A BECOMING RESEMBLANCE

Heather Dewey-Hagborg & Chelsea E. Manning

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FRIDMAN GALLERY

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Curated by Roddy Schrock

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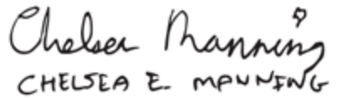
Our society’s dependence on imagery says a lot about our values. Unfortunately, prisons try very hard to make us inhuman and unreal by denying our image, and thus our existence, to the rest of the world. A DNA portrait could give me back some of the visibility that I have been stripped of for years.

There is a coalition that is forming, it’s the coalition of humanity. It’s an incredible leap for humanity to start to break down the automatic factionalism that gender, race, sexuality, and culture have been the basis of. We can see this with all the different vectors that are starting to align with each other in a way that doesn't fit into a "one size fits all" category.



A Becoming Resemblance, 2017
Heather Dewey-Hagborg and Chelsea E. Manning
Fridman Gallery, NY [Installation view]

Roddy Schrock

RELEASE AND BECOMING

A twenty-two year old Chelsea E. Manning is smuggling a CD-RW labeled “Lady Gaga” through security. It contains a readme.txt that says, “This is one of the most significant documents of our time removing the fog of war and revealing the true nature of 21st century asymmetric warfare. Have a good day.” Later that same month Chelsea E. Manning went out dressed as a woman for the first time in public.

As is usually the case in finding one’s truth, there is an element of self-negation. This is the case whether it happens inside an ascetic religious practice or in helping to forge a country’s more accurate understanding of itself. In January 2010, America was in some mixed-up state of lingering paranoiac post-9/11 hangover combined with exhaustion from never-ending war. It was around this time that Chelsea’s past collapsed into the present in service to a possible future. The version of Chelsea that existed then – the “Bradley” version – disappeared. Version Bradley disappeared from our view because of imprisonment. Version Bradley also disappeared forever into the past because, while imprisoned, Chelsea began her formal transition into womanhood. Simultaneously, some of the fog that hung over America’s falsehoods and vicious actions was lifted. One can almost imagine Chelsea whispering to herself, *“consummatum est”.*

Around this same time, as society grew more anxious about the advancement of technology in the realm of artificial intelligence, Heather Dewey-Hagborg was inquiring into whether AI can be more human and creative. Her work began intensely engaging issues of individual identity in a time of increasing machine intelligence. These investigations were happening in parallel to Chelsea’s own unique struggle to live on her terms, striving for her own horizon of potential.

Any gay or trans kid living under the stranglehold of conservative mainstream society, particularly a society fueled by regressive religion, whether in rural Alabama or Zimbabwe, feels the pressure to clamp down on expressions of desire, effectively obstructing that critical path of becoming. This can lead to desire finding another type of release, sometimes discharged in baroque form. It is possible to think of Chelsea’s leaking evidence of cruelly murderous and

vengeful acts by the military as an act of defiance and freedom, not unrelated to her being a closeted gay, soon-to-be trans young person from conservative small-town Oklahoma. At this point, it is speculation, but by looking at these particulars through the frame of structural tensions and pressures at play, we may gain a new perspective on systemic healing.

Heather, whose work often teases out conceptual assumptions within emerging technologies, found more than inspiration in Chelsea, she found a collaborator. Working with Chelsea, Heather has created works that both celebrate, and carve out spaces for, purposeful self-shaping, individually and societally. In *Probably Chelsea* (2017), there exists an array of possible identities that are all simultaneously correct. The plurality of self-intentioned realities is staggering and serves as a reminder of the potential and power in collectivity. In *Spurious Memories* (2007), she essentially created an artificial intelligence bot that aimed to bootstrap its own creative impulse. As it learned faces, it attempted to synthesize them into new ones. One nearly feels empathy for the machine as it attempts to overcome its inherent limits, as it stretches into its own vertical impulse.

It can be said that humans' agency for auto-manipulation, for crafting new versions of themselves, is now at its most advanced stage; technology has always been considered to be at its most advanced state *right now*. Anthropotechnics is a sociological term describing ways in which technology allows our species to self-generate our own "upgrades." The philosopher Peter Sloterdijk utilizes the term to sketch out means by which nature and culture are bridged through technologies. Chelsea embodies this type of bridging twofold: she hacked government machines in an attempt to curtail America's primal violence in a theater of war. She also employed technologies of transgenderism to close the gap between the incorrect version of herself and the more fully actualized person she is now. These are dizzyingly poetic acts. Heather renders these acts into artworks which destabilize assumptions of identity ownership as well as question individual and collective responsibility within the culture.

Technologies often arrive with grandiose promise. Be it the radio or the internet, new opportunities for radical auto-didacticism and enlivened democracy are announced. These initial promises are usually retracted, at least in part. A dark cloud appears. With the internet, maybe it is simply "the cloud", that particular conglomeration of personal information gummed up with motivation for commercial profit. Whatever the case, the relationship between humans and machines typically exists in protracted tensions, flickering between hope and disappointment. Given the challenges of our time, there is ever more need for hope in technology. There is need for liberating acts of invention in art and life. The work in this exhibition is both celebration of, and a prompt for more, radical acts of coalition between humans and machines, acting together not only for survival but for creation.

Probably Chelsea, 2017
Heather Dewey-Hagborg and Chelsea E. Manning
Thirty possible Chelsea's generated algorithmically from her DNA. 3d Prints
Dimensions variable

Heather Dewey-Hagborg

PROBABLY CHELSEA

Probably Chelsea consists of thirty different possible portraits of Chelsea E. Manning algorithmically-generated by an analysis of her DNA. Genomic data can tell a multitude of different stories about who and what you are. *Probably Chelsea* shows just how many ways your DNA can be interpreted as data, and how subjective the act of reading DNA really is.

I first got to know Chelsea E. Manning by reading her DNA. Before we ever exchanged a letter or text message she mailed me her cheek swabs and hair clippings, and I extracted her DNA, sequenced pieces of it and analyzed them to create her portrait.

Three years earlier I had created a system for algorithmically-generating 3d faces based on DNA data. In my artwork *Stranger Visions* I profiled DNA from forensic artifacts I found in public, like cigarette butts and chewed up gum, and then computationally generated 3d models representing what these strangers might look like based on genomic research. I 3d printed the models at life size in full color.

For the first portrait I made of Chelsea in 2015 I used the same system, input her genomic data, and generated two versions of her face: one androgynous and one “female.” Placing these two portraits side by side I made apparent the reductionism of pinning someone’s gender to simplistic readings of genetic sex—a routine practice in DNA forensics.

Probably Chelsea pushes this even further by presenting thirty different variations on Chelsea’s portrait, suspended as a crowd at an assortment of human heights in the center of the gallery. The form of the installation was inspired by conversations Chelsea and I had about the limits of DNA profiling, along with the incredible mass movement that advocated for her release from prison. We have so much more in common genetically than difference. *Probably Chelsea* evokes a kind of DNA solidarity; on a molecular level we are all Chelsea E. Manning.

Unfortunately, genomic reductionism has become increasingly common. Police departments can now purchase “DNA mugshots” based on little more

A Becoming Resemblance, 2017
Heather Dewey-Hagborg and Chelsea E. Manning
Fridman Gallery, NY [Installation view]

than a few microliters of DNA.[1] 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 ancestry from DNA, and often the guesses that are made are little better than a coin flip.

There are 6 billion base pairs in the human genome, most of which are shared among all of us. Most variations between people are in non-coding regions, i.e. the spaces in between our genes that have no known function. Meanwhile, it is becoming increasingly clear that the influence of the environment alters gene expression, turning genes on and off in various levels and combinations. So what can a genome tell us?

