, seven k-means clusterings of all face pixels were performed, using different combinations of features in the RGB and HSL color spaces, with the average pixel color of the majority cluster being used as a candidate color for skin tone presentation. Finally, in stage V, all seven candidate colors were presented next to the original image in an interactive interface, and a skin tone was selected manually. 81

3-4 Common error conditions within Stage IV of the skin tone presentation analysis pipeline. The cropped and segmented face image is shown in the left-most column, with the seven resultant color candidates from k-means clustering to the right. All faces are blurred to respect the privacy of the user. (a) shows a face with heavy shadow covering a portion of the face. The third and seventh clustering model propose a noticeably darker skin tone than other clusters. (b) is an example of a black-and-white filtered image. These filters are common on Instagram. The absence of color information renders skin tone analysis impossible with the proposed approach. (c) shows a face with strong colored lighting, altering the perceived color of skin pixels. Again, in absence of reliable color information, the proposed approach fails to yield useful candidate colors. (d) depicts a face with cosmetics covering the skin. Cosmetics and drag aesthetics were common in the data set of #gay posts, and obscured skin tone presentation predictions. 86

3-5	Fenty Pro Filt'r foundation palette. Forty shades are grouped by tone (Light, Medium, Tan, Deep) and temperature (Cool, Neutral, Warm).	88
3-6	The Fitzpatrick Scale and associated risk of cancer. Fitzpatrick designated six skin phototypes, ranging from lightest to darkest. These phototypes provided the basis for emoji skin tones. This graphic was created by D'Orazio <i>et al.</i> [71]	89
3-7	Architecture of a generative adversarial network (GAN)	94
4-1	Derived skin tone presentations for all #gay posts in the dataset. HLS values of skin tone presentations were derived from the skin tone analysis workflow, as presented in figure 3-3. Values were projected onto the 2D lightness-saturation plane, as skin tones were largely concentrated to a small range of hues. (a) shows the distribution of saturation and lightness values across all #gay posts in the dataset, with a skew towards lighter and warmer colors. (b) shows the distribution of "top" and "recent" posts within the lightness-saturation plane. Top posts are more concentrated within the lighter and warmer colors, while darker regions are sparse.	99
4-2	Histogram of lightness values for "top" and "recent" #gay posts. Values are reported as a percentage density of the overall distribution. The mean lightness value for each data series is shown, along with a sample skin tone color spectrum along the horizontal axis for context. "Recent" posts exhibited a left-skewed distribution, with a mean lightness of 61.7. "Top" posts were less uniformly distributed, though showed a drop in darker tones and a higher representation of light and tan tones. The mean lightness value of "top" posts was 66.5, 7.7% higher than that of "recent" posts.	100

- 4-3 Difference in percent density of #gay skin tone presentations between "top" and "recent" posts. Skin tone presentations are mapped to their most perceptually similar Fenty foundation palette color (40 total). The top panel shows the change in percent density of each Fenty shade, sorted by lightness values. This panel shows a clear preference for light and middle tones in posts that get selected as "top", while darker tones suffer. The middle panel groups Fenty shades by their respective shade range (Light, Medium, Tan, Deep). The bottom panel groups shades by their respective undertone range (Cool, Neutral, Warm). Lighter warm tones are overrepresented, while most cool and deep tones are underrepresented. 102
- 4-4 Comparison of tone-modifiable emoji (TME) usage in captions of "top" and "recent" #gay posts. The overall distribution of TMEs across all #gay posts shows usage strictly decreasing as TME skin tone darkens. The proportion of light and dark toned emojis decreases in "top" posts, while medium-light, medium, and medium-dark tones increase in prominence. These findings are consistent with analysis of skin tone presentations in #gay posts, and further suggest a converge of popular aesthetic performances on tan, "mixed", and racially ambiguous tones. 104
- 4-5 Cumulative Distribution Function (CDF) and Probability Density Function (PDF) of (a) likes and (b) comments for all #gay posts in the dataset. Both show a sparse distribution, with a majority of posts receiving minimal engagement, if any, while a select few receive a large number of likes and comments. 105
- 4-6 K-Means Clustering of extracted image feature vectors from Explore feed posts, with 8 randomly sampled images from each of the 10 clusters. The 200-dimensional feature vectors were dimensionally reduced to 2 components via PCA for visualization. Faces in images were blurred to protect the privacy of the users. 108

4-7 Top 20 hashtags used in the captions of Explore feed posts. Hashtags were categorized and colored by topic. "Fitness", "beauty", and "sexuality" hashtags accounted for most of the top 20, with fitness being the most popular. These hashtags indicate Instagram content curation algorithms targeted a gay-coded user with predominantly fitness and beauty content. Note that posts need not use hashtags, and a single post can use upwards of 30 hashtags. 109

4-8 Generated images from a WGAN trained on Explore feed images. The images were curated to select for depictions of a "person". Renditions of the common meme format, with top text overlaid on a white or black background and image, were also included. An uncurated collection of generated images is provided in the Appendix. 111

5-1 Prominent examples of high-profile heterosexual or sexually ambiguous celebrities that have adopted queer aesthetics or spaces. (a) Harry Styles, wearing a Gucci periwinkle saloon dress for the cover of *Vogue's* September 2020 issue. Lensed by Tyler Mitchell.(b) Jacob Elordi shot by Isabella Elordi for *Man About Town: Chapter 1* (2021), wearing Dion Lee ribbed corset. (c) Nick Jonas shot by Doug English for the cover of *Out Magazine* June 2016 issue. Jonas is openly heterosexual. 122

5-2	Screenshots of Instagram posts highlighting grass-roots movements to resist algorithmic bias and reclaim the user experience on Instagram. (a) post with pastel graphic and overlaid text "I AM MUTING MYSELF". The user indicates they will refrain from posting content for a set period of time to make space for more diverse imagery voices within curated feeds. (b) an infographic catered to Black Instagram users, detailing actionable steps to improve mental health while engage with the platform. The steps include "diversify your feed", "unfollow accounts that don't bring joy", "take social media breaks", and "follow accounts that celebrate people like you". (c) screenshot of a tweet providing instructions to "clean up" the Explore feed by explicitly flagging content with "not interested".	128
5-3	Image of Safiya Umoja Noble's <i>Imagine Engine</i> , a proposed interface for empowerment and transparency in Internet search results. Noble adopts the interface of a color-picker (shown here in grayscale), with pre-determined discursive categories assigned different colors. The user is able to manually discover content by select topics using the colored sphere. The Imagine Engine is not currently operational or accessible on the Internet, to the best of my knowledge.	134

List of Tables

3.1	Breakdown of the source and quantity of posts in the Instagram data set	75
3.2	List of features and number of clusters used for each k-means clustering. All features come from the RGB (red, green, blue) or HSL (hue, saturation, lightness) color spaces.	82
4.1	Quantity of posts, faces, and derived skin tone presentation colors for #gay posts. Approximately 1.8% of all #gay posts collected were flagged as "top" posts. The number of faces derived from posts is reflective of how many people were in the associated images. Skin tone presentations were computationally derived, with a final manual filtration step to exclude faces that yielded non-representative colors. This filtration step accounts for the reduced quantity of skin tone presentations, as compared to quantity of faces.	98
4.2	Proportional distribution of skin tone presentations for "top" and "recent" #gay posts, grouped by Fenty foundation shade ranges (Light, Medium, Tan, Deep) and undertone ranges (Cool, Neutral, Warm). Groups that exhibited an increase in proportional representation within "top" posts, as compared to "recent" posts, are bolded. Light, medium, and warm toned posts were more prominent in "top" posts, while tan, deep, and cool toned posts were less prominent. Neutral tones remained near-constant (0.23% increase in "top" posts).	98

4.3 Statistics of Engagement Metrics for recent and top #gay posts. μ_F indicates the mean likes or comments for the respective feed, while η_F indicates the median, as defined in equations 3.4 and 3.5 105

4.4 Comparison of likes and comments on "top" and "recent" #gay posts, grouped by the lightness of skin tone presentation in the post. Lightness groupings are based on Fenty Foundation tone groupings (see figure 3-5), and skin tone presentations were derived using the skin tone analysis workflow described in figure 3-3. μ_F and η_F indicate the mean and median engagement value for a given feed F as defined in equations 3.4 and 3.5, respectively. $\mu_{F \cap T}$ and $\eta_{F \cap T}$ indicate the mean and median engagement value for a given feed F and skin tone grouping T , respectively. The difference between mean and median tone and feed values, $\Delta\mu_{(F \cap T) - F}$ and $\Delta\eta_{(F \cap T) - F}$ demonstrate whether posts of a given skin tone *overperform* or *underperform* as compared to the statistics of the overall feed. Light-toned recent posts received lower engagement than other skin tones, yet performed at or above average within top posts. Conversely, deep-toned posts received some of the highest engagement in recent posts, yet underperformed in top posts, relative to other skin tones. Interestingly, deep-toned top posts received the highest mean likes, yet the second lowest median likes. This is due to a small number of deep-toned posts receiving a large number of likes. 106

Chapter 1

Introduction

This project began anecdotally, coming into queerness in the age of social media. For many, the first engagements with gay culture are virtual, online communities enabling safe digital explorations of identities well before they manifest physically. Instagram – a social photo-sharing platform founded in 2010 with over 1 billion active users and 50 billion images uploaded¹ – holds a particular importance for queer identity construction, as the preeminent digital space for collecting, sharing, and viewing imagery. To come into gayness through Instagram is to understand identity as principally aesthetic and hierarchical. Each image posted to the platform represents a new expressive possibility, to then be ranked through algorithmically crowdsourced engagement. From the expanse of queer imagery rises a privileged few. A cursory search of gay spaces on Instagram quickly reveals the dominant aesthetic of the "instagay"² – an exclusive echelon of white, hypermasculine gay men with chiseled bodies, perfectly American lifestyles, and a tightly curated Instagram page to document both. This aesthetic has proven both formative and dissonant for many queer individuals. Formative, in that it advertises a security, acceptance, and desirability through hegemonic aesthetics, accessible to those with the privilege and proximity to perform them [109, 188]. Dissonant, in the friction between this rigid archetype of identity and the abundant modes of queer being it implicitly excludes [76]. Behind the aspirational allure of the

¹Instagram Marketing Statistics, <https://www.omnicoreagency.com/instagram-statistics>, accessed on 03-19-2021

²#instagay feed, <https://www.instagram.com/explore/tags/instagay/>, accessed on April 24, 2021

Instagram feed lies a hidden algorithmic orchestration of identity, selectively culling a select few from the billions of images on the platform and contouring the collective imagination to the possibilities and constraints of what could be.

The project starts here, with an understanding of imagery as a fundamentally world-building technology and Instagram as the preeminent vector for contemporary digital archiving, curation, and dissemination of images. Instagram's dominant facilitation of visual culture yields an immense power to expand and constrain both our collective fantasies and lived realities. This, of course, is true of traditional visual media industries, such as television and cinema, which have and continue to guide the modes of being that society perceives, values, and permits. Digital social media platforms, however, wield the potential to curate visual representations at an unprecedented scale, under the guise of technological objectivity, and with increasingly opaque algorithms trained to surveil, quantify, and optimize sociality.

The formative impact of media visualizations and visibility is most acutely felt by those that have been erased or misrepresented. Throughout history, the power and possession of imagery has been used to regulate racial, sexual, and gender deviance. Be it in 18th century daguerreotypes³ or 21st century memes, the visual has been a battleground for marginalized groups to resist, reclaim, and reimagine dominant representational paradigms. Digital media platforms such as Facebook, Instagram, and Youtube have in many ways destabilized the Old Media grip on visual representational control, providing new avenues for image production, distribution, and consumption exterior to traditional gatekeeping mechanisms. These platforms, in tandem with neoliberal shifts in sociopolitical hegemonies and identity boundaries, have co-produced a new vanguard of images and image-makers empowering those deemed deviant, and thrusting them into the cultural mainstream. Black, queer, and gender non-conformant (GNC) individuals and aesthetics have experienced gains in media representation, visibility, recognition, and self-definition. Yet, as others have noted [1, 69], these gains are paradoxically coupled with continued disenfranchisement, marginality, and co-option. Contemporary discussions surrounding cultural

³The daguerreotype was the first publicly available photographic process, invented in 1839.

phenomena such as Blackfishing and queerbaiting highlight the tension between visibility and appropriation – being seen versus being consumed – for those that have historically resided in what Fred Moten calls the "shadows" of culture [143].

Through a computational analysis of algorithmically curated content within hypersegregated queer spaces on Instagram, this project investigates how racial, sexual, and gender deviance is visualized for queer users on the platform. In particular, an analysis of skin tone presentations and network engagement with #gay content, compared across algorithmically stratified "top" and "recent" feeds, reveals how race and aesthetic performance is structured within gay digital spaces. A coupled analysis of dominant visual archetypes and discursive hashtags on the Explore feed of a queer-coded user yields insights into how Instagram quantifies user identity on the platform, structures content discovery in accordance with this perceived identity, and algorithmically mediates normative engagement with marginal aesthetics.

These findings suggest an erasure of Blackness within mediated gay spaces, cooption of Black and queer aesthetics, and an overwhelming promotion of hypermasculine and homonormative content on Instagram. Results are contextualized within a theoretical framework emphasizing structural conceptions of intersectional identities, intentionality and societal co-production of technological design and development, and contemporary manifestations of cultural commodification with the neoliberal digital attention economy. Forthcoming discussions suggest that, while contemporary visual power has certainly diffused to previously marginalized positionalities, this reallocation is contingent on market capital, assimilation to normative ideals, and continued marginality of racial, sexual, and gender deviance.

The following chapters provide the background, methodologies, results, and discussions for this project's investigation of algorithmic mediation of Black and queer aesthetics on Instagram. Chapter 2 discusses the theoretical framework and historical precedent of this project in greater depth, drawing from critical race, queer, and comparative media studies as well as ontologies of media, photography, and Black and queer visual culture. Chapter 3 outlines the development of computational methodologies for analyzing mediated identity on Instagram, including an analysis of skin

tone presentation, engagement metrics, emoji and hashtag usage, and dominant representational paradigms. Chapter 4 details the results of this computational analysis within the #gay and Explore feed, which are then implicated within a broader discussion of performance, visual mediation, and contemporary hegemonic aesthetic positionalities. Throughout, I hope to emphasize the immense potential that images, image-making, and digital media have in both upholding and uprooting existent power, and ultimately (re)defining how marginalized identities situate within a marginalizing world.

Chapter 2

Background

This project is primarily interested in understanding how marginal bodies are rendered visual and visible on Instagram. The investigation draws from multiple theoretical lenses and technical practices to contextualize its computational findings and discursive contributions, including critical race theory, Black feminist theory, race-critical code studies, structural intersectionality, queer theory, comparative media studies, theory of Big Data, and cultural analytical methodologies. Some of these perspectives are more familiarly acquainted than others. Within this chapter, I bring elements of these theoretical underpinnings into conversation with each other, in both new and well-documented ways, to frame forthcoming discussions of marginal visuals and visibility in the age of Instagram. I start with a discussion on the formative power and potential of images for collective imagination and world-building, followed by a historical trace of visual control, possession, and resistance within the United States. I then turn to New Media and the restructuring of visual control and cultural hegemony, contextualized within the rise of neoliberalism and the digital attention economy. This enters into a broader discussion of how normative culture engages with deviance and marginality, raising questions about how imaging and imagining the marginal can be liberatory acts within algorithmically mediated digital spaces. The chapter concludes with an overview of the theories and considerations which go into using computational tools to study cultural phenomena.

2.1 The Power and Possession of Media

Contemporary culture is hypervisual [55, 139, 140]. Visual media has established itself within postmodern society as the preeminent vector for sociocultural ideologies and values, having dominant influence over identity construction [214], normative desires [187], and cultural imagination [116]. Images are fundamentally world-building technologies, capable of expanding, structuring, and potentiating collective fantasies. Fox Harrell proposes the concept of *phantasms* – combinations of cognitive or sensory imagery and cultural ideas – to articulate the immense power digital media has in conveying sociocultural values through visual imagination [93]. The formative potential of the visual is evidenced by the immense amount of scholarship on its cognitive and psychosocial impact, particularly relating to the visual misrepresentation and under-representation of historically marginalized groups [15, 80, 83, 138, 185]. This power establishes the visual as an important precursor to futurity. Nam June Paik, the father of video art, professed that "the culture that's going to survive in the future is the culture that you can carry around in your head" [102]. Tomorrow's culture emerges from the affective and sensorial present, rendering *who* and *what* gets seen an existential concern for those that have historically lacked the access and agency to control the "normative gaze". Thelma Golden notes how "representation is central to power. The real struggle is over the power to control images" [177].

With power, as always, comes possession. The dominance of visual media has been paralleled by a constant battle over the collective visual lexicon. Since its inception, both the big and small screen have been cultural, political, and moral battlegrounds over the right to see and be seen. The 1915 *Mutual Film Corp v. Industrial Commission of Ohio* U.S. Supreme Court ruling, which denied free speech protections to motion pictures, sparked a series of state and studio regulations seeking to moderate cinematic content in peak 1920s Hollywood [52, 67]. This eventually led to the infamous Motion Picture Production Code of 1934 (also known as the Hayes Code), which placed stringent extralegal restrictions on films, including a ban on depictions of homosexual relationships, sex, or romance; interracial sex and marriage; and any-

thing that might "lower the moral standards of those who see it", particularly the "susceptible minds" of women, children, and the poor [153]. These codes mediated studio production of films for over thirty years, until they were replaced in 1968 with the film rating system still in use today.

Television had proscriptive codes of its own and was a site of Western Christian moral concern throughout the mid- and late-20th century. The television show "*All in the Family*", hardly a paragon of progressivism, was one of the first sitcoms to feature a gay character. In a 1971 episode, Archie Bunker, the show's infamously conservative protagonist, mistakenly thinks his son-in-law's friend is gay (namely a "fairy" and a "fag"), only to find that his good friend is in fact a "flamer" [194]. President Nixon, in taped private conversations, condemned the episode as a "glorification" of homosexuality, stating, "homosexuality, immorality in general, these are the enemies of strong societies. That's why the Communists and the left-wingers are pushing it" [44].

Though regressive and morally stringent codes for policing media production have largely been replaced, the moral and political fervor over "corrupting" visuals remains. A cursory reading of contemporary media and politics reveals a continued fervor over what can and should be seen. Cardi B and Megan Thee Stallion's 2020 song and music video *WAP* sparked outrage from the religious and political right, who viewed the two Black female artists' sexually explicit lyrics and visuals as perverse and oppositional to "what feminists fought for" [25]. More recently, Black and queer rapper Lil Nas X faced conservative criticism in 2021 for his eponymous song and music video "*Montero (Call Me By Your Name)*", in which he intermingles queer and religious imagery to depict his internalized spiritual and sexual journey, notoriously ending with him dancing on and then killing the devil [217]. The list of visual media subject to moralistic and political backlash is long, including films *Cuties* (2020) for sexualized depictions of young girls [130, 203] and the *Lorax* (2012) for pushing an environmentalist agenda to young children [197]; TV shows *Modern Family* (2009) and *The Brady Bunch* (1969) for perverting the nuclear, patriarchal family [75]; and an infamous televised musical performance by Janet Jackson (2004), nicknamed

"Nipplegate", which led to a widespread crackdown on perceived "indecentcies" in media. Importantly, the fight over representation and ethics in media is not monopolized by the religious right. Progressive activists have also sought control and regulation over visual media, largely through public outrage over racist and stereotypical portrayals and calls for equitable racial, sexual, and gender representation in cinema and television.

2.1.1 The Controlling Image

Implicit within these examples of ardent moral and political posturing is an understanding on both sides of the deeply formative potential of visual depictions of race, sexuality, and gender. The visual holds a particular weight for those groups whose likeness and narratives have been historically erased, bastardized, and repurposed [57, 113, 137, 181]. The controlling image is a term applied by Black feminist scholars to describe imagery that entrenches harmful or derogatory archetypes as default, natural, and apolitical [18, 48, 57]. Controlling imagery operates on both an individual and structural level, undermining the cultural object itself – be it a meme on Instagram or a character in a TV show – while also fortifying beliefs which uphold systemic inequities [51]. Hazel Carby notes that these images function as a "disguise, or mystification, of objective social relations", intending to define rather than reflect objective realities [36]. bell hooks states that "pop culture is where the pedagogy is", with mass media imagery framing the collective values, ideologies, and aspirations of mass culture, typically in service of reductive hegemonic narratives [19]. Angela Davis and Melissa Harris-Perry document the psychosocial impact of race and gender stereotypes on Black women in visual media, distorting one's self and surroundings until the connotations of the negative imagery are internalized and accepted as obvious or natural [57, 94]. Ibram X. Kendi expands this impact to a communal level, examining how crafted racist archetypes have bolstered both segregationist rhetoric on the inherent inferiority of non-whites, as well as assimilationist ideologies on the need for cultural or behavioral "enrichment" for otherwise undeveloped Black communities [113]. To be explicit, the controlling image is a viral technology, inserted

into the cultural vernacular by and for white supremacy, from which it grows and reproduces until its embedded ideologies gain ubiquity. Understanding the controlling imagery of racial, sexual, and gender minority groups contextualizes backlash against perversions of "traditional values" as resistance to counter-hegemonic imagery, coercive assimilation to prescriptive societal roles, and fear of white, cis, heterosexual displacement. Below, I highlight how select controlling images have dominated the cultural narrative of those deemed racial, sexual, and gender deviants, as well as how these images have operated to bolster existent hegemonies.

The Mammy, The Matriarch, and Other Tropes

bell hooks, Patricia Hill Collins, and other Black feminist scholars outline four primary portrayals of Black women within mainstream media: the Mammy, the Matriarch, the Jezebel, and the Welfare Queen [26, 48, 200]. The Mammy is an obedient and fastidious domestic servant. Often depicted as asexual, fat, dirty, and submissive, the Mammy takes on a neutered and tender motherly role to white children that she did not (and perhaps implicitly, *could not*) birth herself. hooks notes the mammy, as with other controlling images, was a "creature of white imagination" – a fictitious racist-sexist idealization of Black womanhood, undesirable enough to placate the anxieties of white women and subservient enough to bolster white supremacist ambitions [18]. hooks and others further note the documented reality of young black women being the primary workers in slave households, revealing the extent to which this image myth has destabilized perception from reality in service of white comfort and coercion [18, 94]. The "mammification" of the Black woman within the collective imagination has been linked to assumed deference and subordination in professional roles; expectations of boundless warmth, kindness, and Victorian gratitude; and accusations of anger, aggression, and "bitchiness" when these expectations are not met [157, 170]. Examples of the Mammy in media are shown in figure 2-1.

The Matriarch, also known as the Sapphire, is a prescriptive image of the "bad" Black mother, depicting a domineering, masculine, independent single mother that fails to fulfill traditional "womanly" duties, to the demise of her family [18, 48, 94].



(a)



(b)



(c)

Figure 2-1: Depictions of the Mammy stereotype in media. (a) Aunt Jemima, the character associated with the popular brand of pancake mix, shown as a jovial and subservient house maid. (b) Mammy, the housekeeper from film *Gone with the Wind* (1940), played by Hattie McDaniel. (c) Madea, a elderly mother-figure portrayed by Tyler Perry within the *Madea* movie franchise (shown here in the 2011 film *Madea's Big Happy Family*).

The Sapphire emasculates the Black father and husband, exhibiting an untenable anger, attitude, and pride. Jean Bond and Pauline Perry describe the Black Matriarch as a "folk character largely fashion by whites out of half truths and lies" [28]. bell hooks traces the origins of the Black Matriarch to the racist imaginations of white male slave holders, who conceived of a manly and super-human Black woman archetype to reconcile the "manly" forced labor of enslaved Black women with the continued suppositions of white female inferiority and ineptitude [18]. The Sapphire trope works to warn women against seeking autonomy and agency within or outside of a nuclear family structure, while also absolving whiteness of the racial, economic, and political exclusion Black women and families continue to face [107, 156]. Examples of the Matriarch in media are shown in figure 2-2.

The Jezebel is a completely sexualized caricature, portraying the Black woman as sexually unquenchable, eternally available, and helplessly uncouth. Justified by racist perceptions of African female nudity, pageantry, and marital practices, the image of the Jezebel was used to socially and legally defend the rape and subjugation of Black women [19]. 19th century Victorian ideals replaced the religious doctrine of woman as sexual temptress to Original sin with a romanticized vision of pure,



(a)



(b)



(c)

Figure 2-2: Depictions of the Matriarch, or Sapphire, stereotype in media. (a) Aunt Ester, from the 1970s TV show *Sanford and Son*, played by LaWanda Page, shown here with a scowl and incisive gaze. (b) Sapphire, a character played by Ernestine Wade on the sitcom *"Amos 'n' Andy"* in the 1950s, shown here reprimanding her husband. (c) A 2008 *New Yorker* cartoon by Barry Blitt, depicting Michelle and Barack Obama, with a militant Michelle fist-bumping her husband while he sheepishly looks to the audience. An American flag burns in the background. Blitt satirized the right-wing portrayals of Michelle as a radical militant emasculating her husband.

virtuous femininity, ridding the white woman of sexist mythologies in exchange for the suppression of sexual desires [18]. This, of course, did not end sex or desire. In tandem with, and motivated by, the valorization and purification of white womanhood was the sexualization and exploitation of Black women. As bell hooks and Angela Davis both note, the Jezebel myth proved useful for white slave holders and abolitionists alike – slave holders leveraged the Jezebel image to justify the institutionalized terrorism of rape and sexual violence on enslaved Black women, while white abolitionists often backed pleas for the end of slavery with arguments as to the moral perversity of white men having sexual contact with seductive Black women [18, 57, 86]. This controlling image admits power in the Black female body, yet only through its sexual currency, and simultaneously considers this currency as a request for sexual advance – to appear sexual is to desire, if not demand, sex [6]. The impact of this image is persistent today, with Black women being both more likely to experience sexual violence and less likely to be believed or supported when such violence is reported [4, 17]. Examples of the Jezebel are shown in figure 2-3.



(a)



(b)



(c)

Figure 2-3: Depictions of the Jezebel stereotype in media. (a) Cover art for the vinyl release of *Please Warm My Weiner (Old Time Hokum Blues)* (1974), showing two men gleefully leering at a Black woman in a short dress and heels. (b) A 1810 caricature by William Heath titled *A Pair of Broad Bottoms*. The text reads, "Well I never expected Broad Bottoms from Africa, but one should never despair! Mind Sherry, don't let your Fiery Nose touch the Venus for if there's any Combustibles around here we shall be Blown Up!", followed by, "I shall be Careful Your Lordship! But such a spanker, it beats your Lordships Hollow!!!". The caricature is one of many depicting Sarah Baartman, a South African woman consigned to performances in European "freak shows" under the stage name "Hottentot Venus" due to her naturally large buttocks. A more detailed rendering of Sarah Baartman's story and the colonialist exploitation of the "Hottentot Venus" can be found in the references [113, 161]. (c) a portrayal of *Foxy Brown* (1974) star Pam Grier, shown in a revealing top with gold hoops and a shotgun.

