Beauty is in the AI of the Beholder

For teenagers today, filters and AR lenses can be a fun way to try on new identities and stay in touch. According to studies, they can also induce body dysmorphia and push people towards cosmetic surgery. Are we at risk of letting the algorithm decide what's beautiful?

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It started small. Freya, 16, from Brighton, would experiment with filters that modified her face when sending selfies to her friends on Snapchat. At first these were goofy effects, the kind that gave her dog ears or huge comedy sunglasses. Then she started getting more interested in beauty filters which made her skin look clearer, her eyes bigger, her forehead smaller. She gradually increased the level of image manipulation over time until the point where she would fear going out to meet friends IRL – what if they had gotten so used to the Freya from selfies that they were shocked to see her real face? What if they called her fake?

The only solution, she felt, was to wear make-up that made her real face resemble the enhanced virtual version. The more extreme the modifications she made to her digital self, the more make-up she had to wear in order to feel comfortable leaving the house. One day she was applying her usual beauty filters to send a selfie when her finger slipped, accidentally disabling the filter and confronting her with her own natural, unfiltered face. She was so horrified by what she saw, by how ugly she thought she looked, that she dropped her phone in fright.

Never in the history of humanity have we spent more time looking at our own faces. Modern technology forces us to gaze at ourselves constantly: from the front cameras which have been a key feature of mobile phones for a decade to the self-view which is automatically turned on for Zoom calls. When you open Snapchat, the first thing you see is your own face. No wonder we're obsessed.

Around 2015, social media platforms introduced filters which use augmented reality (AR) technology to manipulate our image in real time. These are enormously popular. Snapchat says 200m people use what it calls 'lenses', while Meta boasts 600m filter users across Facebook and Instagram. And we start young: A research paper published in 2020 by the Dove Self-Esteem Project found that 80% of girls have already used a filter or app to change their appearance in photos by the age of 13.

Although everyone is using these things, particularly younger generations, we have very little idea of the impact they have on our self-perception. Virtual spaces can offer us an important space for reinvention and self-experimentation, but preliminary research into the use of beautification filters shows they can exacerbate body dysmorphia and push users towards cosmetic surgery.

The words 'augmented reality' might still sound high-tech to some, but the technology is relatively mainstream these days. You're layering digital imagery on to the physical world when you play *Pokémon Go* in the park, try on virtual clothes or make-up before committing to a purchase and when you use filters on Instagram, TikTok and Snapchat. Another 2020 study by Claire Kathryn Pescott showed that gender determines filter use to a degree: where men mostly mess around for laughs, women are more interested in how they can look prettier.

It's not hard to understand why filters have become so popular – they're a lot of fun and couldn't be easier to use. When all your favourite content creators are testing a new trend, like filters that give you freckles, fox eyes or sunburn blush across your nose, you can try it out yourself with a single tap. As selfies are often used by teenagers as a unit of communication, a visual way of keeping up with friends, particularly on Gen-Z-skewing platforms like Snapchat and BeReal, filters offer a way to make these exchanges more playful.

They also offer an easy way to hide. For many of us, taking photos of our face opens a vulnerable space where we're forced to confront any judgments and critical thoughts we have about the way we look. This goes double for teenagers, for whom insecurity about appearance is practically in the job description. So if you can't afford to be off social media ("If you don't use Snapchat now, you just don't really have any friends," says Freya's 18-year-old sister,

Madeleine) and you don't feel comfortable sending constant photos of your natural face, a filter is a godsend – just flick it on like instant armour.

It's not just filters: today we keep a veritable army of virtual plastic surgeons in our pockets. There are popular photo-editing apps like Facetune and FaceApp. Even Zoom can touch up your appearance for a work call. But filters remain the most common. Tyree, 24, whose Instagram following grew by 20,000 followers practically overnight when a photograph of her on a quad bike went viral, says the filters on Instagram are the most extreme. "They're crazy, they make your face look completely different," she says. "They blur your skin, make your nose pretty much invisible, your lips huge, your eyes slanted, they put make-up on you. I just look at my picture and think: who is that? It's really scary."

We already know that social media can exacerbate insecurities. Research conducted by Meta itself found that 32% of teenage girls said that when they felt bad about their bodies, Instagram made them feel worse, with as little as five minutes on the platform potentially having a negative impact. There is not as much research specifically into the effects of filters, but preliminary studies have shown that virtually modifying appearance can provoke body dysmorphia and anxiety and motivate people to seek cosmetic surgery, particularly for users who already have low self-esteem.

What exactly is it about beauty filters which is harmful? They draw the user's attention to the gap between their idealised self-image and the reality, leading them to fixate on perceived flaws. The obsession with your own ugliness compared to a fake, filtered selfie even has its own name: 'Snapchat dysmorphia'.

"Filters become problematic when they reinforce that there's only one way you should look to be considered beautiful, attractive and successful," says Phillippa Diedrichs, a professor of psychology at University of the West of England who specialises in appearance and body image. Filters promote a single beauty ideal with no space for individuality or idiosyncrasy. They promote conformity in beauty, not diversity. Not only do they dramatically narrow the spectrum of what is considered beautiful, but that single beauty standard they reinforce is impossible, a poreless inverted triangle with plump lips and cat eyes which could only be created digitally – or IRL with significant cosmetic surgery. This Kardashian-Hadid beauty standard is then disseminated at lightspeed across social media networks, environments that can feel purpose-built to make us feel isolated and insecure.

