Dissecting *My Data Body*: How to Know Thyself as a Virtual Reality in the Digital Age

We are constantly being warned that our personal data is vulnerable, that it is being used and abused by artificial intelligence, giant tech corporations and controlling governments. But do we really understand what "our data" consists of and what can be done with and to it? Is it possible to unravel the complex entanglements of data gathering and processing technologies in order to see and understand our data in a meaningful way? *My Data Body* is a virtual reality (VR) artwork that brings together some of our most personal and sensitive data such as medical scans, social media, biometric and social security data in an attempt to make visible and manipulable our many intersecting data corpuses so that they can be held, inspected, dissected and played with as a way to start understanding and answering these questions. *My Data Body* has been created as part of the interdisciplinary project *Know Thyself as a Virtual Reality* (KTVR), a multi-faceted project that explores the ethics and aesthetics of the contemporary "data body". KTVR brings together researchers across the arts and sciences, to innovate new creatives methodologies, educational resources and ethical guidelines for working artistically with personal data.

1 INTRODUCING MY DATA BODY

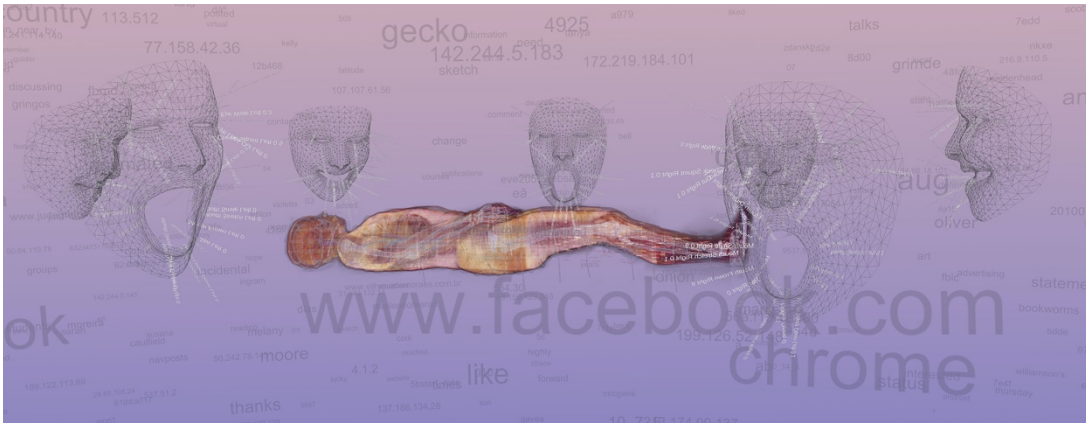

Figure 1: Screen capture of *My Data Body* before it has been dissected

In *My Data Body*, the magnetic resonance (MR) scanned body of the artist floats prone within a "cloud" of their textual Facebook data. Into the semi-transparent, virtual body are multiple other data "corpuses" downloaded from social media platforms plotted into cross sections or slices through the scanned body. Mac terminal data logs upon which so much other software rely, are plotted into bone. As so much "work" is now done using Google apps, Google data archives are drawn into muscle and Facebook information, which we are told we can and should control or limit, is traced into fat. Passwords and logins flow back and forth through veins and arteries, whilst retinal images, dental scans and 3D meshes of organs and

bones segmented from the volumetric MR scan data using radiology software 3D Slicer, are suspended within the quantified and datafied body [1,2].