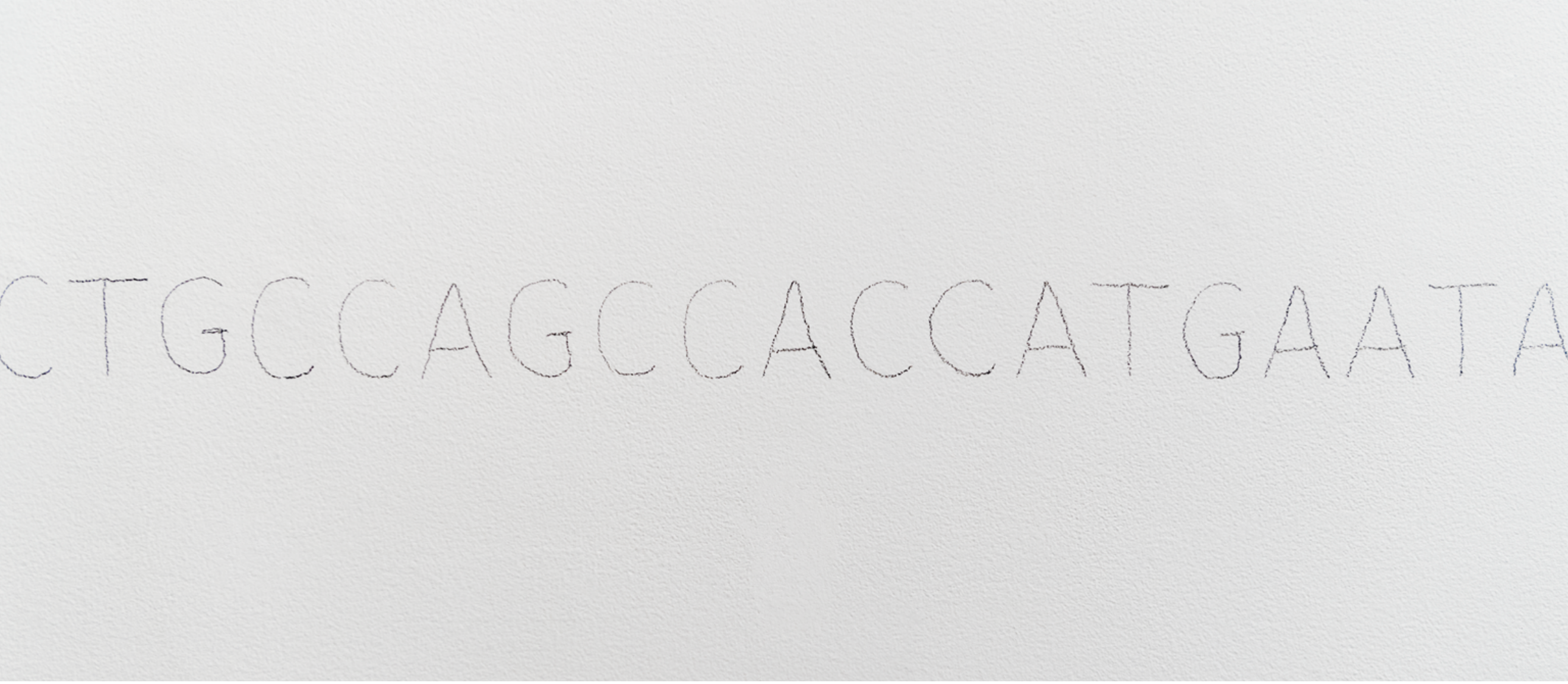
It can give us clues, or probabilities of phenotypes. It can relate people to their families and recent ancestors. And it can connect to an archaeology of deep human and evolutionary history. But not with certainty; always only as probabilities. DNA can tell many stories, and as with all data, it lends itself to multiple interpretations.

One of the first things I analyzed in Chelsea's genome was her mitochondrial DNA (mtDNA). MtDNA is inherited more or less unchanged from mother to child. Small mutations which occur in hyper variable regions of the DNA are passed down across generations and have been used to trace ancestry as a form of genetic archaeology.[2]

Groups that share the same mutations are called haplogroups and they are classified with letters and numbers. Chelsea's Haplogroup is J. The specific mutations in her DNA sub-sequence have been found in the Middle East, Europe, the Caucasus, North East Africa, Central Asia, and even in ancient Egyptian mummies.[3] Based on this fragment of DNA alone it is easy to imagine all kinds of possible stories for Chelsea.

Her mitochondrial DNA has special significance as it represents both a female lineage, perhaps an unlearning of patriarchy buried in our cells, as well as an intimate connection to so many global populations. It points to a deep history, but also the limits of our knowledge and the limits of our data; the limits of viewing DNA as "code" or some ultimate truth of identity. This complexity is true for nearly every phenotype. Most genetic variations only predict the likelihood of phenotypic traits, but they determine nothing.

Chelsea's mitochondrial DNA is special and at the same time it is totally ordinary. Other DNA variations tell similarly complex stories. For example, the GG variant of her rs12913832 polymorphism, which is often considered synonymous with blue eyes in Northern Europeans, is also found in Hispanic, African American, and South Asian populations, with varying phenotypes. So the same exact data can be read in different ways. This variant might predict



Two Hundred Nucleotides of Chelsea E. Manning's Mitochondrial DNA Sequence Written at Her Height (5'2") 2017
Heather Dewey-Hagborg
Pencil drawing with instructions
Dimensions variable

she is *most likely* to have blue eyes and be of European ancestry, but there is still a good chance she could have brown eyes and she might not have much or any European ancestry at all.[4]

Even biological or genetic sex, commonly considered to be simple and straight forward turns out to be amazingly complex. Genetic pathways related to secondary sexual characteristics and hormone production are scattered around the genome on various chromosomes and many remain unknown. These phenotypes vary on a spectrum, are mutable and show the limits of efforts to use DNA to predict gender.[5]

Each genomic variation is a piece of data, a new clue and another possible story. As more data is put together some things become more probable, and some less, but there is never certainty and there are always alternate possible narratives. *Probably Chelsea* portrays these alternate narratives and represents a sampling of the many stories Chelsea's DNA can tell.

[1] Parabon Nanolabs. "Parabon Snapshot DNA Phenotyping." http://snapshot.parabon-nanolabs.com/.

[2] Wesley M. Brown, "Polymorphism in Mitochondrial DNA of Humans as Revealed by Restriction Endonuclease Analysis." *Proceedings of the National Academy of Sciences of the United States of America* 77, no. 6 (June 1980): 3605–9.

[3] Verónica Fernandes, Petr Triska, Joana B. Pereira, Farida Alshamali, Teresa Rito, Alison Machado, Zuzana Fajkošová, et al. "Genetic Stratigraphy of Key Demographic Events in Arabia." PLOS ONE 10, no. 3 (March 4, 2015): e0118625. doi:10.1371/journal.pone.0118625. Verena J. Schuenemann, Alexander Peltzer, Beatrix Welte, W. Paul van Pelt, Martyna Molak, Chuan-Chao Wang, Anja Furtwängler, et al. "Ancient Egyptian Mummy Genomes Suggest an Increase of Sub-Saharan African Ancestry in Post-Roman Periods." Nature Communications 8 (May 30, 2017). doi:10.1038/ncomms15694.

[4] Marcus and Novembre, Visualizing the Geography of Genetic Variants. 2016. http://popgen.uchicago.edu/ggv/?data=%221000genomes%22&chr=15&pos=28365618

[5] Sarah S. Richardson, Sex Itself: The Search for Male and Female in the Human Genome. Chicago; London: University of Chicago Press, 2013.

Heather Dewey-Hagborg

SPURIOUS MEMORIES

In 2007 I developed *Spurious Memories* as an experiment in artificial creativity. For years I had been fascinated by Artificial Intelligence and machine learning, especially the more biologically inspired models of genetic algorithms and neural networks. The philosophical questions of AI also intrigued me. Could a computer really be intelligent? And perhaps more interestingly, could a computer be creative? In a flurry of youthful enthusiasm, I set out to show that it could, and soon found myself mired in questions about what creativity actually meant.

For the purposes of this project I defined it as "the generation of an output that was not explicitly learned." For example, if you train a machine learning system on a certain set of patterns and it outputs new patterns, ones it wasn't taught, this might be creativity.

I designed a system that would connect a principal components analysis neural network with a self-organizing map, and I trained it on images of faces. I was Inspired by Hopfield neural networks, the concept of content-addressable memories, and facial recognition algorithms.

The system had two modes of operation. The first was recognition. You could present it with an image of a face from the training data and it would identify it. Or you could present a slightly distorted version of that same image and it would recognize it. Or you could present some other kind of image: random noise, clouds, burnt toast, and it would recognize *something,* though more likely than not it wouldn't be one of the faces it had been taught, it would be a kind of ghost face, a spurious memory composed of an assemblage of statistical components of other faces. In other words, it could recombine aspects of its experience to generate new images. At the time this felt a lot like creativity to me.