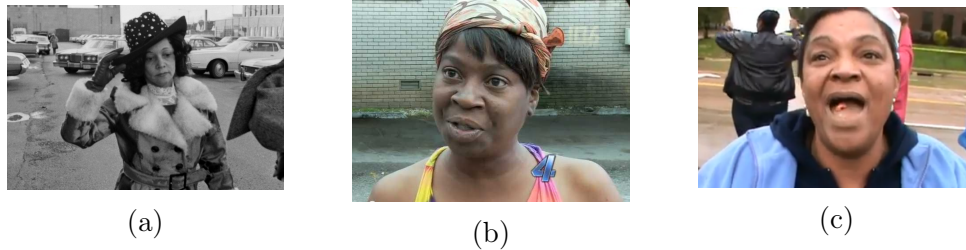


Figure 2-4: Depictions of the Welfare Queen stereotype in media. (a) Linda Taylor, the woman first accused of being a "welfare queen" by Ronald Reagan and other members of the media, shown here with a bejeweled cowboy hat and fur-lined coat. Image courtesy of Corbis. (b) Kimberly "Sweet Brown" Wilkens, made famous by a television interview with Oklahoma City NBC affiliate KFOR-TV in 2012 after escaping a fire in her apartment building. (c) the infamous Obama Phone woman, unidentified to the best of my knowledge, shown as part of a video extolling the benefits of welfare programs under the Obama presidency. Originally posted to Youtube by user *RealFreedom1776* in 2012. Both (b) and (c) are examples of how the welfare queen archetype undermines the Black woman's competence and worth, even when these women are experiencing explicit poverty and social harm.

The final controlling image of the Black woman discussed here is that of the Welfare Queen. This image was fabricated on the idea of the free-loading, lazy, deceptive Black woman, profiting from the American system without providing any value. Though it has long been used to justify the low socioeconomic status of Black women, the image gained particular notoriety after Ronald Reagan, in his presidential election campaign, provided details of an (implicitly) Black woman with "80 names, 30 addresses, [and] 12 social security cards", making "over \$150,000 a year" off of welfare programs [61]. While these claims were later found to be completely hyperbolic, with the since identified Linda Taylor charged for committing \$8,000 in welfare fraud [119], the image of the Black social parasite stuck and has been at the forefront of public discourse around race, welfare, and social services ever since. Central to this image is the supposed sloth, criminality, and incompetence of the Black woman, dangerous stereotypes which contribute to Black women experiencing neglect and distrust from healthcare professionals [51], Black mothers having their children surveilled and seized within the foster care system at disproportionate rates through assumed ineptitude [73], and forced sterilizations of Black women within the prison system [186]. Examples of the Welfare Queen image are shown in figure 2-4.

The Sambo, Mandingo, and Uncle Tom

Black men have been subjected to their own set of controlling images in media, including the Sambo, Mandingo, and Uncle Tom archetypes. The Sambo is the myth of the "happy slave" – docile, lazy, and content, yet fully dependent on the slave master. This image, as with the Mammy, was imagined by white slave holders to justify slavery and even argue its amelioration of Black livelihood [113]. The Mandingo finds its corollary with the Jezebel, portraying the Black man as animalistic, hypersexual, savage, and physically superhuman [57, 176]. Importantly, the Mandingo archetype buttressed Black masculinity in opposition to Black women by imagining the Black man as superhuman with ravenous sexual desires for white women, while also divining scientific validation for the brutal physical labors demanded of the Black male body under slavery. The Black body, again, becomes a source of simultaneous value and excavation – something which is powerful, "other", and worthy of conquest. The final archetype of the Uncle Tom is one of simple-mindedness and compliance. The Uncle Tom is fundamentally disinterested in the plight of his fellow Black Americans, seeking atonement through assimilation and support of white domination [26]. Examples of these Black male controlling images are shown in figure 2-5.

Queer and Trans Representation in Media

Visualizations of gender identity and performance have also been subjected to regulation and white normative control. Many point to the film *Judith of Behtulia* by D.W. Griffith, of *Birth of a Nation* infamy, as the first representation of gender non-conformance in film [77]. Thus began a legacy of images which have systematically imagined transgender and gender non-conforming (GNC) identities as violent, comical, deceptive, and dangerous. Horror films such as *Dressed To Kill* (1980), *Terror Train* (1980), *Psycho* (1960), and *Silence of the Lambs* (1991) invented a perception of transfemininity as mentally unhinged, prone to violence, and usually the "costume" of a man with criminal motives [9]. Elsewhere, comedies latched on to the "man in a dress" archetype, as seen in popularized movies such as *Mrs. Doubtfire* (1993), *The*

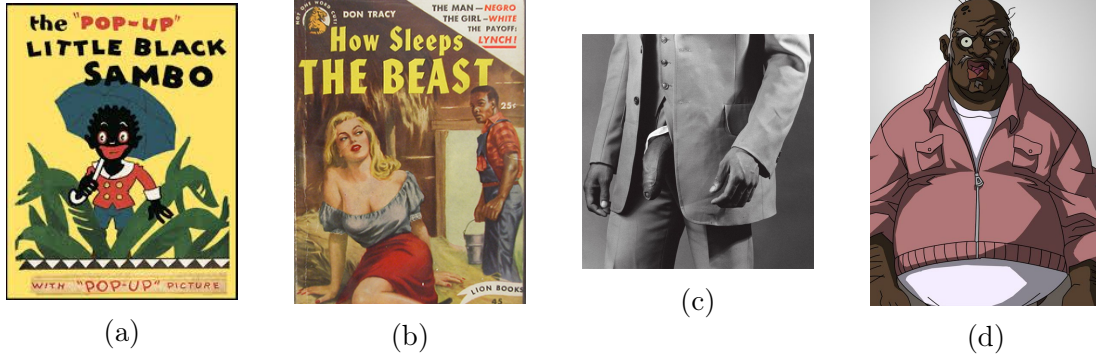


Figure 2-5: Depictions of Black male controlling images in media. (a) the Sambo archetype, showing a small, jovial Black boy on the cover of the *Little Black Sambo* children's book. Photograph of front cover of a first edition pop-up book published in 1934 by the Blue Ribbon Company, illustrations by C. Carey Cloud. (b) *How Sleeps the Beast*, a 1950 book by Don Tracy, telling the tale of a Black man that is lynched after sleeping with a white woman. (c) An image from photographer Robert Mapplethorpe's *Black Book*, showing a Black man in a suit with his large penis extruding. Mapplethorpe filled the photo book with hypersexualized, hypermasculine, and dehumanizing depictions of Black men, leaning into the Mandingo image. (d) Fictional character Uncle Ruckus, from the 2005-2014 *Boondocks* cartoon series. Uncle Ruckus is notoriously and comically anti-Black, and praises whiteness and white values throughout the show, as an intentional allusion to the Uncle Tom stereotype.

Madea Franchise, and *Big Momma's House* (2000). Imagery straying from prescriptive gender presentations was largely confined to comedic effect and male trickery, never a serious or legitimate cause. Here, the "invention" of an image is truer than ever, as 80% of Americans don't personally know a single trans or GNC individual [84], and gender non-conforming public presentations were criminalized well into the 20th century [175]. As such, the media held immense power over perceptions of gender identity.

As previously discussed, depictions of homosexuality were heavily regulated, both in law and in practice, with moral and political authorities viewing queer culture as a fundamentally corrupting and perverse threat to "traditional American values" [44, 153]. In accordance with these views, prominent archetypes of homosexuality presented the gay male as comical or derided, as with *All in the Family*; sexualized, deviant, (sometimes literally) infectious, especially in response to the rise of the Moral Majority and the AIDS epidemic [24]; and as a "phase" of sexual exploration, to be



Figure 2-6: Depictions of gay male heartbreak and heterosexual resolution in popular cinema. (a) *My Own Private Idaho* (1991), a film that follows Mike (River Phoenix) and his friend Scott (Keanu Reeves), both male prostitutes, on a coming of age story. Mike confesses his love to Scott, who asserts he only sleeps with men for pay, and is ultimately abandoned as Scott inherits wealth and status within a straight lifestyle. (b) The 2005 film *Brokeback Mountain* similarly depicts homosexuality as deviant desires which threaten the stable heterosexual norm. Ennis (Heath Ledger) and Jack (Jake Gyllenhaal) engage in a discrete sexual affair before going off to live married heterosexual lives. Their relationship lingers through crumbling personal lives, though the queer love is seen as dangerous and impossible. (c) *Call Me By Your Name* (2017) follows Elio (Timothée Chalamet) and Oliver (Armie Hammer) on a queer summer fling in Italy, before Oliver returns to the US and marries a woman. The movie ends with Elio heartbroken, learning of the marriage. (d) *Moonlight* (2016) explores similar coming-of-age themes, with the main character engaging with his homosexuality before "growing up" and ultimately rejecting the danger, stigma, and instability of queer life.

corrected and resolved for a more mature and responsible heterosexual future (see figure 2-6). Homosexual and bi-sexual women were subject to similar archetypes, as well as a trope colloquially termed "bury your gays", in which queer female characters are disproportionately subjected to death and violence within television series [81].

2.2 Reclaiming the Image, Recasting the Future

While those with political, economic, and social capital have sought to buttress their hegemony and exploit deviance through crafted and controlled imagery, this history is far from one of complete subjugation and resigned marginality. Those deemed racial, sexual, and gender deviants have perhaps most acutely understood the power of the visual and have worked to reclaim their images, narratives, and futures in opposition to established representational paradigms.

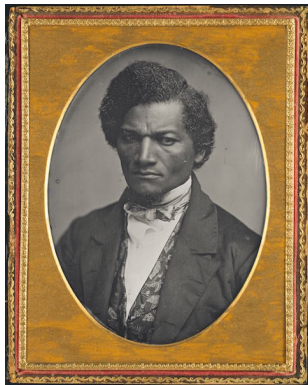
Abolitionist and activist Fredrick Douglass was, by no coincidence, the most pho-

tographed man of the 19th century [23]. Douglass meticulously crafted his likeness, deliberately choosing to be imaged with a stern face oppositional to the "happy slave" Sambo archetype and a confrontational demeanor conveying the gravity of his abolitionist cause [23]. Antwaun Sargent notes the lineage of Black photographers, including Thomas E. Askew, Cornelius M. Battey, and James Van Der Zee, who reimagined the self-fashioned Black subject and deliberately sought to construct an expansive Blackness within the visual lexicon (see figure 2-7). Queer individuals similarly resisted the erasure and confinement of normative representations, with personal images of homosexual romance and relations dating back to the 1850s¹. The imaging of homosexuality, and particularly of homosexual romance, joy, and normalcy, was itself an act of resistance to the invisibility and stigma that normative culture sought to impose. These images (examples in figure 2-8) assert gay existence and, in doing so, reclaim the heterosexual present in service of a queer-inclusive future.

2.2.1 Afrofuturism and Queer Imagination

Futurity is the central concern of imagery. Both Black and queer creators have sought to resist the normative monopoly on the future. Afrofuturism – a cultural genre, aesthetic, and philosophy that interjects African American themes and concerns into the speculative technocultural future [155] – was named by Mark Dery in 1993 to question whether "a community whose past has been rubbed out, and whose energies have subsequently been consumed by the search for legible traces of its history, [could] imagine possible futures". Dery further noted the monopoly white male "technocrats, futurologists, streamliners, and set designers" held over the "unreal estate of the future" and "our collective fantasies" [63]. The Afrofuturist perspective, of course, has a long lineage within Black art, with creators such as Octavia Butler and Samuel Delany leveraging technoculture and science fiction to speak to present Black issues while also asserting Blackness as both present within and constitutive of the collective future [34, 60]. As artist Alisha B. Wormsley presciently reminds us, *"There Are Black*

¹The daguerreotype process, which was the first publicly available photographic process, was invented in 1839.



(a)



(b)



(c)

Figure 2-7: Example of self-fashioned Black American images in the 19th and early 20th centuries, which countered established representational paradigms. (a) Daguerrotype of Fredrick Douglass, shown with a stern face and polished demeanor, taken by Stephen J. Miller in 1852. (b) *Young Girl with Dog* by James Van Der Zee in 1921, highlighting the glamour of the Harlem Renaissance (c) *Four Women* by Thomas E. Askew in 1899, depicting four African-American women resting on steps at Atlanta University



(a)



(b)



(c)

Figure 2-8: Images of male homosexual romance, joy, and normalcy in the late 19th and early 20th centuries. (a) A snapshot of two men lovingly touching, taken in a photo booth in the mid-20th century. Photo booths were a common space for imaging queer love, as it did not require public exposure of the relationship. (b) a Black gay couple in military outfits, with the image dated 1951. (c) two formally dressed men holding hands, one sitting on the other's lap. The image has been dated to about 1880. All photos courtesy of the Nina-Treadwell Collection [150]

People in the Future" [216].

The link between technology, visual resistance, and counter-hegemonic imagination remains deeply embedded within the fight over futurity for marginalized groups. Moya Bailey both documents and partakes in acts of digital resistance to what she coined misogynoir – anti-Black misogyny – such as the #tooFEW movement which seeks to correct and add to the histories of Black feminists on Wikipedia page [11]. *NeuroSpeculative AfroFeminism*, a VR experience created by art collective Hyphen Labs, transplants the viewer into a "neurocosmotology lab", recontextualizing Black hair salons and rituals within a speculative cosmetic and cognitive future pioneered by Black women². Black queer artist Saul Williams' *MartyrLoserKing* follows a cyber hacker from Burundi, raised within the technological detritus of coltan mining and recycled computers, as he engages in anarchist cyber-activism against the entities that have exploited his people and land [212]. Bogosi Sekhukhuni engages in what Tabita Rezaire calls "Afro Cyber Resistance", using the Internet "as material for cultural dissent toward Western hegemony" [169]. This is not intended as an exhaustive list of Black engagement with technology and futurity, but rather a set of examples sampling the expanse of engagement, specifically highlighting the works which have informed my thoughts related to this project.

Queer Futurity

Within this project, I use the term queer both as a referent to non-normative sexual and gender identities and as a political ideology oppositional to binarism, assertive of collectivism, and resistant to oppressive hegemonic systems. Black queer feminist bell hooks defines queer as "not about who you're having sex with...but queer as being about the self that is at odds with everything around it and has to invent and create and find a place to speak and to thrive and to live" [20]. Queer theorist José Esteban Muñoz describes queerness as an ephemeral horizon, an ideality, which encourages us to envision a future liberated from the normative constraints of the here and now

²*NeuroSpeculative AfroFeminism*, a VR Experience produced by Hyphen Labs, available at <http://www.hyphen-labs.com/nsaf.html>, accessed on 05/09/21

[146]. Muñoz notes the trajectory of the gay liberation movement's objectives, from a radical restructuring of gender, the nuclear family, and sexual norms, to normative and largely white middle-class gay male ambitions such as the right to marry and enter the military. The critique is a common one: new solutions that mask, perpetuate, and fail to indict old problems. The propensity of liberatory ideologies to gravitate towards and often assimilate to existent power is an issue of imagination, according to Muñoz. Imagining a future exterior to today's modes of being is a fundamentally queer pursuit, and is an essential step in dismantling systems of oppression.

I put afrofuturism in conversation with queer imagination to bring together ideas on how technology, imagination, and imagery can intersect to liberate queer and black communities, both mentally, in terms of the images and archetypes they carry, and physically, in their lived experiences navigating exclusionary and inequitable systems.

2.2.2 The Visual Vanguard

The culturally constitutive presence of black and queer individuals is of course not limited to speculative futures. Marginalized communities have always been the har-bringers of culture. It is both well-documented and often neglected that many of the most fundamental American cultural movements, ranging from musical genres such as Jazz, Rock 'n' Roll, House, and Hip-Hop [121] to contemporary fashion trends [211] and modern English vernacular [1], originated in what Fred Moten calls "the underground" [143] of Black and queer culture.

The longstanding role of Blackness and queerness as "engine of American popular culture" [58] is alive and well today, particularly within visual media and image-making. The rise of what Antwaun Sargent terms the "New Black Vanguard" [177] has established an unprecedented visibility and attribution of Black art, culture, and imagery. Queer culture has similarly drawn attention from the white and straight gaze in recent times, bringing mainstream access and success to cultures, aesthetics, and identities which were previously (and, for many, still are) rendered invisible, criminal, and perverse. Figure 2-9 provides examples of the prominence and visibility of marginal imagery and aesthetics within popular culture today.



(a)



(b)



(c)

Figure 2-9: Examples of Black and queer prevalence within mainstream culture, particularly in traditionally exclusive institutions. (a) still image from Louis Vuitton's Fall/Winter 2021 Menswear fashion show, showing the back of Black queer artist Saul Williams walking into a room of men dressed in Louis Vuitton apparel. Virgil Abloh is Louis Vuitton's first Black artistic director and has incorporated Black culture and imagery into much of the brand's content. This show included prominent Black creators such as Saul Williams, Yasin Bey, Kai Isaiah Jamal, and Alton Mason. (b) Beyoncé, photographed for the September 2018 issue of *Vogue* by Tyler Mitchell. This shoot made Mitchell the first Black photographer to shoot a *Vogue* cover image. (c) Angel Evangelista, played by actress and Black trans non-binary activist Indya Moore in the television show *Pose*. *Pose* is one of the first mainstream television shows to highlight Black queer ballroom culture.

2.3 New Media, Instagram, and the Episteme of the Photo

The new visual vanguard is made possible by the destabilization of visual control under New Media and neoliberalism. Far from Hayes Code Hollywood, the advent of New Media and computational distribution of visuals brought with it the promise of expanded representation within media production and consumption. Old media mechanisms for gatekeeping representations of marginalized identities lost influence in the age of the Internet, as new markets emerged for creating, distributing, and accessing visual content. In particular, social video and photo sharing platforms like Youtube, Facebook, and Instagram have revolutionized visual culture, opening up new pathways for visual creators to reach audiences, ostensibly free from the proscriptive production codes and mediative regulations of old.

Furthermore, in addition to the mainstream popularity of Black and queer culture, the Internet has allowed space for engaging with deviance safely, privately, and communally. Explicitly racialized and queer digital communities have provided opportunities for "intense moments of identification" and a "concrete location" for communities that have historically been invisible and disjoint [58].

As the marginal have found visual agency and visibility within digital media, so too has the normative white and straight gaze found intrigue in the newly unearthed and readily available realms of Black and queer culture. While the increased representation and visibility of racially and sexually marginalized groups is certainly optimistic, digital media has proven far from utopic and absolute in its democratized and liberatory potential. Kimberly Drew and Jenna Wortham confront the dual neoliberal reality of simultaneous Black empowerment and disenfranchisement, highlighting how social media has granted a democratized platform for agency and self-definition, as well as a new mechanism for surveillance and co-option [69]. Kate Redburn notes how the same conditions which fostered the new vanguard of Black and queer visual popularity and acknowledgment have also led to new pathways for commodifying Black and queer culture in service of white heterosexual capital [166].

The tension between visibility and co-option is central to this project and underpins much of the investigation into normative engagement with the marginal on Instagram.

This project focuses on how digital media has challenged, reinforced, and obfuscated power over the visual. In contextualizing the "new visual vanguard" within the broader lineage of media and mediation of marginalized identities, I consider how Instagram functions as a new-age gatekeeper of the collective visual imagination, both shaping *who* and *what* we see, and restructuring the flow of Black and queer cultural production. In the following sections, I provide an overview of Instagram and its functions, followed by an epistemological overview of photography and its relation to performance on Instagram. Lastly, I bring Nathan Jurgenson's conceptions of social photography and the "Instagram Eye" [108] into conversation with Blackfishing, queerbaiting, and other cultural phenomena in which normative culture co-opts the marginal, to investigate how the digital attention economy and Instagram enable the commodification of Blackness and queerness.

2.3.1 Instagram and Its Functions

Instagram is a digital social photo-sharing platform with over one billion users and over 50 billion images uploaded to the site³. Though its design and modalities have shifted since its launch in 2010, its primary interfaces with users are the profile, content engagement, the hashtag, and the feed.

The Profile

The Instagram profile is the primary touchpoint for users on the platform. Each user must create a profile when first joining Instagram, with options for a profile image, username, biography, personal website link, and contact information. Profiles are linked to the images and videos posted by the user, as well as the accounts they choose to follow ("following"), and those that choose to follow them ("followers"). Much of this information is displayed on the user profile page, as seen in figure 2-10. The

³Instagram Marketing Statistics, <https://www.omnicoreagency.com/instagram-statistics>, accessed on 03-19-2021

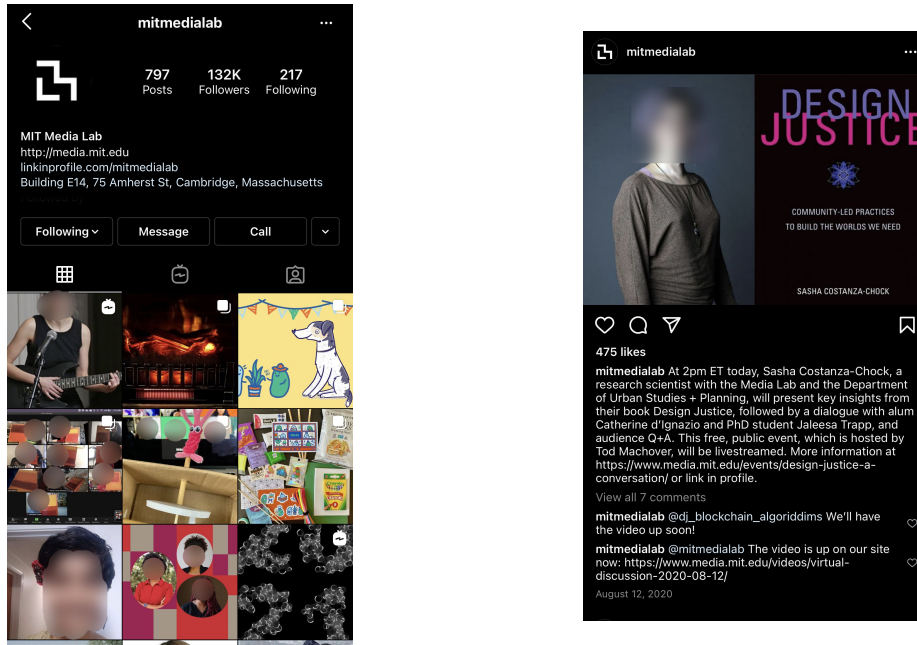


Figure 2-10: Screen capture of Instagram interface for the profile page of MIT Media Lab (@mitmedialab) and a post from the account. The profile picture, bio, posts, and associated metrics all function to structure the profile's digital presentation.

"followers" and "following" of profiles structures the Instagram user network. This network in turn structures the main Instagram "feed", a stream of images curated by Instagram based, in part, on the accounts a user follows.

Content and Engagement

The term "content" refers to all media posted on the Instagram platform, usually in the form of images or videos. Content has two main properties: the visual and the caption. Users select a visual to post, which can be pre-processed on the platform using a variety of photo editing tools, and then optionally type a caption to accompany the visual. An example post is shown in figure 2-10. Once content has been posted, users that see the content can engage with it through the "like", the "comment", and the "share". The "like" is the most used engagement modality, standing in as proxy for user "approval" or content popularity. Content comments allow for discussion and text-based engagement, with users often directly speaking to the content creator in the comments section. The "share" is a less-ubiquitous modality for content engagement,

which allows users to share content with other users directly, via messages or as a temporary post known as a "story".

The Hashtag

The hashtag is a single word or phrase preceded by a hash sign (#) on digital networks to flag associated content with a given topic or discursive focus. On Instagram, up to 30 hashtags can be included in the caption of a post. Hashtags function semiotically, allowing users to frame their posts within a context that may or may not be evident from the post itself [29]. This serves to both orient the viewer to the intended significance of the post and self-actualize the poster within a broader community of users that might share interests or identities. Specifically, hashtags linked to race, class, gender, or sexual identity groups can be used to explicitly reveal how the user self-identifies, and to render their posts more visible to others that identify similarly.

The Feed

As mentioned previously, a "feed" is an ephemeral and endless stream of content delivered by a social media platform. The feed is where content is seen and interacted with. On Instagram, there are multiple feeds, including the "main" feed, the hashtag search feed, and the Explore feed. The main feed primarily displays content interior to a user's social network ("following"), though promotional and recommended content is occasionally injected by Instagram.

The hashtag search functionality allows users to search for content exterior to their social network based on hashtags⁴. In this way, Instagram uses hashtags to structure conversation and content exploration on the site. Searching via hashtag directs the user to two distinct curated feeds of posts that include the given hashtag: one for "top" posts, and one for "recent" posts. Though there are numerous articles and resources online for improving a post's standing within the algorithm, Instagram provides little explanation for what constitutes a "top" post. The hashtag search

⁴The Instagram interface changes frequently. The mentioned functionalities were accurate as of March 17, 2021.

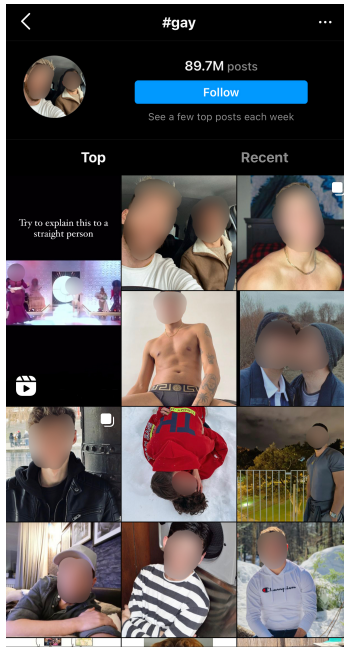


Figure 2-11: Screen capture of Instagram interface for hashtag search (a search for #gay is shown). Content using the searched hashtag is divided between Top Posts and Recent Posts, both displayed in a grid-like feed

interface is shown in figure 2-11.

The Explore Feed is the principle space for exploration and discovery of content exterior to a user's social network. Unlike hashtag search, which requires the user to provide explicit context for the desired content to be included in the feed, the Explore page is automatically contextualized to the user, based on an opaque amalgam of computational metrics Instagram uses to determine the interests, communities, and preferences of the user. The Explore Feed interface is shown in figure 2-12.

2.3.2 Photography and the Instagram Eye

In situating Instagram within a broader lineage of mass-mediated visuals, it is important to first explore photography and image-making, as well as performance and aesthetics.

