CHAPTER 2

Biometric Technologies, Gendered Subjectivities and Artistic Resistance

C. L. Quinan

Introduction

Representing Taiwan at the 58th Venice Biennale, artist and filmmaker Shu Lea Cheang exhibited the multimedia artwork *3×3×6* (2019) to depict the global digital surveillance landscape wherein subjects consensually supply surveillance structures with data, images, and preferences through social media platforms that in turn monitor us. Curated by trans writer and philosopher Paul B. Preciado, Cheang's intervention reimagines the exhibition space as a panopticon and weaves stories about ten inmates—characters who are queer, transgender, and gender-fluid incarnations of historical figures like Casanova, Foucault, and the Marquis de Sade. The artist, however, subverts the traditional panopticon: it is the *all-seeing* visitors themselves who are controlled, becoming prisoners of artificial intelligence, facial recognition, and social media. Cheang and Preciado developed a high-tech installation, whose participatory element is

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deliberately concealed to emphasise the danger that lurks behind the regimentation of control. As the exhibition highlighted, these hyper-modern dynamics and systems have particular impacts on queer and trans bodies.

This chapter draws inspiration from the ways in which both artistic and ethnographic work highlight the particular effects that such (digital) panopticons have on gender and sexual minorities. I take as a point of departure the fact that trans and non-binary people face obstacles to mobility and migration, making experiences of border-crossing challenging or even impossible. These challenges often include increased identity verification due to mismatches between gender presentation and sex/gender markers or photos in legal documents as well as interrogation upon passing through biometric checkpoints that build binary sex/gender into their operationalisation (Hamidi et al. 2018; Keyes 2018). For instance, millimetre-wave body scanners (first introduced in 2007 and now prevalent in both domestic and international airports worldwide) require passenger screening personnel to interpret every traveller's gender by pushing a button for either female or male as they approach the machine. Individuals who do not match the security agent's gendered reading and interpretation activate various security responses. In this way, security systems control and monitor the boundaries between male and female, and surveillance technologies construct the figure of the dangerous subject in relation to normative configurations of gender, race, and able-bodiedness. By mobilising narratives of concealment and disguise, heightened security measures frame gender nonconformity as dangerous or threatening to national security (Beauchamp 2019; Quinan and Pezzack 2020). This framing has real-life consequences for trans and non-binary individuals, who, in being labelled as suspicious, may be detained, interrogated, and humiliated. Intersecting forms of oppression (often based on racial, ethnic, and religious background) also exacerbate such obstacles to free movement and mobility (Haritaworn et al. 2014; Quinan and Bresser 2020).

Recent legal reforms and policy advancements that recognise non-binary gender—in particular, the X gender marker in official documentation—have allowed non-binary individuals to access legal recognition that accurately reflects gender identity and have attempted to rectify some of the problems faced when crossing international borders. The list of countries that have adopted non-binary possibilities in passports is growing and now includes Argentina, Australia, Austria, Bangladesh, Canada, Colombia, Denmark, Germany, Iceland, India, Malta, Nepal, the Netherlands, New Zealand, Pakistan, and the United States. Globally, it

can be expected that this trend will continue, as more and more nations are exploring the implementation of the non-binary X marker in passports and other documents. While this changing landscape might suggest improved human rights (including the right to mobility and migration), it is critical to interrogate how such legislative developments may have knock-on effects—including heightened surveillance—when considered alongside advanced biometric-based border securitisation.

This landscape presents a conundrum: as governance strategies become more inclusive, bureaucratic structures and security technologies create challenges for gender-nonconforming individuals. With the rise of advanced biometric technologies, the surveillance and targeting of populations who do not match racial and gender norms—in particular, people of colour and trans and non-binary individuals—have dramatically increased in recent decades. Built on a framework that is fundamentally interested in categorising populations, biometrics trace their legacy to anthropometry, which reduces humans to statistical averages in order to sort them into desirable and undesirable groups, often based on presumed correlations between physical characteristics and ethnic backgrounds. Biometric technologies like body scanning and facial recognition technologies are built on similar ideas and are, in essence, being used as arbiters of objective truth in determining identity.