The second mode of the system was associative. The research I drew on came from computational approaches to modeling psychological states, including dreams. I wondered what the dreams of a facial recognition system would look like, and I implemented a recurrent mode that would start with a random input and then drift along to neighboring states. The videos on display in

the exhibition demonstrate this dream-like mode of the system trained on two different sets of faces. One dataset was specifically collected for facial recognition research at Rice University and was well normalized. The other set were pictures of my cohort at NYU and were quite variant and unaligned. The faces generated by the Rice dataset are much more clearly facelike, while the ones from NYU, like the training data, are a bit more divergent.

Ten years later the technological landscape has shifted dramatically and my thoughts have changed. At the moment there is a flurry of excitement and worry over AI. Images from Google's "deep dream" system have taken the internet, and media art conferences by storm.

To be very clear, AI is not an "emerging technology." Most of the algorithmic approaches in use right now were defined in the 1980s or even the 1950s. AI is middle aged or even old. The difference is that now we have faster computers along with piles and piles of data. So of course, this makes a real difference. Theoretical ideas from decades ago can now be tested with ease.

When I worked on *Spurious Memories* in 2007 it took my computer days to churn out these tiny 200 x 237 pixel images of black and white faces. Facial recognition research has advanced dramatically in the meantime and *Probably Chelsea* represents some of that shift away from 2d eigenface-based recognition approaches that were popular a decade ago, towards more sophisticated 3d modeling systems that are also much more effective. The model which I use to generate different parameterized faces in *Probably Chelsea* is appropriated from exactly this surveillance context. So when I look back on this project I realize I couldn't have made my later work if I hadn't spent these years immersed in machine learning, neural networks and facial recognition research.

But as far as the goal of creating creativity? I'm not sure. In a way systems like this (and there are so many now) can demonstrate something kind of like everyday creativity. And it might be helpful in assisting humans with the generation of variations on a theme for instance. But over the last ten years my sentiments towards AI have really changed in a way I can only describe as boredom.

Maybe the more interesting question for me now is not so much the technical one of this Turing style test, can computers do human-like things without us, but more a question of implications. What does it *mean* for computers to do kind-of-creative things? What does a world with kind-of-creative AI-generated art and music and writing look like, and feel like? And of course the political questions: who gets to decide what creativity means? Whose data trains the system and who gets left out? And what are the pros and cons of being inside versus outside of a system like that?

What I see as a through-line in my work is that by creating these systems which anticipate future technological scenarios it allows the viewer to experience a bit of that in the present, to think about these larger questions, and to consider the complexities.

Spurious Memories: Rice Dataset, 2007
Heather Dewey-Hagborg
The dreams of a facial recognition system. 650 faces generated by a recurrent neural network
Custom software, video

Spurious Memories: NYU Dataset, 2007
Heather Dewey-Hagborg
The dreams of a facial recognition system. 650 faces generated by a recurrent neural network.
Custom software, video

Spurious Memories: Rice Dataset, 2007
Heather Dewey-Hagborg
The dreams of a facial recognition system. 650 faces generated by a recurrent neural network
Custom software, video

Suppressed Images: Frame #10, 2017
Poster of a frame from Suppressed Images, a graphic short story written by Heather Dewey-Hagborg and Chelsea E. Manning, and illustrated by Shoili Kanungo
18 x 24 in

Spurious Memories: NYU Dataset, 2007
Heather Dewey-Hagborg
The dreams of a facial recognition system. 650 faces generated by a recurrent neural network
Custom software, video

Right: *Spurious Memories: Rice Dataset,* 2007
Heather Dewey-Hagborg
The dreams of a facial recognition system. 650 faces generated by a recurrent neural network
Custom software, video

Probably Chelsea, 2017
Heather Dewey-Hagborg and Chelsea E. Manning
Thirty possible Chelsea's generated algorithmically from her DNA. 3d Prints
Dimensions variable

Dorothy R. Santos

COUNTER BODIES AND REFUTATIONS OF GENETIC DETERMINISM

The release of American whistleblower Chelsea E. Manning was greatly anticipated by her many supporters, especially in the LGBTQ and social justice communities. Manning's release is not only a vindication, it calls attention to the legacy of queer and trans women and women of color who have often stepped into dual roles as advocates demanding human rights and as protectors of their communities. Writer and scholar Katherine Cross reminds us, "when you consider the conditions she has lived under, between torture and her life's uttermost intimacies being held up to the glaring lights of angry public scrutiny, Manning's optimism seems almost superhuman.[1]" Her imprisonment has added further neglect, obscurity, and violence to which women's and trans women's bodies are subjected in an already oppressive system.

In 2015, Metahaven produced a book and accompanying video titled *Black Transparency: The Right to Know in the Age of Mass Surveillance.* The design collective aimed to shed light on the various mechanisms of the surveillance state. As we are tethered to mobile and digital technologies, our words and actions become a part of a larger, complex geopolitical machine.

> Once, governments were proud that they had secrets.
> Secrets were the preserve of privilege and glamour.
> The modern state claims to believe in transparency and openness.
> This obliges the state to hide the fact that it has secrets.
> Imagine what a whistleblower experiences, as she exposes the previously unseen interior of the state.
>
> CUT TO CHELSEA E. MANNING, EDWARD SNOWDEN
>
> Whistleblowers reveal not the excesses and the crimes of the system, even if what is revealed are plainly crimes.
> Whistleblowers expose the system's normal operations; the way it works every day, and the way it agrees with itself in doing so.
> As they expose the state's interior, leakers are pathologized

> by the media as narcissistic egomaniacs, seeking attention for themselves.
> Informing the public becomes aiding a foreign power.The world turns around its axis into playback.[2]"

The preceding excerpt from *Black Transparency*, titled *Scenario*, portrays the whistleblower as someone showing us the day-to-day operations of a system not made readily available and, often times, kept invisible to the general public. Someone who is revealing secrets of a government that can potentially harm and endanger its people. In the early 1970's, Ralph Nader defined the term "whistleblower" as an individual who, "exposes an organization's wrongdoing by releasing secret documents into the public realm under an ethical imperative.[3]"

By that definition, Manning made public data of violence, colonialism, and imperialism in our contemporary age. What does one do with information about the power to decimate hundreds or, perhaps, millions of lives? To analyze drone strikes and aerial bombardments, governments employ people who must process such mediations without emotional attachment. The argument that Manning put the U.S. at risk does not compare to the everyday atrocities that governments commit around the world. At some point, the discourse on surveillance comes full circle to its primary subject and, sometimes, target – the human body.

Often, we forget that surveillance is also about looking inward. The primacy of outward vision neglects our own genetic material that may implicate us or make us complicit. In an ideal world, we acknowledge being carriers of the same genetic material that is merely sequenced differently to produce the spectrum of bodies making up the human race. Genetic matter offers an infinite array of possibilities that make us unique, even within our family circles. However, as science evolves and advances, the insidious discipline of eugenics is reemerging in the form of increased bio surveillance. The use of artificial intelligence and machine learning to quickly parse data is a frightening proposition to a socially conscious scientist. In his book, *The Gene: An Intimate History,* scientist and scholar Siddhartha Mukherjee reminds us of the connection between science and government, manifested in systemic racism. This connection can take the form of scientific theory, as in the case of Francis Galton's theorizations of eugenics. Mukherjee writes,

> Galton's talk might not have generated the effusive endorsement that he had expected – he later groused that his audience was "living forty years ago" – but he had obviously touched a raw nerve. Like many members of the Victorian elite, Galton and his friends were chilled by the fear of race degeneration (Galton's own encounter with the "savage races," symptomatic of Britain's encounter with colonial natives throughout the seventeenth and eighteenth, had also convinced him that the racial purity of whites had to be maintained and protected against the forces

> of miscegenation). The Second Reform Act of 1867 had given working-class men in Britain the right to vote. By 1906, even the best-guarded political bastions had been stormed – twenty-nine seats in Parliament had fallen to the Labour Party – sending spasms of anxiety through English high society. The political empowerment of the working class, Galton believed, would just provoke their genetic empowerment: they would produce bushels of children, dominate the gene pool, and drag the nation toward profound mediocrity. The *homme moyen*[4] would degenerate. The "mean man" would become even meaner.