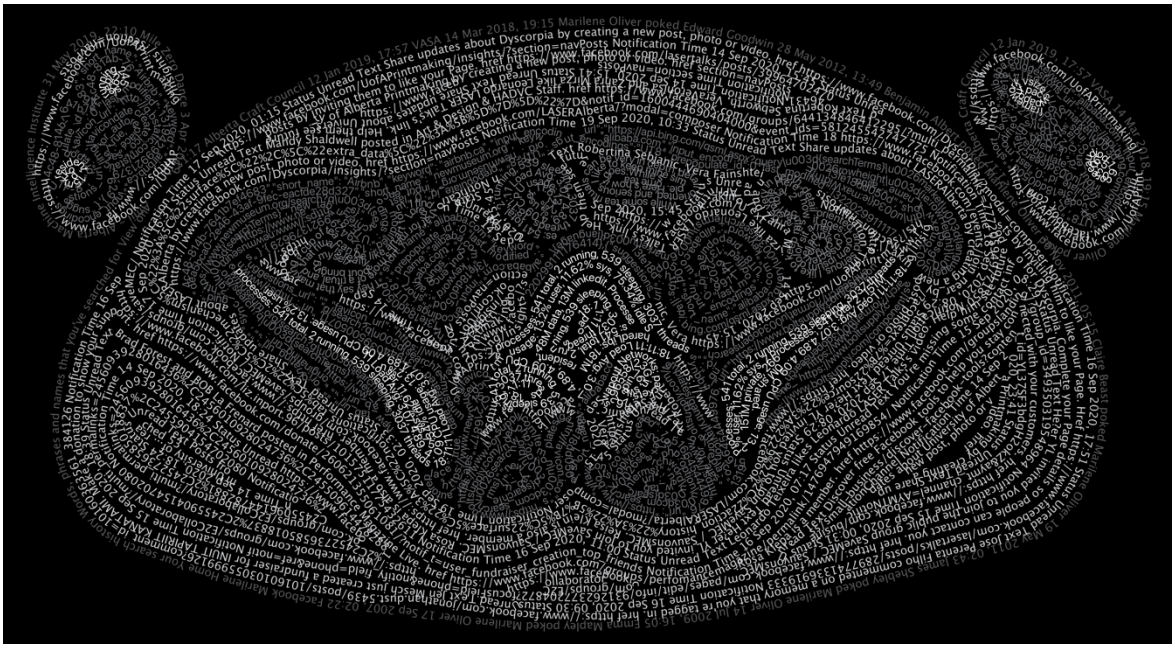

Figure 2: Image of a *My Data Body* text slice

Via technological prosthesis of the controllers and headset [3,4], the body of the user can fly around or into *My Data Body*, and clip away the ray cast, volume rendered MR scan data. C# codes were written for the artwork to enable the volumetric scan data to be rendered, coloured and dynamically cropped/clipped in the VR software Unity [5]. Users can pull out and read the mundane information in the text slices that detail Mac processes running, Google keywords searched for and Facebook status updates. Users can extract organs and bones, some of which have mini data clouds emanating from them or contents that can be 'poured'. The brain cascades login windows, the heart spills emojis and the intestines scatter data cookies. *My Data Body* can be dissected and reassembled as a unique composition. After a certain period of time however, the extracted text slices, organs and bones float back to their original location, much like satellites returning to a space station.

To echo historical public anatomical dissections, there is an audience circling the body, of the artist's facial recognition scans (captured using MeasureKit, a free iPhone app) wearing different emotions. Recalling myths of nuns performing dissections in order to find evidence of saintliness [6], the artist's (pseudonymised) 'S.I.N' (social insurance number) is pinned to their coccyx. The *My Data Body* dissection theatre is bathed in a blend of volcano ash lavender [7] and forest fire orange in order to evoke the fears associated with the immense amounts of energy needed to generate and process data and its direct impact on climate change [8].

