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Volti artificiali
Artificial Faces

L'enigma dei volti artificiali è che non esistono volti completamente naturali, eppure non esiste volto che non sia anche naturale. I simulacri di volti, indipendentemente da come vengano creati — disegno, pittura, scultura, fino alle creazioni algoritmiche delle reti neurali — in fondo devono sempre basarsi su volti biologici preesistenti in qualche tempo, in qualche spazio e in qualche modo. Al contempo, ognuna di queste facce biologiche presenta un fenotipo che è influenzato dal linguaggio, dalla cultura e dalla moda, a inclusione della stessa moda dei simulacri facciali. I nostri ritratti rimandano a volti naturali, ma questi si atteggiano spesso prendendo quelli a modello. Lo studio semiotico del volto non può però limitarsi a proclamare questo enigma. Deve anche sviscerarlo. Deve, per ogni categoria e caso di volto significante, delineare la soglia tra natura e cultura, trasmissione genetica e linguaggio.

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Transhuman Faces in the Transurban City: Facial Recognition, Identity, Resistance

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Abstract: Images of Hong Kong protestors tearing down facial recognition towers to avoid being identified by the authorities started circulating online in September 2019, quickly becoming a symbol of the technological dimension of contemporary struggles against power. While, on the one hand, devices aiming at dissimulating faces from facial recognition systems are multiplying, on the other the COVID-19 pandemic has transformed surgical masks into some mainstream garment. Within the framework of *transurbanism*, the present paper aims at exploring the complex relations between faces, technology, and urban spaces with transhuman technologies and smart cities. Such relations highlight several key junctions: issues of identity and self-expression, problems of surveillance and strategies of resistance, semiospheric changes, and new frontiers for the writing and creation of the face.

Keywords: Semiotics; Design; Cyborg; Machine-Readable; Wearables

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1. Please consider the sections 1, 2 and 5 as written by Mattia Thibault and sections 3, 4 and conclusions as written by Oğuz "Oz" Buruk.

1. Urban Visages: Faces and Facades

The aim of the paper is to explore the tensions that arise between self-expression and surveillance due to the growingly pervasive presence of facial recognition systems. In particular, we will focus on the strategies of face-writing that are realised by activists, artists, and citizens to hinder face-recognition.

The face itself is a biological fact, and the ability to recognise faces is, in a way, "presemiotic", an innate ability that precedes and form of language. Nevertheless, the visage is at the centre of many cultural and textual constructions, it is invested by many practices and becomes a highly collateralised object of meaning.

The semiotics of the face, which studies the meaning of the face and around the face, has a long history, including Barthes analysis of the visage of Greta Garbo (1957) and the explorations of faces and communication by Patrizia Magli (1996 and 2013).

Some of the most important works dedicated to the face are those by Emmanuel Levinas (1961), who describes the visage as the fundamental feature that we use to communicate our humanity — and to receive the humanity of others. Deleuze and Guettari (1980) criticize this perspective, claiming that it describes only a reality of Western cultures and not a human universal. The *visageité*, they explain, determines a normative perception of what the faces are and what is their role in culture and communication.

Levinas, nevertheless, proposes several useful theoretical tools to understand the semiotics of the face, among which the difference between "face" and "façade". The façade is the front of a building: it is something that is constructed and completely under control, there is no necessary correspondence between the insides of the building and its façade. The face, on the other hand, is never completely under control. We can indeed lie with the face (which proves that it is, after all, a semiotic object), but at the same time it often communicates something against our will. Like children that cannot avoid laughing, giving away their innocent attempt to prank their parents, metacommunicating, unconsciously, their playful intentions (Bateson 1955) — unless until they will learn to put up a *poker face*. But despite all the training, the face escapes its owner: sometimes it betrays them, it reveals something that they would rather keep secret and,

by doing so, it makes them *lose their face* (Magli 2013). The face, after all, is our primary public interface (Parret 1990) and "losing" it means losing one's credibility.

If we look at the faces present in that amazingly sophisticated semiotic device that is the city (Bathes 1967; De Certeau 1980; Volli 2008), it is easy to notice that the urban spaces are filled with them. We have faces represented on statues, peeking out from graffiti, sculpted in the fonts of old buildings, smiling at us from advertisements and electoral posters and so on and so forth. Between these represented faces, circulate the faces of the citizens, so many that they almost erase each other, each one of them being simply a "face in the crowd", censored by accumulation.