Cultural studies scholar Joseph Pugliese writes that 'Not to produce a template is equivalent to having no legal ontology, to being a non-being; you are equivalent to subjects who cannot be represented and whose presence can only be inferred by their very failure to be represented' (2005, p. 14). In other words, in the increasingly biometrically determined world in which we live, one has to be digitally legible to the state in order to lay claim to rights. To put it more bluntly, one must be biometrically readable to exist at all. This dynamic is one of recognition and is undoubtedly also inflected with gendered norms. Similarly, trans studies scholar Eric Plemons underscores the relational and existential nature of gender and social recognition: 'If recognition is the means through which sex/gender becomes materialized and naturalized, then the conditions of recognition are the conditions of gender: I am a man when I am recognized as a man' (2017, p. 10). By extension, recognition technologies like facial analysis exert power in shaping who counts as a man or as a woman.

Although LGBTIQ legal recognition has long been a topic of academic and activist investigation and analysis, it has, as of late, taken on a renewed sense of urgency as laws and policies around the world have been

attempting to be more inclusive of gender and sexual minorities (Raj and Dunne 2021; Stanley 2017). This evolving legal landscape is reflected in the recent proliferation of scholarship on questions of recognition—both legal and social—of LGBTIQ individuals, a body of work that has drawn attention not only to the harms that such legislative and policy interventions intend to correct but also to the challenges and paradoxes that they simultaneously provoke. Building upon feminist and queer theory that has problematised social, legal, and institutional recognition, the chapter approaches the topic of gendered recognition by focusing on how the biopolitical mechanisms of legal gender recognition and biometric technologies recognise—and, hence, legitimise—some identities but not others. The second section of this chapter draws on a series of semi-structured interviews (15 in total) that I conducted in 2018 and 2019 with trans and non-binary respondents to evaluate experiences with border-crossing. The sample was global, and participants resided in Europe, the Middle East, Central America, and Oceania. The interviews aimed to assess gender-diverse people's opinions on existing options for declaring gender at federal levels and to gather hopes and desires for future sex/gender registration practices. Another important theme of the interviews was trans and non-binary experiences within border security structures (including biometric technologies like body scanners). In the third section, I move to an analysis of biometric technologies to further problematise the consequences of artificial intelligence (AI) and algorithmically driven surveillance that underlie contemporary governance structures. After analysing the recognition technologies of gender markers and biometrics, in the final section I turn to practices of creative resistance by artists like Heather Dewey-Hagborg, Zach Blas, and Ma Liuming, who each draw public attention to this contemporary landscape and offer illustrative examples of how (gendered) recognition can be contested and reconceived through art.

The Biopolitical Technology of Gender Markers

I want to open this section with the reflections of my respondent Aman, who is in their 20s, identifies as gender-fluid, and lives in the Middle East.[1] When asked to share their opinion on the inclusion of gender in identity documents, they stated:

[1] As consented to by participants, all names have been changed to protect anonymity.

> I think they [countries] should just figure out a way to cancel it, but altogether, and if they can't, they should do like—I think Australia did that, they added a third category, like male, female, and X—so that should be applied everywhere as a first step towards the abolishment of the whole gender thing on papers […]. The difference is that they added a third category. It would still not be satisfying enough for many people. Like, being identified as gender X might be offensive for some. And, so removing it altogether would be a better option. […]. But if they are not going to do that, then at least add the third option.

Although we might detect a waffling tone, Aman's words capture a complex conundrum. When it comes to state practices of categorising sex and gender, should we aim to abolish the system or to reform it? Moreover, Aman speaks to the significance of self-determination and being able to change legal gender classification to reflect gender identity. This sentiment was recurrent in the interviews I conducted and was also confirmed by a recent survey in Australia that targeted trans and gender-diverse communities. In the survey analysis, being able to change gender and name through a simple administrative procedure was the top-ranked priority out of 28 options (exceeding healthcare or employment) amongst all respondents (ACON 2019).

One important theme of the interviews I conducted was the emotional effects that border control and surveillance practices have on trans, non-binary, and gender-diverse people, including consequences for mobility and everyday experiences of moving through the world. Most participants also reflected on steps that could be taken to improve the mobility of gender-diverse people, including institutional changes and socio-cultural awareness. While many of my participants stated that they had experienced trouble when travelling, including being questioned, body searched, and humiliated because of documentation that did not meet the expectations of security personnel or border technologies like body scanners, a number of others indicated they have never experienced issues because they have developed strategies to prevent questioning. Others also actively conceal their gender identity (often through dress and presentation) by travelling as a gender that matches their documentation but does not align with their identity (see also Quinan and Bresser 2020). Fearing confrontations with security personnel and biometric technologies, several binary-identifying trans participants also avoided travelling during their transition and/or when their appearance did not match with their travel documents.