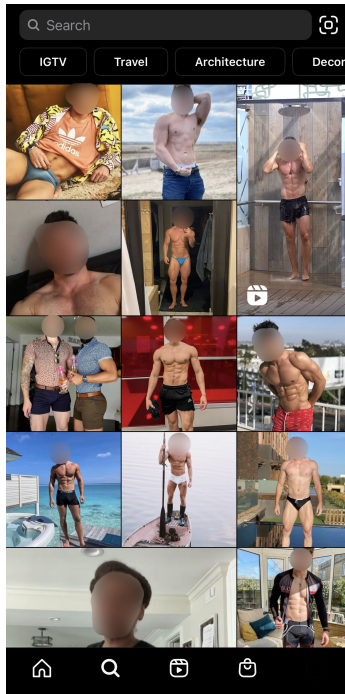


Figure 2-12: Screen capture of the Instagram Explore Feed. Content is uniquely curated for the user based on Instagram's understanding of the user's interests, communities, and preferences. Faces are blurred to respect the privacy of the individuals.

The Epistemology of the Photograph

The photograph has long been heralded as the most "truthful" visual document [171]. Many point to the photograph as a source of uniquely objective epistemic value [45], the disinterested embalming of a "privileged moment" [184] to be recalled as unquestionable evidence of the past. Social theorist Nathan Jurgenson notes how photography, through its documentative and referential power, externalized human sight, making "seeing" social in a way that held deeper evidential value than a painting or artistic depiction [108].

However, the photograph is far from objective or wholly evidential. Rather, photography falls within a lineage of technologies that have mediated how humans see their world. One example is the Claude Glass, an 18th century invention used by travellers to view filtered and visually enhanced reflections of natural landscapes [131]. The invention and rise of travel by high-speed train can also be understood in a similar manner, collapsing the natural world to a chromatic blur for those passengers

peering through the train window. In a literal sense, the train window mediates vision, fundamentally restructuring what is seen and how it appears. The camera acts in much the same way, yoking the photographer to see the world through the logic of the camera viewfinder. The "gaze" of the camera embeds itself into the psyche of the photographer with what has been called the "camera eye" [108], extending the camera's vision into the photographer's, and proposing each present moment as a potential photo, even when the camera is not in use.

The Claude Glass, the train window, and the "camera eye" all function to mediate vision, framing, warping, and restructuring what is seen. This history of mediated and curated vision challenges assumptions of the objectivity of the photograph, and necessitates a consideration of what *isn't* seen, in addition to what is.

Imaging Blackness

The intentionality, visual power, and ostensible objectivity of the photo has historically been used to reinforce existent social hierarchies and lend pseudo-scientific authority to white supremacist movements. Photography was a popular tool for the American eugenics movement throughout the 19th and 20th centuries, allowing scientists to "identify" the biologically inferior through imaging of bodies and "validate" the racist genetic theories [136]. Photographic technology itself has long been subject to race-critical critique. Initial mechanisms for calibrating lighting and color were unable to accommodate dark skin tones, rendering Black photographic subjects invisible [120]. These challenges to imaging Blackness persist today. Joy Buolamwini and Timnit Gebru document the relative invisibility of Black and female faces within face recognition software [32]. Writer and photographer Teju Cole documents the continued history of adversity and resistance in photographing Black skin [46]. Claudia Rankine directly confronts how Black bodies and Black pain are imaged through the white gaze [163, 164]. The imaging of the Black body is a continued space of inquiry and critique, with work challenging the technique, content, and intent of imagery [144].

As noted, the contemporary "new Black vanguard" of image-makers has reclaimed

this history of Black photographic erasure, eliciting artistic practices from the "unfriendly tools" of photography. Photographers like Tyler Mitchell, Carrie Mae Weems, Roy DeCarava, Campbell Addy, Arielle Bobb-Willis, Micaiah Carter, Quil Lemons, Dana Scruggs, and Stephen Tayo have all worked to image and reimagine Blackness in its expansive and liberatory potential [46, 177] (see figure 2-13).

The Instagram Eye

Instagram has fundamentally shifted the practice of photography to what Jurgenson calls the "social photo" [108], reworking the logics of *what*, *how*, and *why* we photograph. Mechanisms of mass-engagement, social networking, and crowdsourced algorithmic evaluation have morphed the "camera eye" into the "Instagram eye", in which an image's potential is internally evaluated based on its projected popularity on the platform. Much like the photographer sees the world through the "gaze" of the camera, so too does the Instagrammer see the world through the "gaze" of the social network. In this way, social media has shifted what is deemed worthy of documentation, which in turn shifts the very function of photography from a primarily technical medium, concerned with the quality and content of an image, to a primarily social one, with an emphasis on communicative and affective potential.

The transformation to "the social photo", can be seen in common image archetypes that propagate on Instagram. For example, artist Corinne Vionnet's project *Photo Opportunities* confronts the phenomena of the "travel photo" [205]. Layering digital photos from sites of mass tourism, such as the Taj Mahal in figure 2-14, Vionnet reveals the homogeneity of the Instagram Eye, each photo compositionally consistent with the others⁵. The power of the travel photo is not in its unique composition or photographic novelty, but rather in its sameness, serving as an effective and efficient means of communicating normative values through its familiar aesthetic lexicon. The travel photo is less interested in the "camera eye" concerns (image composition, creative ingenuity, focus, and lighting) and more fixated on the concerns of the "In-

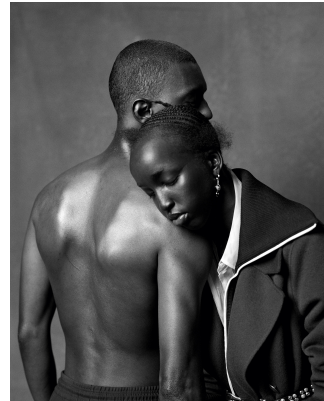
⁵Composite photography was a technique founded by Sir Francis Galton, cousin of Charles Darwin and father of eugenics. It's racist history and questionable methodologies are well documented elsewhere [129, 201]



(a)



(b)



(c)



(d)



(e)

Figure 2-13: Contemporary Black photography reimagining artistic practices for imaging Blackness. (a) Tyler Mitchell, *I Can Make You Feel Good*, 2020. Mitchell centers Black joy and leisure as radical rituals within his imagery. (b) Carrie Mae Weems, *Untitled: Man Reading Newspaper* (1994), Jack Shainman Gallery. Weems intentionally uses shadows to subvert the historical invisibility of Blackness, playing with darkness instead as a protected space, free from the imposition of the viewer's gaze. (c) Campbell Addy for *i-D UK* November, 2018. (d) Micaiah Carter for *Em-mazed* January, 2019 (e) Micaiah Carter photographing Pharrell Williams for *GQ* October, 2019. Addy and Carter display a tenderness and expansive Black masculinity within their work.

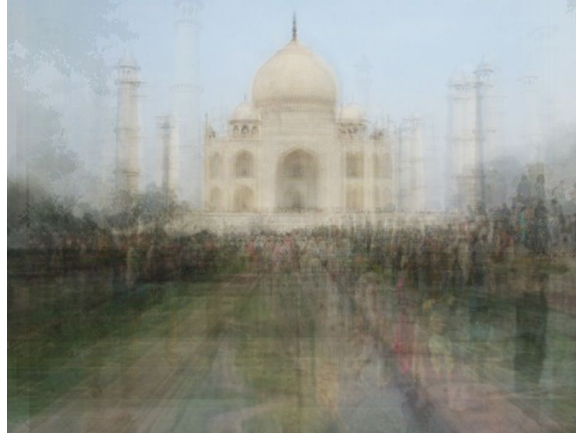


Figure 2-14: Agra, from the series *Photo Opportunities* by artist Corinne Vionnet. Photos of mass tourism destinations were gathered from digital photo-sharing sites and layered together, visualizing the homogeneity of the "tourist gaze".

stagram eye" – who will see this image, what values does it convey, and how will it be received?

Another example of this culture of sameness [98] that permeates social photo sharing platforms is the selfie. Often derided as the vain exhibitionist offspring of social media culture and ubiquitous digital cameras, the selfie is a remarkably structured and uniform medium for visual communication [134]. Notably, the selfie provides an externalized, inward perspective of the subject [12], arm outstretched with the camera facing back toward the photographer, collapsing the photo pose, production, and consumption into a single visual moment. The reflective and surveilled nature of the selfie – the way in which the audience's gaze infiltrates the act of photographing ourselves – is a salient example of how Instagram's algorithmic logic has been embedded in our internal self-image. Our conception of the Instagram Eye – the way we think others see us - yokes us to the presentations, performances, and aesthetics which optimize the network. Our very self becomes a potential image, with a potential value on Instagram.

Algorithmic Curations

The concept of the Instagram Eye provides insight into how aesthetics are mediated through the logic of the social platform, yet it doesn't wholly address the means and

ends of this mediation. Here, I extend Jurgenson’s observations to explicitly unveil the algorithmic orchestration that enables the Instagram Eye. Content on Instagram is computationally curated. With an estimated 50 billion photos uploaded to the platform to date, and nearly 100 million added daily⁶, Instagram functions as a new-age archivist, developing algorithms to sift through the sea of content, curate an ephemeral feed unique to interests of each user, and optimize subsequent content engagement. Decisions about what content to promote and who to promote it to are delegated to algorithms, informed by the web of data Instagram has collected to quantitatively reconstruct their users. In this way, Instagram has systematized visual mediation, continuing the Old Media fixation on aesthetic control and moderation, this time with the potential to do so at an unprecedented scale and precision. Biases associated with content curation algorithms have been subject to past critique on Instagram [33], as well as other platforms such as Google [151] and Facebook [90]. Algorithmic mediation of content on Instagram feeds is the central point of study within this project, seeking to contextualize how the aesthetics of marginalized identities are regulated and rendered (in)visible, under what terms, and how this relates to the historical mediation of Black, femme, and queer visuals in reinforcement of white supremacy and capital. Furthermore, I adopt a computational approach to studying algorithmic outcomes, unique in its application on Instagram to the best of my knowledge, as a means of studying this mediation at sufficient scale.

2.4 Normative Engagement With the Marginal

The Old and New Media fixation on controlling aesthetics, particularly of those seen as perverse, dangerous, or corrupting, can be tied to a broader discussion on how social, economic, and political power is mediated between normative and marginal groups. This discussion necessitates a structural intersectional understanding of how identity, aesthetics, and power interact along interlocking axes of race, class, gender,

⁶Instagram Marketing Statistics, <https://www.omnicoreagency.com/instagram-statistics>, accessed on 03-19-2021

and sexuality.

Within the following sections, I give an overview of structural intersectionality and Black Feminism as theoretical underpinnings of this project. I then leverage these theoretical lenses to understand how normative Beauty standards and aesthetics operate within Black and queer communities. Discussions of Beauty highlight the aspirational and assimilationist allure of racial and sexual hegemony. The precarity and dangers of this assimilation are highlighted through a discussion of fungibility, cooption, and commodification of Black and queer bodies. I foreground these discussions to frame a forthcoming analysis of how normative groups engage with Black and queer cultures, lending from Lisa Nakamura's concept of Identity Tourism [79].

2.4.1 Structural Intersectionality and Black Feminism

The need for an intersectional theoretical framework to analyses of identity and power has been articulated most saliently by Black feminist women, who have long faced oppressions both upon and along interlocking axis of race and gender. Sojourner Truth's famous 1851 *Ain't I a Woman?* speech critiqued the exclusion of Black abolitionist objectives from the largely white middle-class women's suffrage movement [199]. bell hooks later wrote *Ain't I a Woman?* as a homonymous referential work, critiquing the centrality of white and upper class women within the contemporary feminist movement, which largely ignored if not opposed the concerns of poor, non-white, and queer women [18]. Audre Lorde wrote of the "eclipsing or denying of other parts of self" that Black queer women feel compelled to, unwelcomed as "whole" in homogeneous Black, feminist, or queer spaces [126]. Lorde also writes of the immense liberatory and imaginative potential that Black queer women possess, finding radical coalescence through her identities in an otherwise socially, culturally, and politically exclusive world [125]. The Combahee River Collective – a group of Black feminist lesbian women organizing in Boston through the 1970s – drafted an eponymous statement articulating the distinct struggles of those fighting multiple interlocking forms of oppression, across race, gender, class, and sexuality [47, 190].

Black feminist scholars have emphasized the unique ways in which Black women

interface with hegemonic structures, distinct from those that might be similarly situated along a singular axis of identity (ex: white women or Black men) [53, 149, 215]. Patricia Hill Collins introduced the concept of the "matrix of domination" to describe how social identities combine, interact, and reconstitute within social, political, economic, and cultural systems to engender inequitable lived experiences [48]. Many works by Black Feminist scholars further pointed to the distinct oppression facilitated *along* axes of identity within the matrix of domination, such as with Black queer women and men within the feminist and LGBT movement [38, 172]. The understanding of power and privilege as multi-axial, non-discrete, structurally embedded, and contextually constitutive is central to the Black Feminist lens.

Emphasizing the structural roots of intersectional identity dynamics offers a response to the common critique of intersectionality as myopic in its emphasis on overlapping individual identities. As Barbara Tomlinson writes, "If critics think intersectionality is a matter of identity rather than power, they cannot see which difference makes a difference. Yet it is exactly our analyses of power that reveal which differences carry significance" [198]. A structural intersectional lens acknowledges the dynamics of interlocking axes of identity while also considering how structural power engenders inequality and renders some identities more valuable than others. Put differently, structural intersectionality centers discretized identity markers as mechanisms by which power has been historically consolidated, rather than a priori distributors of power themselves. This project adopts the Black Feminist theoretical lens because of its salience in unveiling and indicting the dynamics of oppression on a systemic level and its emphasis on intersectional critique, imagination, and liberation. Specifically, the Black feminist perspective enables critical discussion on intersections of race and class within explicitly queer digital spaces on Instagram.

2.4.2 Beauty, Race, and Power

This project holds a particular interest in Beauty, its functioning in visual spaces like Instagram, and its impact on self-presentation and self-image. A structural intersectional lens is particularly pertinent in understanding how normative standards

of Beauty operate across race, class, gender, and sexuality. Within this work, I use capitalized "Beauty" to signify the institution of myths, markets, and standards built in service of what is deemed beautiful. Sociologist, professor, and writer Tressie McMillan Cottom demarcates Beauty from aesthetics, noting that dominant beauty standards have proven historically malleable, shifting in response to various economic, political, and cultural contexts to accommodate different body types, yet never accommodating non-white skin [51]. As Cottom states, "Beauty, in a meme or in the beauty myth, only holds as a meaningful cultural artifact through which we can examine politics, economics, laws, and identity if we all share the assumption that beauty *is* precisely *because* it excludes non-white women" [51]. In this way, Beauty is fundamentally exclusionary and aspirational, continuously (re)invented by and invested in white, heterosexual, male hegemony and marketed to all as a moving target for profit.

Black and Queer Beauty Myths

Idealizations of white, Eurocentric aesthetics and Beauty myths manifest uniquely within Black spaces. Colorism, defined as preferential or prejudicial treatment by individuals within the same racial group, based solely on skin color, uniquely impacts dark-skinned Black women, who find themselves devalued and overlooked in professional, social, sexual, and romantic contexts, as compared to light-skinned Black women and Black men [152, 168]. Colorism resides within a broader system of politicizing and devaluing Black aesthetics. This can be seen in beauty trends which stigmatize natural Black hairstyles [218], pressure women to cosmetically and chemically lighten their skin [193], and assert light-skinned and "mixed" women as sexually and romantically superior to dark-skinned women [59, 135].

Gay aesthetic culture has historically idealized whiteness, masculinity, and homonormativity as pinnacles of gay beauty. These historical hierarchies live on in the digital world, stratifying queer social media spaces with homonormative subcultures, including "masc4masc" culture, in which "masculine" men explicitly assert their exclusive sexual interest in other masc-presenting gay men on sex and dating applications (of-

ten accompanied by other disclaimers such as "no fats no femmes" and proscriptive racial preferences) [49]; the "alpha Gay" archetype, depicted as a white, affluent, fashionable, metropolitan gay man with a suave and masculine demeanor [3]; and *#gayfitness* culture, with close alignment of queer male communities and heteronormative cultures such as Cross-Fit and gym culture [219].

Each example of Beauty's functioning within and upon marginal cultures illustrates the aspirational allure of hegemony. The cults of Beauty and Body proselytize an ever approachable yet never attained ideality of whiteness, gender conformance, and affluence which reinforces a certain captivity of the marginal to normative culture. This aspiration, of course, is fueled by capital, with Beauty markets and myths put in place to both elevate existent hegemonies and monetize the desires of those excluded along the way.

2.4.3 Fungibility, Co-option, and Assimilation on Instagram

The aspirational and commodified allure of hegemony – the desire to assimilate into normative aesthetics and cultures – links structural intersectionality to the concept of fungibility. Fungibility, both economically and legally, refers to the hollowing of distinctive characteristics and content – a formal equivalency to commodity. Within economics, this often pertains to the interchangeable, or fungible, nature of goods or currencies – one five dollar bill is equivalent to another. Legally, fungibility speaks to equivalencies between harm and compensation within contracts. Here, I use fungibility to describe the hollowing of culture – a reduction of expansive historical identities and cultures to categorical commodities for transference and capital. The concept of fungibility provides a useful mechanism for exploring the ontology of marginalized intersectional identities and their relations to hegemony. Through discussions of fungible racial and sexual identities within neoliberal markets, this project foregrounds the precarity of normative culture's aspirational allure and investigates how these dynamics manifest on Instagram.

Body as Commodity

The history of Western capitalism is predicated on the reduction of all those deviant to white cisgendered heterosexual masculinity to financial, sexual, and cultural commodity. The principle and most catastrophic example of this is the transatlantic slave trade, in which Black individuals were systematically, scientifically, and arithmetically reduced to commodities, to be bought, consumed, and sold [95, 213]. Saidiya Hartman writes, "Unlike the concentration camp, the gulag, and the killing field, which had as their intended end the extermination of a population, the Atlantic trade created millions of corpses, but as a corollary to the making of commodities" [95].

The subjugation and dehumanization of the Black body, necessitated by a pursuit of capital and justified through white supremacy, was dissonant with the sexual and cultural fascinations of whiteness. The Black female slave was commodified, yet this commodity was ascribed value through the sexual desires and conquests of white slave holders. Sociocultural institutions were rectified to accommodate the offspring of white sexual desires and mediate Black sexual capital, such as the "one-drop rule" to legally maintain the Blackness (and property-status) of all bi-racial lineages [30]; the institution of *Plaçage* within Spanish and French colonies to appease colonizing men who sought to marry in North American colonies with limited European women, yet refused to confer marital rights to Black and indigenous women [37]; and the consistent racial jostling of whiteness with "mixed", "mulato", and "Redbone" cultures, including historical and continued "anti-amalgamation" laws [18, 113, 160].

Even after the physical emancipation and de jure enfranchisement of African Americans, ending the literal trade of Black bodies, still a push remains for Black disembodiment and excavation. Neoliberal iterations of the historical mediative relation between the normative and marginal – whiteness and the Black body – continue to exemplify the fungibility of blackness and the contingencies of acceptance within hegemonic structures. W.E.B. Du Bois' conceptions of "double consciousness" epitomizes the toll of fungibility on the personhood of African Americans, with body and

soul caught in the liminalities of two worlds, one valued and commodified, the other devalued and delegitimized [27].

The continued fungibility of Blackness is particularly evident in digital "Blackfishing", a term coined by blogger Wanna Thompson to describe a growing trend on platforms like Instagram in which white users appropriate the aesthetics of Blackness, through cosmetically or digitally darkening their skin, adopting traditionally Black hairstyles, mimicking stereotypical Black features, and otherwise positioning their appearance as proximal to Blackness [128, 195]. This phenomena lives within a history of Black bodies and Blackness being a site of excavation for white pleasure, profit, and power. Minstrel shows, popularized in the nineteenth and early twentieth centuries, featured white actors performing comedic enactments of racist anti-Black stereotypes, with painted black faces, exaggerated features, tattered clothing, and stereotypically Black accents [82]. Minstrelsy excludes both the Black voice and the Black gaze from the performance of Blackness, allowing the external white perspective of Blackness to dictate dominant Black imagery, representations, and narratives. In doing so, Blackness is appropriated, warped, and commodified as a set of disembodied features – skin, hair, lips, accent – which can be reaped for cultural capital. Minstrel shows allowed a white audience to engage with the allure of Black culture without the threat of the Black body.

Blackfishing continues this tradition. Though traditional minstrel shows have been pushed from the Hollywood mainstream, their legacy remains firmly embedded within media culture. Instances of Blackfishing, blackface, and appropriation of Blackness remain ubiquitous within popular culture, particularly on sites like Instagram, where imagery and cultural capital reign supreme (see figure 2-15). As Thompson states, "Be it fashion, beauty, or music. Black is cool, unless you're actually black" [72].

Sexual Hegemony

The historicity of queer identities is an interesting space of research, given their fluidity, secrecy, and allusive manifestations. Christopher Chitty offers an understanding of the history of sexuality as a "history of property", tracing sexual hegemony to

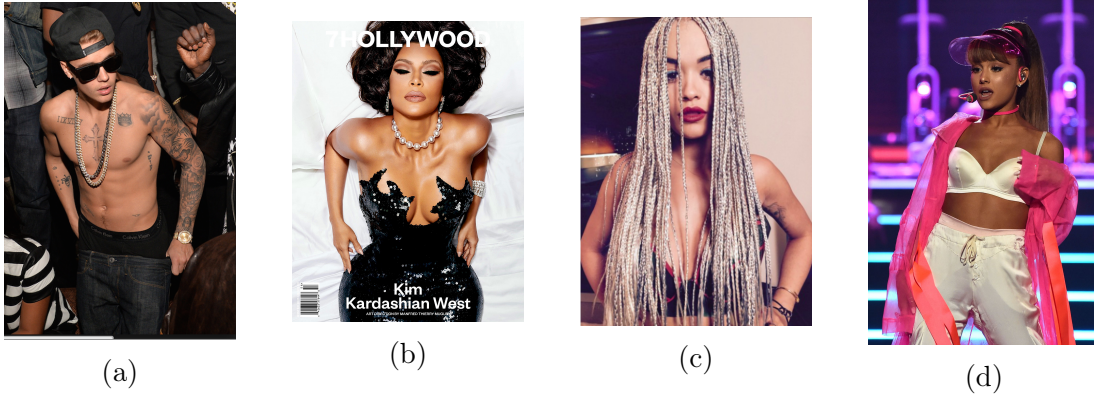


Figure 2-15: Examples of Blackfishing, adoption of Black aesthetics, and racially ambiguous styling by prominent white celebrities. (a) Justin Bieber, of Canadian descent, appears shirtless with several chains and sagging pants, reminiscent of styles popularized by Hip-Hop culture in the 1990s and 2000s. Image sourced from *Film-Magic/TMZ*. (b) Kim Kardashian West, of Armenian descent, appears on the Winter 2020 cover of *7Hollywood Magazine*, in a curly bob wig and a tan complexion. Lensed by Alix Malka. (c) Rita Ora, of Albanian descent, is seen with long braids, a hairstyle with origins in Afro-Caribbean cultures. Original image source unknown. (d) Ariana Grande, of Italian descent, performs at the 2016 Video Music Awards with a noticeably darkened complexion.

the ebbs and flows of geopolitical capital [42]. In far-ranging examples of gay life in Renaissance Florence and 19th century Imperial Britain, Chitty notes how sexual deviance was tolerated within social hierarchies on the condition of capital. As existent economic and geopolitical powers shifted, so too did sexual norms, relations, and hierarchies.

Bringing sexual hegemony into conversation with fungibility reveals how gender identity and sexuality have been rendered commodity, deferential to normative power, within the neoliberal sociopolitical context. Queer individuals have experienced immense social gains within the 21st century, including access to social institutions, increased representations in media, queer-specific commercial markets, and broader acceptance within the general public. The co-optation, normalization, and monetization of queer identity masquerades as a progressive victory, yet its proven fragility brings into question the very same concerns of Black fungibility within neoliberal spaces – inclusion for whom, and on what terms? Kate Redburn expands upon this thought, noting how shifting forces of sexual normalcy and neoliberal politics have

allowed for broader hegemonic access to queer folks, while simultaneously engulfing them within traditional capitalism, patriarchy, and white supremacy. She writes, "Woke capital...recognized that broadening normalcy opened new commercial markets. It has used sexual hegemony to its material advantage, as Chitty theorized it would, but as a carrot, not as a stick. The conditions that produced a vital social movement for recognition and inclusion are also the reason queerness today can feel like just one consumer product among many" [166].

Manifestations of the contingent valuation of queer identities include the "gay/trans panic defense", which legalizes fear-driven violence against queer, trans, and GNC individuals and is often used by heterosexual men that react violently while seeking sex [132]; gay DL/Discrete culture, in which closeted or heterosexual men seek private or anonymous sex with queer men [62]; and queerbaiting in media. Queerbaiting describes the performance of queer or queer-adjacent aesthetics, behaviors, or interests by non-queer individuals in order to attract the sexual desire, purchasing power, and social capital of queer audiences. As public perception of queer culture has shifted positively in recent years, the white, affluent, gay consumer has grown to be a lucrative and desirable target for media and marketing initiatives, under what has been called Rainbow Capitalism. Similar to Blackfishing in its simultaneous valorizing of marginalized aesthetics and exclusion of marginalized individuals, queerbaiting offers another example of how the white, heteropatriarchal gaze defines the terms by which those on the margins can be seen. Furthermore, the rapid demonization and criminalization of gayness in response to the AIDS epidemic shows just how fragile this perceived normative acceptance might be [24].

The postmodern destabilization of sexual hegemony has allowed for more openly queer sexual exploration, lifestyles, and culture, rendering contemporary sexual and gender expressions more fluid. This is particularly evident in the "hybridization of contemporary masculinities" [31], with straight male cultures adopting more feminine and queer-coded aesthetics. This brings the question of queer-baiting, traditionally employed to describe fictional characters in television and cinema, to a precarious front in assessing the aesthetics and presentations of masculinity today. Prominent

male figures in media, though refusing to explicitly identify as queer, have adopted queer aesthetics as staples of their brand and image. Within the view of sexuality as neoliberal commodity, the label and identification of the individual is of less interest than the proximities to social and cultural capital – what drives the mainstream valorization of marginalized aesthetics, on what terms are they valorized, and with what impact on the communities being co-opted? Examples of queer-baiting and co-opting of queer aesthetics further the lineage of normative control and mediation of marginal aesthetics, balancing the intrigue and allure of marginality with the power and securities of normative adherence.

The Theory of Big Data

In considering manifestations of cultural co-option on Instagram, I wish to contextualize discussions with an understanding of how data and computational practices might reinforce racial and sexual hegemony and facilitate aesthetic tourism. Within this project, I link the concept and discussions of fungibility to the theoretical underpinnings of Instagram, connecting Big Data and its fastidious zeal for discretized sociality to the neoliberal fetish of ahistorical and monetized marginality. Instagram's operating model is predicated on a highly structured taxonomy of user identity. Far from an unsupervised public square for sharing images, Instagram leverages immense troves of data on preferences, behaviors, and personal identifying information (PII) to decide what content a user will see⁷.