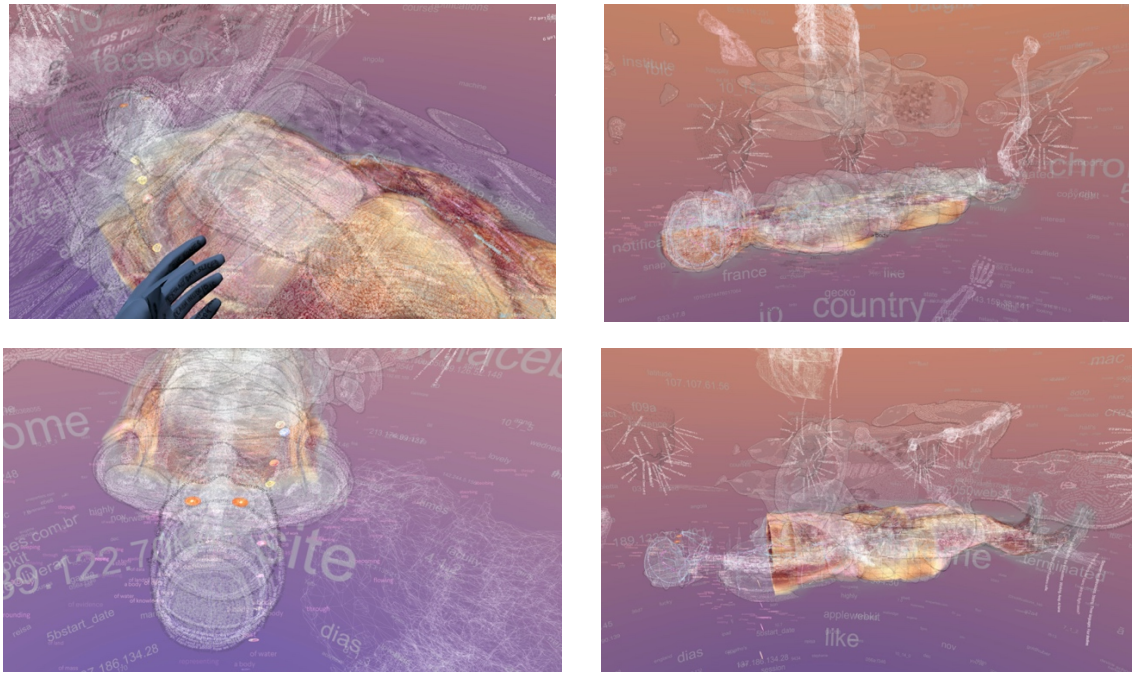

Figure 3: Screen capture of *My Data Body* at different stages of de-composition

2 VR DE-COMPOSITION OF MY DATA BODY

Each object in *My Data Body* has an accompanying sound, which is revealed only when it is grasped and removed from the body. The soundscape is a culminating mixture of these objects, in whatever configuration they are placed in by the user. They incorporate biometric digital recordings of the artist's voice and heartbeat as well as textural sounds (scratching and scribblings, gurglings, squelchings and resonances) attached to each element so that as *My Data Body* is dissected visually and spatially, it is also 'de/re-composed' sonically. Indeed, the sound composition is only created as bones, organs and slices are extracted. The skeleton for example is a sound composition fractured into 8 parts that is solely experienced by removing the bones from the body and piling them in a heap outside of it. Furthermore, bones, organs and slices are all programmed to return to the body after a certain time of inactivity, echoing the Sisyphean pressure to quickly and continuously extract and make use of data in contemporary culture. While the apocalyptic traumas associated with extracting oil and minerals out of the ground, or knowledge from marginalized and indigenous communities is well understood, here we explore how we have internalized this logic and treat our own bodies, selves, and subjectivities as only valuable if we can mine them for useful data.

Also using the VR's unique ability to sonically reposition the listener, each of the facial scan masks that surround *My Data Body* has the artist's voice reciting personal data at different pitches that the user can cycle through giving the sense not of completeness, but rather of being trapped in a dizzying electronic melody. Recalling the 1966 film the *Fantastic Voyage* [9], VR's ability to resize the user is also key conceptually. When the artwork first loads, *My Data Body* is life size. The user is able to walk through *My Data Body*, lean down into it, lie underneath it, measure themselves up against

it. Pressing X shrinks the user so that they are immersed inside the data body as if they are in a cloud, whereas Y expands them so that they can hold the whole body in their virtual hands. In yet another layer of biometric data capture, the instructions for how to navigate and interact with *My Data Body* are scribbled on the user's virtual hands in the artist's digitized handwriting.