The theme of finding strategies to pass through border security was particularly prominent. Alex, who is a lawyer from Central America working in human rights, identifies as genderqueer and non-binary and uses she/her pronouns. Because of her work, she travels internationally regularly. Her gender expression has resulted in several troublesome experiences while travelling: 'It even has happened to me', she says, 'that they told me [at the border] that my documents were not mine […]. Like: "Are you sure this document is yours? Show me another identity document, because you don't look like a woman"… These kinds of things'. She mentions that the most difficult experiences have always happened in Europe or the United States, the worst being at Amsterdam Schiphol Airport:

> Even this one time, precisely in Holland, leaving the country, I was detained and taken to a little room where I was interrogated—I don't know what that is, a room in Schiphol, in Amsterdam, where everything was made of metal. And I was there for about 45 minutes, while they asked me if that was my real identity document … that has been the only airport in the world where I have ever been stopped for that reason.

In this regard, she recognises that having a non-binary or ambiguous gender expression has been grounds for questioning and harassment. But Alex belongs to an ethnic minority group, and non-normative gender cannot be disaggregated from bias based on race and ethnicity, not to mention stereotypes about Central Americans that circulate in popular culture. These intersecting forms of discrimination represent further obstacles to mobility. Asked about strategies to navigate border-crossings in security assemblages that target gender and racial difference as threatening, Alex explains that as soon as she passes by border security, she tries to talk with the most feminine voice possible: 'I prefer to go with a blouse, or something with more cleavage, and talk …'.

When asked about strategies for travelling and crossing borders, another of my respondents, Gael, a bi-national EU citizen in their late 20s who identifies as non-binary transmasculine, stated:

> I try not to do anything that draws attention. I don't do anything that is outside gender normativity. For instance, I don't know, wearing nail polish… I wouldn't do that when travelling or crossing borders, to avoid any problem. And these are things I would do in my daily life in the city, but

> when travelling I try to make my gender expression more normative so people don't pay attention to me.

Asked if they have ever changed the way they travel given this challenging and often unsafe climate, Gael stated: 'Well yes, when I was … I mean, when I was read more "in the middle", the bike was to me […] a safe space. Because if I was in a bus or in the subway, it was like an enclosed space in which people would stare at me, and I would feel very observed'.

Within these constraining governance frameworks and securitisation paradigms, however, I also identified spaces for resistance and self-affirmation cultivated by some of my participants. Gael gave their impression about the process of changing the way their gender was registered in their home country and the importance they feel in being precisely recognised as trans, which for them became an activist stance:

> It would have been much easier if I had wanted to change my sex status […]. But I did not want to change my sex identification, because I don't identify as a man either […]. That is, I don't identify as woman or man, so I saw no point at all in changing it. Plus, if I change it, I disappear for the state as a trans person. So in this sense it was a form of activism for me […]. Because when you change your sex most of the time they kill you [legally] and create a whole new birth certificate […]. In this way, you disappear as a trans person.

Not only are technologies used to monitor, control, and restrict the border, but as Gael's comment emphasises, technologies (including forms of documentation) are also creatively used, repurposed, or resignified by trans and non-binary individuals to negotiate, manoeuvre, and resist these state-based biopolitical and necropolitical mechanisms. Asked about how they would like to have their gender identity recognised in their legal documents, Gael responded: 'I would remove any mention of gender. That is, in my utopian ideal, I would erase it. In my ideal of something that could be reached, I think that the ideal would be to include a third option, an X, or a zero, or whatever'. In Gael's formulation—perhaps similar to Aman's conceptualisation above—the X does not represent a new non-binary identity category. It is, instead, a blank space, which may then allow for privacy to—or even decertification of—state interventions into one's gendered life (see Cooper 2023; Cooper and Renz 2016).