But this overabundant hub of faces is also the space in which we encounter the other, in which we recognise one face among many, and in which we are often compelled to show our own, at least in the West. Because the (bio)politics of the face vary greatly according to different cultures. In many countries wearing a mask, be it for religious reason or as a protection from pollution, is a quite ordinary thing. In the West, however, the face has often been perceived as a boundary of the semiosphere. Covering it and wearing a mask has been a practice reserved to people that live on the boundaries: of thieves, bandits and superheroes that live outside of the law, of immigrants that are perceived as outside the hegemonic culture, and of other groups acting at the peripheries of culture.

This complex interrelation, however, is now quickly evolving while our cities are becoming increasingly "smart" and able to observe, individuate, recognise, and record human faces. These tools of surveillance are already eliciting, however, responses and resistance, often making use of technological augmentations of the faces. This paper, therefore, will put into place a multidisciplinary approach, that draws from semiotics, HCI and design, to investigate the current developments in countering facial recognition as well as the additional disruption provoked by the widespread used of surgical masks due to the COVID-19 pandemic.

2. Transurbanism and facial recognition

Transurbanism is a framework that combines the perspectives of the smart city and those of transhumanism to reflect upon the possible re-

lationships between technologies capable of augmenting human beings and the urban spaces, wondering how such technologies will affect the lives of citizens and the development of cities (Thibault *et al.* 2020).

Transhumanism itself, is based on the idea that humans have some limits, have some specific ability or competences, and envisions a future in which these abilities are extended in ways that we can barely imagine right now. Transhuman technologies, in a nutshell, can be defined as technologies which are embedded into our bodies for enhancing the physical, sensory, cognitive, and emotional skills of human beings (Bostrom 2005).

Body improvements are probably the most commonly represented. They could allow humans, for example, to live much longer than currently possible (Bostrom 2014). Transhumanism imagines that, maybe, the human life span could be expanded of centuries or even to reach immortality. Other examples drawn from transhumanist literature deal with the implementation of new technologies that will enhance human sensory modalities. Future humans might see farther, hear better or sense the environment through their skin in a more sophisticated way than we do now. Transhumans could be sensibly stronger, maybe have additional robotic limbs and start carrying impossible weights. They could walk or run at a high pace without feeling any fatigue.

The cognitive enhancements are generally imagined increasing the intellectual capacity of human brains when embedded with electronic chips (Vita-More 2016). They envision an improved "processing power", a limitless and flawless memory, or even the ability to connect minds to internet and create an "Internet of Humans".

The emotional enhancements envisioned by transhumanists are meant to improve moods and self-control. Humans could always be in a desirable emotional state and never feel distress. Or they could alter their emotional state according to different kind of situations and triggers. Or even feel emotions and experiences that cannot even be imagined today (Schneider 2008).

These theories are quite clearly rooted in ideologies of eternal growth and on an approach to technology that we could define as very enthusiastic. Their understanding of the human being is also a reductionist one, that put forwards the physical morphology of the human body and tend to dismiss — or at least ignore — the cultural constructions that guide our cognition, emotions, and sense of self. Nevertheless, the integration

of technology in the human body it is something that has already started with all the wearable or medical technologies already being integrated into our bodies.

Despite all this legitimate criticism, we still believe this framework as something to offer, at least to academic inquiry. In particular, it offers us a lens to look at some of the possible effects that technology might have on several aspects of human life, society and culture. While this technocentric view might not be the one coming into being, future technologies will probably have a huge anthropological impact — as it always happened in the past. The aim of *transurbanism* then, is to foster a discussion on what consequences these changes will have on future cities, as well as a lens to study the changes that are already underway. The aim of the framework is not to attempt doing some *future studies*, but on the contrary to use a poetic and creative distancing from reality (Dunne 1999) in order to gain insights on the relationship between cities and technology and on the new cultural spaces it affords.

In practice, the transurban framework joins together some of the main facets of smart cities, such as design, management, and their semiotic, cultural and social aspects, and imagine how they might interact with the new abilities of transhumans in terms of physical, cognitive, and emotional enhancements (Thibault *et al.* 2020). Transurbanism, in that sense, is a framework which tries to understand how cities will develop, be planned and managed when the inhabitants of the city are transhumans. The Transurban framework tries to reveal the opportunities and challenges when the enhanced physical, cognitive and emotional abilities of transhumanism meet with the managerial, societal and managerial aspects of the city (*ibidem*).