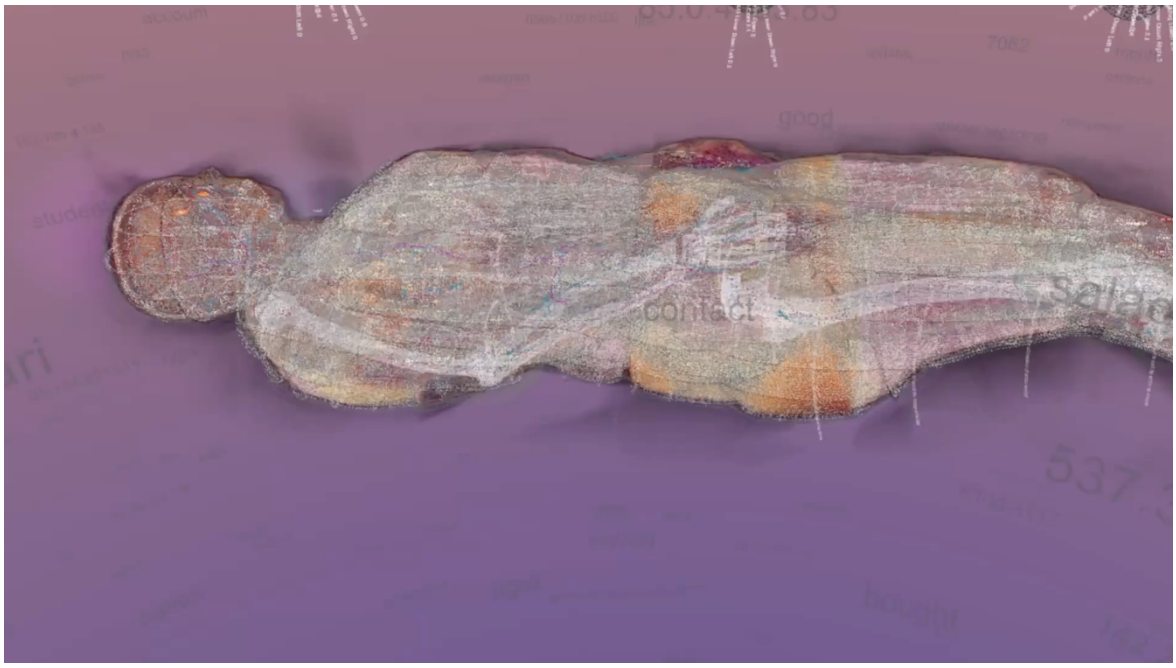

Figure 4: Video screen capture of *My Data Body* at different stages of de-composition