Underlying the entire model is the theory of Big Data, which sells the promise of an objective, complete, and unqualified simulation of the world, on the condition of infinitely large and granular data [108]. In a 2015 online discussion with Stephen Hawking, Facebook CEO Mark Zuckerberg ominously mused, "I'm also curious about whether there is a fundamental mathematical law underlying human social relationships that governs the balance of who and what we all care about. I bet there is"⁸. The theory of Big Data governs social media and motivates the ever-expanding quest

⁷Instagram Data Policy, <https://help.instagram.com/519522125107875>, accessed on 03-19-2021

⁸Mark Zuckerberg takes questions from Stephen Hawking, Arnold Schwarzenegger in bizarre Q&A, <https://mashable.com/2015/06/30/mark-zuckerberg-weird-q-and-a>, accessed on 03-19-2021

for ways to rationalize, taxonomize, and ultimately solve human sociality. Social media takes on a radical, unnatural conception of identity as consistent and quantifiable [108]. The simplicity, rigidity, and singularity of identity on Instagram is fundamentally incompatible with the fluidity, messiness, and contradictions of real life, yet it is maintained in service of Big Data and profit.

One central issue with the Big Data paradigm is in its "Bigness" – how much data is required, what data is being tracked, and what are the assumptions about how that data relates to real life phenomena? Data scientist and Author Cathy O’Neil notes the widespread use of proxies in machine learning models, which often unintentionally codify user identity and reflect broad assumptions about the objectivity of data [158]. The result is a model which makes predictions for you based on "people like you", as determined by its myriad of subjective data points, when it should ideally be basing predictions on yourself. A common example is the blind use of personal zip codes in predictive models, which serves as a strong proxy for race in a de facto segregated country like the United States [174]. A user that lives in a given zip code becomes bounded to the characteristics of those "like them" and reduced to a biased categorical output mode in the eyes of the machine. This example highlights Jugenson’s argument that “Big data sells itself as a knowledge that produces power. But in fact, it relies on pre-existing power to falsely equate data with knowledge” [108]. The argument importantly emphasizes the reliance of Big Data on hegemonic systems. While social media has certainly revolutionized the scale, scope, and ease of mediated interactions online, the mechanisms of oppression that these platforms both extend and rely on are all too familiar. In this way, the social media offspring of Big Data represent a continuation of the attempt to extract and commodify marginality through scientific means, leveraging the ostensible fungibility between identities and biopolitics of data to capitalize on individual bodies without regard for the histories they carry.

2.5 Computational Approaches to Cultural Studies

The critique of social media's Big Data theoretical underpinnings as at odds with the irrationality, ambiguity, and complexity of human behavior is salient both in understanding how Instagram functions and in addressing my own methodologies as a computational researcher studying cultural phenomena. The research questions, approach, and analysis of this project are informed by both computational and humanistic perspectives, which carry unique insights and constraints. In this section, I justify my use of a hybrid computational and humanistic approach and address the limitations of each.

2.5.1 Analyzing Digital Culture

The digital era has fundamentally shifted how cultural objects are produced, consumed, and archived. With billions of new images, videos, artworks, songs, writings, or events uploaded daily, the sheer scale of contemporary culture renders much of the digital world invisible. Digital media theorist Lev Manovich poses the question, "How do we see one billion images?" as a challenge necessitating computational approaches to cultural studies [133]. Without tools to quickly analyze massive amounts of data, a broad perspective of the complete cultural landscape becomes an impossibility.

However, as previously discussed, computational solutions are inseparable from the political, economic, and social context in which they operate. Therefore, in leveraging computation for cultural studies, it is essential to address how these contexts inform the data, method, and results. Manovich juxtaposes statistical paradigms, which focus on commonalities and normative features aggregated across numerous objects, against traditional humanities paradigms, which resist reduction and aggregation in favor of focused attention to what is infrequent, unique, and diverse [133]. While the statistical method is essential for "seeing" large amounts of cultural data, it is equally essential to consider what is being lost, hidden, or obscured as cultural phenomena are quantified, manipulated, and reduced throughout a computational pipeline. As an example, Manovich considers an analysis of all paintings created in

France in the nineteenth century. Investigating the normative or common characteristics of these paintings would likely obscure or completely mask the work of French impressionists, which collectively account for a small proportion of all works created during the era, yet represent a transformative cultural movement. This could be an impactful analysis, potentially highlighting the work of painters outside the traditional artistic canon and reorienting French impressionists within the broader context of nineteenth century works. Yet, the analysis is difficult to support if not coupled with a focus on the particularities of impressionist paintings. A balance between the regular and particular is key.

2.5.2 Differential Reading

A computational focus on normative characteristics is akin to what literary theorist Franco Moretti calls distant reading [141]. This is positioned in contrast to traditional close reading practices, which focus on the particular. Tanya Clement and others echo Manovich's call for a hybrid approach to cultural analytics through "differential reading", which blends the computational and literary, objective and subjective, distant and close, in collaborative ways. My project adopts the differential reading paradigm, leveraging various computational tools to analyze cultural artifacts on Instagram, while also providing a focused reading of these objects and the sociopolitical environment in which they exist. In doing so, I aim to resist, or at least qualify, reductive statistical methodologies, while also observing culture at scale within the Instagram ecosystem.

2.5.3 A Structural Intersectional Approach to Technology Studies

Of particular importance to this project is the extensive efforts by Black Feminist scholars to articulate how traditional hegemonic systems manifest in new technologies. Professor and author Safiya Umoja Noble defines the field of Black Feminist Technology Studies (BFTS) as a particular epistemological approach to "researching

gendered and racialized identities in digital and analog media studies" [151]. This approach emphasizes how values are embedded into the design of technologies and pushes against the neoliberal race, gender, and class neutral rhetoric which ignores the mediative role of political and cultural contexts on technological innovation [64].

In its strictest form, Technological Determinism (technodeterminism) posits that technological innovation is inevitable, autonomous, and fundamentally neutral. My work lends from the discourse of Black Feminist scholars such as Ruha Benjamin, who firmly counter the technodeterminist perspective, arguing that technologies are broadly influenced by the norms, ideologies, and practices of the society in which they emerge [22]. Benjamin extends this argument through what she calls "race critical code studies", as a hybrid approach leveraging tools from the fields of Science, Technology, and Society (STS) and critical race studies to investigate how race becomes codified within technical systems in explicit, implicit, sometimes unintended, and often harmful ways.

The critique against a race-neutral technodeterminist perspective is an important one, as such a perspective precludes any investigation into the technologies themselves as mechanisms of oppression. The depoliticized framing of inequitable technological outcomes as isolated instances in an otherwise color-blind system, either caused by individual racist acts or unconscious bias, belies the intentionality with which technologies are designed, developed, and deployed. As media theorist Steven Johnson put it, "Code is never found; it is only ever made, and only ever made by us" [104]. Choices are made at each step of the development process – choices which carry a specific point of view and operate within a broader history and context of structural norms. Code, in this sense, functions as law within digital spaces, presenting a range of possibilities and constraints for communication, sociality, and embodiment that emerge from "a tangled mix of individual personalities, organizational structures, design imperatives, and economic considerations" [191]. Scholar and designer Sasha Costanza-Chock presents the frequent reduction of inequitable technological outcomes to individual instances of algorithmic bias as a scoping problem, encouraging us to "zoom out" and consider the broader histories and contexts in which these

technologies operate [50].

Chapter 3

Methodology

3.0.1 Research Questions

The work presented in this paper was guided by the following research questions, briefly defined and linked to a methodological approach, to be described in depth in the following chapter:

RQ1: How do Instagram content curation algorithms structure visualizations of racial performance within gay-coded spaces on the platform?

The term "gay-coded" refers to spaces (ex: the Explore feed) or users that are either implicitly or explicitly signaling gay sexuality. For example, the #gay search feed is explicitly gay-coded in that it intentionally signals gay discourse or affiliation. The "user" in this project is implicitly gay-coded, having signaled gayness to Instagram through engagement with gay content and connections to gay users on the platform. The approach to gay-coding a user is detailed in this chapter.

This project specifically measures "visualizations of racial performance" through quantified skin tone presentations in posts. A detailed breakdown of how skin tone presentations are defined, collected, and compared is included in this chapter.

Instagram leverages algorithms to curate content on the platform, deciding what content is seen by who. All spaces on Instagram are curated to varying degrees. This project specifically focuses on the "top" feed of #gay posts and the Explore feed, as spaces where Instagram algorithms mediate a hierarchy of content. This project

measures skin tone presentations within these gay-coded spaces to investigate how racial performance is structured within these algorithmic hierarchies.

RQ2: How has Instagram challenged, reinforced, and obfuscated control over marginal aesthetics? Control over marginal aesthetics within mainstream media has been historically consolidated and tightly regulated, as described in the previous chapter. This project seeks to contextualize results from quantitative analyses within this history, understanding how racial performance and algorithmic mediation of content on Instagram relates to traditional controlling images and content mediation in Old Media. Answering this question will draw results from both quantified racial performance analysis in the #gay feed and dominant representational paradigms revealed through image feature analysis and generative modeling in the Explore feed. Chapter 5 provides an in-depth discussion of these results.

RQ3: What is the relationship between normative culture and the marginal within queer digital spaces? What are its contingencies? Normative culture is used here to describe the social behaviors, aesthetics, and beliefs which are deemed acceptable, normal, and desired. This project uses the terms "marginal" and "deviant" to describe those that are excluded from the normative. In analyzing normative engagements with queer digital spaces, this project seeks to computationally investigate what kinds of queerness and Blackness are permitted and visualized by Instagram content curation algorithms. Archetypes of queerness and Blackness are analyzed using a feature analysis of images in the Explore feed, seeing the Explore feed as the preeminent space for content discovery on the platform and therefore indicative of the normative. A generative modeling of normative features within the Explore feed is also leveraged to visualize evocative imagery of the dominant representational paradigms on the feed. Chapter 5 provides a close reading of these dominant representational paradigms in comparison to hegemonic aesthetics (ex: whiteness, heterosexuality, gender conformance) to reveal the contingencies of visibility for Black and queer content – the "kinds" of images that are deemed acceptable. Both feature analysis and generative modeling methodologies are detailed in the forthcoming sections.

3.0.2 Methodological Overview

I divide the technical work of this project into two tasks: analysis of race and skin tone presentations within promoted content on the `#gay` search feed, and analysis of dominant aesthetics within promoted content on the Explore feed of an explicitly gay-coded user. The following sections describe my methodological approach to collecting data and developing computational tools for both tasks, as well as the assumptions and limitations of these methodologies.

3.1 Data Collection

This project aggregated a data set of Instagram posts, scraped from the Explore feed¹, and from the search feed for `#gay`². I chose to focus on hashtag search and Explore feeds for two primary reasons: both spaces are heavily curated by opaque algorithmic decision-making processes, and both serve as a primary source for discovering content exterior to a user’s personal network. These characteristics make the Explore feed and hashtag search feed interesting spaces for analyzing how certain content is taxonomized, ranked, and amplified on the platform.

Each post in the data set consists of its associated image(s), caption, number of likes, number of comments, and timestamp. For posts that contained video media, the user-designated thumbnail image of the video was used. All posts were publicly accessible³ and acquired from the official Instagram site. In respecting the privacy of individuals, the data set used in this project will not be released or distributed publicly.

¹Instagram Explore feed, <https://www.instagram.com/explore/>, accessed on 03/25/21

²Instagram search feed for `#gay`, <https://www.instagram.com/explore/tags/gay/>, accessed on 03/25/21

³Instagram requires a user login to view the Explore feed, though all posts on the feed are from public accounts, and are independently accessible. The hashtag search feed does not require user login to view the first page of results. However, a login is required after scrolling to new images.

3.1.1 #gay Search Feed

Instagram divides all hashtag search feeds into "top" posts and "recent" posts. The criteria for what is considered a "top" post is opaque, and is a central area of critique in this project. Though Instagram employs hashtags primarily as discursive organizers, structuring conversations and community on the platform, they also serve as powerful self-identifiers for users. I selected #gay to investigate both how Instagram mediates presentations of race within #gay community discourse, as well as the visual norms of users that tag their posts with #gay. Furthermore, I chose the #gay search feed as a space without other explicit identity markers (such as #blackgaymen or #musclegay). This allowed for an analysis of how race, body type, gender performance, and other identity markers were implicitly structured within the feed – what aesthetics are implicitly linked to the #gay individual?

3.1.2 Explore Feed

The Explore Feed is the principle space for exploration and discovery of content exterior to a user's social network. Content is uniquely curated for each user, based on an opaque algorithmic formulation of past behaviors, interests, and communities on the platform. Though similar to the #gay search feed in its algorithmically mediated structure, the Explore Feed is distinct in that its content has no a priori context specified by the user. Rather, the Explore Feed is designated as a context-free space to discover content curated "just for you". As such, it serves as an interesting space for studying *who* and *what* Instagram promotes, and by extension, who they see "you" to be.

3.1.3 Feed Subsets and Sample Sizes

Figure 3-1 shows a set diagram of #gay search feed and Explore Feed posts. Note that

$$S_{topgay} \subset S_{recentgay} \subset S_{gay} \quad (3.1)$$

Feed	# of Posts
#gay "recent"	34,048
#gay "top"	648
Explore	15,151

Table 3.1: Breakdown of the source and quantity of posts in the Instagram data set

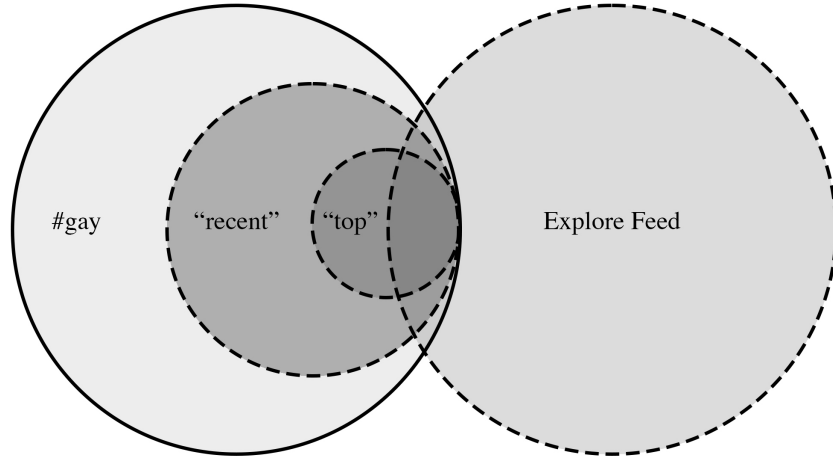


Figure 3-1: Sets and subsets of feeds this project sampled from. Dashed lines indicate that the feed is curated, and therefore ambiguously defined. For example, here it is assumed that the "top" #gay feed is a subset of the "recent" gay feed, since most "top" posts were recently posted, though this cannot be guaranteed. In contrast, the set of #gay posts is explicitly defined as all posts with #gay in the caption. The "top" #gay feed is a subset of "recent" #gay posts, with both being a subset of all #gay posts. The Explore feed intersects with all #gay sets and subsets.

where S_{topgay} is the subset of all "top" #gay posts, $S_{recentgay}$ is the subset of all "recent" #gay posts, and S_{gay} is the set of all #gay posts.

$S_{explore}$, the set of all Explore Feed posts, potentially intersects with S_{topgay} , $S_{recentgay}$, and S_{gay} , though, as noted in the figure, is a curated feed and therefore ambiguously bounded. A breakdown of the quantity of posts sampled from the #gay and Explore feeds is given in table 3.1.

3.1.4 Considerations and Constraints

The primary considerations and constraints of collecting data from Instagram's #gay search feed include the limited sampling of posts, biases associated with the Instagram account being used to collect data, and the usage of hashtags as a proxy for identity.

Data Sampling

Posts were scraped from the official Instagram website between December 2020 and April 2021. An estimated 10 million posts included #gay in 2020, averaging to about 27,000 posts per day⁴. The scale of data on Instagram, as well as Instagram's severely restrictive policies on external data access, make an analysis of all content on the site impractical. Instead, a sample of the total population of content was collected and used for analysis. For this project, a limited number of posts were scraped from the site every thirty minutes over the course of four months. As can be seen in table 3.1, the sample of posts collected for the #gay search feed represents a small fraction of the total number of #gay posts. Assuming 27,000 posts per day and 120 active days of scraping content, the 38,738 "top" and "recent" #gay posts scraped in this project represent approximately 1.2% of all #gay posts uploaded to the site in the given time frame. Furthermore, the small observed sample of posts is certainly biased by the time frame during which data was collected. For example, many posts collected in December featured imagery and captions related to Christmas, while content related to Gay Pride celebrations, likely prominent in the summer months, was less prevalent. The limited data sampling qualifies any inferential statistical analysis conducted, and is a key limitation of this project.

⁴Using archived Instagram pages, 76.7m posts were included in the #gay search feed as of December 2019, and 86m posts were included in the feed as of November 2020. As of March 2021, there are 89.7m posts in the feed.

Analyzing Personalized Content

Instagram requires a user login to continuously access content on the site⁵. Upon logging in, Instagram leverages the user's past behaviors to uniquely curate what the user sees in their search feed. Put differently, no two searches for #gay are guaranteed to be identical. The entire search mechanism is contingent on who Instagram perceives the user to be, which translates to muddied and unavoidable bias within the resultant search content. Formulating search results as contingent on past user behavior bakes bias into any data retrieval attempt. This bias is both unavoidable and essential to how Instagram operates. As such, the opaque mechanisms by which Instagram curates content limit the objectivity and reproducibility of this study, and are themselves subject to critique in an evaluation of opaque and disparate algorithmic outcomes on the platform.

Avoiding biases associated with personalized content recommendation was intractable, given the requirement for an account login and the undisclosed relationship between account actions and algorithmic outputs (the very act of searching a hashtag empirically seemed to mutate future search results). Furthermore, analysis of recommended content for an anonymous user, or a user with no prior engagement on the platform, might not reflect the realities of how actual users experience the platform. Therefore, this project embraced the personalized nature of content on the platform, and aimed to analyze results through the lens of an explicitly queer-coded user.

Data was collected using an Instagram account with minimal prior behavior on the platform. Before scraping content from the site, the account followed relevant hashtags such as #gay and #instagay, as well as related accounts that were subsequently recommended by Instagram. For one week prior to collecting data, all content recommended by the algorithm, as presented on the account's feed, was liked. These steps were intended to orient the Instagram algorithms to a perceived user interested in #gay discourse. Once data collection began, no further actions were taken on the

⁵Instagram's handling of anonymous content access changed several times over the course of this project. As of 03/25/21, users are able to view a limited number of posts from a hashtag search feed before being required to login to the platform.

account.

Interpreting #gay

Hashtags contextualize and orient content within a broader networked discourse. Users on Instagram might employ hashtags to join in on common digital trends (#tbt, #nofilter), amplify social movements and engage with digital activism (#Ferguson, #protecttranskids), explicitly signal identity (#gay, #latinx), or even as a collective resistance tactic to dilute or hijack discourse (activists using #whitelivesmatter to divert attention to pro-Black imagery). The usage of a hashtag is not prescriptive – a post intended for a gay audience might not be tagged with #gay, while a post flagged with #gay need not be from a gay user or directed towards a gay audience (ex: posts might use #gay pejoratively or to flag comedic memes about the gay community). There are also numerous reasons why a gay user might choose *not* to use #gay, including fears associated with publicly identifying as queer, social stigma surrounding usage of hashtags and other forms of self-promotion, and a preference for more precise and intersectional hashtags such as #gaymer (a community of gay individuals with an interest in video game culture) or #blackqueerlove. Instagram allows for up to thirty hashtags on a single post, so many of these hashtags can and do appear simultaneously.

In this project, I use the term #gay to describe the community of Instagram users that post, view, and otherwise engage with content explicitly tagged as #gay, and position it as distinct from the use of "gay" as an identity marker. Though "gay" refers generally to individuals with sexual, romantic, or emotional attraction to others of the same sex, it colloquially has come to specifically refer to homosexual men. This modern meaning is reflected in its usage within #gay discourse on Instagram, with a vast majority of the imagery depicting masculine-presenting individuals. My analysis of #gay imagery is qualified by the contextual norms of #gay usage, and is limited in its inductive potential for general critique of explicitly feminine, non-binary, and broadly queer spaces.

3.2 Analyzing Race Within #gay Spaces

This project focused in part on developing computational tools for an analysis of racial performance within the #gay community on Instagram. My approach leveraged a cultural analytical methodology, coupling a distant analysis of aggregated skin tone presentations, with a close reading of how individual racial performances operate within their social, political, and cultural context. A detailed summary of this approach is outlined below.

3.2.1 Color Spaces

In processing and analyzing skin tones, there are a number of options for color spaces, which define the representations and mappings to geometrically organize colors. Common color spaces include *RGB* (Red, Green, Blue), *HSV* (Hue, Saturation, Value), *HSL* (Hue, Saturation, Lightness), and *L*a*b** (perceptual Lightness, as well as two axis representing red, green, blue, yellow). The geometries of each are shown in figure 3-2. Each color space has its own unique characteristics, and is used at different times throughout this project. For example, clusterings of skin tone presentations are performed in the HSL color space. Since skin colors generally fall within a similar hue range, the HSL space provided a well-organized distribution of skin tones across the saturation-lightness plane. In contrast, skin tones are not bounded to a single plane within the RGB space, making visual trends less apparent. Accurately representing perceptual color differences is a challenge for the RGB, HSL, and HSV spaces. As such, the *L*a*b** space is used for analysis of color similarity within this project.

3.2.2 Derivation of Skin Tone Presentations

The high-level workflow for derivation of skin tone presentation from Instagram posts is shown in figure 3-3, and follows a five-stage process:

Stage I Images were extracted from Instagram posts scraped during the data collection process. This project specifically conducted skin tone analysis on images from "top" and "recent" #gay posts, as well as recommended posts on the Explore

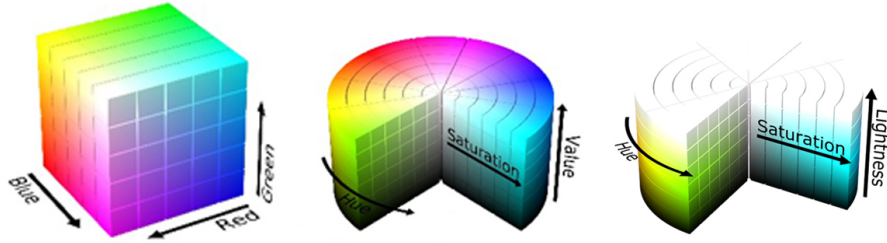


Figure 3-2: Geometries of prominent color spaces used in this project. The RGB color space (left) is defined as a cube, with red, green, and blue values defining the three axes. HSV (center) and HSL (right) color spaces are cylindrical, with hue being an angular dimension. The HSV space is meant to represent how colors appear under light, with the value axis indicating varying degrees of light exposure. The HSL space is meant to represent how colors mix, with the lightness axis ranging from pure white to pure black through various hue and saturation values.

feed, though this workflow is intended to generalize to other image collections.

Stage II A Multi-Task Cascaded Convolutional Network (MTCNN) was used to detect and isolate faces in an image. The MTCNN approach, as proposed by Zhang *et al.*, involves a three-tiered cascade of convolutional networks which propose (P-Net), refine (R-Net), and output (O-net) bounding boxes, landmark points, and the probability of a sample being a face for candidate faces within the input image [222]. The MTCNN model was pre-trained on the WIDER FACE dataset. Face samples below a 95% probability were filtered out of the analysis pipeline. High-probability faces were cropped from the original image and scaled to a uniform resolution.

Stage III Non-face pixels were masked using a fully convolutional semantic segmentation model as proposed by Shelhamer *et al.* [180]. The model leveraged a ResNet-101 backbone [96], which yielded higher precision and accuracy at the cost of speed, as compared to the alternatively proposed bilateral segmentation network (BiSeNet) backbone [220]. The semantic segmentation model was pre-trained on faces from the Common Objects in Context (COCO) dataset with skin segmentation annotations. While the model was capable of segmenting face pixels from the original image, cropping the image to isolate the face in Stage II was empirically found to

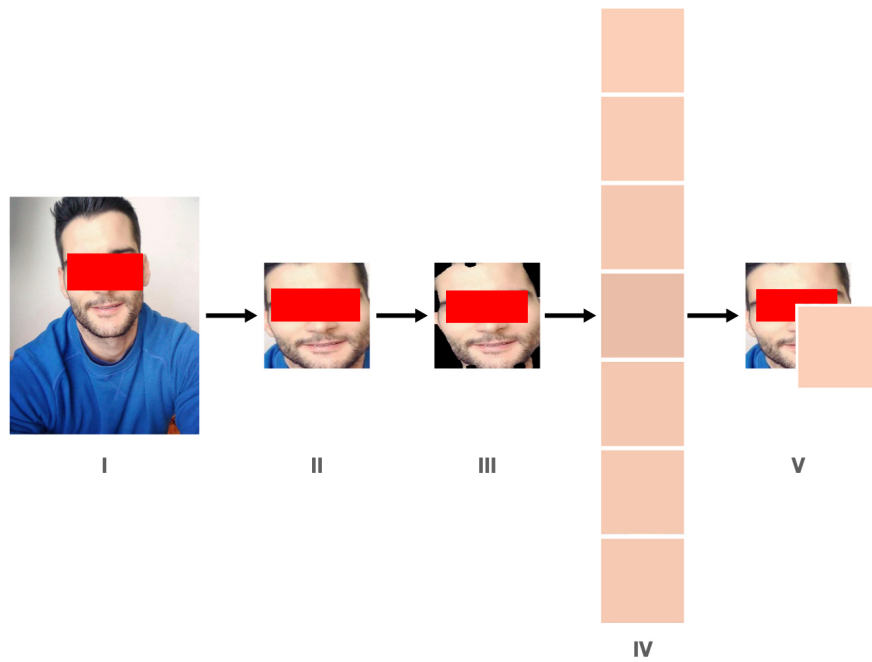


Figure 3-3: Workflow for derivation of skin tone presentation from Instagram posts. The face is de-identified to protect the privacy of the individual. A red bar is used to distinguish from the black peripheral skin segmentations in Stage III. Stage I indicates the original image, scraped from the Instagram platform. A multi-task cascaded convolutional network (MTCNN) was used to detect and isolate faces in stage II. The cropped face image was then semantically segmented in stage III to mask non-face pixels, such as background pixels, glasses, or abundant facial hair. In stage IV, seven k-means clusterings of all face pixels were performed, using different combinations of features in the RGB and HSL color spaces, with the average pixel color of the majority cluster being used as a candidate color for skin tone presentation. Finally, in stage V, all seven candidate colors were presented next to the original image in an interactive interface, and a skin tone was selected manually.

