Colonialism & AI

AI is repeating our colonial past

Welcome to the first report by Accessible AI. We are a platform and community exploring the socio–cultural implications of AI.

In this report we will unpick how our colonial past is feeding into modern day AI development and, how in the future, we can endeavor to change this.

● Background

Artificial intelligence is the combination of algorithms and data. Its mathematical and data–led foundations have come with the promise of decision–making without the biases and inequalities entrenched in human society. However, there have been countless examples that this is not the case. In fact, AI development is informed by our history.

Deployments of AI–related technologies across sectors have repeatedly shown that they can perpetuate existing biases. If we continue to build AI with biased data sets and a lack of diversity in our development team, AI is set to worsen inequality and social injustice on a global scale.

But the links to colonialism doesn't stop here. The way AI is being deployed by the global west is in danger of reinforcing colonial power dynamics – from creating a new model of labor exploitation to being BETA tested on marginalised groups.

In this report we will look back to our colonial past, unpack the present threats and present a vision for the future.
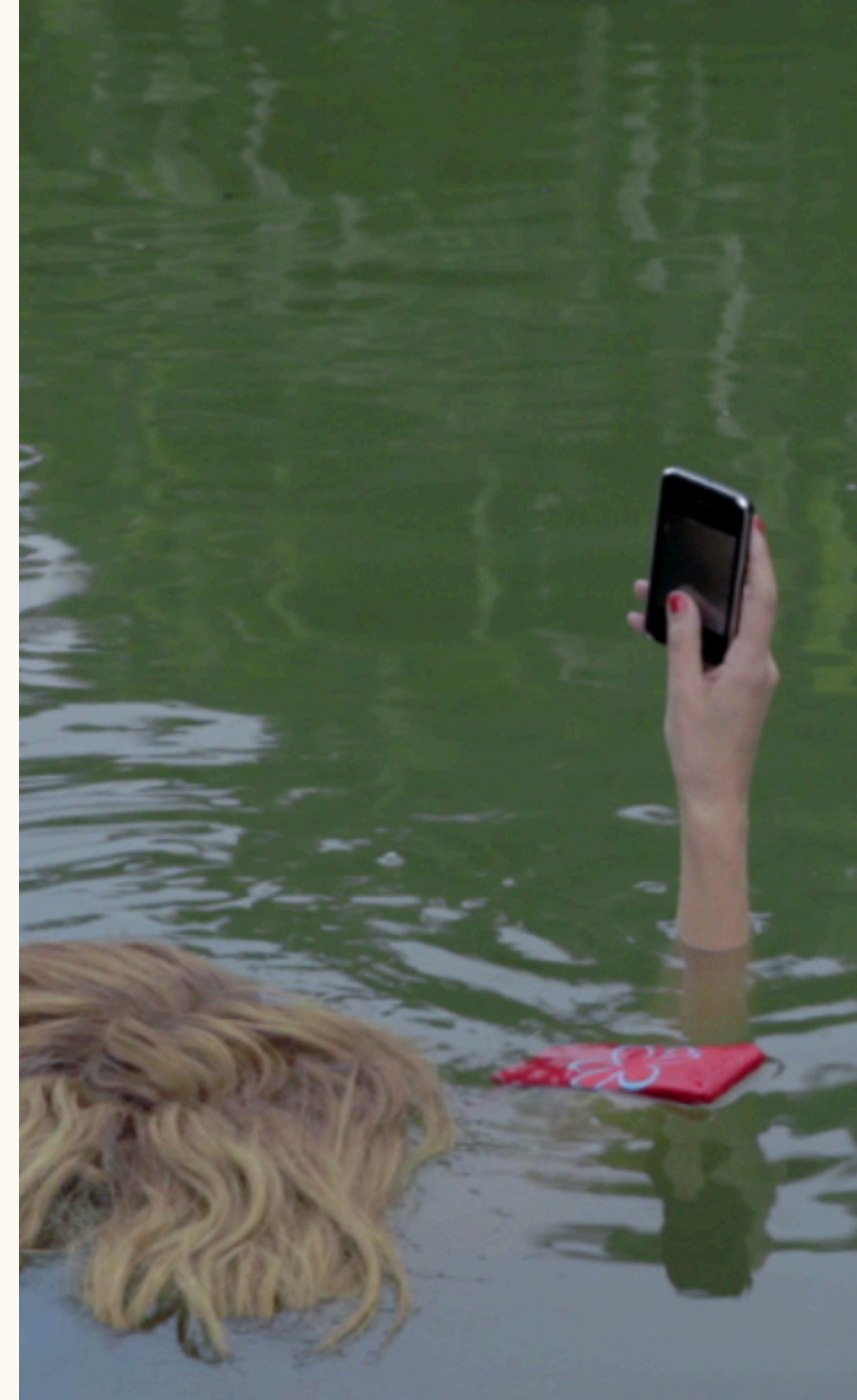
Our Approach
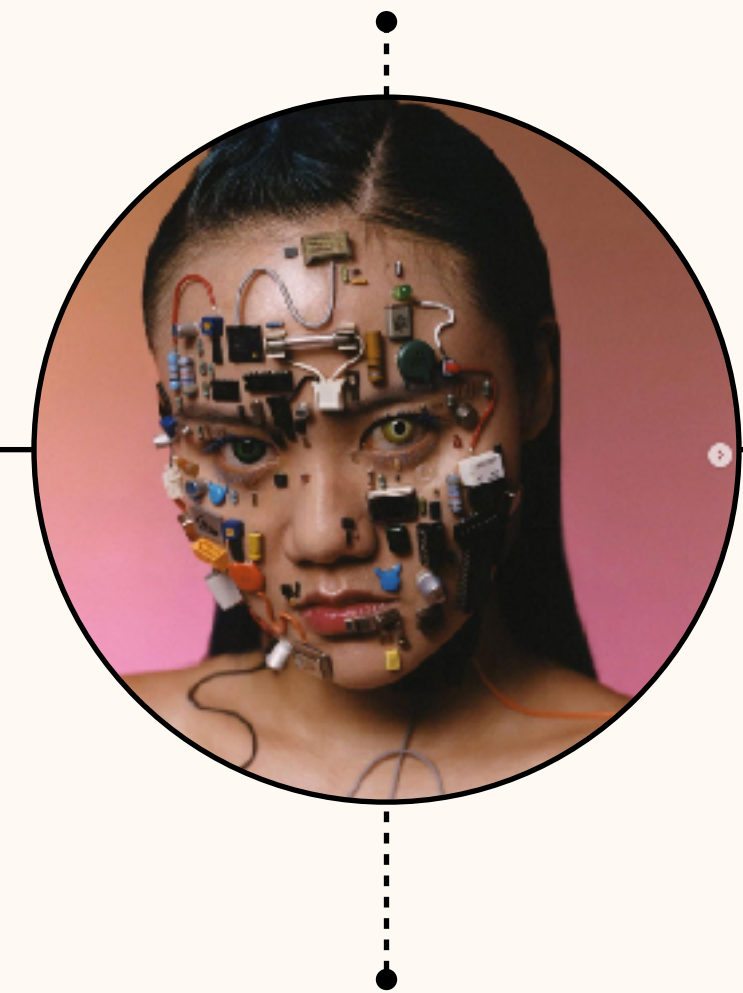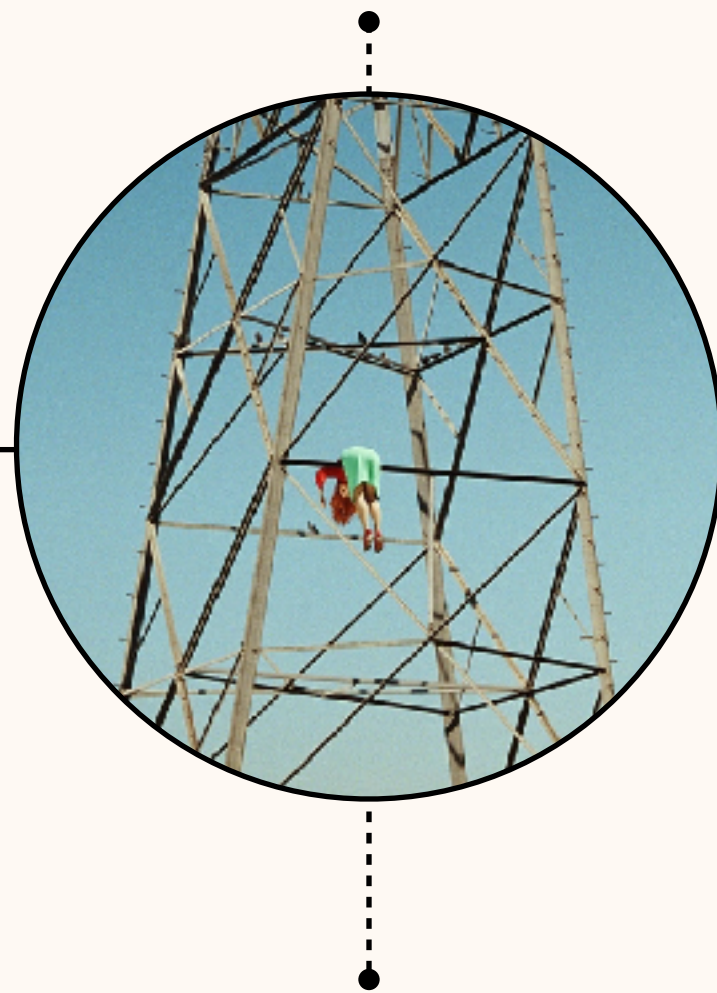
A Look Back at our Past