At the same time, however, alternative options like the X could (inadvertently or not) target trans and non-binary individuals. Another respondent, Tim, who lives in Northern Europe and describes himself as a genderqueer trans guy, stated that he 'couldn't care less' about the state's picture of his gender. However, it did occur to him that registration could be handy for situations where you can 'prove' your gender by showing your passport. He was, however, not in favour of including too much information in passports. He said that if, hypothetically, there were six gender options, then the state is going to have significantly more information about how you identify. He stressed that this may be delicate information that could be politically dangerous.

This was echoed in an interview with Nienke, a Dutch trans woman, who finds that registration in general is historically sensitive (she named the example of the registration of Jews in World War II). Because of the 'obsession with registration', she feels like she is increasingly being set apart as a separate group. She did eventually choose to register as female, precisely because it can 'be nice to pull out my passport when someone does not believe me'. She said she feels safer when her passport has a female marker, precisely because it makes her more comfortable that public officials and other people who rely on official information immediately know that she is a woman. Indeed, as Nienke's comments underscore, the social and institutional demand for gendered recognition and legibility cannot be overstated. Judith Butler articulates how this itself is a question of survivability: 'some people very much require a clear name and gender, and struggle for recognition on the basis of that clear name and gender. It is a fundamental issue of how to establish and insist upon those forms of address that make life liveable' (Ahmed 2016, p. 490). At the same time, many respondents emphasised that simply adding categories and gender markers may not rectify obstacles to the mobility of trans and non-binary people unless it is part of a wider strategy that tackles transphobic and cissexist norms that pervade society (Serano 2007).

Binary-Based Biometric Technologies

Referencing the societies of control in which we currently live, Gilles Deleuze wrote that while the state renders human beings calculable but also disciplined, 'what is important is no longer either a signature or a number, but a code […]. The numerical language of control is made of codes that mark access to information, or reject it. We no longer find

ourselves dealing with the mass/individual pair. Individuals have become "*dividuals*", and masses, samples, data, markets, or "*banks*"' (1992, p. 5, original emphasis). Indeed, this datafication and algorithmic surveillance underlies contemporary governance structures, particularly in the face of legal reforms to trans and non-binary recognition like those named above. Indeed, many of my participants expressed concern about—or were indifferent to—non-binary gender markers given that border security technologies like body scanners and facial recognition are constructed on the basis of binary conceptualisations of sex and gender. In juxtaposing the X gender marker as a policy-level intervention in identity documentation with biometrics that rely on binary constructions of gender, it becomes clear how current border security structures frequently pose a challenge for those not conforming to gender norms. This dynamic also falls along racial and citizenship lines. Although proponents of biometrics claim the technology is neutral and based on predictive algorithms, human assumptions about race and gender are encoded into their operational elements, which are calibrated to whiteness and binary gender (see Browne 2015; Keyes 2018; Magnet 2011; Pugliese 2005).

While security technologies have long tended to focus on the identification of specific objects considered weapons and security threats, in the post-9/11 era surveillance practices have homed in on human bodies as the prime locales of threat. This approach has been made possible through advanced passenger screening by biometric technologies. A consequence has been that those who fall outside of markers of normative race, gender, sex, religion, and ability (i.e., those who are not white, cisgender, secular, and/or able-bodied) become targets of biometric technologies, while those who are seen as normal and productive citizens pass easily through visible and invisible security checkpoints. In this sense, technology has become entangled within and productive of practices of gendering and racialisation.

Using the concept of Failure to Enroll (FTE), Pugliese (2005) encapsulates the practical effects of biometric technologies on non-normative groups. FTE refers to the process by which the 'normal' can be enrolled or authenticated in biometric systems, while the non-normative 'stand to throw into crisis the very biometric relation between *physis* and *techmè*, body and machine, epistemology and ontology, and whiteness and its others' (Pugliese 2005, p. 2). Pugliese goes on to question the assertion that biometrics are both convenient and efficient in authenticating identity, arguing that this convenience 'is so indissociably tied to a racialised

technè/"technical efficiency" that it must be seen as another instantiation of unacknowledged whiteness; […] it becomes evident that the "natural convenience" and "technical efficiency" of these biometric systems are not guaranteed for non-white subjects' (p. 2). But I want to extend this even further to argue that these tools are infrastructurally calibrated to cisness and to binary gender norms, expectations, and assumptions. As Hunt and I have argued elsewhere, Pugliese's framework focuses on racialised dynamics; however, there is an important overlap with gender, as his formulation of 'unacknowledged whiteness' and 'non-white subjects' can be respectively substituted with and applied to 'unacknowledged cis-ness' and 'trans and non-binary subjects' (Quinan and Hunt 2022, p. 212). Indeed, these biometric technologies foreground tensions between visibility and invisibility and highlight the ways in which trans and non-binary people simultaneously disappear and are hyper-visible.