Cluster Features	# of Clusters
R	3
G, L	3
R, G, B	2
R, G, B	3
H, S, L	3
R, G, B, H	3
R, G, B, H, S, L	3

Table 3.2: List of features and number of clusters used for each k-means clustering. All features come from the RGB (red, green, blue) or HSL (hue, saturation, lightness) color spaces.

improve downstream performance.

Stage IV The segmented output mask from Stage III was applied to isolate pixels associated with the face. Face pixels were then partitioned using k-means clustering. Seven different clusterings were performed on each face, using different combinations of pixel features in the RGB and HSL color spaces. The HSL color space was included, as its ability to discriminate hue and intensity information has been shown to be more useful than the RGB color space for color-based analysis [179]. The seven clusterings were selected from the total list of RGB and HSL permutations experientially based on prior work [89] and removal of redundant clusterings to improve overall efficiency. A complete list of clusterings is included in Table 3.2. The average color of the pixels in the most populous clustering was proposed as a candidate skin tone. Here, it is assumed that the presented skin tone is the dominant quantized color group in the cropped and segmented image, and is consistent across the face.

Stage V The seven candidate colors proposed by the clusterings were displayed next to the original image, and a final presented skin tone was selected manually. In cases where no candidate color sufficiently described the skin tone presentation of the original image, no color was selected, and the image was filtered out of downstream analysis.

Assumptions, Limitations, and Design Choices

The intent of this proposed workflow is to analyze the visual presentation of skin tone on Instagram at scale. I use the phrase "presentation of skin tone" intentionally within this project, as a recognition of the variability in our perception of skin tone based on lighting, cosmetics, and photo manipulation. This variability necessitates the distinction between the color of skin pixels in a photo, and the pigmentation of skin cells in real life. Furthermore, skin tone is a dominant yet unreliable proxy for race, as evidenced by blackfishing, colorism, and other cultural phenomena in which individuals modify their presented skin tone to draw visually proximal to other racial groups. As such, all analyses performed using outputs from this workflow cannot (and should not) be seen as approximations of racial identity. Rather, I absorb the variability of skin tone presentation within my analysis, and investigate how this variability is used to excavate cultural capital and algorithmically amplify digital content.

Stage II leverages a pre-trained MTCNN. Cascaded CNN models have been shown to outperform classical approaches to face detection, such as Haar feature-based cascade classifiers [204] or Histogram of Oriented Gradients (HOG) to SVM models [56], particularly for detection "in the wild". However, the wide variation of poses, facial expressions, scale, illumination, image distortion, and face occlusion in images remains a major challenge for robust facial detection efforts. Recently, Regional CNN (R-CNN) [39, 103], Feature Pyramid Network [189, 221], and Single Shot detection [147, 223] approaches have achieved state of the art performance in a variety of face detection tasks. This project incorporates the MTCNN because of its documented efficiency and performance on "in the wild" face detection tasks, though a comparative analysis of results with more recent approaches would be a worthwhile future endeavor.

Stage III similarly leverages a pre-trained neural model. A Fully Convolutional Network (FCN) approach is used to segment face pixels from non-face pixels. Early approaches to semantic segmentation used explicit heuristics to detect statistical dif-

ferences among objects in an image [2, 35, 112]. However, these approaches are often unreliable when confronted with non-uniform or noisy data. Supervised Convolutional network-based strategies, in which fully convolutional networks are trained on annotated images to perform pixel-wise segmentation of objects, have proven more robust and precise for a wide range of semantic segmentation tasks [206]. Unsupervised convolutional network and Generative Adversarial Network (GAN) strategies [183] remove the burden of ground truth segmentation labels, and therefore could prove more robust to large scale analysis, though to the best of my knowledge they have not been tested on skin segmentation for high-variance social media images.

Stage IV assumes that the majority of pixels in the cropped and segmented face image from Stage III represent skin, and that these pixels are proximal within the RGB or HSL color space. The data set of Instagram images used in this study contains a wide variance of lighting color, shadows, photo filters, and other photographic conditions, as well as variation in face orientation and face occlusion with facial hair, glasses, hats, and cosmetics. All of these factors can significantly modify the perceived color of skin pixels and render skin pixels as a minority cluster when performing k-means. Examples of common conditions which challenged the assumptions of the k-means approach are in Figure 3-4.

The manual selection process proposed in Stage V was introduced to navigate the noisy data and regulate the handling of challenging photographic conditions in Stage IV. A fully automated approach is certainly possible within this proposed workflow. As an initial naive approach, I used the mean of all seven candidate colors to determine the final skin tone presentation. Other approaches might restrict final proposed colors to a defined range of skin tone values for a given color space [115] or develop a consensus algorithm for resolving differences in proposed colors across clusters. I chose to rely on a manual approach to color selection due to the limited scale of data (thousands, as opposed to, say, all 80 million #gay posts), and the desire for skin tone presentations, as opposed to natural skin tones. Furthermore, the use of a manual selection process allowed the selective filtration of images which failed to yield useful candidate colors, either due to errors in prior workflow stages or substandard image

features. As such, conditions like those in Figure 3-4 are reconcilable within the scope of this analysis.

3.2.3 Fenty Skin Tone Analysis

The output colors of the skin tone analysis pipeline were used both as standalone results, providing insight into the overall distribution of skin tone presentations for a given set of posts, such as "top" #gay posts, as well as for aggregated downstream calculations. In an attempt to tether skin tone presentations to a concrete understanding of human skin, output colors were grouped using shades from the Fenty Pro Filt'r foundation color palette. The complete Fenty palette, including all forty shades along with hue and temperature information, can be found in Figure 3-5. While the Fenty Beauty color palette is by no means definitive in its range of skin tones, it is both a widely popular palette, more broadly inclusive than other leading beauty brands, and has precedent in quantitative analysis of skin tone [122]. It is important to note the Fenty foundation color palette as a poignant example of how visibility is linked to co-option and commodification, a central point of critique within this project.

Each output color from the skin tone analysis pipeline was mapped to its most similar color in the 40 shade Fenty Beauty palette. Perceptual color similarity, ΔE , was calculated using the CIE94 formulation of relative color distance, defined as follows:

$$\Delta E = \sqrt{(\Delta L)^2 + \left(\frac{\Delta C_{ab}}{S_C}\right)^2 + \left(\frac{\Delta H_{ab}}{S_H}\right)^2} \quad (3.2a)$$

$$\Delta L = L_1 - L_2 \quad (3.2b)$$

$$C_1 = \sqrt{a_1^2 + b_1^2} \quad (3.2c)$$

$$C_2 = \sqrt{a_2^2 + b_2^2} \quad (3.2d)$$

$$\Delta C = C_1 - C_2 \quad (3.2e)$$

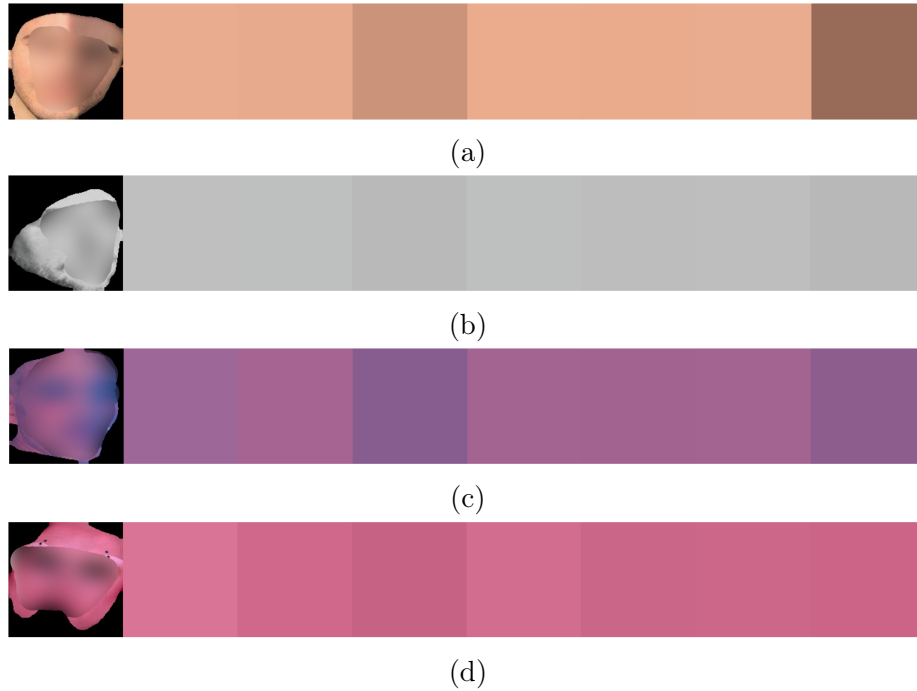


Figure 3-4: Common error conditions within Stage IV of the skin tone presentation analysis pipeline. The cropped and segmented face image is shown in the left-most column, with the seven resultant color candidates from k-means clustering to the right. All faces are blurred to respect the privacy of the user. (a) shows a face with heavy shadow covering a portion of the face. The third and seventh clustering model propose a noticeably darker skin tone than other clusters. (b) is an example of a black-and-white filtered image. These filters are common on Instagram. The absence of color information renders skin tone analysis impossible with the proposed approach. (c) shows a face with strong colored lighting, altering the perceived color of skin pixels. Again, in absence of reliable color information, the proposed approach fails to yield useful candidate colors. (d) depicts a face with cosmetics covering the skin. Cosmetics and drag aesthetics were common in the data set of #gay posts, and obscured skin tone presentation predictions.

$$\Delta H_{ab} = \sqrt{\Delta a^2 + \Delta b^2 - \Delta C_{ab}^2} \quad (3.2f)$$

$$\Delta a = a_1 - a_2 \quad (3.2g)$$

$$\Delta b = b_1 - b_2 \quad (3.2h)$$

$$S_C = 0.045 * C_1 \quad (3.2i)$$

$$S_H = 0.015 * C_1 \quad (3.2j)$$

where (L_1, a_1, b_1) and (L_2, a_2, b_2) are two colors within the $L^*a^*b^*$ color space. Each skin tone presentation was mapped to a Fenty tone such that:

$$F_p = \min(\Delta E_{p,f}), \forall f \in F \quad (3.3)$$

where F is the set of all forty Fenty tones, and F_p is the most perceptually similar Fenty tone for post p . The Fenty tones were further divided into subsets based on lightness (light, medium, tan, deep) and undertones (cool, neutral, warm), as seen in figure 3-5. The distribution of Fenty tones, as well as differences in engagement with respect to Fenty tone, was analyzed across "top" and "recent" #gay posts.

3.2.4 Emoji Analysis

Emojis are ideograms frequently used on social media platforms to enrich text conversation. Tone-modifiable emojis (TME) have skin tone modifiers which can render each TME in five different skin tones, along with the default bright yellow emoji color. These five skin tone modifiers follow the Fitzpatrick Scale for classifying human skin color [78]. In total, there are 118 TME.

As a historical note, the Fitzpatrick Scale, used as the basis for emoji skin colors, was first developed by dermatologist Thomas Fitzpatrick to convey risk of photo-damage from ultraviolet radiation (UVR) across skin tones. Though still used by dermatologists today, his findings have proven to be less effective for assessing darker skin tones [167]. Notably, Fitzpatrick linked his findings to a risk assessment for skin cancer, concluding that those with Fitzpatrick skin phototype VI (see figure 3-6) had

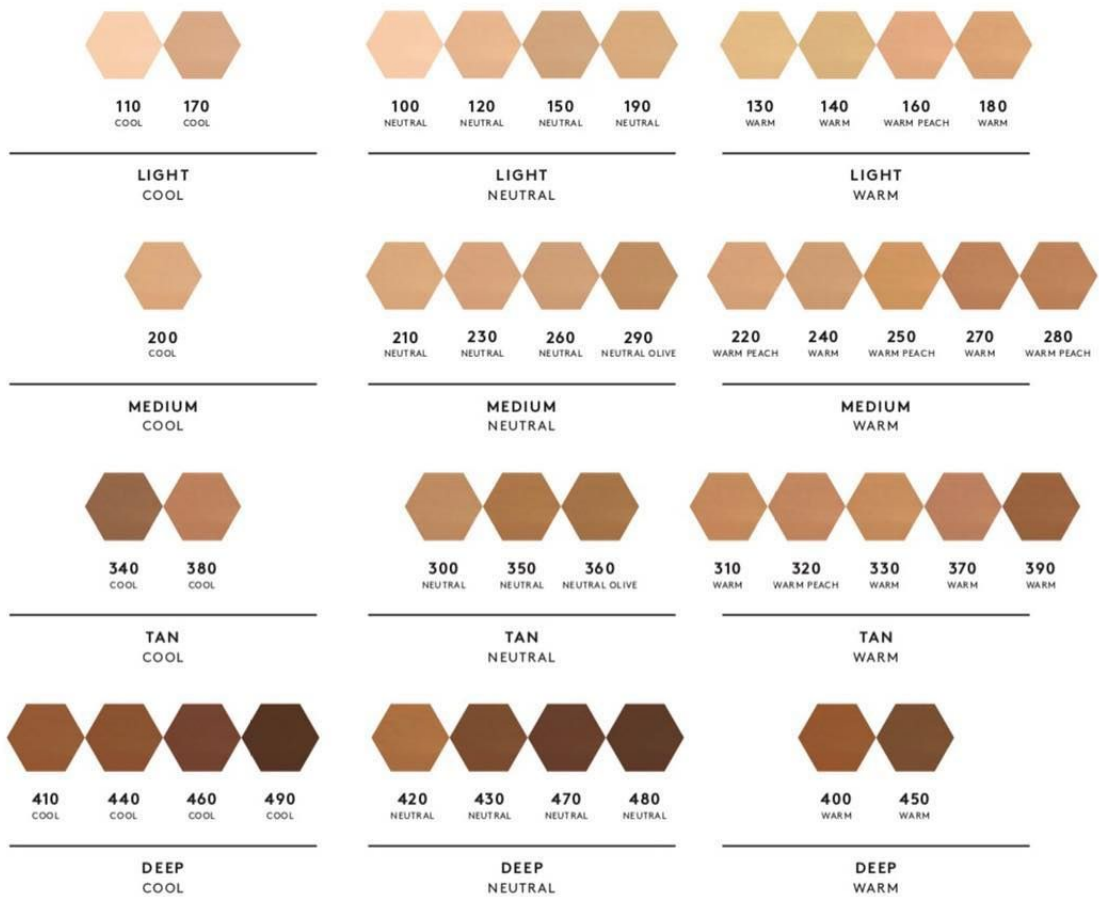


Figure 3-5: Fenty Pro Filt'r foundation palette. Forty shades are grouped by tone (Light, Medium, Tan, Deep) and temperature (Cool, Neutral, Warm).

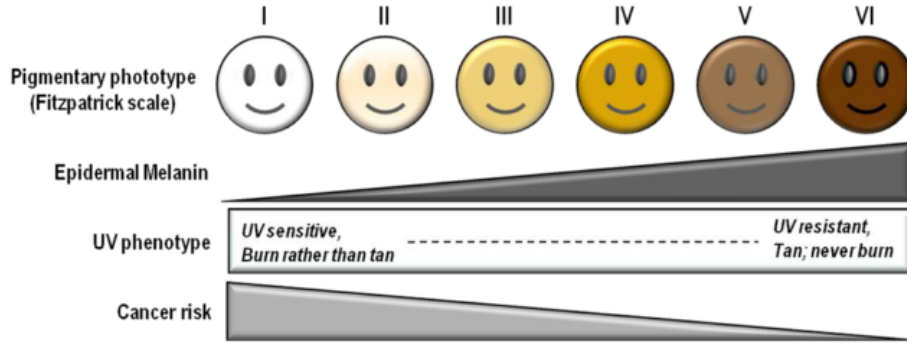


Figure 3-6: The Fitzpatrick Scale and associated risk of cancer. Fitzpatrick designated six skin phototypes, ranging from lightest to darkest. These phototypes provided the basis for emoji skin tones. This graphic was created by D’Orazio *et al.* [71]

little to no risk. Misinformation about the risk and appearance of skin disease among darker skinned individuals has been linked to medical bias and mistreatment [208]. This history is important to note, as it shows yet another example of how historical biases enter into the digital world, structuring the digital presence just as the physical.

The use of TME on social media platforms represents an opportunity for users to better align their digital presentation with their self-identification. The vast majority of users choose an emoji skin tone similar to their perceived skin tone [173]. Therefore, analysis of the distribution of skin tone modifiers can yield supplemental insight into the dynamics of skin tone presentations on Instagram. Past work has explored emoji usage on social platforms such as GitHub [127], Twitter [105, 173], Instagram [99], and messaging applications [182]. Others have considered the sociocultural links between emoji usage and identity, including gender-specific emoji usage [41], cross-cultural emoji usage [87], and emoji usage for affective prediction [16, 123, 142]. Results indicate that emojis provide important language-independent indicators of user identity, emotional affect, and affiliations.

TME were extracted from Instagram post captions and grouped by skin tone modifier. The distribution of modifiers was then compared across data sources (top #gay, recent #gay, Explore) to investigate how different skin tones appear across various levels of algorithmic mediation.

3.2.5 Engagement Analysis

The term "engagement" on social media platforms refers to actions that users take on content to indicate interest. On Instagram, the primary engagement mechanisms are "likes" and "comments" on posts, as well as "follows" on accounts. Engagement metrics are paramount on the platform, operating as a de facto assessment of legitimacy and value. However, while likes and comments are good indicators for content relevance within a community of users, they are unreliable as a predictor for content quality [178]. Furthermore, content engagement is a primary determinant for content amplification and, by extension, more engagement. The result is a small set of posts garnering a majority of attention on the platform, aided by user engagement and rewarded with a larger audience by Instagram's algorithms, while a majority of posts remain largely unseen, irrespective of their value or quality.

Engagement, and its related impact on content promotion, has been studied on platforms such as Instagram [13], Facebook [74], and Twitter [207]. Past work has studied engagement on social media platforms for a number of purposes, ranging from impact of engagement on "fake news" or salacious content virality [117], the legitimating impact of high engagement on user perceptions [10], and relation between image characteristics and engagement levels [65, 66]. Others have attempted to develop novel metrics for content quality and popularity [88, 178], noting the "like" to be an unreliable indicator.

Likes, comments, and other engagement metrics were scraped along with their respective Instagram posts. These metrics were analyzed in relation to the presented skin tone of users, derived via the skin tone analysis workflow in Figure 3-3. The mean and median number of likes and comments for each feed of #gay posts (see figure 3-1 and equation 3.1) were derived such that

$$\mu_F = \frac{\sum_{n=1}^N p_n \cdot \text{likes}}{N} \quad (3.4a)$$

$$\mu_F = \frac{\sum_{n=1}^N p_n \cdot \text{comments}}{N} \quad (3.4b)$$

$$\eta_F = \begin{cases} F[\frac{N+1}{2}].likes & \text{if } N \text{ is odd} \\ \frac{F[\frac{N}{2}].likes + F[\frac{N}{2}+1].likes}{2} & \text{if } N \text{ is even} \end{cases} \quad (3.5a)$$

$$\eta_F = \begin{cases} F[\frac{N+1}{2}].comments & \text{if } N \text{ is odd} \\ \frac{F[\frac{N}{2}].comments + F[\frac{N}{2}+1].comments}{2} & \text{if } N \text{ is even} \end{cases} \quad (3.5b)$$

where $p_n.likes$ and $p_n.comments$ are the number of likes and comments received by post p_n of feed F , respectively; N is the number of posts in F ; and $F[x]$ is the x th post in the list of posts in F , sorted by number of likes (3.5a) or comments (3.5b).

Feeds were further divided into the Fenty Foundation tone groupings based on the skin tone presentations of each post. All of the Fenty tone subsets are pairwise disjoint, such that

$$T_i \cap T_j = \emptyset, i \neq j \quad (3.6)$$

where i, j index into the list of subsets $T = light, medium, tan, deep$. The mean and median of skin tone subsets within each "top" and "recent" feed were found by calculating the mean and median on the intersections of the subsets (eg: all "top" posts that have light skin tones) using equations 3.4 and 3.5. The mean and median of these subsets were denoted by $\mu_{F \cap T}$ and $\eta_{F \cap T}$, where F is the feed ("top" or "recent") and T is the tone (light, medium, tan, deep).

3.3 Analyzing the Explore Feed

3.3.1 Feature Extraction

Feature extraction is a dimensional reduction technique which transforms high-dimensional data into a low-dimensional set of features for processing and analysis. Image Encoding applies a deep learning approach to feature extraction, leveraging a neural model to learn meaningful low-dimensional encodings of high-dimensional input data. While a fundamentally reductive approach to image analysis, analysis of image encodings

provides a more holistic view of data set properties than single-feature techniques such as skin tone analysis, accounting for image content, composition, color, and other photographic qualities.

This project uses the CLIP image encoder with a Vision Transformer (ViT) backbone, as proposed by Dosovitskiy et al. [68] and Radford et al. [162], to extract a 200-feature embedding from each image in the Instagram data set. These features were then used for downstream analysis.

Feature extraction is a fundamental technique for qualitative image analysis and down-stream computational processing of imagery. Broadly, the encoding of imagery into quantified multi-dimensional representations has been applied in fine-grained image analysis (FGIA) [209], image texture and characteristic analysis [8], and representational processing of imagery [202], with surveys of each usage referenced. Use cases of image encoding and feature analysis are wide-ranging, from structuring image-based Internet search results⁶ and organizing digital art assets [133] to identifying features in medical imaging [165] and face recognition [222].

3.3.2 Hashtag Analysis

The hashtags used in captions of explore feed posts were analyzed as a means of contextualizing posts within broader discursive categories. While image feature analysis provides insights into the dominant visual representations of the Explore feed, analysis of hashtags provides an indication of content topic and intended audience, explicitly flagged by the content creator. Hashtags were aggregated across all posts, with the most used hashtags reported. Top hashtags were grouped according to the primary three discursive topics: "fitness", "sexuality", and "beauty".

Past work has studied the usage, function, and impact of hashtags on social media platforms. As previously mentioned, Yarimar Bonilla and Jonathan Rosa have documented the semiotic functioning of hashtags within digital spaces, particularly focusing on the use of #ferguson within the 2014 protests and activism surrounding the

⁶same.energy is an image-based search engine, using similar feature-based approaches used in this paper, <https://same.energy/>, site accessed on 05/13/21

shooting of Michael Brown in Ferguson, Missouri [29]. Others social and activist hashtags such as #girlslikeus and #metoo [106, 145]; #instagay [33]; and #stopthesteal [97] have been researched as markers for online discourse. More broadly, computational research has been conducted on aggregate hashtag usage trends, including efforts to predict hashtags from associated discourse [210], cluster complex online social commentary on topics using similar hashtags [54], and statistically describe hashtag distributions on social media platforms [40]. Hashtags have been used both as broad sites of quantitative study, with researchers analyzing how hashtags structure social media discourse.

3.3.3 Generative Adversarial Networks

The Generative Adversarial Network (GAN) is a training framework first proposed by Ian Goodfellow et al. [85] in which a generative neural network G , tasked with estimating a data distribution, and a discriminative neural network D , tasked with predicting whether a given sample is from G or the training data, are pitted against each other in an adversarial game. G is rewarded for generating plausible samples, while D is rewarded for classifying these samples as fake. Through the adversarial training framework, equilibrium is reached when G has successfully approximated the underlying statistics of the training set, and D has 1/2 (random) success at detecting generated samples. Formally, the GAN framework can be posed as a *minmax game* which seeks to optimize the following loss function:

$$\min_G \max_D L(D, G) = \mathbf{E}_{x \sim p_r(x)}[\log D(x)] + \mathbf{E}_{z \sim p_z(z)}[\log(1 - D(G(z)))] \quad (3.7)$$

where

- p_r : data distribution over real sample x
- p_g : generator distribution over real sample x
- p_z : data distribution over noise input z

A diagram of the GAN framework is shown in figure 3-7

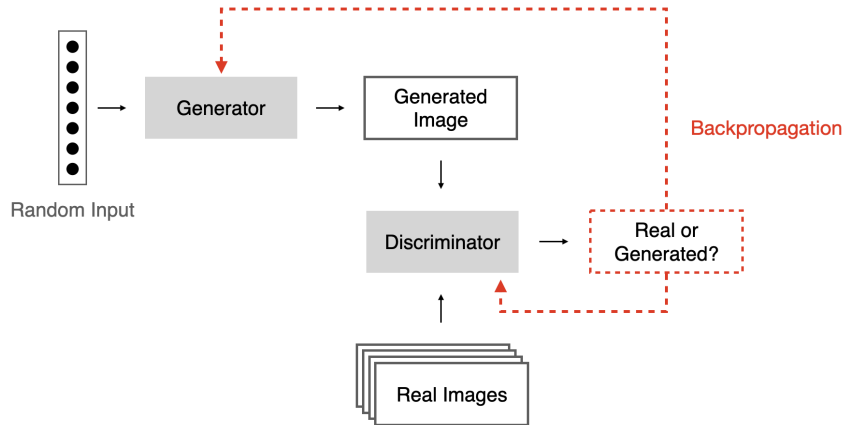


Figure 3-7: Architecture of a generative adversarial network (GAN)

This project deploys a Wasserstein GAN (WGAN), as proposed by Arjovsky et al. [7], to approximate the distribution of the Explore feed data set. The WGAN loss function, based on the Wasserstein Distance, differs from the original GAN loss formulation in equation 3.7. The WGAN loss function is defined as:

$$L(p_r, p_g) = \max_{w \in W} \mathbf{E}_{x \sim p_r} [f_w(x)] - \mathbf{E}_{z \sim p_r(z)} [f_w(g_\theta(z))] \quad (3.8)$$

where

$\{f_w\}_{w \in W}$: a family of K-Lipschitz continuous functions

GANs have shown remarkable results in unsupervised image [110], audio [124], and video [43] generation. This project particularly draws on the growing use of GANs as a creative tool and artistic practice, in which the underlying norms of a data set are visualized for aesthetic appeal, creative expression, and social commentary. Technologist and artist Refik Anadol, for example, uses GANs in his work *Machine Hallucinations* to visualize the dominant digital representations of physical spaces, as seen through the collective documentative eye of the Internet [5].

This project expands upon the notion of the "collective consciousness" of digital spaces, using GANs to reflect how we see, document, and imagine ourselves on Instagram. Synthetic generated images were used both as sources of visual analysis,

investigating the normative features and representations replicated by the GAN, as well as for artistic presentation, inviting a discussion of how we might collectively imagine modes of being exterior to those representations consistently reflected back at us.

Chapter 4

Results

Quantitative results from the various analyses of #gay and Explore feed posts are detailed in the following sections.