To do this requires acknowledging the fact that the city is a very complex semiotic device. It is an engine of meaning-making, and it is a living intersection of many practices, textualities and signs that converge, coexist, and become the context of one another, generally increasing each other's meaningfulness (Volli 2008). Cities are — and have always been — very rich ensembles of semiotic activities and interpretation and practices.

Today's cities, however, are acquiring a new dimension, that was unknown to the traditional city. The cities are becoming "smart", following a global strategy that aims to make them more efficient, to increase the control of the municipalities over the spaces they manage and to trans-

form the citizens' action into data. While they might not be yet properly transurban, today's cities are being filled with all sorts of sensors capable of measuring air or water quality, tracking traffic levels, issuing speed tickets, filming the streets and recognising citizens by their faces. This entails that the city is increasingly acquiring a *sensory dimension*.

If we look at the sensory relationship between citizens and cities, in the traditional urban spaces people used to be the *actants observers*. They used to be the ones that, moving around the city, would look at it, would interpret it, would make sense of what they saw. The smart city partly changed this. While citizens still look at the city, now the city *looks back*. It uses all its sensors to "look" at its citizens all the time, to track what they are doing, where they are going and who they are. It becomes a panopticon city. Facial recognition is rapidly becoming an important part of these tools of mass surveillance. Citizens, then, stopped being only actants observers and become *actants observed*. Still actants — as everything they do, even their mere presence in the city, is (and is interpreted as) an action. Being recorded and identified by smart city technologies while being in a certain place, in a certain neighbourhood or at a certain event (e.g., a protest) or with certain people are all considered as actions and can have consequences.

Citizens have always been observed in the city — by passers-by, shopkeepers, law enforcement etc. — but they are for the first time being observed by the city. However, the panopticon city that we are building, is not always welcomed with enthusiasm by the citizens. Not all citizens are willing to let the smart city tracking them and several strategies of disruption are emerging around the globe. Images of Hong Kong protesters tearing down facial recognition towers to avoid being identified by the authorities started circulating online in September 2019, quickly becoming a symbol of the technological dimension of contemporary struggles against power. Technologies capable of recognizing citizens by "looking" at their face are now becoming part of the urban fabric but citizens do not always accept it without putting up a fight.

If we look at the strategies that citizens are putting in place to attempt to escape these forms of surveillance, we will see that the destruction of sensors and facial recognition devices is only one among many. An other strategy entails the use of devices and technologies to alter their bodies — and, in particular, their faces — to make themselves undetectable. In a

way, as a response to the smart city becoming a panopticon city, they step up in the technological struggle and they start moving in the direction of transhumans.

3. Enclothed Cognition and the Writings of the Face

Technologically altering the visage, "writing" it and on it, is not a consequenceless endeavour. As we mentioned above, the face is our interface with others, our primary social image. Altering the face, moreover, changes the perception that we have of ourselves and can influence our identity and behaviour.

Enclothed cognition is term derived from psychology indicate in what terms clothes affect our perception about ourselves. In a rather famous study (Adam and Galinsky 2012) an experiment was put in place to investigate these effects. The set up involved three different groups of participants who all received a white lab coat. The first group was told that the coat was a "doctor's coat" and that they should wear it. The second group, instead, was told that the same lab coat was in fact an "artist's coat" and they were too invited to wear it. The third group was also told that the coat was a doctor's, but that they should not wear it but just put it on the tray and look at it. Once all the groups were set up, the researchers made them undergo several tests to understand their attention span, finding that the participants who thought they were wearing doctors' coats showed heightened attention to the tasks that were given to them. This experiment (and a few similar ones, cfr Van Stockum and DeCaro 2014) showed that what we wear — and most importantly, what we think we are wearing — can indeed influence our identity and behaviour. The appears to be an element of *mimicry*, in which people feel like they are impersonating a scientist and end up behaving accordingly.