The irony of the U.S. cultural and political climate is that the Trump administration seems beholden to the same working class of America that Galton so clearly opposed during the Victorian age in England. The underlying message of a country facing despotism speaks to a deeply divided people, and science risks becoming a part of the colonial project if we are not careful.

In the age of surveillance and rampant collection of biometric data, the role of the artist revealing and critiquing the systems that bind the human body to the state is essential as technology advances by the second.

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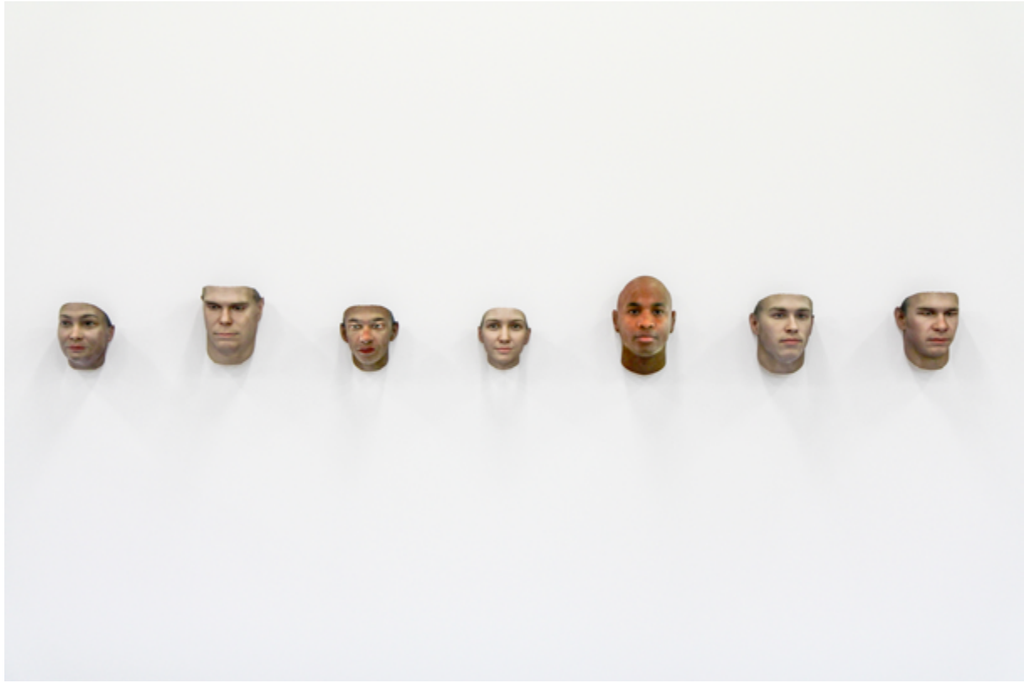
Do machines have the capacity to be creative? Is it possible for a machine to stitch image patterns and recognize human faces and formulate its own images of humans? In 2007, Heather Dewey-Hagborg explored machine learning, neural networks, and genetic algorithms in her work, *Spurious Memories*. She was concerned with evoking what is generally perceived as intrinsically human onto a machine – creativity. At this point, she was deeply inspired by biological and neurological processes that enable humans to make memories and creatively formulate new experiences. While humans are not built to remember everything, we have the capacity to be creative and fathom a seemingly endless array of possibilities and outcomes. Following the advancements in facial recognition software of Microsoft Common Objects in context to Google's Deep Dream, Dewey-Hagborg's predictive early work is evidence of the relationship between genetics and how machines are built and modeled after the human brain. She aimed to create an artificial intelligence based on a computational method that would produce a stochastic, albeit creative response. The richness of this project laid the foundation and has brought Dewey-Hagborg full circle to examining how a human face could be created from the sequencing of genetic material, specific genetic markers, and parameters.

During her artist residency at Eyebeam in 2012, Dewey-Hagborg produced a project that would set a trajectory reaching further than even she had imagined. Her explorations in forensic DNA phenotyping in *Stranger Visions* brought to the fore the importance of examining the ramifications of bio surveillance on an unassuming body. The fact that millions of people walk



Stranger Visions, 2012-2013
Heather Dewey-Hagborg
Found genetic materials, custom software, 3d prints, documentation
Portrait dimensions: 8 x 6 x 6 in; overall dimensions variable

around in urban landscapes, leaving remnants and detritus was eye-opening. Two years after the release of the project, Parabon NanoLabs and Identitas began marketing genetic phenotyping services to law enforcement which, at the time, had little experience in that realm. The science, Dewey-Hagborg found, was also based on archaic systems of genetic determinism that eerily resembled Galton's ideas of how to selectively breed and eliminate different types of genetic sequences.

Stranger Visions, not only was a premonition of a near future, it became a way to investigate and critique this type of scientific methodology. The 3D printed sculptures resulting from the project also showed unconventional ways of creating contemporary portraiture. In this case, portraiture is not based on immediate vision – the subject is inaccessible to the artist in plain sight. Rather, the portraits are created from a genetic makeup. The artist's work must go through a specific inside-out process that is all the more enthralling yet distressing in a time when "pattern recognition and algorithms are replacing ethics.[5]"

Dewey-Hagborg has displayed these sculptures in a simple fashion that resembles what one might find in a science museum. Certain aspects of the DNA are pulled to first create a 3D computerized rendering of a person that includes the haplogroup (e.g., Northern European or Spanish), eye color, hair color, potential weight, and skin color. The viewer is left to wonder and question how their body may or may not be surveyed in relation to others. The project is meant to show the effects of surveillance on the human body and reminds the viewer that each body may be subject to analysis and examination. The sculptures are lit brightly from above, with shadows on both sides of the face. The likeness of each portrait may begin to resemble a stranger we may have seen in passing. The sculptures possess a look of indifference, as if they were captured deliberately to look unaware, disengaged, and devoid of life. But they are also speculations based on the genetic material of specific individuals. The viewer cannot help but make judgements on, or espouse a type of connection to, a face they do not know. A mass of memory, cognition and experience is bundled up tightly into an actual human body, but the visualization – the face – proves powerful. *Stranger Visions* becomes an evocative look into the categorization that is a consequence of genetic phenotyping.

A couple of years later, *Stranger Visions* prompted Paper Magazine to look for an alternative portrait of the American whistleblower Chelsea E. Manning. In solitary confinement, having undergone gender transition, Manning was forbidden to share her image with the media, denied the ability to share her actual likeness and humanity with the world. During her incarceration, Manning was able to send cheek swabs and hair clippings to Dewey-Hagborg. Collaborating remotely, they began to explore how DNA phenotyping could produce a likeness that would give the world a sense of Chelsea E. Manning, as she wanted to be seen. Despite the limitations of phenotyping, working on

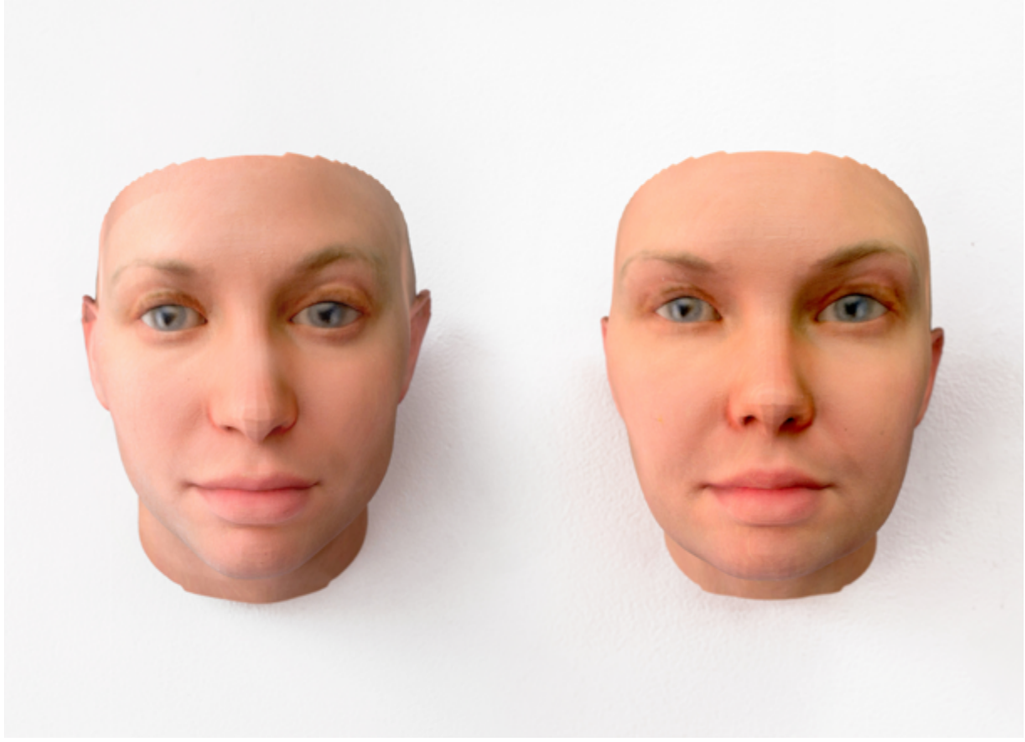
the self-portraits – called *Radical Love* – was a way for Manning to engage in an imagining of herself. The suppression and oppression of trans women around the world could not have been more evident in Manning's case.