4.1 Skin Tone Analysis

All #gay posts were processed through the skin tone analysis pipeline, as described in figure 3-3, to derive the skin tone presentation RGB and HLS values for each face in the posts. Quantities of #gay posts, faces, and derived skin tone presentations are shown in table 4.1. Multiple faces, or no faces, could be found in a single post, as evidenced by the discrepancy between post and face quantities. Interestingly, "top" posts had more faces per post than "recent" posts, with a cursory analysis of the images showing that "top" posts tended to be overwhelmingly people-focused, whereas "recent" posts exhibited a broader range of post types. The quantity of skin tone presentations was strictly less than the number of faces, due to the manual filtration of poor candidate colors in the skin tone analysis pipeline. Skin tone presentation colors for all #gay posts, as well as a comparison between "top" and "recent" color presentation distributions, can be seen in figure 4-1. The HSL color space is geometrically cylindrical, with hue being an angular dimension ranging from 0° to 360°. As expected, skin tones were largely concentrated within a small range of hue values, and were therefore projected onto the 2-dimensional lightness-saturation plane for

#gay Source	Posts	Faces	Skin Tone Presentations
Recent Feed	34,048	32,924	21,713
Top Feed	648	794	613

Table 4.1: Quantity of posts, faces, and derived skin tone presentation colors for #gay posts. Approximately 1.8% of all #gay posts collected were flagged as "top" posts. The number of faces derived from posts is reflective of how many people were in the associated images. Skin tone presentations were computationally derived, with a final manual filtration step to exclude faces that yielded non-representative colors. This filtration step accounts for the reduced quantity of skin tone presentations, as compared to quantity of faces.

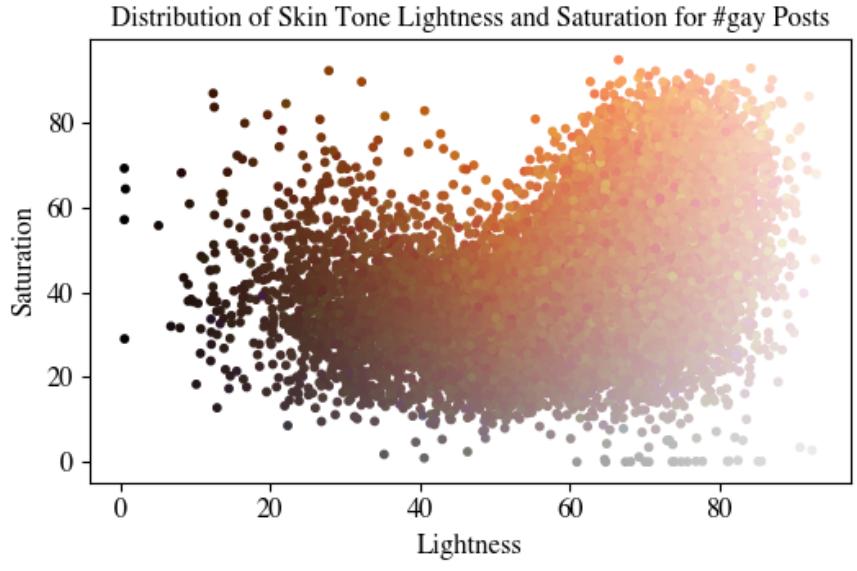
Skin Tone Grouping	% All Posts	% Recent	% Top	% Δ (Top-Recent)
Light	36.49	36.26	44.69	8.43
Medium	12.76	12.71	14.84	2.13
Tan	40.23	40.32	37.03	-3.29
Deep	10.49	10.69	3.42	-7.27
Cool	31.96	32.17	24.46	-7.70
Neutral	28.15	28.15	28.38	0.23
Warm	39.87	39.66	47.14	7.47

Table 4.2: Proportional distribution of skin tone presentations for "top" and "recent" #gay posts, grouped by Fenty foundation shade ranges (Light, Medium, Tan, Deep) and undertone ranges (Cool, Neutral, Warm). Groups that exhibited an increase in proportional representation within "top" posts, as compared to "recent" posts, are bolded. Light, medium, and warm toned posts were more prominent in "top" posts, while tan, deep, and cool toned posts were less prominent. Neutral tones remained near-constant (0.23% increase in "top" posts).

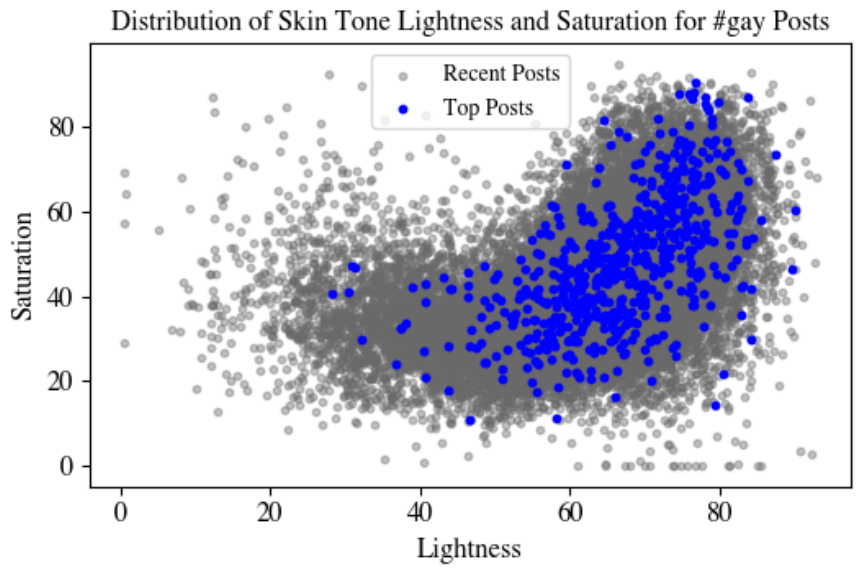
readability. These plots show an overall skew towards lighter and more saturated tones, with "top" posts sparsely distributed in the darker regions.

Specifically focusing on the lightness values of #gay skin tone presentations, shown in figure 4-2, "recent" posts have a clear left-skewed distribution, slowly tapering off as skin tones darken. The mean lightness value of "top" posts (66.5) was 7.7% higher than that of "recent" posts (61.7).

Skin tone presentation colors were mapped to their most perceptually similar Fenty Pro Filt'r Foundation color (see figure 3-5), using the CIE94 formulation of color difference. The proportional distribution of mapped Fenty foundation shades, grouped by Fenty shade ranges (Light, Medium, Tan, Deep) and undertones (Cool, Neutral, Warm), for "top" and "recent" #gay posts is provided in table 4.2. Light,



(a)



(b)

Figure 4-1: Derived skin tone presentations for all #gay posts in the dataset. HLS values of skin tone presentations were derived from the skin tone analysis workflow, as presented in figure 3-3. Values were projected onto the 2D lightness-saturation plane, as skin tones were largely concentrated to a small range of hues. (a) shows the distribution of saturation and lightness values across all #gay posts in the dataset, with a skew towards lighter and warmer colors. (b) shows the distribution of "top" and "recent" posts within the lightness-saturation plane. Top posts are more concentrated within the lighter and warmer colors, while darker regions are sparse.

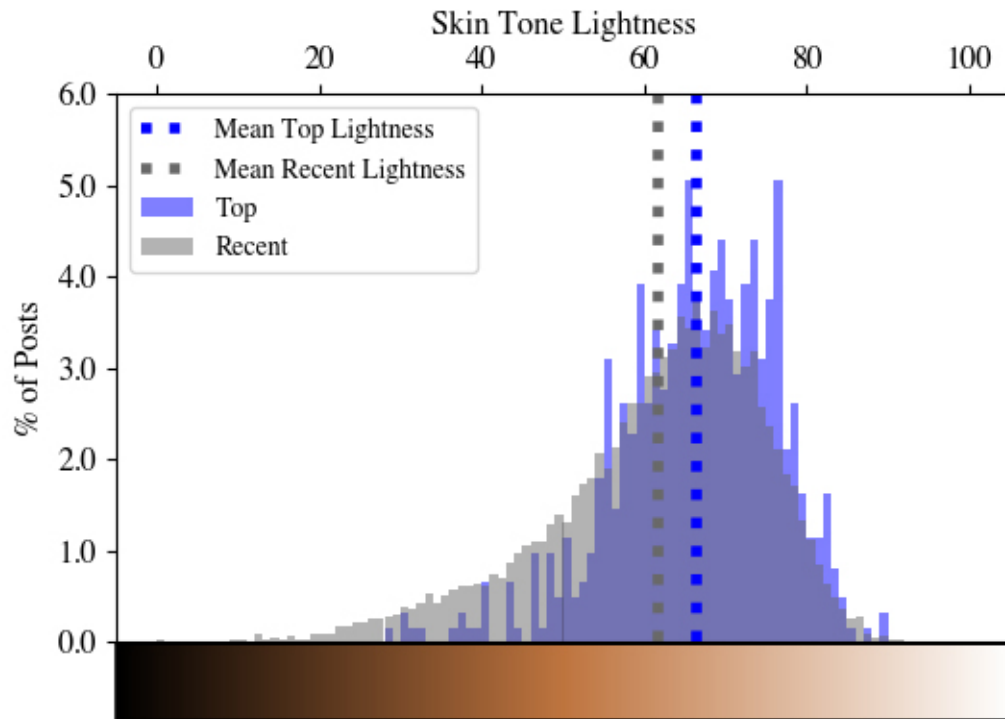


Figure 4-2: Histogram of lightness values for "top" and "recent" #gay posts. Values are reported as a percentage density of the overall distribution. The mean lightness value for each data series is shown, along with a sample skin tone color spectrum along the horizontal axis for context. "Recent" posts exhibited a left-skewed distribution, with a mean lightness of 61.7. "Top" posts were less uniformly distributed, though showed a drop in darker tones and a higher representation of light and tan tones. The mean lightness value of "top" posts was 66.5, 7.7% higher than that of "recent" posts.

medium, and warm toned posts were proportionally more prominent in "top" posts, while tan, deep, and cool tones experienced a decrease in representation, as compared to the distribution of tones in "recent" posts. Figure 4-3 provides a detailed breakdown of the representational discrepancies between "top" and "recent" #gay posts for mapped skin tone presentations, ordered by lightness, Fenty shade range, and undertones.

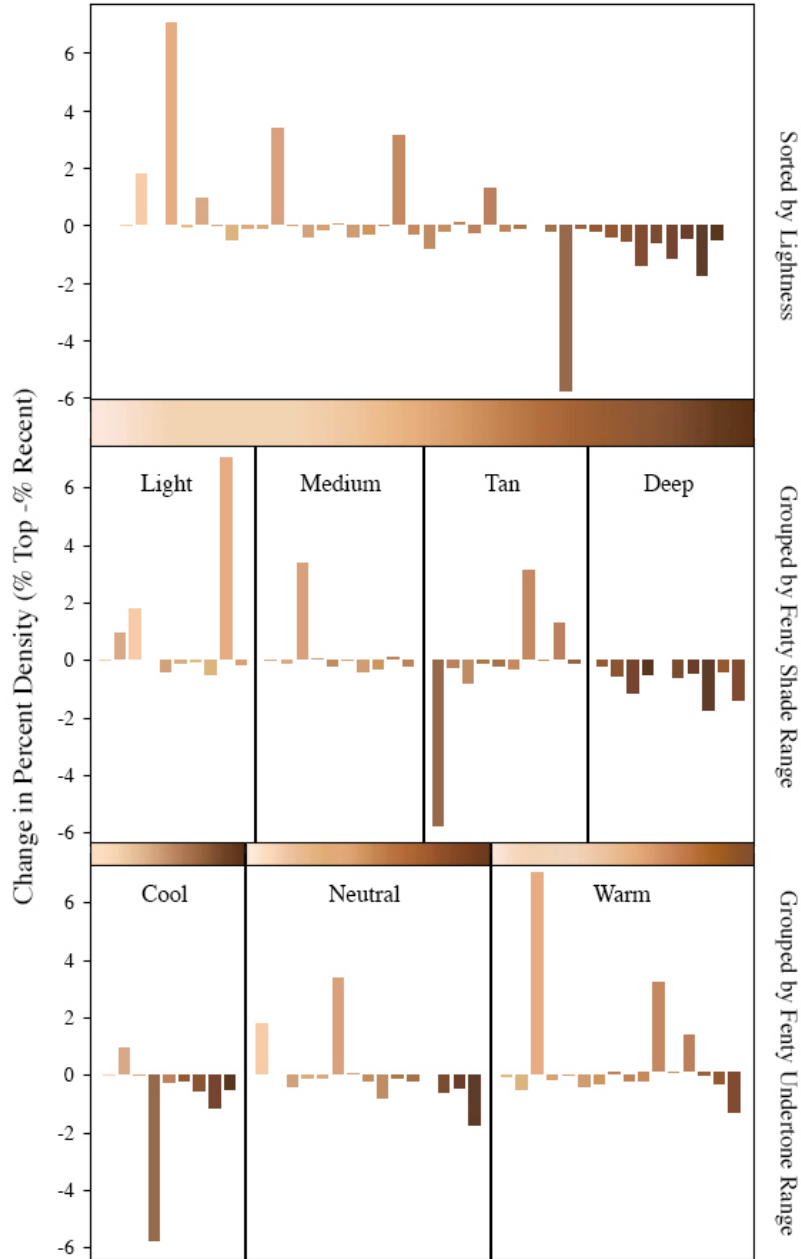


Figure 4-3: Difference in percent density of #gay skin tone presentations between "top" and "recent" posts. Skin tone presentations are mapped to their most perceptually similar Fenty foundation palette color (40 total). The top panel shows the change in percent density of each Fenty shade, sorted by lightness values. This panel shows a clear preference for light and middle tones in posts that get selected as "top", while darker tones suffer. The middle panel groups Fenty shades by their respective shade range (Light, Medium, Tan, Deep). The bottom panel groups shades by their respective undertone range (Cool, Neutral, Warm). Lighter warm tones are overrepresented, while most cool and deep tones are underrepresented.

4.2 Emoji Analysis

Tone-Modifiable Emojis (TME) were extracted from the captions of #gay posts and analyzed with respect to the skin tone of the used TME. A comparison of TME tones between "top" and "recent" #gay posts is shown in figure 4-4. As previously noted, emoji usage is complex and non-deterministic, though TMEs are most commonly used in reference to the users self-identified skin tone. Lighter tones (Light, Medium-Light) were more common than darker tones (Dark, Medium-Dark) for both "top" and "recent" posts. However, "top" posts exhibited an increase in mid-tones (Medium-Light, Medium, and Medium-Dark), and a decline in Light and Dark tones. Relating this to skin tone analysis findings, the drop in light-toned emojis and exaggeration of tan and mid-tones suggests a convergence of popular aesthetic performances on tan, "mixed", and racially ambiguous tones.

4.3 Engagement Analysis

Engagement metrics for #gay posts were analyzed for both "top" and "recent" feeds. "Like" and comment statistics are outlined in table 4.3. Likes were sparsely and unequally distributed, spanning four orders of magnitude, with a majority of posts receiving fewer than 50 likes. The cumulative distribution and probability density of likes and comments are shown in figure 4-5. Given the sparsity and wide range of "like" values, mean values were heavily skewed by "viral" outliers (posts receiving far higher engagement than others in their cohort), particularly within the smaller "top" posts sample. As such, the median was reported as an additional indicator for likes. Comments were more densely concentrated within a smaller range of values, and were therefore less prone to viral outliers skewing the mean.

A comparative analysis of engagement metrics between "top" and "recent" posts, grouped by Fenty shade range, is shown in table 4.4. Light-toned posts received the lowest engagement of all shade ranges in "recent" posts, yet, as stated earlier, were disproportionately included in "top" posts, and had the highest engagement of all

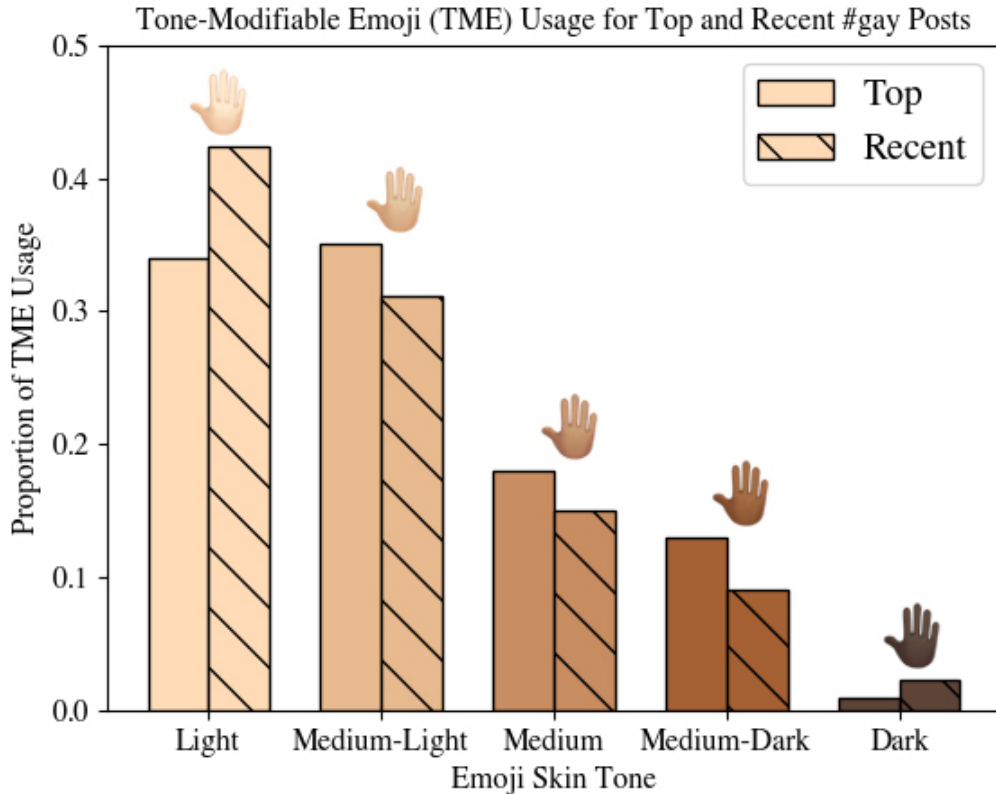


Figure 4-4: Comparison of tone-modifiable emoji (TME) usage in captions of "top" and "recent" #gay posts. The overall distribution of TMEs across all #gay posts shows usage strictly decreasing as TME skin tone darkens. The proportion of light and dark toned emojis decreases in "top" posts, while medium-light, medium, and medium-dark tones increase in prominence. These findings are consistent with analysis of skin tone presentations in #gay posts, and further suggest a converge of popular aesthetic performances on tan, "mixed", and racially ambiguous tones.

Engagement	Feed	Max	Min	μ_F	η_F	Gini Coefficient
Likes	Recent	25907	0	145.68	46	0.7122
	Top	7352	102	403.15	170	0.5613
Comments	Recent	1307	0	5.37	2	0.7619
	Top	243	0	16.55	10	0.5145

Table 4.3: Statistics of Engagement Metrics for recent and top #gay posts. μ_F indicates the mean likes or comments for the respective feed, while η_F indicates the median, as defined in equations 3.4 and 3.5

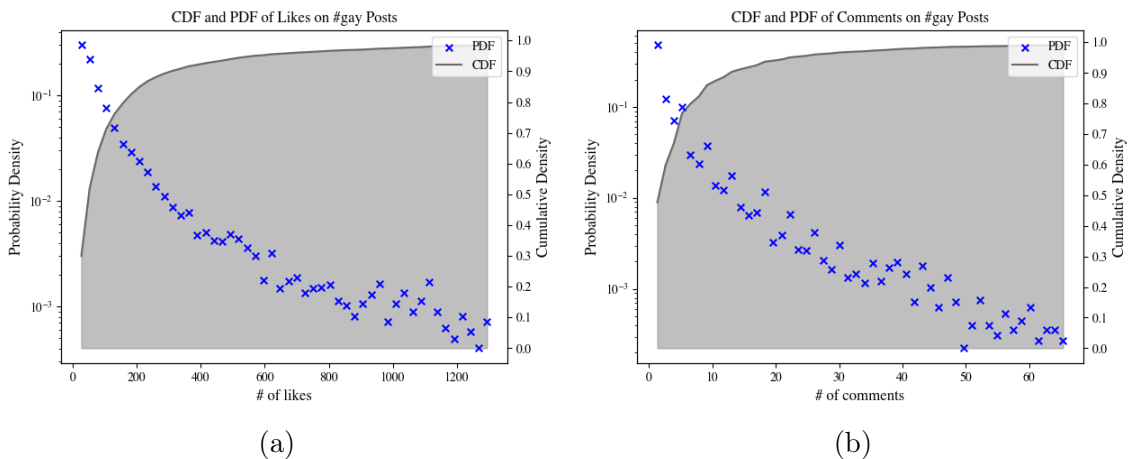


Figure 4-5: Cumulative Distribution Function (CDF) and Probability Density Function (PDF) of (a) likes and (b) comments for all #gay posts in the dataset. Both show a sparse distribution, with a majority of posts receiving minimal engagement, if any, while a select few receive a large number of likes and comments.

shade ranges within "top" posts¹. Deep tones performed above the average "recent" post in terms of likes and comments, yet was underrepresented in "top" posts and had below average engagement in this feed. Tan posts performed well in the "recent" feed, and had the highest mean comments in the "top" feed.

4.4 Feature Extraction

Latent features were extracted from Explore feed images, and clustered to visualize the topology of imagery curated by Instagram. Each image was encoded as a 200-feature

¹Deep tones showed the highest mean likes for "top" posts, due to a small number of viral posts dramatically skewing the mean. This is evidenced by the low median for deep "top" posts. Light "top" posts had the second-highest mean likes, highest median likes, and second-highest mean comments.

Engagement	Feed	Skin Tone	μ_F	η_F	$\mu_{F \cap T}$	$\eta_{F \cap T}$	$\Delta\mu_{(F \cap T)-F}$	$\Delta\eta_{(F \cap T)-F}$
Likes	Recent	Light	145.68	46	133.65	42	-12.03	-4
		Medium			151.82	47	6.14	1
		Tan			152.49	49	6.81	3
		Deep			153.58	47	7.90	1
	Top	Light	403.51	170	444.42	178	41.27	8
		Medium			275.82	157	-127.33	-13
		Tan			382.59	167	-20.56	-3
		Deep			638.76	165	235.61	-5
Comments	Recent	Light	5.37	2	5.01	1	-0.36	-1
		Medium			5.64	2	0.27	0
		Tan			5.52	2	0.15	0
		Deep			5.71	2	0.34	0
	Top	Light	16.55	10	16.95	10	0.40	0
		Medium			13.03	9	-3.52	-1
		Tan			17.70	10	1.15	0
		Deep			14.24	10	-2.31	0

Table 4.4: Comparison of likes and comments on "top" and "recent" #gay posts, grouped by the lightness of skin tone presentation in the post. Lightness groupings are based on Fenty Foundation tone groupings (see figure 3-5), and skin tone presentations were derived using the skin tone analysis workflow described in figure 3-3. μ_F and η_F indicate the mean and median engagement value for a given feed F as defined in equations 3.4 and 3.5, respectively. $\mu_{F \cap T}$ and $\eta_{F \cap T}$ indicate the mean and median engagement value for a given feed F and skin tone grouping T , respectively. The difference between mean and median tone and feed values, $\Delta\mu_{(F \cap T)-F}$ and $\Delta\eta_{(F \cap T)-F}$ demonstrate whether posts of a given skin tone *overperform* or *underperform* as compared to the statistics of the overall feed. Light-toned recent posts received lower engagement than other skin tones, yet performed at or above average within top posts. Conversely, deep-toned posts received some of the highest engagement in recent posts, yet underperformed in top posts, relative to other skin tones. Interestingly, deep-toned top posts received the highest mean likes, yet the second lowest median likes. This is due to a small number of deep-toned posts receiving a large number of likes.

vector, grouped into one of 10 clusters via K-Means, and dimensionally reduced for visualization. The complete feature clustering is shown in figure 4-6, with randomly selected samples from each cluster to demonstrate how image attributes are structured within the feature space. The upper-left region of the feature space (orange and purple in the figure) is dominated by fitness-related imagery, typically depicting white, shirtless, muscular, and hypermasculine individuals, often in the form of "mirror selfies", "gym pics", or outdoor swimwear photos. Below, in the bottom-left (grey in the figure), the same white, hypermasculine, and exhibitionist archetype persists, here in the form of sexually-implicit professional photos and body shots. The left-center and central regions of the feature space (brown, cyan, and blue in the figure) depict "lifestyle" content, usually with a male-presenting individual or queer couple, and various signals of class or status, such as a dog, car, outfit, or travel destination. The bottom-right region of the feature space (pink in the figure) consists of interior design imagery, brand photos, and nature scenes. The right-center region (green in the figure) is largely the first encounter with female, femme, and Black presentations. The upper-right region (red in the figure) is filled with cultural memes and "fit pics" of prominent Black celebrities, specifically Black rappers and athletes. Just below (yellow in the figure) are philanthropic, self-help, and social advocacy infographics.

Importantly, the locations of feature vectors and clusters are determined by learned relationships between training images in the CLIP neural model, and therefore exterior to a critique of mediated visual representations on Instagram. For example, the fact that whiteness and masculinity are more prominent on the left of the clustering, while Blackness and femininity are sequestered on the right, is not itself an indictment of Instagram or its content meditation. However, the relative proximity provides helpful insights into how the Explore feed is structured, and aids in an analysis of which aesthetics are rendered (in)visible by Instagram's curation mechanisms.