It's striking that the features of the generic 'Instagram face' are so ethnically ambiguous, because race is a thorny question when it comes to filters. Like so much technology, they seem to work best for users who look like the programmers – predominantly young, thin and white. "I feel like these filters look better on white people than they do on other races," says Tyree, who is black. "I have pretty decent-sized lips and a lot of filters make your lips bigger. They don't work on me, so the video starts glitching. Then a lot of them have tanning features built in which make me look ashy."

"The question I always ask is: who is benefitting from this?" says Diedrichs. Who gains when media encourages people to feel bad about the way they look? The beauty and fashion industries, for one. But filters also sustain social media companies by constantly giving users more reasons to create

content and stay on the platform. Filters are also fast becoming a marketing tool: musicians like Taylor Swift, Doja Cat and Cardi B have used them to promote new releases, as have beauty brands like M.A.C, NARS and Kylie by Kylie Jenner. Snapchat even allows products to be advertised directly through its filters – just tap to buy.

Another industry that benefits is cosmetic surgery. According to a story in *InStyle* last year, surgeons are reporting that where clients would have once come in clutching photographs of beautiful celebrities they wanted to resemble, today they come with heavily edited images of their own faces.

Studies from Parents Together Action and The American Academy of Facial Plastic Surgery and Reconstructive Surgery have shown that young people who regularly use beauty filters are more likely to want cosmetic surgery, often primarily motivated by looking better in selfies. "It's super-dangerous to tell a young audience that you won't be beautiful unless you pay for your face," says filter creator and digital artist Ines Alpha. "These Instagram models have often had a lot of procedures and their faces are fucking expensive!"

All the while, influencers with impossible faces preach a message of self-acceptance that often rings hollow. "Everyone's always like 'love yourself'," says Freya, "but it's so hard when you want to look a certain way and you feel like you can't and everyone's judging you and there's always going to be someone that's prettier than you."

Alpha sympathises. "How can you love yourself when the world around you is constantly telling you that you're not enough and you need this product to be better?" she asks.

Each year, technology trespasses further into making decisions around the deeply subjective, deeply human question of who is deemed beautiful. This goes far beyond the beauty standards promoted by social media filters. *MIT Technology Review* reported allegations that Snapchat and TikTok promote content made by creators its algorithms judge as more attractive. Meanwhile, the reason our photos look different depending on whether they were taken on an iPhone, Google Pixel or Samsung is because these devices use software to process images differently according to varying ideas of what looks good. We are moving towards a world where we're no longer allowed to decide what is beautiful because technology decides it for us.

The dystopian endgame for all this might be the recent rash of tools that rate your attractiveness using AI. Some, like Test Your Attractiveness, give you a score out of ten based on factors like nose shape and facial symmetry. Another, from Qoves.com, offers recommendations for cosmetic surgery. Then there's Face++, which is run by a company which helps the Chinese government to scan CCTV to identify (and by extension persecute) ethnic minority Uyghurs.

It seems like social media and AR filters are here to stay, so how can we minimise their risks? It's unclear who is responsible for deciding whether filters are ethically deployed: is it governments? Social media platforms? Individual filter creators? Nobody is keen to take on the mantle, and efforts to impose regulations have been ineffective – Meta tried to ban filters promoting cosmetic surgery in 2019, but you can still easily find all manner of filters that resize facial features.

Perhaps the answer is to improve digital literacy, to educate young internet users about what is and is not real on the internet. Trends like #NoFilter

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and #FreethePimple promote self-acceptance, while popular Instagram accounts like @beauty.false and @celebface serve as watchdogs for Facetune, showing what celebrities actually look like without the careful lighting and photo editing.

Parents also need to speak openly about these subjects with their children. "You would be an idiot to not explain this stuff to your children as a parent," says fashion student Yves Lee, 27. "I wish my mum had had these conversations with me, that she'd told me everyone looks bad when they wake up in the morning, and that what makes you look good isn't make-up, clothes or filters, it's confidence and you taking control over your image and who you want to be to people."

Creators like Alpha also point to a way that filters could be part of the solution, rather than the problem. She creates "3D make-up": iridescent, fluid shapes that swim around the face and respond to movement. These are filters elevated to art, earning her high-profile fans including Charli XCX and Lizzo. Crucially, Alpha's filters do not smooth the skin or resize the nose under those ethereal tentacles and opalescent coral – instead, her hope is that these weird and wonderful designs will help users to feel more confident and beautiful with their natural faces.

Even though she works in this field, Alpha admits it's hard to predict what filters might look like five years from now. She has been working on AR effects that change shape based on the user's emotions, and predicts that if AR glasses finally gain widespread adoption, people might start to wear filters out on the street paired with virtual fashion. One day we might permanently wear filters in the metaverse.

One thing we know for sure is that filters are going to keep getting more realistic, beautification technology more sophisticated and convincing. "Those creating art or developing platforms are building the future and they have responsibilities," says Alpha. "If filters are getting more and more realistic then we have to be extremely careful with what we create, because they can fuck with people's brains so easily."