Where We Are Today

A Vision for Tomorrow

1. Modern society has been shaped by our colonial history

2. Digital Territories

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1. Algorithmic Discrimination is Automating Human Biases

2. Extractivism: the Hidden Environmental Cost of AI

3. AI Reinforces the Colonial Power Imbalances

4. Invisible Work: the Human Labour that underpins AI

5. Beta-Testing and AI Experimentation on Marginalised Groups

6. Unlocking Large-Scale Surveillance

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1. Algorithmic Fairness Research

2. Diversifying Voices

3. Rebalancing Power

4. Reappropriation of AI as a tool for Resistance

● Colonialism & AI

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Colonialism and **Society**

● Inspecting Our History

Colonialism has defined global history. It involved appropriation of territories and natural resources, exploitation of human labour and enforcement of inequitable power structures. The effects of colonialism have endured and can be felt in the present day.

Coloniality represents the aspects of colonialism that have survived (1). Coloniality describes the continuation of colonial power dynamics between the advantaged and disadvantaged through a process of extraction, enslavement, dispossession and appropriation that has lead to modern society.

Contemporary power dynamics and geopolitics mirrors the established relationships between coloniser and colonised. This permeates our modern–day understanding of culture, race and labour.

Digital spaces form "digital territories" that are prone to that same processes of extraction and exploitation that are seen in physical spaces. Digital structures are developed based on socio–cultural norms and values that persist from the past and are unquestionably applied in the present. AI is impacted by our history and coloniality.

● Colonialism & AI

Manifestations of Colonialism in AI

TOPIC 1

Algorithmic Discrimination

One of the most evident manifestations of coloniality in AI is racism and discrimination. As AI has been deployed, there have been repeated examples it can result in racist outcomes because the algorithms are developed by a non-representative minority and trained on data that is reflective of a racist society.

Examples of algorithmic discrimination include a tool used to predict future criminals was found to be biased against black people [2], Amazon's recruitment engine was found to be biased against women [3], Googles photo labelling algorithm labeled photos of black people as gorillas [4] and facial recognition technology exhibits both racial and gender disparities in accuracy [5].