A similar element of mimicry emerges sometimes in face-writing. Despite the biological, pre-semiotic elements behind our ability to see and interpret faces, the latter are not something "natural". Faces are something that we create that we craft, with our control (albeit limited) over what they express, that we support and contextualise with clothing and that we can quite literally draw upon. Using make-up is an extremely old practice across many cultures. It involves the colouring, painting, and redrawing

of facial features to achieve a culturally determined aesthetic effect — related to seduction and/or to the expression of a group identity (let's think of punk or goth subcultures). Make up can also indicate what kind of social situation one is in (a funeral, a job interview, an evening out) as well as one's profession (being a sex-worker or an actor, for example).

Similarly, wearing and shaping hair, beards and moustaches can have similar effects. Haircuts can indicate one's gender, apparent age, religion — even political beliefs (for example hippies' long hairs). Beards according to how they are cut can represent manliness or one's sexual orientation, they can identify someone as a hipster or as practicing a specific religion, and so on.

What we draw on our faces, how we prepare them and "make them up" has a big role in the construction of our identity, both intimate and public.

There are however other forms of face writing that are very common without being somewhat exceptional: those related to playfulness. Caillois (1967), after all, indicated in mimicry and in masks one of the major forms of play. We have then people painting their faces in the colours of their team or nation at sporting events. People painting rainbows on their cheeks during pride parades and other moments of playful-but-serious political protest. We have, of course, carnival and Halloween as well as *cosplay*: in all these cases people draw on their faces in temporary but extensive ways.

Extensive face writing that last longer do exists — such as face tattoos — but they still encounter, some stigma, at least in Western culture. Face tattoos, most often then not, are seen as identifying the owner as someone that is likely to be a criminal or a thug — and makes quite difficult for them to find jobs (Antonellis and Silsbee 2018).

Any strategy that aims to avoid facial recognition technologies by covering and modifying the face, then, as to be read in this context. Re-writing the face, at least in some measure, reshapes the identity of the individual, their own perception of the self as well as the image they cast of themselves.

4. Structures and Strategies of Resistance

In order to systematise a short collection of strategies that resists facial recognition, let's first outline a simple schema of the elements involved in this bi-planar system, we have:

— A sensor that perceives the presence of faces in the public spaces and records them.
— The actual faces physically present in the urban spaces. These work as the plan of the expression.
— A series of pre-recorded patterns that automated systems will use to identify a face (in a context in which everything else that is not a face is considered noise) and then to recognise it (determine to which single individual that face belongs). These patterns are created by algorithms and by previous captures and stored in the system. This works as the plan of the content.

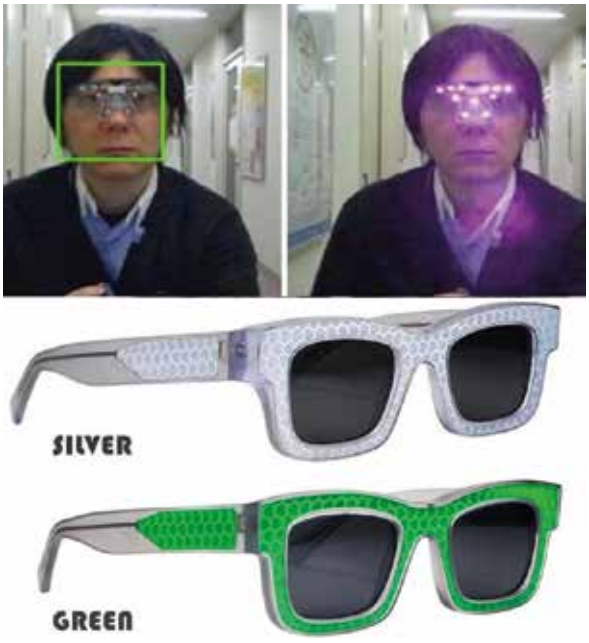
We have, therefore, three key elements that can be disrupted to avoid being recognised: a perception, a presence and a pattern. According to these three elements we can articulate three possible strategies of face writing that hinder facial recognition:

— Wearing *Dazzlers*: i.e. devices that hinder the perceptivity of the sensors.
— Wearing *Side trackers*: i.e. devices that exploit the pattern to trick the facial recognition system.
— Using *Camouflage*: i.e. devices or techniques that hide the presence of a face in the urban environment or make it indistinguishable.