These are political technologies that have discriminatory effects. Institutions utilise biometrics to 'enact institutionalized forms of state power upon vulnerable populations' (Magnet 2011, p. 9), and assumptions about race, gender, sexuality, and ability are encoded by scientists into the operational elements of the technologies, which are not constructed to deal with multiple and/or intersectional identities, including those that diverge from white, cisgender, able-bodied norms. In *Discriminating Data: Correlation, Neighborhoods, and the New Politics of Recognition*, Wendy Hui Kyong Chun argues that 'the links between facial recognition technology and eugenics are not only thematic or aspirational, but also methodological. They are rooted in eugenic methods, such as linear discriminant analysis, developed in the early twentieth century to discriminate between classes and races of people' (2021, p. 333). Facial analysis software, for example, has been critiqued for its racial biases, as it is often unable to read darker skin tones because cameras are optimised for lighter skin (Buolamwini and Gebru 2018).

Under the cover of national security, biometric systems—including fingerprinting, full-body scanning, facial recognition, iris scanning, gait analysis, and voice recognition—have become central to international migration and travel (Hodge et al. 2019). E-passports, also called biometric passports, are embedded with a microchip that is encoded with biometric data (including information that is used by facial recognition systems at border checkpoints) through which they verify the identity of the holder. But digital biometric technologies have also proliferated outside border checkpoints, as the scanning of bodies—in whole or in part—have become

a quotidian part of our lives with which we inevitably engage, often without our explicit consent (Tucker 2014). This proliferation has meant that the biometric border is increasingly seeping into our everyday lives, including in sites like medical clinics, smartphones, social services, and social-networking apps (Quinan and Hunt 2022).

Facebook's photo-tagging system, which automatically identifies people in users' photos, relies on these sorts of facial recognition and analysis technologies. Seemingly designed to make our lives easier and save time (think of Pugliese's 'natural convenience' critique), this tool has allowed Facebook to amass one of the world's largest digital face databases. This has, however, prompted such serious concerns about privacy, regulation, and misuse that the company announced in November 2021 that it will shut down the service. Jerome Pesenti, vice president of AI at Facebook's parent company Meta, stated that it will be discontinued due to 'many concerns about the place of facial recognition technology in society […] every new technology brings with it potential for both benefit and concern, and we want to find the right balance' (Hill and Mack 2021). Although Facebook says it will delete the face-scan data of one billion users, these facial recognition templates have already circulated widely and have been used extensively to train artificial intelligence software. Concerns about algorithmic bias have also caused other corporations (including Microsoft, IBM, and Amazon) to pause the sale of their own proprietary facial recognition technologies.

Harvesting of face data is particularly salient in the context of trans and non-binary subjectivities and medical transition processes. Because hormone replacement therapies (HRT) undergone by some trans people change facial structure, computer scientists and engineers have become interested in gathering face data from trans individuals in order to *train* the technology. In other words, trans people are made into objects of study (largely without consent) and are viewed as challenge sets around which machine-learning can take place (Quinan and Hunt 2022). This has taken on renewed urgency with the emergence of highly advanced AI image-generator technologies like Dall-E 2 and Midjourney, which are able to generate realistic images of (fake) trans individuals, but ones that exacerbate stereotypical notions of what a transgender woman or a transgender man looks like.