3 POETRY EMBEDDED INTO MY DATA BODY

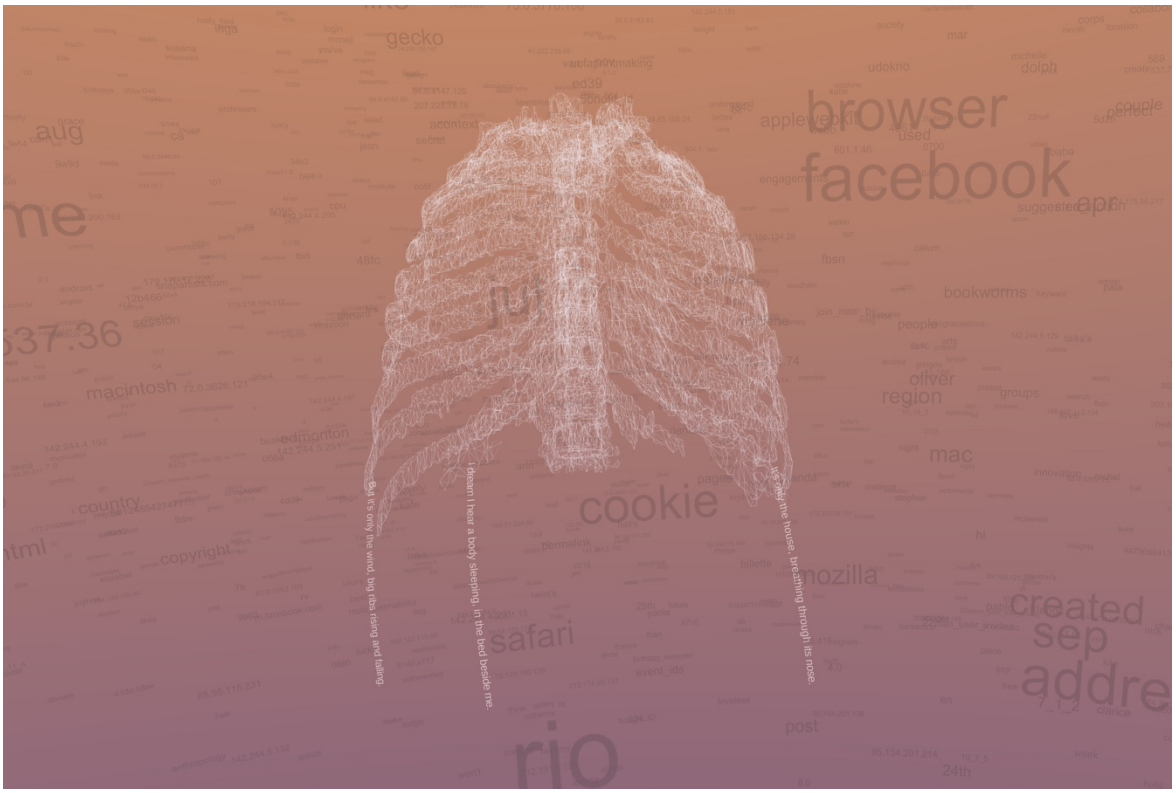

Figure 5: Screen capture of *My Data Body* showing poetry dangling from ribcage

Poetic text flows through and dangles from *My Data Body*. The poet composed lines of verse for each of the bones so that when the bones are pulled out of the body the text can be rotated and read. From the ribcage for example hang the phrases: *I dream I hear a body sleeping, in the bed beside me. But it's only the wind, big ribs rising and falling. It's only the house, breathing through its nose.* Pasted into the back of the retinal scans are the words: *(I cannot imagine a mark on my body any deeper than the memory of text burned into my retina, left smouldering in my brain).* The lyrical text interrupts the cold data speak in the text slices, blurring boundaries between the data body and the embodied, societal structures it inhabits.

A stream of text particles washes over and through *My Data Body*. The software Unity in which *My Data Body* was created has particle effects that are generated from gridded image files which are sub-divided and sequentially emitted from a specific location in the scene with various speed, colour, transparency settings. Typically used to simulate smoke, clouds or fire effects, Unity's particle system was repurposed here to generate visual poetry. Drawing on long traditions of permutational digital poetry [10], the poet created two particle streams of text that pass through *My Data Body.* One steam plays on ways the word 'body' is used metaphorically: *a body of mass / a body of water / a body of land / a body of data / a body of law.* The other stream emits verbs: *flowing / moving / seeping / surrounding / reading / legislating.* The lungs secrete *out of breath / take a breath / take a deep breath / save your breath,* the heart sheds *murmur / palpitation / attack.* These particles encourage contemplation of how it is to live with and as a body of data, what it feels like to have a body that is endlessly growing, constantly moving and demanding attention.