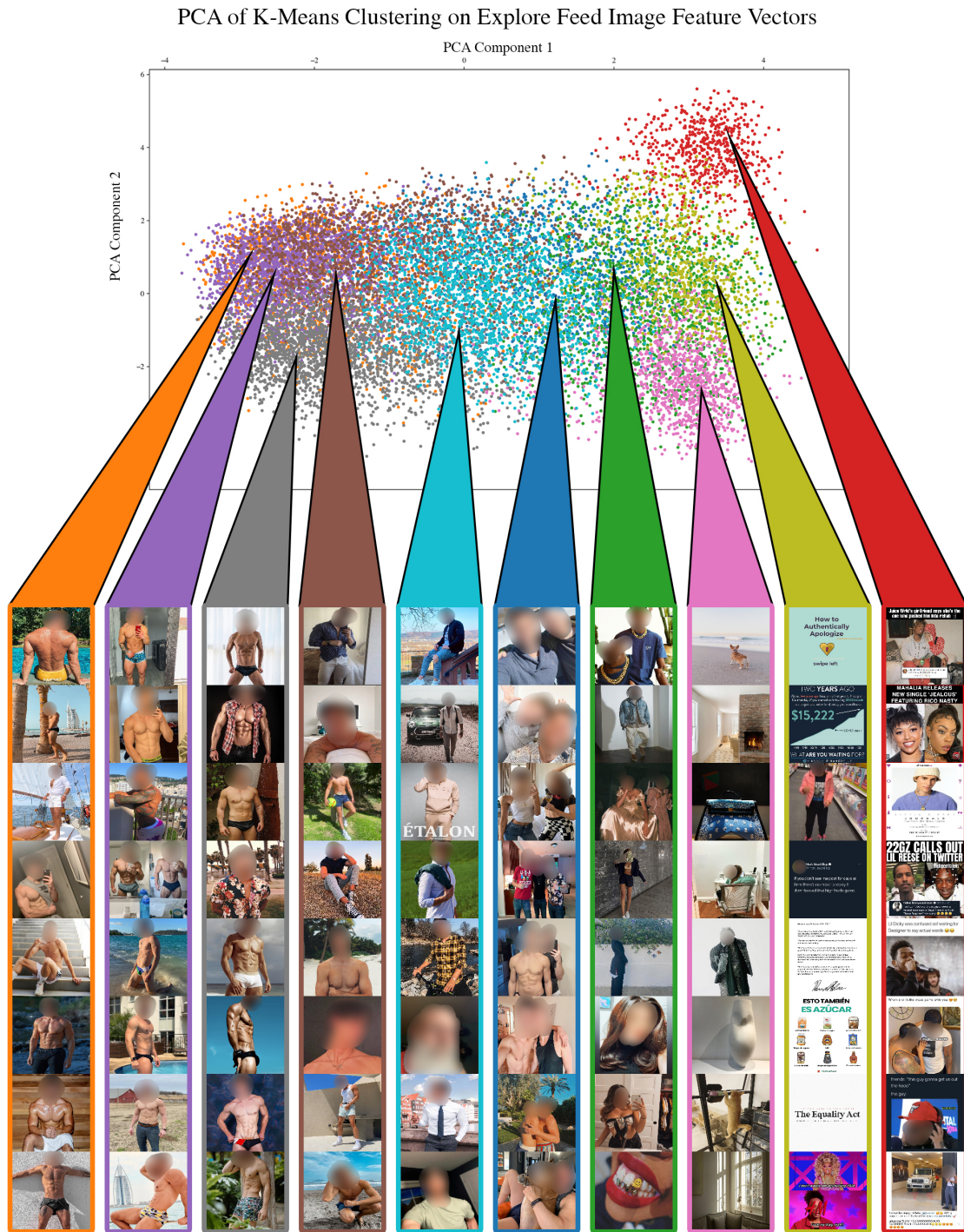


Figure 4-6: K-Means Clustering of extracted image feature vectors from Explore feed posts, with 8 randomly sampled images from each of the 10 clusters. The 200-dimensional feature vectors were dimensionally reduced to 2 components via PCA for visualization. Faces in images were blurred to protect the privacy of the users.

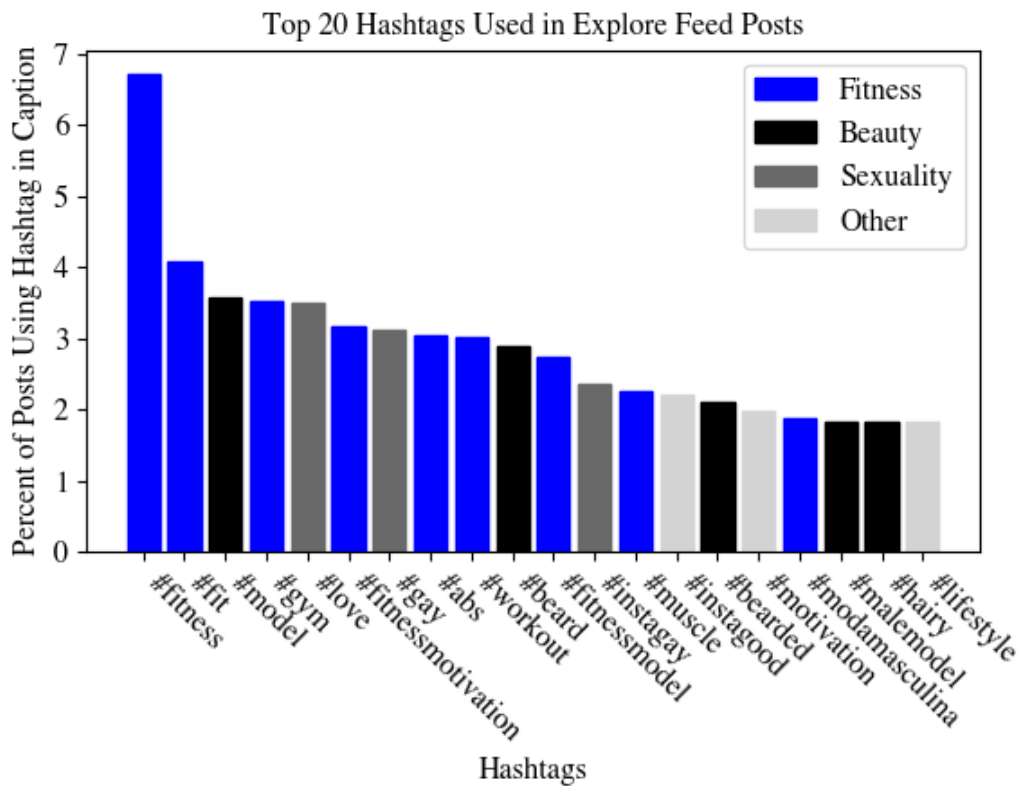


Figure 4-7: Top 20 hashtags used in the captions of Explore feed posts. Hashtags were categorized and colored by topic. "Fitness", "beauty", and "sexuality" hashtags accounted for most of the top 20, with fitness being the most popular. These hashtags indicate Instagram content curation algorithms targeted a gay-coded user with predominantly fitness and beauty content. Note that posts need not use hashtags, and a single post can use upwards of 30 hashtags.

4.5 Generative Modeling

A Generator was trained on all images from the Explore feed using a WGAN framework, and leveraged to generate images that reflect normative features of the feed. A sampling of generated images is seen in figure 4-8. These artificial outputs are proposed as useful objects for close analysis, outcomes of a model which has observed, internalized, and regurgitated the dominant visual features of the Explore feed. Many of the generated images depict ephemeral compositions of the white, muscular, masculine figure - abs, pecs, arms, facial hair, underwear. The Generator is a fundamentally creative yet unimaginative technology, incapable of envisioning imagery exterior to the dominant archetypes of what already exists. As such, I position the GAN and its generated imagery as an inherently hegemonic tool, reflecting existent visual hierarchies and revealing the necessity for queer imagination in envisioning futures exterior to dominant modes of being.

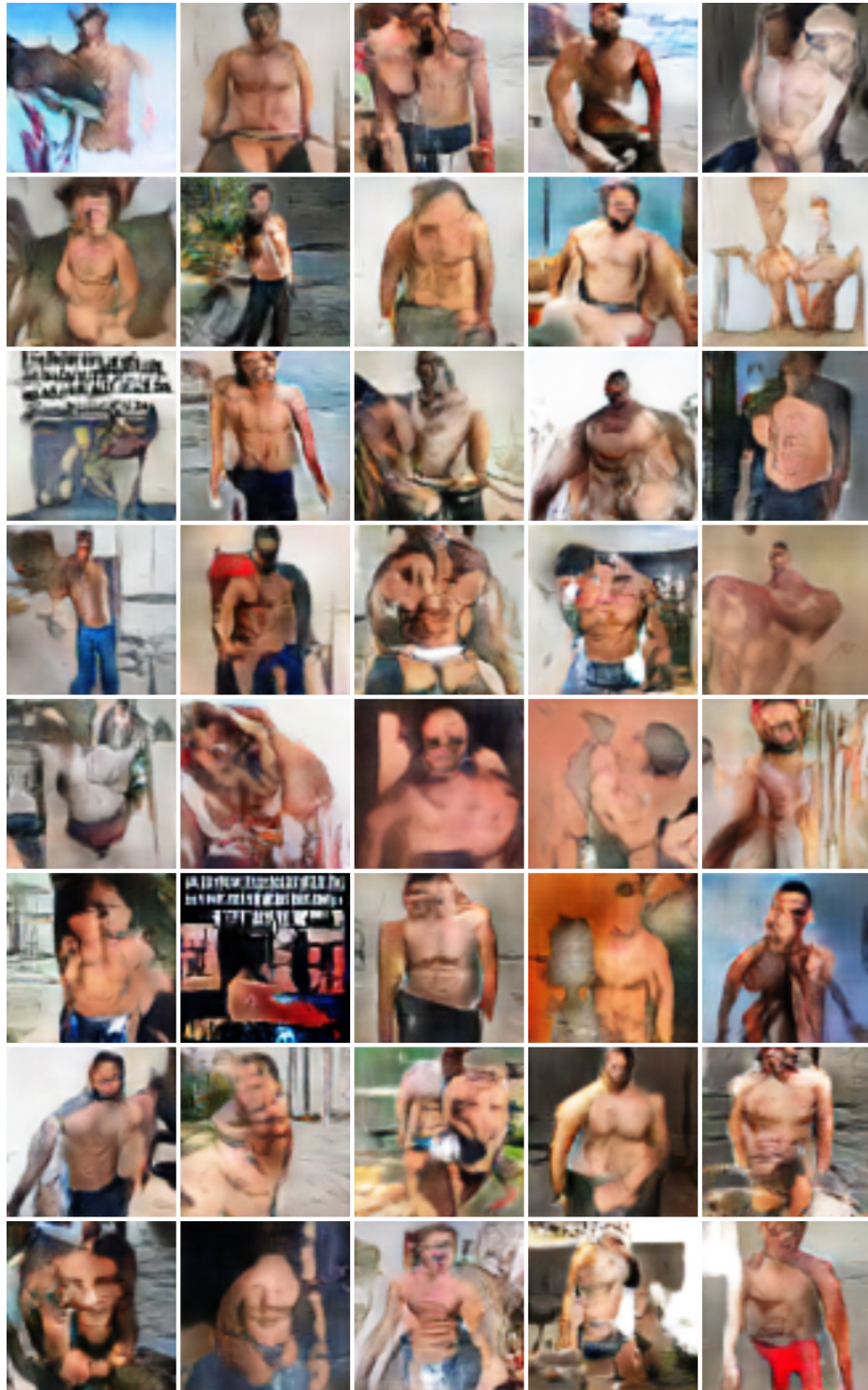


Figure 4-8: Generated images from a WGAN trained on Explore feed images. The images were curated to select for depictions of a "person". Renditions of the common meme format, with top text overlaid on a white or black background and image, were also included. An uncurated collection of generated images is provided in the Appendix.

Chapter 5

Discussion

This section provides a deeper discussion on the implications of project results, framed by historical and theoretical context in the Background section. I specifically structure this discussion with four main discursive pathways, linked to the research questions which they seek to answer:

1. Race and aesthetic hierarchy within ranked content (**RQ1, RQ2**)
2. Aesthetic tourism and Black and queer co-option on Instagram (**RQ1, RQ2**)
3. Tensions between visibility and co-option for marginal cultures (**RQ2, RQ3**)
4. Assessing the liberatory potential of Instagram (**RQ2, RQ3**)

For convenience, the research questions are reproduced below:

- **RQ1:** How do Instagram content curation algorithms structure visualizations of racial performance within gay-coded spaces on the platform?
- **RQ2:** How has Instagram challenged, reinforced, and obfuscated control over marginal aesthetics?
- **RQ3:** What is the relationship between normative culture and the marginal within queer digital spaces? What are its contingencies?

In each of the four sections, I first provide the quantitative results which ground resultant project findings, followed by a sociological discussion of how these results situate within the aforementioned historical and theoretical framing.

5.1 Race and Aesthetic Hierarchy Within Promoted Content

I begin with the most straight-forward quantitative result of this project: darker skin tones are disproportionately excluded from the "top" feed of #gay posts. Skin tone presentations in "top" posts were lighter and warmer than those in "recent" posts (figure 4-3). This shows a clearly discriminatory outcome to Instagram's content curation mechanisms, yet it doesn't address *how* or *why* this comes to be.

While Instagram does not publicly reveal the exact mechanisms by which its algorithms decide what posts are "top" content, it is colloquially understood that engagement metrics – likes and comments on posts – are primary factors in content promotion. Comparative analysis of engagement metrics between the "top" and "recent" #gay feed provided insight into how discriminative exclusion of dark posts might come to be. Concretely, the engagement analysis addresses the question: are less dark skinned posts in the "top" feed because they are less popular (user biases) or because they are systematically excluded (algorithmic bias)?

Results from this project suggest the latter. Deeper tones were largely excluded from the "top" feed, despite receiving the highest mean number of likes and comments of all skin tone groups. Furthermore, light-toned posts were the lowest performing skin tone group in the "recent" feed, and the highest performing skin tone group in the "top" feed (figure 4.4). This indicates that popularity is a product of promotion, not a prerequisite. The "top" bestowal yields higher engagement on the platform, while popularity does not necessarily yield inclusion at the "top". These results show, at minimum, ambiguity as to what qualifies a post to be "top". While there are undoubtedly a trove of data points which Instagram uses to generate such decisions,

the outcome is clear: the "top" feed of #gay is disproportionately white, and it's not for a lack of user interest in non-white content.

In disambiguating the erasure of Blackness within #gay promoted content, it is important to indict the environment that has been intentionally designed to facilitate these results. This project investigates how Instagram's content mediation and amplification mechanisms quantize, structure, and visualize race within the #gay feed, yet the a priori stratification of content into "top" and "recent" categorical feeds is itself a source of scrutiny. In specifically delineating posts as "top", Instagram has deliberately inserted itself as arbiter of the ephemeral canon that is the "feed". "Top" posts are more visible, legitimated, and, as a result, more popular. Yet, the qualifications of a "top" post are obscured, leading to the assumption that those privileged few posts are, in fact, the "best", most popular of the many. As this project's analysis of engagement metrics for promoted content has shown, this is not necessarily the case. Instagram's decision to create a hierarchy of posts within a "top" feed must be understood as subjective and intentional, and but one of many design possibilities for the platform. Centering the intentionality of Instagram's design decisions, and imagining the myriad of other ways it could be, sheds light on the *why* and *how* of inequitable content mediation on the platform. As a naive example of alternative design, imagine a "top" hashtag search feed which simply sorted all posts, perhaps within the last week, based strictly on engagement metrics. While this approach would certainly have its own drawbacks (we know, for example, that likes are in many ways a defunct metric for content quality [178]), the exercise of imagining alternatives emphasizes the intentional affordances and optimizations which Instagram has chosen. Concretely, the stratification and amplification of a small selection of content, and particularly content reflecting hegemonic beauty, lifestyle, and culture, has direct financial incentive for Instagram's content creators, advertisers, and enterprise stakeholders. While this project does not directly examine the history of Instagram platform design, content curation, and monetization strategies, these are all important facets to consider in explicating the current manifestations of racialized content mediation.

5.1.1 Blackness on the Explore Feed

While skin tone and engagement analysis of #gay feeds provided quantitative insight into who was being excluded by Instagram's algorithms, feature analysis of Explore feed content provided qualitative insight into the characteristics of those that were included. In looking at the types of content that were promoted to the Explore feed, a more robust understanding of how Blackness is structured on the platform takes shape. Analysis of feature clusters shows Black culture and aesthetics to be largely confined to "fit pics", memes, and content depicting athletes, rappers, and other cultural figures (figure 4-6). Black normalcy and lifestyles are absent from dominant representational paradigms. Importantly, this Explore feed was specifically curated for a gay-coded user. The overrepresentation of whiteness and hypermasculinity reflects codified assumptions about the "typical" or "unmarked" gay user [50], which have embedded themselves into Instagram's content curation algorithms. Namely, this Explore feed is geared towards a gay user that is white, affluent, and homonormative, and engages with Blackness purely through cultural institutions (sports, music, entertainment, fashion). This structuring of Blackness and queerness within the Explore feed highlights how racial and sexual deviance is tolerated on the condition of capital, with curated content catering to existent social hierarchies which likely prove most profitable to Instagram, while those straying from this "new norm" remain ostracized.

5.2 Blackfishing, Queerbaiting, and Aesthetic Tourism

Lisa Nakamura first proposed the concept of Identity Tourism to describe a phenomenon witnessed in Internet chat communities, in which online performances "used race and gender as amusing prostheses that could be donned and shed without 'real-life' consequences" [79]. This term adopts the definition of tourism that describes people traveling and staying in places outside their usual environment for various purposes. In cyberspace, as previously discussed, this "travel" into foreign spaces is easier than ever. Lenfant et al. note how tourism, both online and physical, works to co-construct the identities of both the "tourist" and the "local" [118]. The con-

cept of Identity Tourism has been linked to instances of "digital Blackface", cultural appropriation, and other related phenomena referenced in this project [148]. I use the term Aesthetic Tourism to both extend the scholarship on Identity Tourism, and draw a particular emphasis to the image-based aesthetic manifestations of this phenomenon on sites like Instagram. I define Aesthetic Tourism as normative aesthetic "visitations" with the marginal through digital media, in which individuals co-opt deviant aesthetics for sociocultural capital while still hedging their affiliations to white, heterosexual, gender-conforming, and otherwise hegemonic groups. In the following sections, I explore the related culturally appropriative phenomena of Blackfishing and queerbaiting, address their precarities, and propose Aesthetic Tourism as a framework for linking contemporary manifestations of these phenomena within Black and queer digital communities.

5.2.1 Co-opting Blackness on Instagram

While it is clear that dark skin tones were *underrepresented* despite *overperforming* and light skin tones were *overrepresented* despite *underperforming*, the relationship between skin tone and popularity for middle tones appeared slightly more nuanced. Medium tones exhibited a proportional increase in the "top" feed, and "top" tan posts received the highest mean comments and second-highest mean likes among all skin tone groups (table 4.4). Furthermore, analysis of tone-modifiable emoji (TME) usage revealed that medium-light, medium, and medium-dark TMEs were more used among "top" posts than "recent" posts, while light and dark emojis experienced declines in usage (figure 4-4). Knowing that people tend to use the emoji skin tone most closely aligned with their self-identified skin tone [173], this suggests that users which adopt racially ambiguous "mixed" tones experience a disproportionate uptick in likelihood of promotion to the "top" feed.

I wish to contextualize these observations within a discussion of Blackfishing, colorism, minstrelsy, and broader aesthetic phenomena which navigate the power dynamics of skin tone presentation. In reconciling the hypervisibility of white skin tone presentations, the invisibility of dark presentations, and the popularity of tan,

"mixed", and racially ambiguous mid-tones, I draw upon these phenomena to explain the simultaneous valuation of Black aesthetics and devaluation of Black people. Through this lens, the convergence on "mixed" tones coupled with popularity of whiteness and exclusion of (highly popular) Blackness reflects an aesthetic performance which draws proximal to Blackness to extract its cultural currency, while remaining safely within sight of the malleable confines of whiteness. Too light, and the aesthetic isn't popular. Too dark, and the aesthetic isn't seen.

Blackfishing has most prominently been used to describe white celebrities and cultural figures that have adopted explicitly Black aesthetics (figure 2-15), and falls within a broader discourse surrounding cultural appropriation. Minstrelsy is an extreme example of this racial co-option, with overt and explicitly racist portrayals of Black aesthetics by white individuals for the entertainment of white audiences. While these overt acts still exist today, findings from this project suggest a more nuanced and subtle iteration of racial co-option, manifesting in the emojis, photographic filters, and aesthetic modifications users employ on Instagram. Importantly, this co-option is occurring digitally, allowing for constant remixing, reproduction, and reimagining of identity and aesthetic performance, untethered from one's "real life" identifications. Content on Instagram has the potential to reach massive audiences, a majority of which likely have no personal connection to the individuals in the content they are engaging with. While celebrities are most prominently accused of Blackfishing, simply because their "real life" identities are most easily verifiable – we all know Kim Kardashian isn't Black – this project also focuses on the "average user", seeking to understand how cultural trends and Instagram's algorithmic incentive might compel users to venture into Blackness for cultural capital.

I present the example of digital image filters on Instagram as a popular photographic trend which highlights how subtle digital co-option might manifest in skin tone presentations. Instagram provides an array of preset photographic filters to choose from when posting an image, as well as options to modify exposure, contrast, highlights, shadows, and other photographic characteristics. Each of these modalities provides the user with an opportunity to intentionally and creatively transform their

presented aesthetic. Past research on digital photo-sharing platforms has shown that warmer toned, high contrast, and high exposure posts receive higher engagement, as do people-centric images such as selfies [14]. This project provides both quantitative evidence of these documented visual trends, and qualitative assessment of *why* these trends are popular, through discussions of Aesthetic Tourism. Remembering that beauty is both historically malleable and fundamentally invested in exploiting aesthetics to reinforce power [51], I position the popularity of warmer and "mixed" tones on light skinned #gay posts, coupled with the erasure of dark skinned #gay posts, as a contemporary continuation of intersectional fungibility – a Western cultural fascination with Black aesthetics, in tandem with the systematic disenfranchisement of Black people and contingent integration of gay men into the white norm. Here, in bringing forth image filters as an example, my focus is not on indicting these filters as racist tools for oppression. Rather, I seek to interrogate the "tourist", understanding white culture's fascination with tan-ness and racially ambiguous performance. *What compels the use of tan filters? What drives their popularity? How has cultural capital been allocated? Why isn't white cool?* In this way, I also wish to center whiteness in the critique, believing this to be a fundamentally white issue.

5.2.2 Co-opting Queer Instagram

The nuance of digital adoptions of marginal aesthetics is also apparent in contemporary manifestations of queer co-option. As previously noted, the Explore feed overwhelmingly promoted homonormative and hypermasculine content to a gay user. This is further complicated by the observation that much of the promoted content originated from sexually ambiguous, if not overtly heterosexual accounts. I group the curated Explore feed content into three dominant archetypal categories: "instagay" content, #fitness content, and object-centric imagery (memes, "fit pics", branded product photography, etc.). Content within the #fitness region (left-most clusters in figure 4-6) presents sexually explicit hypermuscular renditions of the male figure, both capitalizing on queer male desires and aspirations, and siphoning queer attention for the profit of heterosexual #fitness content creators.

I wish to draw this discussion back to considerations of the "aspirational allure" of hegemony. As previously mentioned, gay aesthetic culture has historically idealized whiteness, masculinity, and homonormativity. This is reflected in #masc4masc and "straight-acting" cultures in gay digital spaces, which uphold proximity to heterosexual male standards as sexually, romantically, and socially ideal. This idealization represents a neoliberal reallocation of social capital to those deemed normative "acceptable" gays, while also immediately excluding the Black, fat, femme, gender non-conforming, and otherwise deviant queers, who remain ostracized in the new social ordering. While gayness has certainly found social gains and acceptance, it is critical to consider what forms of gayness are welcome, and on what terms.

Instagram, in algorithmically promoting "aspirational" homonormative and hypermasculine content to explicitly queer audiences, has systematized queerbaiting. However, as with co-option, the manifestations and intentionalities of this co-option are far more nuanced than queerbaiting of old. It is certainly plausible that some of the #fitness users are in fact queer, yet choose to adopt a heteronormative aesthetic performance. It is also plausible that many of these #fitness users are unaware of, or did not intend for, their content being promoted to queer audiences. However, centering prior discussions of sexual hegemony and neoliberal conceptions of identity as property, this project is less concerned with the sexual labels of users whose content was curated for the Explore feed, than with the aesthetic that Instagram has quantified, evaluated, and amplified. Concretely, I posit that queerbaiting has always been, and will always be, about capital. The long-standing mass-media balancing act between acceptability and profit - the gay perversion versus the gay dollar - has been reinvented and computationally outsourced, obscuring the intentions of both the queerbaiter and Instagram while profiting off of normative gay aspirations just the same.

5.2.3 Aesthetic Tourism

I defined Aesthetic Tourism, in relation to Nakamura's Identity Tourism [79, 148], as the act of drawing temporarily proximal to marginal aesthetics for social, cultural,

or financial appeal, while remaining hedged to hegemonic identities. I also proposed the distinction of Aesthetic Tourism, as a subspace of Identity Tourism, to emphasize the performative aesthetic elements of this phenomena, particularly on image-based digital spaces like Instagram. The "aesthetic tour" is an appropriative, imperialist endeavour which financially, emotionally, and culturally benefits from the very groups which it displaces, disenfranchises, and delegitimizes. The concept of "visitation" - the ability to explore, profit from, and then depart "intriguing" aesthetics - is key to understanding the consequences of both Identity and Aesthetic Tourism, and disambiguates the terms from related concepts such as cultural appropriation, Blackfishing, and queerbaiting, which do not explicitly center the temporality, performance, and exoticism of the circumstance.

Aesthetic Tourism proves a useful concept for understanding the more nuanced digital manifestations of Black and queer co-option within neoliberal technoculture. The fluidity and plurality of identity markers in contemporary culture presents a strong challenge to accusations of queerbaiting. Critics of queerbaiting accusations note the binarism and bi/pan erasure which often colors these accusations – doesn't the critique of sexually ambiguous men that adopt queer aesthetics undermine the very goals of the queer movement, which seeks expansive gender norms, space for sexual deviance, and acceptance across the entirety of the sexuality spectrum? I propose Aesthetic Tourism as a rebuttal to this critique, both recognizing the need for expansive, fluid, and welcoming explorations of sexual identity and gender performance, as well as the inequitable access to these explorations across other intersectional identity axes. Aesthetic Tourism emphasizes the mobility "tourists" are granted within the matrix of domination – a mobility which is itself a privilege. Queer performance art duo FAKA articulates the affordances of aesthetic mobility well, writing "contrary to what homosexual rhetoric suggests, my queerness and radical femininity are not just retractable features of a grander being who can comfortably exist in a cis-heteronormative society. These are not secrets that only expose themselves in who I 'choose' to love" [76]. The fallacy of the neoliberal "destabilization of masculinity" is that it wholly centers this destabilization on superficial labels and aesthetics, ig-



(a)



(b)



(c)

Figure 5-1: Prominent examples of high-profile heterosexual or sexually ambiguous celebrities that have adopted queer aesthetics or spaces. (a) Harry Styles, wearing a Gucci periwinkle saloon dress for the cover of *Vogue's* September 2020 issue. Lensed by Tyler Mitchell.(b) Jacob Elordi shot by Isabella Elordi for *Man About Town: Chapter 1* (2021), wearing Dion Lee ribbed corset. (c) Nick Jonas shot by Doug English for the cover of *Out Magazine* June 2016 issue. Jonas is openly heterosexual.

noring the historicity and tangible lived experiences of those that lack mobility along intersectional axes of race, class, and sexuality. Poignantly, most contemporary instances of alleged gay queerbaiting (and certainly all examples in figure 5-1) involve white, masculine, high-profile celebrities with the mobility to "tour" through sexual and gender performances while constantly evaluating the social capital of their positionality, free to return to normative hegemonies when the positionality is rendered sub-optimal. This is not to suggest that fluidity and self-exploration are problematic, but rather that they are not afforded to all.