(In)visibility and Artistic Resistance

Based on the above analysis, the most natural next step in this argument might appear to be a critique of the harms caused by these technologies (both legal and biometric). While this is an important work to do, I want to instead propose that we think about gender-diverse bodies as not only restricted by biometric technologies but also *challenging the fixity of biometrics*, thereby revealing the instability of relying on body-based data. Marquis Bey, for instance, writes about the transformative and generative potentials of technologies writ large:

> From electronic technologies to somatechnics, technologies enable, and it is an enabling that can thrust outward in myriad ways that can be read through variegated valuations. This is thus to say that insofar as gender is cast binaristically, technologies, broadly speaking […] can enable other kinds of gender embodiments. Technologies can usher in other-than genders. (Bey in Aizura et al. 2020, p. 144)

What might it mean to take a cue from Bey and think about these gendered technologies as 'enabling'? To help respond to this question, I want to return to the seeming imperative to be seen that itself underlies both legal recognition and biometric legibility by looking to a collection of artistic-activist work. A handful of exhibitions and installations have recently taken up related questions around gender, crossing borders, and biometric technologies by contesting dominant modes of recognition and the notion of visibility as progress. In this sense, I am interested in how modern technologies can also function as situated sites of contestation and resistance. Amongst an increasingly securitised landscape, artistic forms of resistance can offer a means of subverting and resisting discriminatory policing and surveillance practices by posing alternative visualisations that reveal and challenge their supposed objectivity.

Zach Blas, Facial Weaponization Suite *and* SANCTUM

UK-based American artist Zach Blas suggests invisibility as a resistance strategy and asks if we should strive for creative techniques that precisely queer the law and biometrics. Rather than looking to the dominant forms of representation as a means for recognition and social change, invisibility would be a tool for making oneself unaccounted for (Wevers 2018).

Echoing Foucauldian notions of visibility and biopower, for Blas, 'transparency, visibility, and representation to the state should be used tactically, they are never the end goal for a transformative politics but are, ultimately, a trap' (Blas and Gaboury 2016, p. 158). While invisibility (not unlike visibility) is itself a privilege that, I would argue, is unevenly distributed, Blas's work attempts to refuse a politics of visibility as well as biometrics' standardisation of identity. Tied up in debates around recognition are broader issues of representation and visibility, and in the context of trans and non-binary identity, this poses complicated questions that are well encapsulated by Eric Stanley as follows: 'how can we be seen without being known and how can we be known without being hunted?' (2017, p. 618). In other words, trans and queer visibility has often been regarded as a mark of progress or inclusion, but it is critical to acknowledge that this has occurred alongside heightened violence towards—and exclusion of—trans of colour bodies and identities (Gossett et al. 2017).

Two of Blas's projects—*Facial Weaponization Suite* (2011–2014) and *Face Cages* (2013–2016)—contest biometric recognition and the inequalities that these technologies promulgate by constructing masks that trick or dodge facial recognition systems. One piece entitled *Fag Face Mask* is generated from the face data of queer men and is a response to studies that purport to recognise sexual orientation on the basis of facial features through rapid facial recognition techniques. While this sort of 'AI gaydar', as Devon Schiller (2020) calls it, is built on essentialist notions of prenatal hormones as influencing sexual orientation, Paul B. Preciado reminds us that humans remain at the centre of assumptions about gender and sexuality: 'if machine vision can guess sexual orientation it is not because sexual identity is a natural feature to be read [but because] we are teaching our machines the language of technopatriarchal binarism and racism' (cited in Schiller 2020). In addition to implicitly critiquing these sorts of purportedly scientific approaches to understanding sexuality, Blas's work also underscores the activist potential of biometric artistic interventions, as the masks are created in workshops modelled on the facial data of participants and are then used for public interventions and performances.

In another creative intervention entitled *SANCTUM* (2018), Blas explores body scanning technologies ubiquitous in airports (see Image 2.1). In this 2018 audio-video artwork installation, Blas uses the generic mannequin of the millimetre-wave body scanner and moves the scanners out of the airport and into a queer environment that is 'at once a prison-house of algorithmic capture, a sex dungeon with no genitals, a weapons