● Case Studies

Recidivism

A tool used to predict future criminals was found to be biased against black people [2].
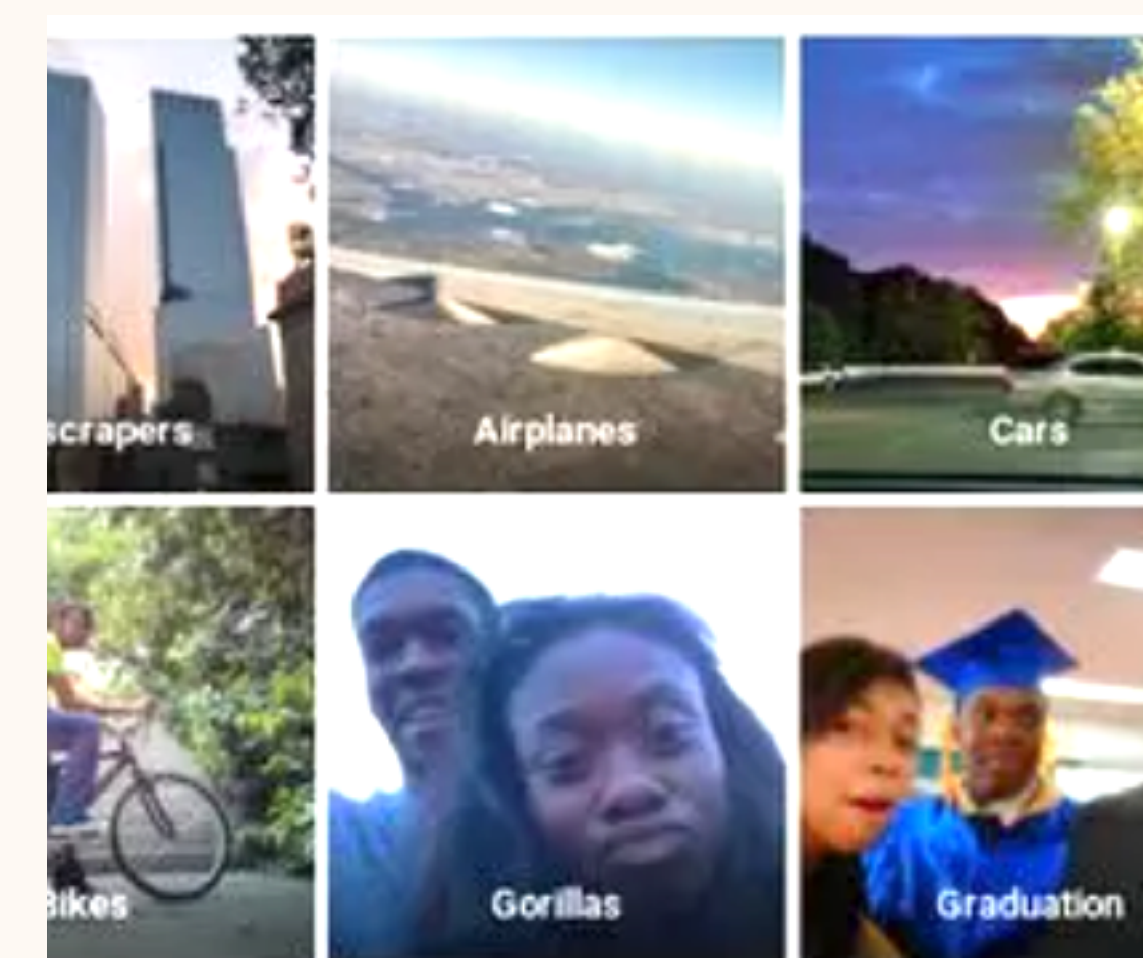

Recruitment

Amazon's recruitment engine was found to be biased against women [3].