In the United States – deeply fraught with conservative politics and draconian legislation in relation to women, women-identified, immigrant, gender non-conforming, Muslim, Latinx, and disabled bodies – the truths that people are unwilling to accept have become visible. As a social justice activist, Manning has helped create the resistance so desperately needed to dismantle these structures. *Radical Love* has become crucial to the discussion of the relationship between art and biotechnology, because genetic sex was not used as a fixed parameter in creating the renderings and the resulting physical portraits. Rather, one portrait was created as gender neutral while the other was set with the parameters of "female." The question then arises: is DNA phenotyping an accurate representation of a human being?

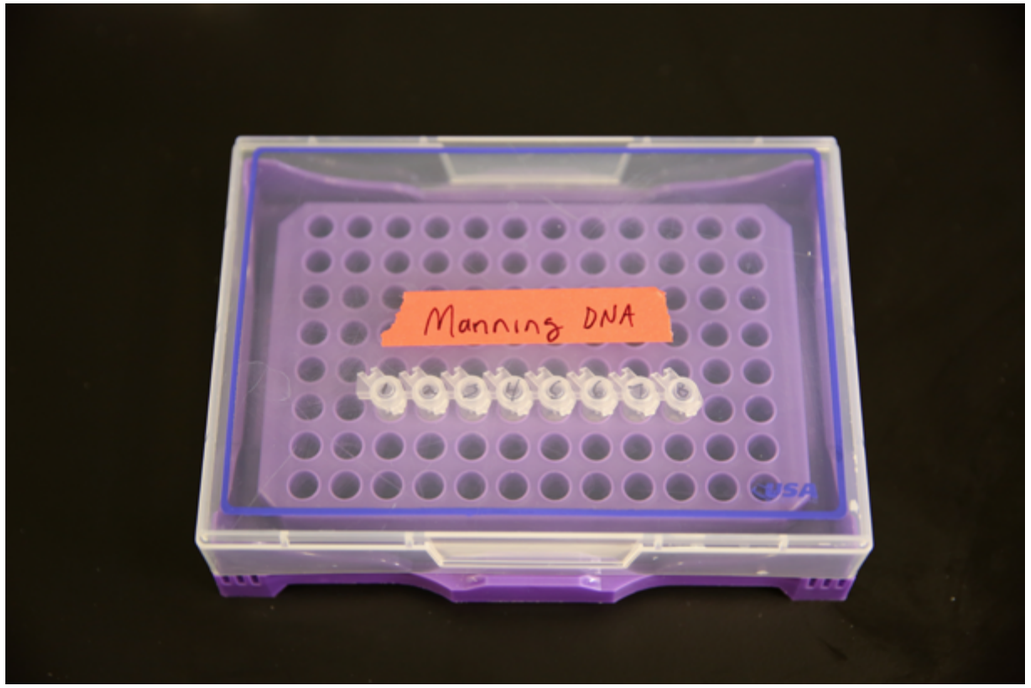
Subsequently, Dewey-Hagborg and Manning collaborated with illustrator Shoili Kanungo to create *Suppressed Images,* a graphic short story that chronicles the making of *Radical Love* and a speculative future wherein Barack Obama commutes Manning's sentence. The morning of January 17, 2017, the story was published, and later that day, the seemingly improbable event happened: Manning was granted commutation. Perhaps, that was the goal of speculating the best possible outcome. Dystopic speculative writing tells the reader hard truths about the future of science, government, and humanity; but it can also afford the optimism we want.

Speculative practice appears prominently in the exhibition. The process of DNA phenotyping in Dewey-Hagborg's work may serve as a cautionary tale of the potential of biotechnology and surveillance. Yet it may also reveal certain positive aspects of humanity and prompt us to engage in more ethical practices. The artist has called this work a look into a type of "genetic intimacy." In the centerpiece of the exhibition, *Probably Chelsea,* all of the original renderings from *Radical Love* are produced as sculptural works, which are exhibited at eye level to the viewer. Each iteration is based on Manning's DNA. Dewey-Hagborg provides a persuasive argument that we have far more in common with each other than we would like to think: "as humans we have so much more in common genomically than we have variance, and this evokes a solidarity; on a molecular level, we are all Chelsea E. Manning."

> "We are far beyond a nostalgic quest for some mythically originary body – all such quests in this century have been tied to fascist disasters. The contribution of critical theory has been to show that the body has always been mediated by the structured and structuring function of language, and, since the Enlightenment, by a particular form of Reason. One task before us now might be to collectively envision counter-bodies to the body of pan-capitalist spectacle. That is, we could imagine ways in which lived bodies could speak, could be represented, other than as



Radical Love, 2016
Heather Dewey-Hagborg
Genetic materials, custom software, 3d prints, documentation
Portrait dimensions: 8 x 6 x 6 in



Documentation
Radical Love, 2016
Heather Dewey-Hagborg

Documentation
Radical Love, 2016
Heather Dewey-Hagborg

commodities in an endless chain of equivalencies.[6]"
Presciently written in the early aughts, Lucia Sommer's declaration asks us to transcend the antiquated and binary thinking that goes into the control of human bodies. She challenges us to create counter-bodies, to critique and overcome the dominant systems refusing to protect us.

Dewey-Hagborg and Manning take a look from the inside-out. Their work re-frames the conversation from "authentic likeness" and "acceptable bodies" to a new set of ethics required to take greater care of humanity, especially of those most vulnerable to gender-based violence. From an individual to a collective consciousness, complex questions loom. How do we prevent genetic material becoming a sought-after commodity? Other than our genetic make-up, what other data or information do our bodies hold enabling identity formation? How can we navigate and protect ourselves from the inevitable future forms of policing with blatant disregard of bodies the government has demonstrably proven it does not want to protect or value?

[1] https://www.theverge.com/2017/5/16/15643638/chelsea-manning-trans-woman-community

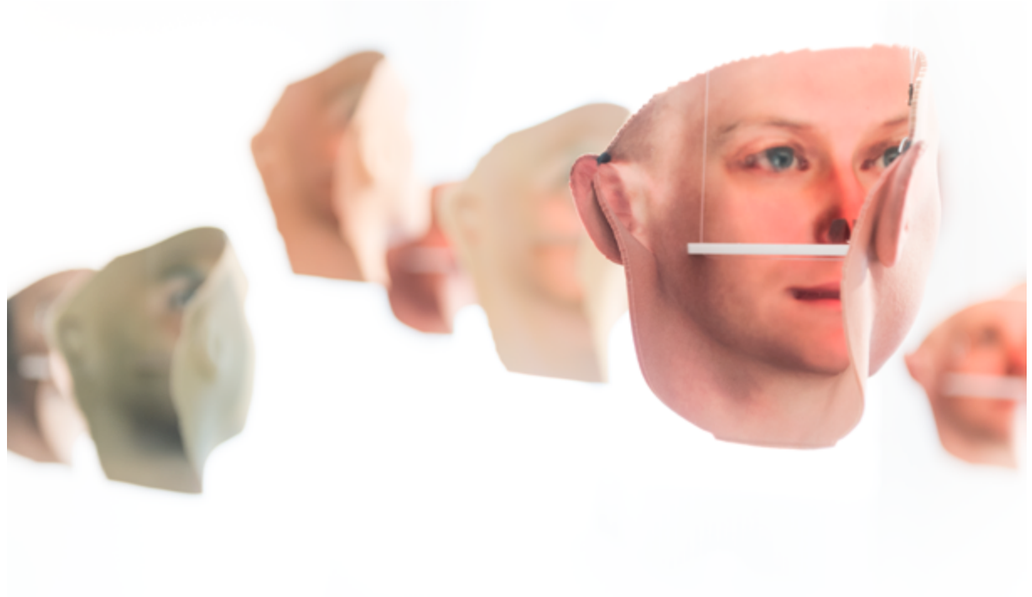
[2] *Black Transparency: The Right to Know in the Age of Mass Surveillance.* Metahaven. 2015. Sternberg Press (Berlin), xi-xii.