Figure 6: Retinal scans with poetry pasted into them

4 DATA DIGNITY, DATA VIOLENCE, DATA JUSTICE

In *My Data Body*, the medically scanned, passive, obedient, semi-transparent body [11,12] becomes a data processing site that can be pulled apart, de- and re-composed. For decades there have been grave concerns about the amount of data that is being surrendered to massive corporations and governments in exchange for their "free services". In *Consent to our Data Bodies* [13], Paz Pena and Joana Varon bring a feminist lens to thinking through consent to data usage, explaining the problematics of binary consent options and the illusion that consenting to data usage agreements can be a free, rational and individual choice. We know that Facebook, Google & friends aren't free - that we are paying for their services with our data and that it can (and is) being used against us to terrifying effect, especially with regards to social mobility and justice. *In Weapons of Math Destruction* [14], Cathy O'Neil sets out how data is systematically being used to control access to education and insurance. Yet not "consenting" to these systems would exiles us from important social networks, limit education and employment options. For many it would be impossible able to function without the muscle of Google Suite or the fat of Facebook and Instagram. And goodness forbid our Mac terminal bones breaking!

COVID19 has increased discourse (and potential acceptance) around biometrics being used to lock and unlock our bank accounts, health records, work place and countries of residence [15]. Although data activists have succeeded in rolling back data abuse in some parts of the world, we see them continue to grow in others: in 2021 BBC news reported that the Chinese government is testing AI and facial recognition technology intended to reveal states of emotion on ethnic minority Uyghurs [16] and Clearview AI recently handed over their facial recognition technology to the Ukrainian army so that they can identify dead and captured Russian soldiers [17]. As violating as this technology is, many of us carry a version of it in our pockets. When researching face scanning for *My Data Body*, we discovered MeasureKit, an app that not only allows you to download 3D face scans but also see all the micro-measurements smartphones are enabled to *constantly* read. The face scans in *My Data Body* displays these measurements as decorative spikes with the "potential to do harm".

My Data Body has been made as part of a larger interdisciplinary research project called *Know Thyself as a Virtual Reality* (KTVR). KTVR brings together researchers working across the arts and sciences to challenge the ethics and aesthetics of working with sensitive personal data in VR. A large part of the KTVR project has been to try to imagine novel embodied relationships with data and new laws, rules, and practices around data usage and art practice that might get us closer to them. What does ethical data usage look like when creating an artwork whose primary goal is to be socio-

politically critical of data? This research is being captured and shared software tools, educational resources and a set of ethical guidelines published on the project website [18]. These guidelines start with an overview of the different data protections and then builds on existing visual research ethics guides [19, 20] to suggest a series of reflective questions around data anonymization, provenance, representation, consent, access and licensing, participation & authorship, sustainability, dissemination & audience and of course artificial intelligence. Research for the KTVR guidelines [21] has influenced many of the decisions in *My Data Body* and vice versa. For instance, the decision to pseudonymize or randomize names and numbers in the artist's social media data (and S.I.N number) that is plotted into the text slices was informed by understanding the different anonymizing and de-identifying techniques. Conversely, the ease with which biometric data (such as retinal scans, face scans and dental scans) were accessed for *My Data Body* led to a larger and more detailed section about biometric data in the guidelines.

5 THE MYTH OF THE CLOUD

The metaphor of 'the cloud' is one we are all familiar with in relation to data and it has been challenged repeatedly for dangerously obfuscating the fact that our digital lives have a very real and material impact on the future of the planet [8, 22,23]. The metaphor of the data body as a cloud is consciously and repeatedly employed in *My Data Body*. Katherine Hayles famously argued that the tech industry continually revels in the fantasy of a disembodied future where we can cast our feeble bodies and become ostensibly omnipotent and omnipresent bytes of information [24]. But our data is hardly objective and acts instead like an expression of what Donna Haraway called our situated knowledges. It is full of the same biases, limitations, and historical locatedness as our physical bodies; no matter how much one might want to dissolve into nothingness, there are always traces that lead us back to our bodies in the here and now [25]. Like Haraway, we strive to express how this 'limitation' is not only inescapable, but the source of our hopes and fears, individuality, and sense of collectivity. And like Hayles, we believe that VR offers ways to challenge this posthumanist logic by showing how our personal data continues to be sensorial and affective, even if we rarely are in a position to touch, smell, hear or even see it.

