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Colorism: Algorithms and Skin Tone Bias

In the age of advanced technology and artificial intelligence,algorithms are increasingly being used in many aspects of our daily lives, from facial recognition to social media platforms, medical diagnoses, and even hiring processes. However, one crucial issue that has surfaced in recent years is the inherent bias in many of these algorithms, especially those related to skin tone. These biases in skin tone algorithms can have significant consequences for people of color. Skin tone bias in algorithms is not just a technological flaw, it's a reflection of deep-rooted societal issues, including colorism, which has historically shaped the lives and experiences of people with darker skin tones. Experience architects can help fix skin tone bias in technology by creating systems that include everyone, making sure the data is fair and accurate for all skin tones. We can also make sure that technology treats people with empathy and doesn't support harmful stereotypes.

Colorism refers to the discrimination based on skin tone, typically favoring those with lighter skin over those with darker skin within a racial of ethnic group. The type of bias is prevalent across many cultures and often manifests in both interpersonal relationships and systematic structures (PredictiveUX, "Addressing Colorism in AI"). When skin tone biases show up in algorithms, they perpetuate and amplify colorism by reinforcing harmful stereotypes, unequal treatment, and exclusion of those with darker skin. For example, facial recognition software has been shown to misidentify darker skinned individuals more often than light skinned ones. According to Megan Garcia, in the article "How to keep your AI from turning into a racist

Monster", she states "In studies, researchers found that the error rate for darker-skinned women was up to 34.7%, compared with 0.8% for lighter-skinned men." This shows that there is a major disparity in accuracy between darker skinned women and lighter skinned men in facial recognition software. This contributes to the unequal treatment in both a professional and personal context. A lot of the time these biases are "unintentional" and have been ingrained into the subconscious minds of people. According to Dianna Mazzone, in "AI Facial Recognition Systems Work the Worst for Black Women" states, "Computers are not neutral. When systems use history to train such systems, the future reflects the racist, sexist part". The intersection of algorithmic bias and colorism shows how technology, which is often perceived as neutral or objective, is actually embedded with societal prejudices which are inherently racist, colorist, and sexist.

Colorism has been a serious issue within many racial and ethnic communities. It is often tied to colonial histories, where lighter skin was associated with higher social status, beauty, and privilege. This preference for lighter skin has persisted in various forms, from media representation to beauty standards. People with lighter skin are often given more opportunities and better treatment, while those with darker skin experience discrimination, marginalization, low self-worth issues, and stereotyping. However, there has been a movement to challenge colorism. For example, Unilever's design to remove the word "Fair" from its skin lightening products and media campaigns promoting diverse skin tones. This acknowledging that the branding suggested "a singular ideal of beauty" and stating, "We recognise that the use of the words 'fair', 'white' and 'light' suggest a singular ideal of beauty that we don't think is right, and we want to address this." This move aligns with a broader industry trend, as other companies like L'Oréal and Johnson & Johnson have also faced pressure to reconsider products promoting lighter skin tones (BBC, "Unilever renames Fair & Lovely skin cream after backlash"). While there initiatives are being taken to address colorism, it requires a multifaceted outlook including policy reforms, media inclusivity, and awareness.

In recent decades, colorism has been further ingrained by the media, advertising, and pop culture. For instance, lighter-skinned black individuals are often more prominent in film, television, and fashion industries, while darker-skinned individuals, especially Black and Brown people are underrepresented or stereotypically portrayed. This favoritism toward lighter skin tones has led to an idealization of whiteness and a devaluation of darker skin tones, contributing to both internalized and externalized colorism within communities. A strong example of this is *The Hate U Give* By Angie Thomas, both the book and movie adaptations. In the book, the protagonist Starr Carter experiences colorism within her community and white as a dark skinned black girl. It shares her experience as being perceived as less acceptable and beautiful because of her dark complexion. In the film's adaptation, they portray Starr as a light skinned individual. Which have led people to criticize the movie (Hollywood) for trying to make the movie appear more palatable for mainstream audiences (white people). According to Shakira Mariame, "The Hate You Give is a Colorist Movie Period" says "The Hate You Give performed an act of colorism while telling a story about racism. Ironic isn't it?". In trying to portray the movie adaptation as more palatable, they are still perpetuating the stereotype that having darker skin is bad and ghetto. Which makes it ironic especially since the original story was talking about a dark skinned black girl's experience with colorism while also actively giving a role to a light skinned person when it could have gone to a dark skinned individual.

Even though colorism, racism, and sexism play huge roles in algorithm bias, the primary cause is that there is just not a lot of representation in the databases. Many machine learning models are trained using large datasets that include thousands, even millions of images to teach the algorithm how to recognize faces, detect objects, or classify images. In 2018, a study by the National Institute of Standards and Technology (NIST) showed that popular AI facial recognition systems that major tech companies use performed much more accurately on lighter-skinned individuals than on people with darker skin tones. This disparity can be attributed to the fact that the training datasets used to develop these systems disproportionately contain images of light-skinned

people, specifically white individuals. In contrast, people with darker skin tones, especially those from African, Latino, or South Asian backgrounds, are underrepresented, leading to poor performance in detecting and recognizing their faces. However, these datasets are often biased because they tend to be over-represented by white people, primarily because the tech industry has historically pushed white men to the front. For Example, the *Inclusion & Diversity* page on the Apple website. In 2022 (The last they updated it) shows the company's global workforce. The data shows that overall, 35.3% of Apple's employees are female, while 64.6% are males. In terms of racial diversity, Apple's workforce consists of 29.8% Asian employees, 9.2% Black employees, 14.9% Hispanic/Latinx employees, 0.7% Indigenous employees, 3.2% Multiracial employees, and 42.1% White employees. This shows the gender and racial imbalances of the company.

Even though efforts are and have been taken, we as experience architects can help with this. As experience architects our job is to shape the overall experience that users have with a product, service, or system. Making it accessible and fair for everyone. I feel like our role in addressing colorism in algorithms/media is so important. We can do this by conducting diverse user research, following diversity laws/ guidelines (Web Content Accessibility Guidelines/ WCAG) and making sure that people with different skin tones, mobility, gender, etc. are represented/ needs are met. This would help identify potential biases early. Also we can advocate for the use of diverse datasets to train algorithms. This reduces the risk of reinforcing harmful stereotypes and color biases. I also feel as if we need more diversity in the role of an experience architect. Anyways, experience architects can help create helpful systems where users can understand how AI makes decisions and provide feedback to incorporate in these systems. We need systems that are regularly tested across various skin tones, mobility factors, and gender, so it can be inclusive. We can also push for ethical guidelines and standards in AI development to have a fair and inclusive system.

The skin tone bias embedded in algorithms, is a reflection of deeper societal issues like colorism, racism, ableism, and sexism that have lingered on in history. Even though AI is seen as

neutral, they often have biases from their creators. We can make more ethical and empathic algorithms by focusing on diverse user testing. This will create a system that works for all.

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