[3] Ibid.

[4] *homme moyen* defined as "ordinary man"

[5] Metahaven, *Black Transparency.*

[6] *Domain Errors! Cyberfeminist Practices,* 2002. "In/Visible Body: Notes on Biotechnologies' Vision" by Lucia Sommer. Autonomedia (New York), 131.

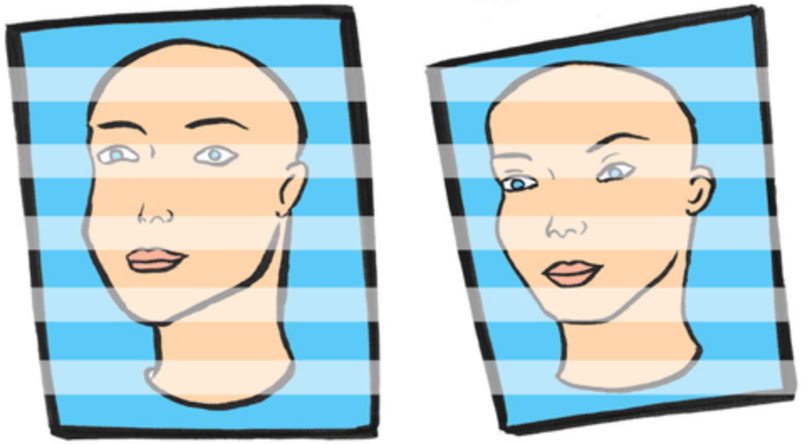


Probably Chelsea, 2017 [detail]
Heather Dewey-Hagborg and Chelsea E. Manning
Thirty possible Chelsea's generated algorithmically from her DNA. 3d Prints
Dimensions variable

In 2015, Chelsea E. Manning and artist Heather Dewey-Hagborg collaborated on an artwork titled *Radical Love*. In this work, Heather created portraits of Chelsea based on DNA extracted from her hair clippings and cheek swabs.

Suppressed Images is a graphic short story illustrating how this collaboration took place and imagining what future might unfold.

This story was published the morning before Chelsea's commutation was announced, and we are delighted that the future we envisioned finally came true with her release on May 17, 2017.



SUPPRESSED IMAGES

Written by Heather Dewey-Hagborg & Chelsea Manning

Illustrated by Shoili Kanungo

Heather: In 2015, Paper Magazine contacted me with a proposal—they asked if I would create a DNA portrait of the American whistleblower Chelsea Manning.

We can't photograph her as she is incarcerated. We thought your DNA portrait approach could help?

Chelsea: I'm currently living at the United States Disciplinary Barracks, at Fort Leavenworth, Kansas. I have been in the military prison system since May 2010.

Heather: Chelsea is serving a 35 year sentence for information she made public that exposed, among many other things, the scale and prevalence of torture and civilian deaths in the Iraq and Afghanistan wars.

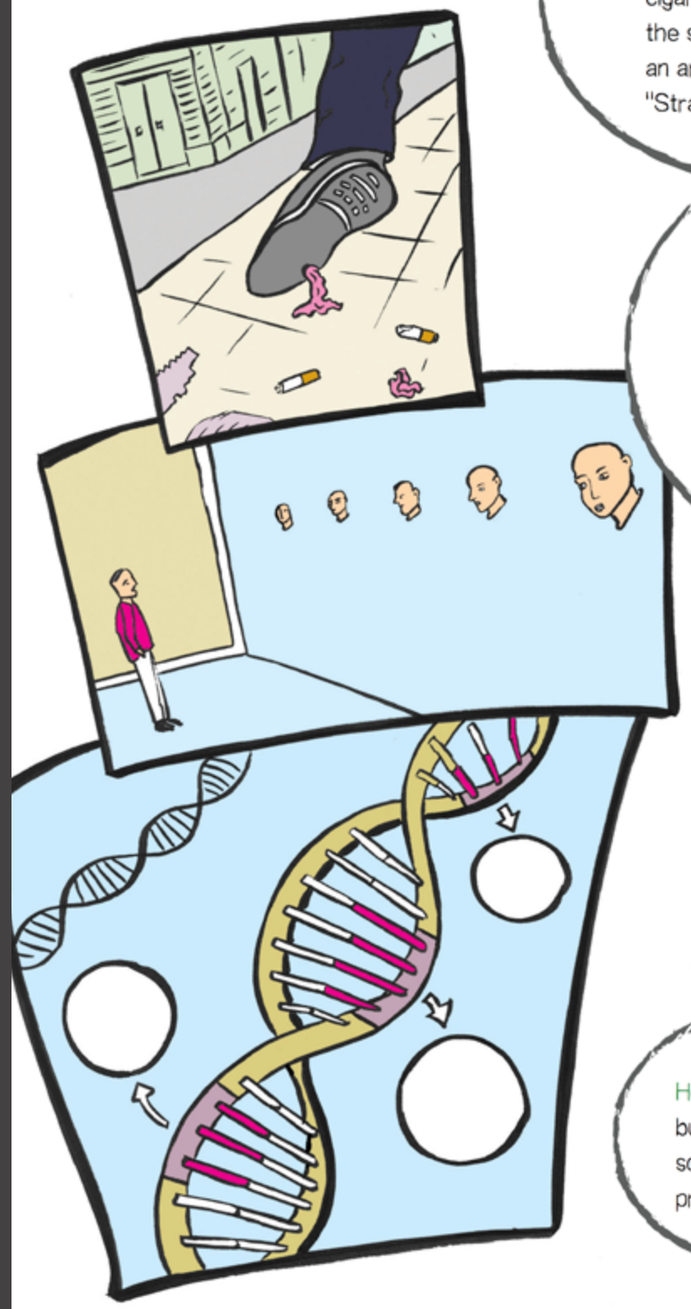
Due to a strict policy on visitors almost no one has seen her since she transitioned from male to female while at the prison.

Chelsea: Heather realized that a DNA portrait could give me back some of the visibility that I have been stripped of for years.

Heather: And I was thrilled at the prospect of working with her.

Heather: I had made DNA portraits before from chewed up gum and cigarette butts I found on the streets of New York in an art project titled "Stranger Visions."

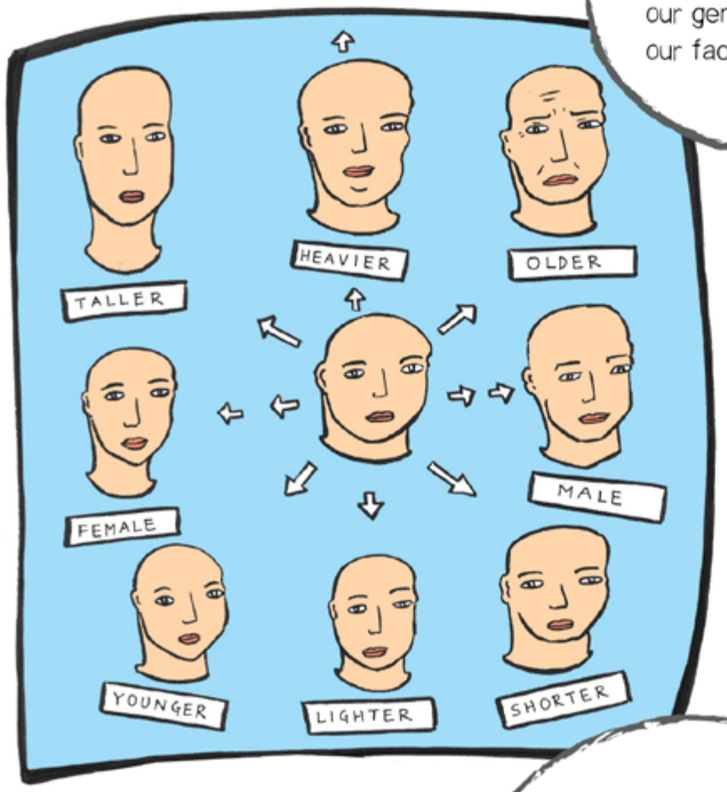
The process I use is called DNA phenotyping. It's an emerging technique that puts clues about a person's genetic traits together to create a composite representation.