Modern Masculinity: Perversion or Subversion?

Aesthetic Tourism shifts discussion from the "baiting" and presumed trickery of the perpetrator, instead focusing on the "tourist" and spatial-temporal positionalities of those "visiting" and those being "visited". This perspective forces a consideration of how neoliberal destabilizations of masculinity have simply shifted acceptable normative masculine presentations, rather than fundamentally undermining and redistributing traditional heteromasculine power.

Leo Bersani's *Is the Rectum a Grave* presents a *perversion/subversion* dichotomy

to alleged challenges of heteromasculine power which proves useful in assessing both the contemporary examples of celebrity queerbaiting and heteronormative #fitness content on the Explore feed [24]. Bersani cites discourse surrounding the popularity of the "leather queen" and "machismo" aesthetics within gay culture in the 1970s, noting how many considered this aesthetic movement to be "mischievous" to "the security with which 'men' are defined in society, and by which their power is secured" [70]. However, Bersani questions the amount of "mischief" that might result from an aesthetic movement which, at its core, pays homage to normative masculinity. While the adoption of hypermasculine aesthetics by queer culture might cause a fleeting "crisis of representation" [24] for heteromascularity, the very act of adoption implies a yearning for normativity, which simply *perverts* rather than *subverts* the masculine. Directly, Instagram's promotion of normative and hypermasculine #fitness content on the Explore feed cannot subvert, reimagine, or redistribute sexual hegemony, regardless of the sexuality of the user in the content, as it glorifies the very hegemony it seeks to displace.

I extend this argument to include aesthetic "tours" into queer aesthetics by normative culture. Admittedly, the object of yearning has shifted, with normative culture now valorizing queer aesthetics, inverting the "leather queen" dynamic from the 1970s. Yet still, the object of desire is the white, muscular, and otherwise normative man. It is difficult to imagine how this performance of queer aesthetics might subvert sexual and gender hegemony when those deemed sexual and gender deviants are wholly excluded from the performance. Rather, I suggest that modern "destabilizations" of masculinity simply pervert, or distort, hegemony to provide more mobility for those with existent privilege - namely, white, masculine, muscular, affluent, and cisgender gays.

5.3 Visibility vs. Co-Option

Much of the discussion in this project has centered on the "tourist" - the normative individual venturing into a marginal aesthetic. I now wish to turn to the marginal

individual, and discuss the impact of Aesthetic Tourism on the Black and queer cultures whose aesthetics have gained appeal within contemporary technoculture. Specifically, I wish to highlight the tension between visibility and co-option - the fine digital line between seeing and surveillance, appreciation and appropriation.

Visibility has often been described as a form of alchemy, reconstituting and congealing what is seen, while the invisible is left amorphous and unrefined. To be seen is to have your self transformed and solidified in the eyes of the viewer. Aria Dean notes the immense challenge Blackness faces to maintain cohesion within the newfound hypervisibility of Black culture. Dean writes, "this cohesion only becomes necessary, perhaps, as the collective being is made visible to non-Black society. When considered on its own, it what to some are the shadows, this collective being is allowed to expand and contract at will. But when society shines a light on it, what is atomized and multiplicitous hardens into Black" [58]. There is a certain liberty in invisibility - a freedom to expand and explore outside of the restrictive gaze of normative culture. Black and queer cultures have long found solace in the "shadows". Criminalized and ostracized throughout much of history, racial, sexual, and gender deviance has thrived in underground bars, clubs, and back rooms, birthing much of modern culture today.

However, there is also an immense importance to visibility, with artist FAKA equating the suspension of visibility to "social death" for the Black, queer, femme, and otherwise marginalized that risk being overlooked and erased in the collective visual imagination [76]. While Blackness and queerness have in many ways been "exposed", the mainstream shining a light on what was once hidden in the cultural shadows, Dean warns of the dangers that this normative light might have in maintaining the cohesion and expansiveness of what was once an unbounded culture. In assessing the contemporary visibility and representation of Blackness and queerness, it is important to consider *what* is being seen by the mainstream, and what they are then gleaning from this new visibility. Is all of queerness visible, or simply the palatable and opportune slivers of an otherwise multiplicitous collective culture?

The New Controlling Image

Specifically turning to Instagram, as a primary mechanism by which the mainstream sees the marginal, the performance and hypervisibility of queer aesthetics by normative culture is liberal insofar as it implicitly acknowledges and valorizes queer culture, yet its failure to visualize, uplift, or otherwise imagine counter-hegemonic modes of being, particularly for those "othered" by the masculinity and whiteness of the performance, completely undermines its liberatory potential. One celebrates "representation", while the other asks, *"for whom, and to what effect?"*.

I wish to contextualize the visibility of white homonormative #fitness content within queer spaces as a new controlling image, extending the longstanding regulation of acceptable queer modes of being. The selective hypervisibility of homonormative and hypermasculine aesthetics, and invisibility of Blackness, fatness, and femininity, crystallizes a perverted yet wholly familiar form of masculinity, both reifying existent power and perpetuating the longstanding myths of queer subjugation. While this perversion certainly diffuses contingent access and social capital to the privileged few that are "seen" within queer spaces – namely, the white, masculine, homonormative #fitness gays – this assimilation solidifies and exacerbates the exclusion of those that deviate from the new controlling image.

5.3.1 GANs as Assimilationist Tools

What of those that deviate? What might the impact of seeing infinite feeds of white masculine #fitness content be on the Black, fat, and femme collective? bell hooks notes that "surveillance is the key to colonization. If you've colonized well, people enact rituals of surveillance themselves" [21]. I link this to the concept of the Instagram eye – the embedding of Instagram's algorithmic logic into the mind of users – to consider how algorithmic biases are rendered as societal realities and self-definitions through the surveillance of the network. Internalizing the popularity and promotion of whiteness, masculinity, #fitness, and the #instagay, a popularity which this project has shown to be wholly subjective and opaque, embeds a reductive, colonized con-

ception of queer possibility and acceptability within the collective queer imagination. Just as Ibram X. Kendi notes the dangers and pitfalls of assimilationist mentalities within Black communities – of looking at one’s self through the eyes of whiteness – I here echo the dangers of assimilationist rhetoric on queer digital consumers, looking at themselves through the normative algorithmic eyes of the Explore feed [114].

I leveraged the Generative Adversarial Network framework to emphasize these dangers, seeking to visualize the normative features of the Explore feed that the machine "saw", internalized, and reflected back. As shown in figure 4-8, the GAN learned to assimilate, embodying a whiteness, musculature, masculinity, and homonormativity that situates well within the securities of the #instagay and #fitness aesthetics. The Explore feed, as regurgitated by the GAN, collapsed queerness into its most palatable form, a perversion of masculinity that is queer if only by name. This is co-produced within a neoliberal post-racial, ahistorical society where labels are more commodity than culture, holding value so long as they are marketable, unthreatening to existent hegemonies, and fully entranced by the allure of normative assimilation.

To the best of my knowledge, this is the first usage of a GAN framework to intentionally unearth biases present in the normative features of a dataset. Classically, GANs are used for their creative potential, remixing and reconstructing new imagery reminiscent of the training dataset. Here, I focus instead on the GANs imaginative potential, or lack thereof, believing the GAN to be a creative yet wholly unimaginative tool, incapable of producing imagery exterior to the subspace of training imagery it has learned from. What is otherwise a flaw of the GAN framework, here becomes an asset, visualizing the rigid normativity of queer aesthetic assimilation, as projected by the Instagram Explore feed. I encourage the use of normative generative modeling as an artistic, evocative, and revelatory tool for auditing visual datasets in future works.

5.4 Assessing the Liberatory Potential of Instagram

Is liberatory visual production possible within a digital attention economy that renders the very self as commodity? How can mainstream images on Instagram retain the multiplicity and fidelity of Blackness and queerness when the very act of posting implies audience, virality, and appropriation as a potential goal? Can we like, comment, and share our way out of a gentrified Explore feed? Aria Dean references the natural cycles of meme production, consumption, and reappropriation which "obfuscate the object from its culture, collective, and imagination" [58]. These cycles of cultural flow have long been critiqued, both elsewhere and within this project, for their co-optive and assimilationist tendencies. Many grassroots campaigns have emerged on Instagram (see figure 5-2) seeking to circumvent the biases of content curation algorithms, including algorithmically favored accounts muting themselves from discourse, calls to follow and engage with diverse accounts, and attempts to provide explicit feedback to the algorithms about what content the user prefers. Implicit within each of these efforts is an understanding of the invisibility that marginalized users experience on the platform.

These efforts are valiant and necessary as short-term solutions to the homogeneity and discrimination of the Instagram feed. However, this project hopes to equally indict the sociotechnical ecosystem which necessitates these adversarial grassroots efforts, an ecosystem which, importantly, these efforts still attempt to exist within. Tiziana Terranova notes that, within the digital attention economy, culture flows within a space that is "always and already capitalism" [192]. Indoctrinated to the "Instagram Eye", with each passing moment rendered a potential image to be shared and ranked on the platform, it is difficult to see how campaigns to simply "trick" the algorithm into showing more Black and queer bodies are not simply feeding the algorithm with more data, enabling targeted content curation with more specificity in the long-term. I do not wish to discredit these movements, but rather to expand the scope of critique to question the algorithms themselves, and the technoculture in which they were produced.

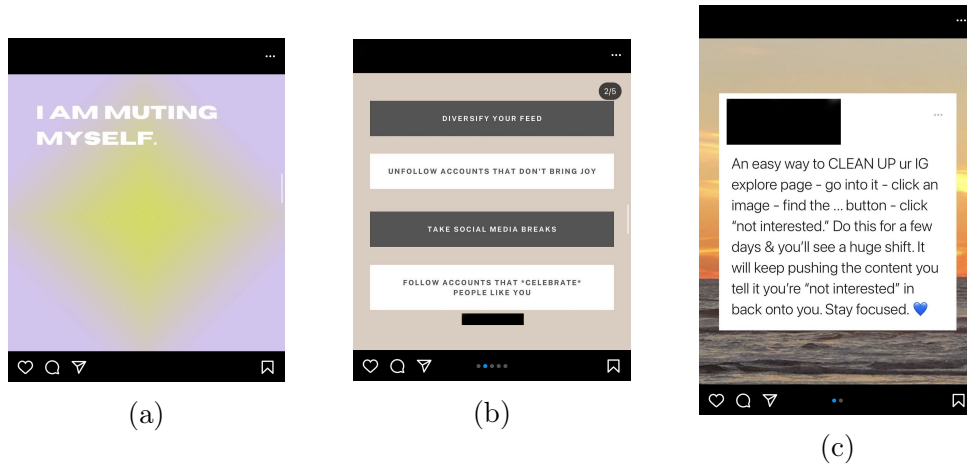


Figure 5-2: Screenshots of Instagram posts highlighting grass-roots movements to resist algorithmic bias and reclaim the user experience on Instagram. (a) post with pastel graphic and overlaid text "I AM MUTING MYSELF". The user indicates they will refrain from posting content for a set period of time to make space for more diverse imagery voices within curated feeds. (b) an infographic catered to Black Instagram users, detailing actionable steps to improve mental health while engage with the platform. The steps include "diversify your feed", "unfollow accounts that don't bring joy", "take social media breaks", and "follow accounts that celebrate people like you". (c) screenshot of a tweet providing instructions to "clean up" the Explore feed by explicitly flagging content with "not interested".

5.4.1 Digital Media For Visual Empowerment

Ultimately, the goal must be a visual culture which resolves what Fred Moten describes as the "opposition of voluntary secrecy and forced exposure", with Blackness and queerness capable of safely and completely operating "out in the open, and perhaps deeper still, as the open" [143]. Fox Harrell offers optimism through imagination, noting that "[he believes] empowerment is possible because individual, sociocultural, and state power are all rooted in imagination, and because we all have capacities to imagine" [93]. In specifically discussing empowerment through and within digital media culture, I focus on two intermingled avenues for praxis: imagery and image-making, and the technological context in which that imagery is seen (i.e. Instagram).

Image-Making as Liberation

The most common refrain to questions of media representation is "more". More Black and queer images, more Black and queer movies, more models, more actors and actresses. Writer and activist Jen Richards reiterates this sentiment, arguing "there is a one-word solution to almost all the problems in trans media. We just need more, and that way the occasional clumsy representation wouldn't matter as much because it wouldn't be all that there is" [77]. Enabling marginalized cultures to define, create, and engage with their own imagery, in its multiplicity, is certainly an essential element of liberatory visual culture. The continued underrepresentation and misrepresentation of Black and queer imagery will not enable liberation. However, as previously discussed, visibility is precarious for those deemed deviant. What is necessary, as Richards notes, is an *expansive* image-making practice, enabling counter-hegemonic modes of being and building imaginative space for empathy rather than co-option. Here, I present Arthur Jafa, Tyler Mitchell, and Jeremy O. Harris as three prominent contemporary Black image-makers who have offered insights into the production of more, expansive imagery. Though anecdotal, I propose these creators to show the prominence of such discussions on liberatory imagery within image-making circles today.

Filmmaker Arthur Jafa positions expansive imagery as an exercise in empathy, necessitating emotional growth through visual identification with the "other" [101]. Jafa notes how cinema can "expand narrow notions of who we are, who is *we*, ...who can identify with what", adding that Black (and queer) audiences have always had to seek empathic connection with the "other" in film, seldom seeing themselves on screens.

Photographer Tyler Mitchell draws from the imaginative and empathic potential of expansive Black imagery in his artistic practice. Mitchell's work (example in figure 2-13) sees Black leisure and joy as radical "sites of potential utopia" [196], exalting the beauty and power within the Black mundane and seeking liberation through non-differentiation. This image-making practice seeks not to assimilate into hegemony, but rather to assert the multiplicity and depth of everyday Blackness that is traditionally only afforded to white narratives. Playwright Jeremy O. Harris more radically contends that "to be Black and fail publicly and often is maybe the chicest thing to do in public while Black because at least you're alive... protect Black failure" [154]. Within both Mitchell's emphasis on Black joy and leisure and O'harris' glorification of Black failure and mediocrity is an understanding of the rigidity within which Blackness has been defined, and the power of expansive imagery and narratives in transgressing this definition.

The discussions of Jafa, Mitchell, and O'harris are referent to earlier discussions on imaging of Black normalcy, consensual visualization, and empathy building within the photographic work of artists such as Carrie Mae Weems and Roy DeCarava (see figure 2-13). All emphasize and give practice to the liberatory and subversive potential of the image, unlocking the mind to realities that need not exist in the present.

Technological Design as Liberation

While these artists have given perspective to liberatory potentials within the production of imagery, this project also turns to the digital mechanisms of image consumption as critical spaces for liberatory praxis. Fox Harrell proposes a multipronged approach to empowerment through computational media, drawing from his previously

discussed conception of phantasms as embodied vessels for cultural ideas [93]. Harrell highlights four key facets to empowerment, which I summarize as follows:

- Constructing demystifying phantasms capable of expressing imaginative visions
- Critiquing and revealing the worldviews underlying computing systems – how are computing systems bolstering hegemony through phantasms?
- Developing technologies to reveal disempowering structures and enable the marginalized
- Engaging in broader non-technological methods of activism, understanding technologies themselves to be imagined and embodied

The first means of empowerment was addressed through discussions of expansive imagery for imaginative liberation. I situate this project within the ambitions of the second, critiquing Instagram and the sociocultural hegemony it both emerges from and reproduces. The following section is dedicated to Harrell's third facet of computational empowerment – technological development which both challenges existent structures and enables the reimagination of new ones. Directly, how might we reimagine and redesign Instagram in service of empowering Black and queer users through imagery? While this is admittedly an ambitious goal, I specifically wish to focus on the role of agency in design.

Instagram offers many different affordances, each yielding varying degrees of agency on the platform. I divide Instagram mechanisms for agency into two main categories that directly relate to this project: identity affordances and content affordances. I define identity affordances as the tools Instagram offers users to define, digitize, and present their self to the broader network. Content affordances are the tools Instagram offers users to control who sees their content, as well as what content they see on their feeds.

Some front-end identity affordances have been discussed earlier in this paper, such as entry fields for name, username, bio, and profile picture. Given this project's focus on content curation and identity mediation, I yield a particular emphasis to back-end

processing of identity affordances – how Instagram quantifies and computes with user data – and how these in turn regulate content affordances on the platform. Within this project, I leveraged identity affordances to queer-code a user, observing how this agency in self-definition was processed by Instagram’s algorithms and reflected in the structure of content feeds. There is no true agency in how, if, or why personal information is used. A data opt-in model for sharing, usage, and visibility would provide agency to users in, at a minimum, consenting to opaque algorithmic content curation.

Beyond this, Harrell proposes an Advanced Identity Representation (AIR) framework for better actualizing cognitive self-conceptions of identity within computationally engineered spaces like Instagram [92]. The AIR model resists what Jurgenson describes as the "unnatural singularity" [108] of identity on social media, providing dynamic means for identity representation, destabilizing stigmas associated with identity groups, and offering critical reflections on hegemonic identity structures [91]. The AIR model goes beyond a simple consent-based solution to user-definition on the platform, in that it fundamentally challenges the affordances which are offered – how might Instagram structure identity affordances and agency so as to empower marginalized users?

Turning to agency in content visibility on Instagram, the current design iteration provides few affordances for active self-determination in feed structuring and content promotion. With nearly 100 million images uploaded to the site daily, the need for content structuring and mediation is clear – it is impossible to see everything. Instagram ostensibly provides agency over content promotion and visibility through engagement, with the common narrative being that more likes yields more eyes on a post, yet this project has demystified that claim. Campaigns to "diversify your feed" or "clean up the Explore page", seen in figure 5-2, might be seen as reclamations of user agency over content visibility. Individual identity affordances such as account privacy settings, options to "mute" other users, and self-imposed restrictions on who can engage with a user’s content yield some agency to the individual as well. These, I would argue, are all valuable tools for constructing empowered identities on the

platform. What is lacking, however, is any agency over what content is promoted any why.

Safiya Noble offers a useful anecdotal example of reimagined content curation, which provides an actionable vision of how Instagram might be refashioned in service of liberatory image consumption. Noble, focusing on the biases and algorithmic opacity of content curation within Google search results, proposed the "Imagine Engine" (see figure 5-3) as a "highly transparent interface, so that users could find nuanced shades of information and easily identify the borderlands between news and entertainment, or entertainment and pornography" [151]. The Imagine Engine was designed for Google search, yet it is not difficult to imagine how this transparency and agency in content discovery might find application in the Instagram Explore feed, for example. In its most direct transference, imagine an Explore feed which structured all content on Instagram into a navigable and interactive interface, from which the user could choose the particular discourses they were interested in. Compared to the current Explore feed, which populates an infinite feed of white, hypermasculine #fitness and #instagay content, the Imagine Engine approach provides agency to engage with media more intentionally, with an understanding of why the user is seeing particular media, and sufficient access to other media if they so choose.

Empathy building, expansive image-making, and empowering technological constructions of digital spaces that yield agency are all necessary and actionable pathways to liberation through digital media. Broadly, each will necessitate an intentionality to white and heteronormative engagements with marginal cultures in digital spaces, in tandem with a fundamental shift in how sociality and identity are quantified, structured, and visualized within the current social media paradigm.

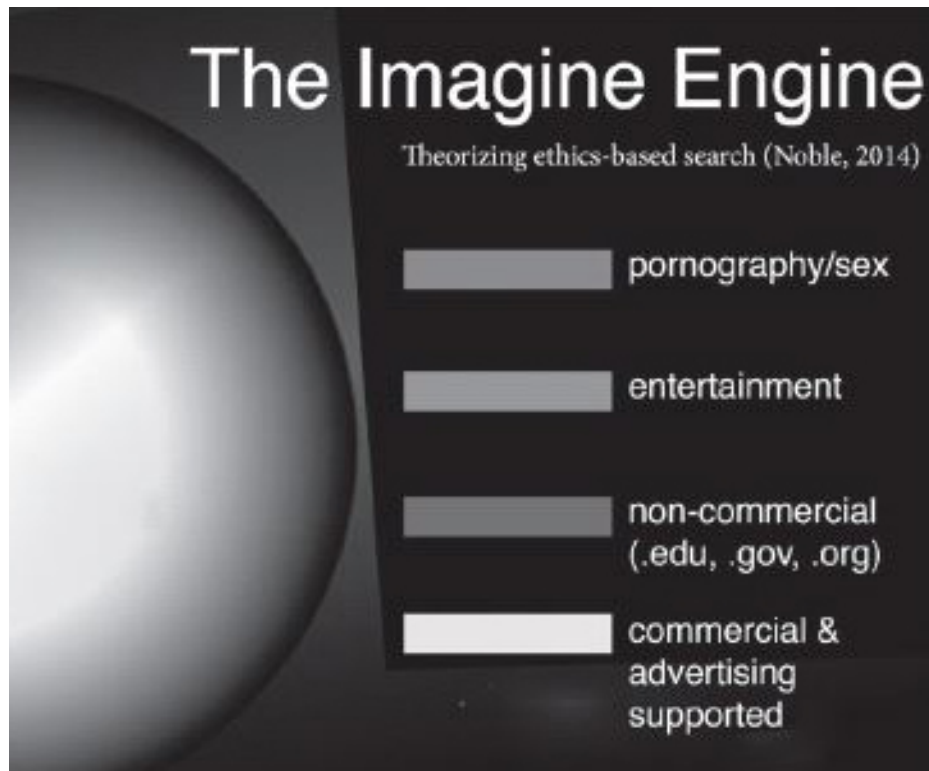


Figure 5-3: Image of Safiya Umoja Noble's *Imagine Engine*, a proposed interface for empowerment and transparency in Internet search results. Noble adopts the interface of a color-picker (shown here in grayscale), with pre-determined discursive categories assigned different colors. The user is able to manually discover content by select topics using the colored sphere. The Imagine Engine is not currently operational or accessible on the Internet, to the best of my knowledge.

Chapter 6

Conclusion

Visuals cultivate futurity. The future must be seen before it can be actualized, and imagined before it can be seen. Mediators of visual media, both old and new, are in the business of imagining and visualizing futures, a business which has throughout history been co-opted, commodified, and weaponized in reinforcement of an actualized present that upholds systemic oppression and lines the pockets of a privileged few. In this way, the history of queer and Black aesthetics is, in part, one of (re)imagination and redistribution of power. The performance and presentation of aesthetics is political, and must be understood in terms of the futures it evokes.

Instagram, and social photo-sharing platforms more broadly, have certainly broken down the gates being kept by old media, democratizing who can create imagery, what imagery can be created, and how that imagery is consumed. However, this project brings forth the new, technological gates that have gone up in their place, automating content mediation and operationalizing traditional aesthetic hierarchies, all while veiled behind the opaque objectivity of algorithmic decision-making. With over 40 billion images¹ and 1 billion users², Instagram has the ability to curate collective aesthetics and imagination at an unprecedented scale, and with an unprecedented precision and specificity. Personalized image feeds, hierarchical delineations of "top"

¹Instagram Post Statistics, <https://www.omnicoreagency.com/instagram-statistics/>, visited on April 21, 2021

²Instagram Usage Statistics, <https://www.businessofapps.com/data/instagram-statistics/>, visited on April 21, 2021

posts, and opaque content recommendation mechanisms serve as both challenges in investigating Instagram, and as indictments of the profoundly intentional means by which Instagram quantizes and structures identity for profit.

There are, of course, a myriad of lenses through which one could analyze the nuances of Beauty, aesthetics, social performance, and identity tourism on Instagram, from which this project adopts a select few. In emphasizing the structural intersections of race, body type, sexuality, and gender within an explicitly gay-coded Instagram feed, this project centered discussions on how marginal aesthetics, which carry immense potential for imagination and liberation, are produced, mediated, and consumed on the platform. Computational results lent themselves to a race-critical discussion of aesthetic tourism, in which individuals valorize, excavate, and approximate the aesthetics of marginalized identities for cultural capital, while further devaluing and displacing marginal bodies. This critique situates within a broader study of historical racial and sexual hegemony as property, to be appraised, transferred, and fortified in support of capital. While recent sociocultural shifts have certainly expanded the access and representations of queer and Black individuals in media, heralded as progress within the neoliberal project, it must be asked: progress for whom? How are aesthetics ascribed cultural value in the age of Instagram, who moderates this appraisal, and what are its terms? What does it mean to valorize Black and queer aesthetics within a sociopolitical system that simultaneously enacts physical, psychological, and emotional violence on Black and queer bodies - violence often justified by the very aesthetics normative culture seeks to replicate? Furthermore, this project only offers a cursory assessment of the particular forms of violence enacted by social media's orchestration of quantified, ranked, curated, and singular identity representations. What are the consequences of an algorithmic curation and inundation of white, heteronormative, hypermuscular, and hypermasculine archetypes on the imagination, aesthetics, and self-image of Black, queer, fat, and femme individuals? These questions do not have immediate answers, and are pertinent spaces for continued work.

Likewise, there are not immediate solutions to capitalize on the liberatory po-

tential of Instagram. Multiple mechanisms for engendering an empowered futurity were discussed, including expansive and counter-hegemonic image-making practices, visual empathy building, improved computational models for identity representation, and agency and self-determination on social media platforms. These are just some of the many actionable forums for liberatory change within the space of image-making and social media. Sasha Costanza-Chock offers concrete tools and considerations for designing empowering spaces through their *Design Justice* framework [50]. Catherine D'Ignazio applies feminist practices to consider how data science can both bolster and challenge oppressive hierarchies – practices which could well inform a restructuring of rigid classification mechanisms on social media platforms like Instagram. Neha Kumar leverages a human-centered computing framework to consider how intersectionally marginalized women use social media, smartphones, and the internet broadly to seek empowerment and access within their communities [100, 111]. Mimi Onuoha presents *The Library of Missing Datasets* as a artistic installation giving space to "those things that have been excluded in a society where so much is collected", encouraging critique of the politics of data collection and surveillance [159]. Each of these anecdotes gives insights into the many active paths to empowered media that others are forging, and that this project might extend in future work.

On a personal level, this project invites Instagram users to be critical of the imagery they produce and consume, and the obscured aesthetic mediation that facilitates both. As users, it is important and necessary to interrogate how individual performances of identity online might either reify or subvert hegemonic representations. Yet, placing the burden exclusively on the individual fails to emphasize how sites like Instagram present granular, intentional curations of identity, and do so in a gamified and structured environment which incentivizes hegemonic performance. Within this critique must be a demand for equitable curation of counter-hegemonic representations, and an explicit indictment of the capitalist and white supremacist systems which render such a demand radical.

Aesthetics hold power. This project hopes for and believes in a world that uses aesthetics as a vehicle for imaginative liberation. *How, where, and why* algorithms

take part in this ideality, remains to be seen.

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