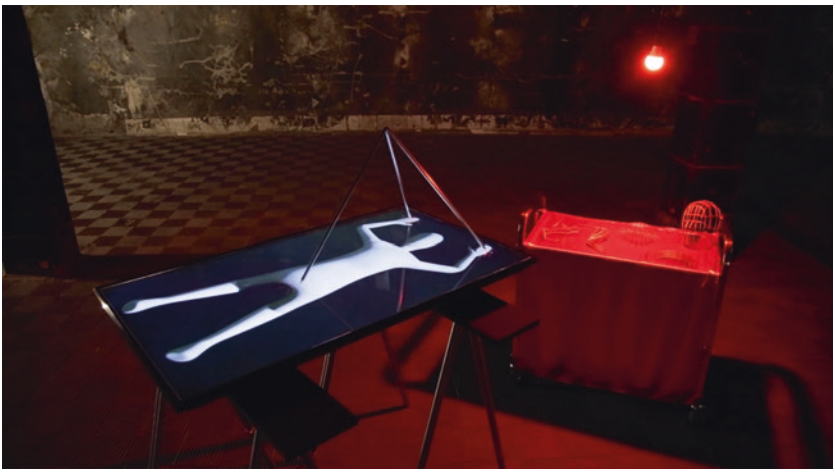

Image 2.1 *SANCTUM* (2018), Zach Blas. Commissioned by Matadero Madrid for Tentacular Festival. (Image source: https://zachblas.info/works/sanctum/. © Zach Blas)

factory, and a temple to security'.[2] Blas's reframing gestures towards full-body scanning technology's germination in prisons and other disciplinary systems, thereby highlighting how its development and use have originated from carceral (rather than security-based) contexts (Quinan and Pezzack 2020).

Heather Dewey-Hagborg, Radical Love *and* Probably Chelsea

While Blas primarily works with digital recognition technologies, interdisciplinary artist Heather Dewey-Hagborg's creative practice engages with what might be considered the next frontier of biometric surveillance: forensic DNA phenotyping. In *Radical Love* (2016) and *Probably Chelsea* (2017), Dewey-Hagborg uses forensic reconstruction to critique the ways in which gender has been integrated into biometric technologies. These two installations took shape after *PAPER Magazine* began a 2015 profile on the former US Army soldier, whistleblower, jailed activist, and trans woman Chelsea Manning. As she had been incarcerated since 2010 and

[2] https://zachblas.info/works/sanctum/. Accessed 2 June 2023.

was prohibited from being photographed, no one except her lawyers and visitors had seen her after she had begun her transition. To construct an image of Manning, the magazine contacted Dewey-Hagborg, who had earlier created an artistic intervention entitled *Stranger Visions* (2012), in which she constructed faces from strands of hair, cigarette butts, chewing gum, and other DNA traces picked up from the street. For the magazine profile, Manning sent Dewey-Hagborg samples of her DNA, including cheek swabs and hair clippings, from which the artist algorithmically generated portraits of Manning. This effectively allowed her to sneak her image out of prison despite being unable to share a photo. As the only photographs of her that existed were taken prior to her transition, Manning saw this project as a way to take back agency and restore visibility: 'A DNA portrait could give me back some of the visibility that I have been stripped of for years'.[3]

Of the dozens of three-dimensional masks created by Dewey-Hagborg, *PAPER* used two possible portraits of Manning, one female and the other algorithmically gender neutral. This then formed the basis of Dewey-Hagborg's piece entitled *Radical Love*, a diptych of faces that explores gender identity stereotypes in forensic DNA phenotyping. As the artist writes, presenting these possible portraits next to one another draws attention to 'the problem of utilizing chromosomes or birth assigned sex to assign gender as well as a larger issue of what it means to rely on stereotyped ideas of what a gendered face is "supposed" to look like'.[4]

In *Probably Chelsea*, a large-scale work built upon the same process of DNA phenotyping, Dewey-Hagborg presented 30 different three-dimensional portraits of Chelsea Manning that she had algorithmically generated. These portraits show drastically different faces of varying skin tones, facial structures, and eye shapes, thereby visually representing how the same DNA data can be interpreted in vastly different ways (see Image 2.2). As Dewey-Hagborg describes:

> These pictures, presented as objective, neutral, and certain, rely heavily on reductionist concepts of genetic sex and ancestry, and subjective renderings of how these appear. The scientific reality, however, is complex, multiple, contingent, and probabilistic. There is no certainty in reading sex and

[3] https://news.artnet.com/art-world/chelsea-manning-1041596. Accessed 2 June 2023.
[4] https://deweyhagborg.com/projects/radical-love. Accessed 2 June 2023.