Facial Recognition

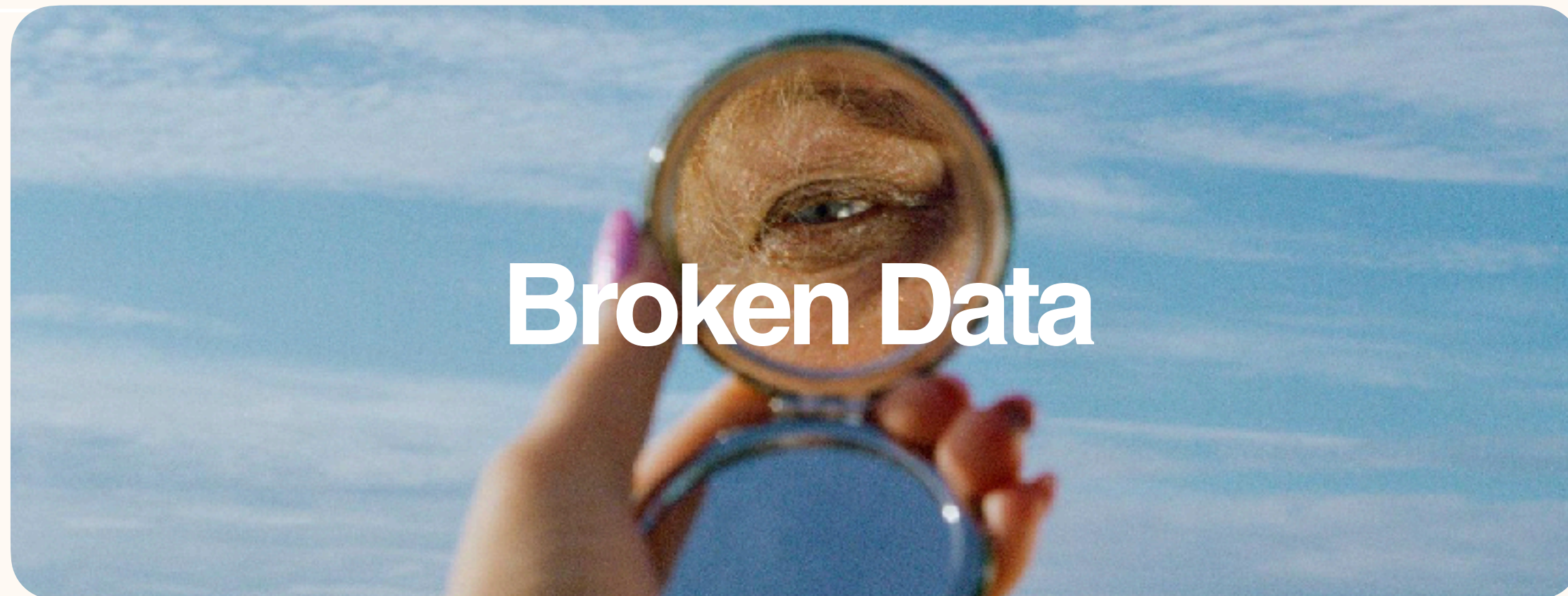Facial recognition technology exhibits both racial and gender disparities in accuracy [5].

Photo Labelling

Googles photo labelling algorithm labeled photos of black people as gorillas [4].
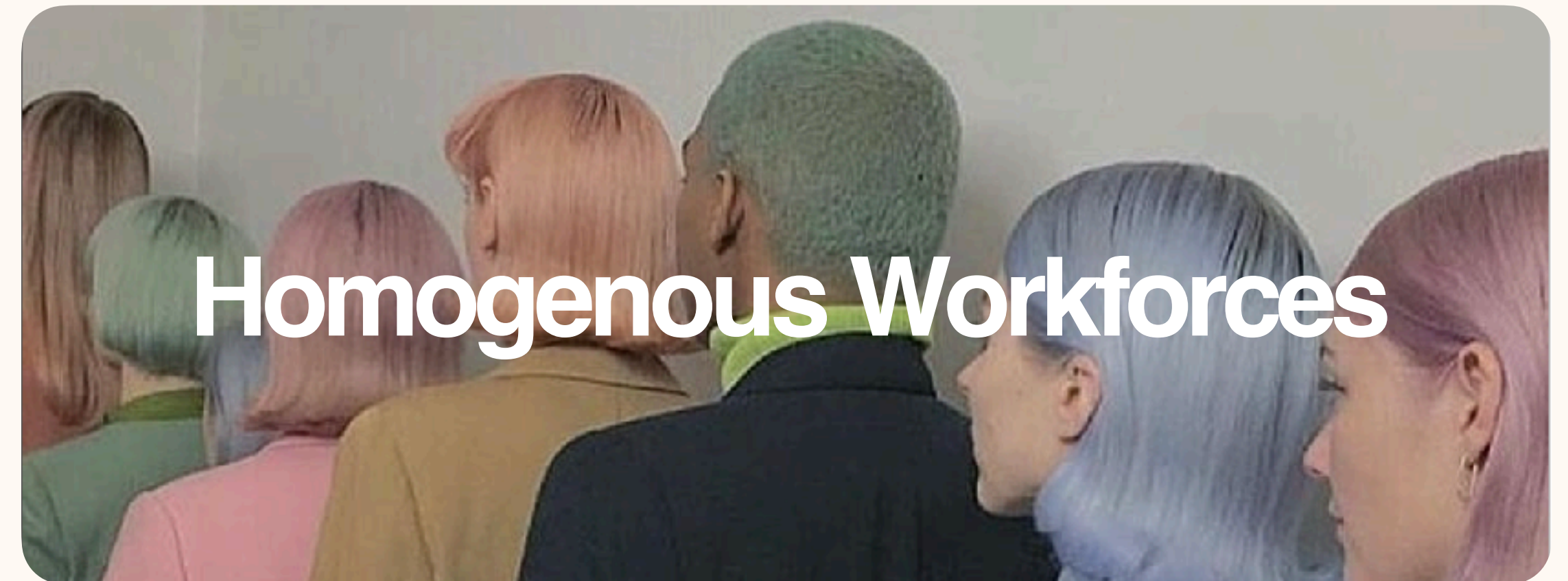
Implications **& Learnings**