Just as importantly, in providing a way to affectively experience such data, we also transform it and ourselves in the process. Karen Barad writes "measurements are intra-actions (not interactions): the agencies of observation are inseparable from that which is observed. Measurements are world-making: matter and meaning do not pre-exist, but rather are co-constituted via measurement intra-actions" [26]. MR scanners calculate water in the body by exciting and measuring the rotation of protons in hydrogen molecules. The intra-action of the body and the MR scanner proposes a world where the digitized body is akin to a cloud with the potential to evaporate or condense, leak or float away. Playing with the language of "The Cloud" (which is constantly uploaded to or downloaded from), we made the MR scanned body the container/receptacle that other kinds of personal data are "pulled" out of and "pushed" into.

At the beginning of the KTVR project, the interdisciplinary team came together to share their understanding of 'Know Thyself as a Virtual Reality' from their different disciplinary perspective [27]. One KTVR team member who is a philosophy and digital humanities scholar started their presentation by briefly charting the history and evolution of ancient Greek philosophical maxim which first appeared in the Temple of Apollo in Delphi, where it is thought to have been a reminder to know one's place within a social hierarchy or in relation to those who are more wise, to Socrates who used the maxim to defend seeking knowledge from all people in society as a way to know what one does not know. They wove these two interpretations of the maxim towards a discussion of Voyant, a web-based text reading and analysis environment that allows users to generate word clouds from text corpuses, webpages or social media feeds. In *My Data Body*, Voyant tools were used to generate the 3D word clouds that immerse the scene from the artist's Facebook corpus. The terms in the artist's account are mostly mundane indicators of pages visited, sites searched for, IP addresses, 'friend' names. In

UNESCO's 2021 report on the online abuse faced by female journalists [28], we are shown word clouds similarly generated from social media accounts as chilling evidence of how toxic the social media accounts of many female journalists have become as a result of cyber hate and trolling. These social media word clouds are much, much darker and bring into sharp focus how life destroying our data clouds can be in our age of unregulated social media.

Figure 7: Word clouds generated from female journalists social media accounts in UNESCO report on online violence against female journalists (left: Maria Ressa right: Carole Cadwalladr)

6 FUTURE WORK, LIMITATIONS & CONCLUSION

As the chilling word clouds above demonstrate, there is a diversity of data bodies and identities that we urgently need to see and understand. The artist who is the subject of *My Data Body* is not a digital native and they are both economically and socially privileged. They fit into the boxes, align to rules and are easily controlled and 'obedient' [11]. What would other data bodies be like to dissect and interact with? What would we learn from de- and re- composing the data of one of the journalists in the UNESCO report? Or of social media giants Elon Musk, Jeff Bezos, or Mark Zuckerberg? Or a social media influencer extra-ordinaire such as Kim Kardashian? And what of all those who have no data body or who do not fit through the limited checkboxes that permit access to so many digital spaces such as Legacy Russell's *Glitch Feminists* [29]?

As KTVR project develops, *My Data Body* will continue to be added to for there is still much, much data to add to it and it keeps growing every day. We are also now developing a partner VR artwork *Your Data Body* which will include anonymized, donated and open access personal data. There is no question that working with the data bodies of others artistically is far more challenging ethically (and practically), but we believe that thinking of our data bodies as corpuses that we must invest time in to see, hold, manipulate (and even admire) holds the potential to align ourselves closer to them so that we can curate and nurture a healthier relationship with our own data bodies and the data bodies of others in the future.

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