Chelsea: The technology used has a lot of promise, right?

Heather: Yes, but it also has some serious problems.

Chelsea: Like we haven't figured out how our genetics works with our faces?



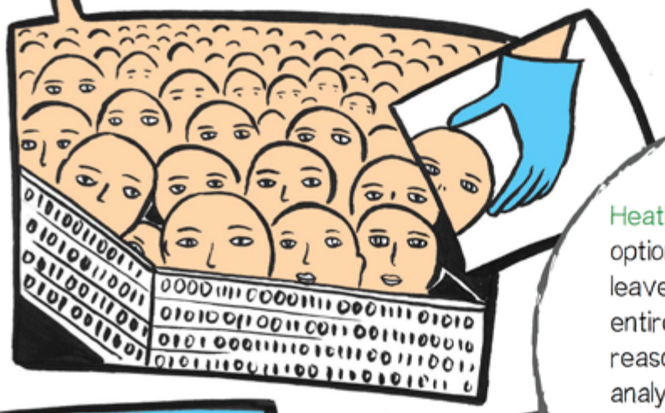
Heather: Yeah. And some scientists think we might never know! A lot of it is just guesswork, or stereotyping based on ancestry and sex.

Chelsea: So I grabbed some clippings next time I got my hair cut, and I took some saliva samples with a Q-tip and mailed them out of the prison.

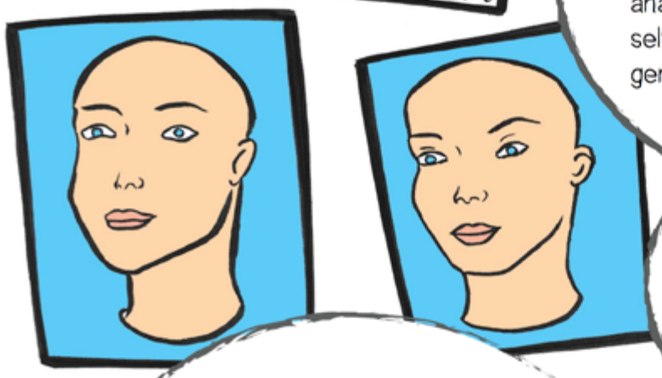
Heather: Then I extracted the DNA and sent it for sequencing.

Heather: And I generated a handful of different possible faces based on the data and then chose the one that I thought was the most compelling.

Chelsea: Right, and I had a little bit of say in the selection. I didn't want to look too masculine.



Heather: There were two options that I thought of. I could leave the sex parameter out entirely. There really wasn't any reason to deem it worthy of analyzing. Or we could go with self-identified gender over genetic sex.



Chelsea: Either could be a powerful choice.

Heather: So I created two portraits, one gender "neutral" and one "female."

Heather:
I wanted to send prints to Chelsea but I was worried it would get her in trouble. I wrote her a letter to ask if it was ok.

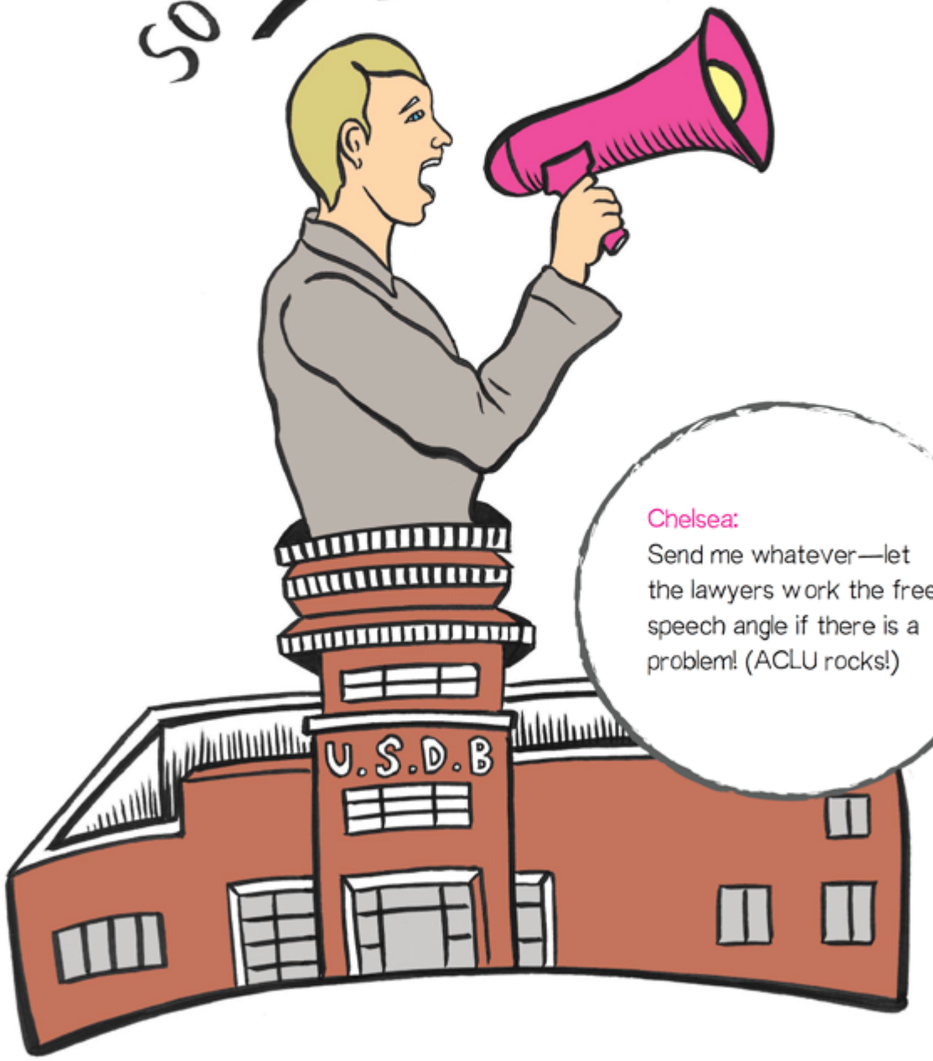
August 21, 2015

Dear Chelsea,
I was so excited to receive the request from Paper to work on your DNA portrait! Your courage is truly an inspiration. But I was so disturbed recently to hear about the harassment and warrantless penalization you are receiving for the magazine and toothpaste. I want to send high quality prints of the two versions of the portrait I generated of you but now I am concerned that it might be considered problematic and get you in trouble. Please let me know, I would be very happy to send you the two portrait prints - but only if it is safe.