So how can we overcome algorithmic discrimination and what's the
implication if we don't?

Broken Data

Homogenous Workforces

A critical component of AI is the data it learns from. There are a number of important considerations when using data: how has the data been collected, who has collected the data and who has data been collected on? Datasets can result in bias outcomes because there is a lack of representation in the data or because the data is capturing existing biases in society. Datasets can be improved by creating formalised quantitative and qualitative evaluations of them, such as Datasheets for Datasets [6].

AI developers tend to be homogenous, majority white and male. Individuals come with their own world view, assumptions and biases. This has implications for how models are designed, what data is used to train models, what applications models are used for and how models are evaluated. We need to encourage women and ethnic minorities to move into the field to overcome this. It is also important to engage those impacted by the algorithms in the design process through community centred approaches [7].

"AI is not artificial"

– Kate Crawford

The Hidden Cost of AI

AI requires vast quantities of resources, energy and labour [8]. Often this physicality and required extraction is abstracted from the technology. The "cloud", for example, is actually made up of rocks, lithium brine and crude oil. In addition, AI requires huge quantities of energy. Training a single model (BERT on GPU) is "estimated to require as much energy as a trans–American flight" [9].

All of the minerals that make up the backbone of AI and all of the energy required to train and run these models is taking a toll on the earth. As pointed out in many climate crisis discussions, the damage to the planet is most acutely felt by the disadvantaged communities who benefit least from these technologies.

TOPIC 3
Power

The colonial era has left a geopolitical power imbalance that shapes AI from ethics to governance. Despite there being evidence that different cultures have very different conceptions of social norms, moral and ethics, a powerful minority are determining what these will be in terms of AI. This means that AI will be shaped in a way the most benefits and conforms to the developed minority of countries, excluding others from participation and allowing them to fall further behind.

TOPIC 4
Invisible Labour

Though AI represents automation and autonomy from the human brain, in reality its infrastructure depends on a vast amount of human labour. This invisible work is required for repetitive tasks such as labelling the data that the machines learn from. Countries that are English-speaking with cheap labour forces, like the Philippines and India, are primed for this work due to their history as former colonies of the US and the UK. Some of this work, such as content moderation, exposes workers to explicit content that is damaging to mental health with very low compensation. This echoes historical exploitation of labour.

TOPIC 5
Beta–testing on Marginalised Groups

There are many cases where AI is initially tested on marginalised groups before being deployed. In New Zealand, predictive algorithms for child welfare interventions were initially tested on the Maori community, an indigenous group who are often discriminated against [1]. Cambridge Analytica tested their algorithms on the 2015 Nigerian and 2017 Kenyan elections prior to deploying them in the UK and US. These experiments disrupted social cohesion and the democratic process in Kenya [15].