4.1. *Dazzlers*

Dazzlers are devices that focus on temporarily disabling the ability of the smart city sensors to perceive their surroundings. In a way, they are a non-destructive equivalent of tearing down facial recognition towers and cameras. As they do not require action on the devices themselves, but are forms of face writing, they generally take advantage of the fact that facial recognition technologies make use of infrared light, which humans cannot see — and therefore are not bothered by.

Some dazzlers are wearable objects that project infrared light, so that sensors would be blinded by the wearers' faces. The *Privacy Visor* by Isao Echizen, some sort of glasses with several projectors around the eyes, works exactly in this way (Fig. 1).



Figures 1. and **2.** Echizen (2013), *Privacy Visor* (top); *Reflectacles* (2019) Ghost.

Simpler dazzlers are made of materials that reflect infrared light, to achieve a similar effect. *Ghost* by Reflectacles, for example, look like more or less normal sunglasses, while at the same time being able to blind facial recognition sensors (Fig. 2). These first examples highlight an interesting duality in the way facial devices against facial recognition communicate themselves. Some of them politically display their purpose: they are objects that are clearly made to avoid facial recognition and to tell everybody about it. Other devices, instead, are made in the attempt of making these objects more fashionable: something that looks less like a statement against facial recognition and more like an everyday object — which also hinders facial recognition.

4.2. *Side trackers*

As the patterns memorised by the facial recognition systems are inaccessible and difficult to disrupt, some devices focus on tricking the ability of the machine to recognise these patterns by side-tracking them. These *side*

Figures 3. and **4.** S. Weekers (2017) *Anonymous* (top); A. Harvey (2017) *Hyperface Clothing* (bottom).

trackers do not cover the faces, but they create noise around them, the censor them by accumulation.

In practical terms they are objects that replicate many times the patterns that the facial recognition systems are looking for, so to confound them. This can be made in more or less sophisticated ways. In some cases it presents realistic depictions of faces or facial elements, like in *Anonymous* by Sanne Weekers (Fig. 3), a scarf or hood that covers the head with multiple printed human faces so to make it difficult for machines to understand which one is the one of the wearer. In other cases, the print can be much more abstract, based on a reverse-engineering of the patterns contained in the machine. It is the case of the *Hyperface clothing* by Adam Harvey (Fig. 4). Also, in this case, the facial recognition system will not be able to discern between the real face and the side-tracker.

Both dazzlers and side trackers attempt to hide the faces from the machines, while keeping them ways to recognise for humans. The same rationale is also employed in most forms of camouflage, despite them being, by definition, opaquer.

4.3. *Camouflage*

Camouflage is a simple and old technique, working equally well on human observers and on Smart cities' sensors. Some devices do not differentiate and hide completely the face of the wearer, often making a statement about privacy and identity at the same time. It is the case of *Pixelhead* by Martin Backes, a balaclava whose print looks like a pixelated pace, that poetically imitates a digital anonymisation technique. The *Wearable face projector* by Jing-cai Liu, on the other hand, makes use digital technologies to their own advantage, projecting several moving visages onto one's own (Fig. 5).

However, wearing continuously facial camouflage can cause several problems, both for one's social life and in face of the law — in many continues it is illegal to cover one's face. For this reason, many activists and designers have come up with several different devices that allow to be more or less recognizable by other humans, while camouflaging the face from the machines, like the semi-transparent *Surveillance exclusion* by Jip van Leeuwenstein (Fig. 6).

Figures 5. and **6.** J.-C. Liu (2017) *Wearable Face Projector* (top); J. Van Leeuwenstein (2017) *Surveillance Exclusion* (bottom).

Figures 7. and **8.** A. Harvey (2010) *CV Dazzle* (top); E. Nowak (2013) *Incognito* (bottom).

Other projects attempt to create devices that, besides not rendering the face unrecognisable to other humans, look also fashionable and beautifying. The haircut and makeup by Adam Harvey (CV Dazzle) (Fig. 7) and the jewellery by Ewa Nowak (Fig. 8) propose a way to trick facial recognition without forfeiting a nice and glamorous appearance.

These examples are clear indicators that, when it comes to human faces, the variety of applications is great, because faces are highly visible canvases that express our identity. Although some solutions favour hiding or replacing the face completely, many others modify it, or even go beyond identity protection and add to the self-expression of their owners with their jewellery-like design.