Best,
Heather Dewey-Hagborg

Heather:
I couldn't believe her bravery and optimism when she wrote back:

WHEN THEY CHILL YOUR SPEECH
Then they've won-
SO NEVER SHUT UP



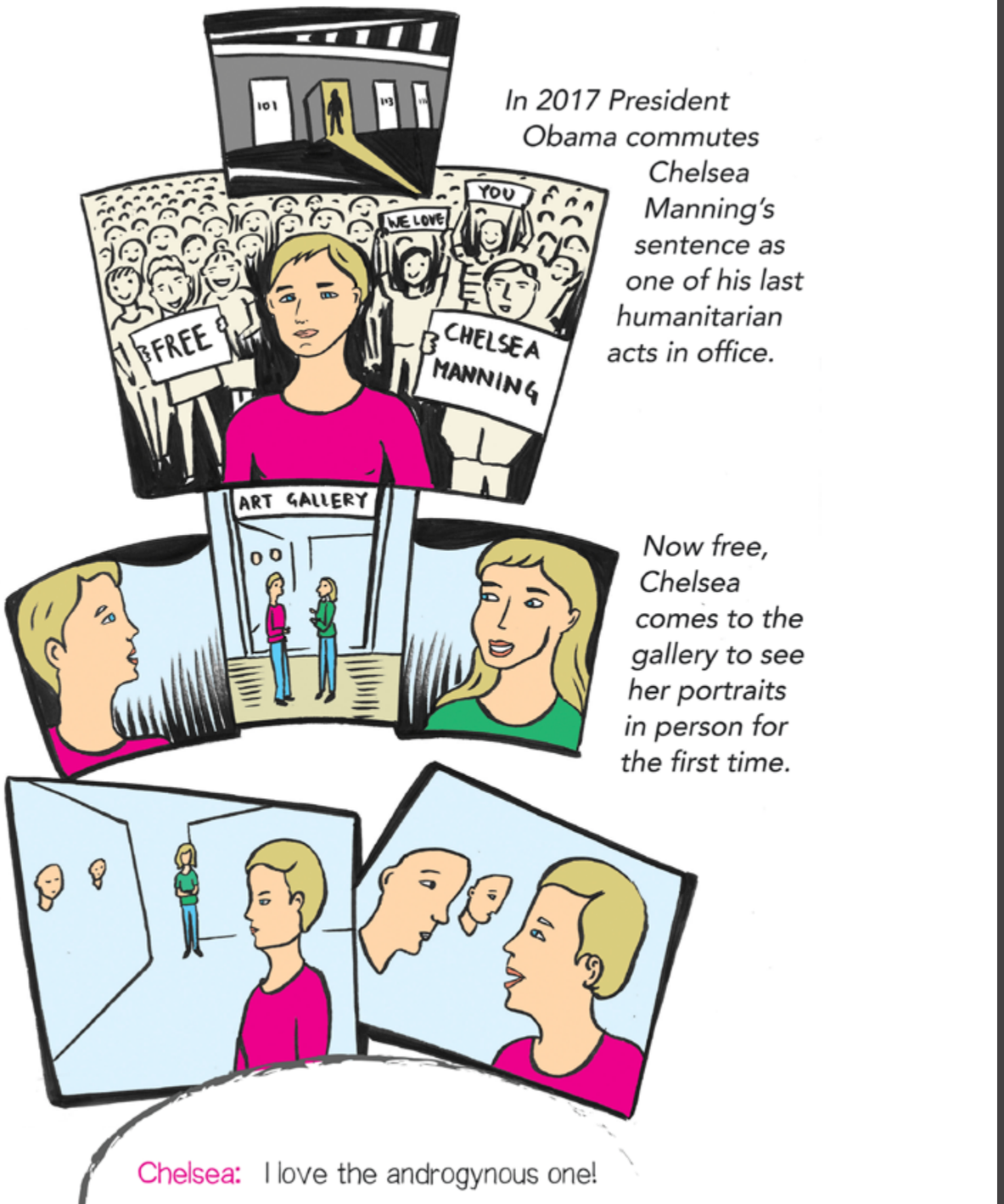
Chelsea:
Send me whatever—let the lawyers work the free speech angle if there is a problem! (ACLU rocks!)

Heather: The 3D printed versions premiered at the World Economic Forum in 2016.

Chelsea: They gave a kind of visibility back to me.

Heather: At one of the most elite and inaccessible events of the year, at that. And now, the portraits continue to travel the world.

Chelsea: But, I still haven't seen them in person.



Suppressed Images: Frame #10, 2017
A graphic short story written by Heather Dewey-Hagborg and Chelsea E. Manning, and illustrated by Shoili Kanungo

Roddy Schrock works the frontier where tech, art and society collide. He helps launch inventive and critical projects as an independent exhibition organizer and as Director of Eyebeam, an influential non-profit dedicated to supporting visionary early-stage artists and technologists. In addition to his work since 1999 as a digital artist, Roddy has toured, spoken and curated widely. His essays have been published by MIT Press and appear regularly in multiple spaces. He acts as adjunct faculty at SVA and previously at NYU's Interactive Telecommunications Program. He has taught at STEIM (Amsterdam) and sits on the Netherland-America Foundation Cultural Commission. He received an MFA from Mills College and a certificate in Sonology at the Royal Conservatory of the Hague. He makes Brooklyn home where he lives with his partner Joon and their rescue dog.

Dorothy R. Santos is a Filipina American writer, editor, curator, and educator. Born and raised in San Francisco, California, she hold's bachelor's degrees in Philosophy and Psychology from the University of San Francisco, and received her master's degree in Visual and Critical Studies at the California College of the Arts. Her work appears in *art21, Rhizome, Real Life Magazine, Vice Motherboard,* and *SF MOMA's Open Space.* Her essay "Materiality to Machines: Manufacturing the Organic and Hypotheses for Future Imaginings," was published in *The Routledge Companion to Biology in Art and Architecture*. She is pursuing her doctorate in Film and Digital Media at the University of California, Santa Cruz as a Eugene V. Cota-Robles fellow.

Shoili Kanungo is a graphic artist and designer based in New Delhi. Her surreal picture stories have been published in The Indian Quarterly. She has also made a collaborative comic with The Safai Karmachari Andolan, a movement which aims to eradicate manual scavenging in India. Shoili has studied Philosophy at Delhi University, following which she was an exchange scholar at Tokyo's Soka University, and eventually gained a Master's in Design from the University of New South Wales in Sydney. At present, she is a part of the team at Thoughtworks India and newsclick.in.

Heather Dewey-Hagborg is an interdisciplinary artist and educator. Her controversial biopolitical art practice includes the project *Stranger Visions* (2012) in which she created portrait sculptures from analyses of genetic material (hair, cigarette butts, chewed-up gum) collected in public places. Dewey-Hagborg has shown work internationally, including at the World Economic Forum, Shenzhen Urbanism and Architecture Biennale, the New Museum, the Centre Pompidou and MoMA PS1. Her work has been widely discussed in the media, from *The New York Times* and the BBC to TED and *Wired.* She is an Assistant Professor of Art and Technology Studies at the School of the Art Institute of Chicago and a 2016 Creative Capital award grantee. She is also an artist and resident at Data & Society.

Chelsea Elizabeth Manning is an interdisciplinary artist and network security expert. In 2015, she collaborated with Heather Dewey-Hagborg on *Radical Love,* an homage and exploration of gender identity stereotypes in forensic DNA phenotyping. The installation premiered at the World Economic Forum in 2016, and has since toured in Berlin and New York. The full color life-sized 3d printed portraits of Chelsea E. Manning were generated from analysis of her DNA, extracted from cheek swabs and hair clippings sent to the artist from Chelsea through the mail. The duo's next creation was *Suppressed Images,* an online comic book detailing the experience of creating *Radical Love.* Chelsea was recently profiled in *The New York Times Magazine.*

Heather Dewey-Hagborg & Chelsea E. Manning

A Becoming Resemblance

Curated by Roddy Schrock

August 2 - September 5, 2017
Fridman Gallery
287 Spring Street
New York, NY 10013

Fridman Gallery
Director: Iliya Fridman
Associate Director: Lindsay Jarvis
Design Director: Naroa Lizar

Catalog
Essays: Roddy Schrock, Heather Dewey-Hagborg and Dorothy R. Santos.
Graphic novel: Heather Dewey-Hagborg, Chelsea E. Manning and Shoili Kanungo.
Photography: Paula Abreu Pita (pp.2-3, 6, 8-9, 12, 14-15, 17, 24, 25, 26-27, 41, 58-59), Thomas Dexter (pp.35, 36, 37, 38-39), Heather Dewey-Hagborg (p.32).
Design: Naroa Lizar

Kindly supported by Creative Capital, Shapeways, and the Foundation for Contemporary Arts Emergency Grant. With thanks to NYU's LaGuardia Studio, ITP, Data & Society, and Thoughtworks Arts. Special thanks to Lisa Rein, Josh Kill and Leah Gauthier.

ISBN 978-1-64136-787-5