Implications **& Learnings**

1.
Extractivism

The damage to the planet is most acutely felt by the disadvantaged communities who benefit least from these technologies.

2.
Invisible Labour

The invisible work underpinning AI is perpetuating this historic relationship between colonizer and colonized [4].

3.
Power

AI will be shaped in a way the most benefits and conforms to the developed minority of countries, excluding others from participation and allowing them to fall further behind.

4.
Beta-Testing

Applying this historic lens to beta-testing in AI, which is the early-stage testing of software systems on real users to identify issues, we can similarly see exploitative situations.

A Tool for Oppression

Advancements in AI, particularly in facial recognition, have made widespread surveillance possible. The way in which surveillance is deployed can be racially divisive and create power imbalances, common to colonialism. The examples of surveillance we see today should act as a warning of the dangers of mass, AI–enabled surveillance, before these technologies are adopted more widely.

● Case Studies

South Africa

In South Africa, there has been a rapid implementation of surveillance technologies which are creating a "digital apartheid" [11].

US

In the US, AI developed for predictive policing has enhanced manual racial surveillance by sending police to neighbourhoods with high numbers of racial minorities, regardless of their crime rates [12].

Iran

Iran has threatened to use facial recognition to identify women breaking hijab laws [13].

China

China has used a network of surveillance to oppress the Uyhur minority using enforced biometric data collection [14].

Re-writing the Future of AI

A Vision for Tomorrow

Algorithmic Fairness

Diversity

Rebalancing Power

A Tool for Resistance

Algorithmic Fairness

Research into algorithmic fairness can help mitigate discrimination and bias. One example is Gender Shades, a project initiated by Joy Bulomwini and Timnit Gebru's research [5]. This project takes an intersectional approach to evaluating the accuracy of AI products as they often have high average accuracies which hide how they perform for sub-groups. Gender Shades' evaluation of commercial facial recognition softwares found that IBM's had a 34% discrepancy in accuracy between light male faces and darker female ones. This successfully prompted IBM to improve their intersectional accuracy. Always, with algorithmic fairness research it is important to understand the social context of fairness definitions and have an understanding of who is being captured by mainstream notions of fairness.

Rebalancing Power

The colonial era has left a geopolitical power imbalance that shapes AI from ethics to governance. Despite there being evidence that different cultures have very different conceptions of social norms, moral and ethics; a powerful minority are determining what these will be in terms of AI. We need to shift power from western dominance by integrating non–western ethical or moral frameworks , such as from buddhism or islam, and supporting localised AI development. UN Global Pulse is supporting AI policy development in Uganda, Ghana and Sierra Leone [15].

Diversity

AI is being developed by a homogeneous minority, which makes it even less likely that it will work for everyone. Fortunately, there are a growing number of spaces for under–represented groups. One example is Black in AI who are trying to tackle this diversity crisis by lowering the barriers and promoting the research of black AI researchers.

AI as a Tool for Resistance

Finally we must ask the question of whether AI can itself be used as a decolonising tool. Can it be developed to expose systematic biases? Can AI be reclaimed by minorities and developed to serve them? Can we take back ownership of the data that trains it? One inspiring example is Te Hiku, a Māori nonprofit run by life partners Peter-Lucas Jones and Keoni Mahelona, who are using natural-language processing to reinvigorate the Māori language whilst ensuring they keep control of their community's data [16]. This is an important reminder that AI can be developed outside of the dominance of Silicon Valley—by and for the people it hopes to serve.

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So can we decolonise AI?

This report has highlighted the ways in which our colonial history is manifesting in how we are developing AI today. But the way AI is being developed and the echoes of colonialism are not inevitable. There are many possibilities for the future of the field and it is critical that we make the right choices. We present a new vision of the future of AI through improving fairness in AI, redressing the power dynamics, improving diversity in the field and using AI as a tool for resistance.

Sources

Artwork

Inspiration for this report came from these important resources:

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2. New York Times
3. Alex Prager
4. Kseniia Grebennikova (@kxeniia)
5. @alainawaller @dylanchavles & @SalonBenjamin
6. Photography. @polina.washington
7. Surrealist photography by Petecia Le Fawnhawk
8. Photography Tim Graham

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