Image 2.2 *Probably Chelsea* (2017), Heather Dewey-Hagborg. Exhibited at Fridman Gallery, New York. (Image source: https://deweyhagborg.com/projects/probably-chelsea. © Heather Dewey-Hagborg)

> ancestry from DNA, and often the guesses that are made are little better than a coin flip.[5]

In this sense, both *Radical Love* and *Probably Chelsea* draw attention to genomic reductionism, including the increasingly routine practice in law enforcement of forensically determining someone's gender based on readings of genetic sex. These two collaborative interventions, individually and together, emphasise that (1) the act of reading DNA is subjective and (2) the practice of pinning someone's gender to simplistic readings of genetic sex (which has become a routine practice in DNA forensics) is problematic in that it conflates gender with sex assigned at birth. In this way, Dewey-Hagborg's work also highlights the limits of using biometric data to predict gender. Genomics is a predictive field, and building a profile or image is always a subjective act of shaping the data.

[5] https://deweyhagborg.com/projects/probably-chelsea. Accessed 2 June 2023.

Ma Liuming, Visa to the USA

While Dewey-Hagborg's work underscores how tenuous and arbitrary gender actually is in technologies that claim to determine gender, Chinese artist Ma Liuming provokes questions about how gender is—accurately or not—determined by visual cues. Through his female alter ego Fen-Ma Liuming, the artist explores questions surrounding mobility, documentation, embodiment, and androgyny through provocative performances that question the borders between binary genders. In *Visa to the USA*, Liuming presents a large-scale triptych of three seemingly identical images of his visa documentation (see Image 2.3). It is only on close examination that the viewer can see that, in the second image, the sex marker ('F' for female) has been circled, and it has been stamped 'CANCELLED WITHOUT PREJUDICE—U.S. EMBASSY BEIJING'.

After receiving his visa, Liuming discovered that he had been registered as female by the visa processing agent: 'They just looked at my photo and didn't feel they needed to check what it said in my application'.[6] In the third image, we see another US visa with a slightly different passport-sized photo and a new sex marker ('M' for male) included. Although border management relies on security protocols, biometric technology, and algorithmic surveillance, Liuming's work underscores the prime role that humans continue to play as—essential yet fallible—interpreters of this information. Perhaps even more importantly, the experience documented and visualised in *Visa to the USA* demonstrates the arbitrariness of gender as a category of identity that is even registered in official documents at all.

While an analysis of identity documents and AI-driven biometric technologies reveals how binary gender is built into these expanding technologies, reading artistic work, like that of Blas, Dewey-Hagborg, and Liuming, as well as Cheang, with whom I opened this chapter, helps shed light on how the subjective act of reading visual cues and biometric data impacts how we understand gender. The work of these four artists also belongs to a broader collection of creative endeavours that have begun to interrogate the complex relationships between technology, surveillance, and power (Celis 2020). In this way, the above brief artistic-activist snapshots can be seen as critical supplements to the ethnographic passages included earlier in this chapter. Together, they not only provide us with a broad landscape

[6] https://cananmarasligil.net/read/secret-love-sexual-diversity-in-china. Accessed 2 June 2023.

Image 2.3 Ma Liuming, *Visa to the USA*. Exhibited at Tropenmuseum, Amsterdam. (Image source: Photograph by the author)

of the issues facing trans and non-binary individuals when it comes to border-crossing, but they also offer tools for creative resistance.

While biometric technologies and gender markers in documentation highlight 'how particular notions of gender come to be stabilised through their incorporation into larger systems of organization and control' (Currah and Mulqueen 2011, p. 574), these artistic interventions allow us to imagine a possibility for destabilisation. In a sense, body scanners—or trans experiences at the border more generally—signal the limits, and ultimate demise perhaps of, firstly, the use of gender as biometric data and a fixed code; and secondly, and perhaps more optimistically on my part, the use of gender as a registerable marker with the state. Biometrics produce

'new understandings of security, the border, and the nation-state' (Magnet 2011, p. 12), but as Magnet has convincingly shown, biometrics also fail. In 'Postscript on the societies of control', Deleuze wrote that 'the societies of control operate with machines of a third type, computers, whose passive danger is jamming and whose active one is piracy and the introduction of viruses' (1992, p. 6). It is within these risks inherent to computers and AI-driven border technologies that resistance might lie. Perhaps not fitting the M or F of the passport or the blue or pink button of the body scanner could function as both passive progressive jamming of the system or even the active introduction of a virus, which could set off a series of forces in the security assemblage that may destabilise binary conceptions of gender itself.

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