5. From the Panopticon to the Pandemic

The beginning of 2020 added a new layer to the tension between masks and facial recognition. One of the consequences of the COVID-19 pandemic was to greatly increase the use of surgical or sanitary masks around

the world. These devices, whose use was already quite common in Eastern countries, entered peremptorily the Western semiosphere. While covering one face was a peripheral practice — as we mentioned, something that was typical of marginal or marginalised groups — the fact that the use of surgical masks became mandatory in many cities moved it toward the centre of the semiosphere.

It is too early, at the moment of our writing, to know if this change will only be temporary, but we can nevertheless claim that, as these devices are usually wore in public spaces, they do affect how the wearers are perceived in the city spaces and how these spaces themselves are perceived. These wearable technologies, therefore, become part od the urban landscape and participate in the meaning making processes that inhabit it.

As for the devices created and used to resist facial recognition, also surgical masks offer a new surface to inscribe, available for self-expression. Soon after these masks became widespread, the market was flooded with new masks, that looked more fashionable, funny, or just socially acceptable. If, on the one hand, hiding part of the visage endangers the sense of identity, hiding our primary social interface, on the other it allows new ways of presenting and decorating bodies, of enunciating oneself.

Fashionable masks have been produced by several firms, proposing enticing patterns and colours, displaying labels and so on. The masks made by Japanese lingerie label Atsumi Fashion, created with surplus materials from their line of bras, were quickly sold out[2]. The appearance of these masks, inspired by the traditional aesthetics of lingerie, creates some interesting parallelisms with the nakedness of the face, and its sensuous and seductive potential.

During the beginning of the pandemic, it was quite common to see improvised face masks — difficult to say if their playful appearance was on purpose. Due to the shortage of masks arising from the high demand, several inventive ways of trying to protect one faces started to emerge — and often to be captured and shared online. There has been people using water tanks as face shields, bras and sanitary pads as masks, inflatable dinosaur costumes as protection suits. The last example also highlights the aspect of mimicry, intended as a form of play (Caillois 1967), that emerges from the use of masks. The wide spread of the practice of us-

2. https://bit.ly/TransUrbFace1 (last accessed 20 June 2020).

ing masks triggered parodistic uses: people using Darth Vader costumes, Plague Doctor masks, or making their own masks using vegetables and so on. The playful use of masks reflects the so-called ludicisation of culture (Bonenfant and Genvo 2014), and it participates in the creation and expression of identities that are oriented towards playful practices (as nerd, geek, and gamer cultures).

While none of these masks are created with the purpose of contrasting facial recognition systems, the fact that — at least for a period of time — covering one own's visage becomes the norm participates in the struggle against the panopticon city. Many of the several anti-facial recognition devices we have seen above are not very socially acceptable. They are weird garments. But the widespread use of facial masks, offering new spaces for inscribing and expressing oneself, also affords a space to "go weird", to expand and experiment. As there is not yet a stable norm for what a face mask should look like, there is a huge design space waiting to be explored — possibly with a strategic attention to facial recognition.

Interestingly, however, most people could choose on their own to wear masks that identify them. Despite the creative enthusiasm that met surgical masks, and their potential to become tools of resistance, we must note that there are also attempts to find ways of wearing masks without wearing masks. One of the most interesting cases are the Face ID Masks[3]: personalised masks created to look like the wearers' faces, to allow you to "Unlock your devices with a surgical mask that looks just like you". These sorts of projects underline how being "machine-readable" can be considered by some as a desirable feature. When an increasing number of devices uses facial recognition to allow user access, not being able to be recognise by machines can become a disadvantage.

Conclusions

The facial augmentations that citizens are starting to use, be it for defying facial recognition or to hinder the spread of COVID-19, are just a first step in an escalation game. Cities will try to adapt to these devices, and find new ways of tracking them, following them, and perceiving them.

3. https://bit.ly/TransUrbFace2 (last accessed 20 June 2020).

Measures to ensure the face-readability of people wearing masks are already being taken: algorithms capable of recognising masked faces could be already on the way[4].

The attempts to become "transhuman" by wearing facial technologies, therefore, leads the Smart City to become a Transurban City. And considering bodily augmentations are not only about enhancement of functional qualities, we can only imagine what our faces will turn into, what new expressions they will encompass and what the resulting outcome will be in the continuous conflict between the transurban city and the transhuman face.

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